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NURSING INTERVENTIONS FOR THE PREVENTION OF HYPERTENSION IN ADULTS

A LITERATURE REVIEW

Thesis
CENTRIA UNIVERSITY OF APPLIED SCIENCES
Bachelor of Health Care, Nursing
September 2022

ABSTRACT

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Degree programe **Bachelor of Health Care, Nursing**		
Name of thesis **NURSING INTERVENTIONS FOR THE PREVENTION OF HYPERTENSION IN ADULTS**		
Centria supervisor Katja Heikkiniemi		**Pages** 37+ 3
Instructor representing commissioning institution Katja Heikkiniemi		

Hypertension is known as high blood pressure. It is a severe medical condition that increases the risk of heart attack, ischaemic stroke, kidney failure, heart failure, and premature death. Therefore, controlling high blood pressure is important because it can prevent the risk of developing above chronic sicknesses.

The thesis aimed to collect information about nursing interventions for improving the management of hypertension. The narrative literature review method was used for this thesis. Data was collected from reliable theoretical databases offered at Centria University of Applied Sciences, which included Science Direct, Cinahl (EBSCO), PubMed, and SAGE. The content analysis method was used to analyze the research findings.

The review revealed that nursing interventions such as assisting self-management, patient education and counselling for lifestyle modification, telenursing, and detecting poor adherence to treatment are highly effective nursing interventions in the control of hypertension and the nurse can play a significant role in the management of hypertension.

Keywords
Hypertension management, Hypertension complication, Nursing Intervention, and Treatment.

CONCEPT DEFINITIONS

BP	Blood Pressure
BPT	Blood Pressure Telemonitoring
CVD	Cardiovascular Disease
DASH	Dietary Approach to Stop Hypertension
ESC	European Society of Cardiology
ESH	European Society of Hypertension
ECG	Electrocardiography
HTN	Hypertension
NSAID	Nonsteroidal Anti-inflammatory Drugs
PAD	Peripheral Artery Disease
USAID	United States Agency for International Development
WHO	World Health Organisation

ABSTRACT
CONCEPT DEFINITIONS
CONTENTS

1 INTRODUCTION

It is estimated that around 1.28 billion adults have hypertension all over the world. Hypertension is a serious medical condition that significantly enhances the risks of heart, brain, kidney, and other diseases. It is estimated that 46% of the adult who has high blood pressures are not aware of hypertension and less than 42% of the adult are diagnosed and treated for hypertension. Hypertension is a leading cause of premature death all over the world. The world health organization's targets for this disease is to prevent its prevalence worldwide by 33% between 2010 to 2030. (WHO 2021.)

High blood pressure is one of the most common health problems among other health problems, it is estimated that 20% of people suffer from this condition all over the world. Chronic disorders such as hypertension are becoming more common and pose a public health threat. The percentage of hypertension is rising among individuals alarmingly around the world. (Saffar, Khazragy & Ali 2013.)

A blood pressure measurement is the only way to determine if the patients have high blood pressure. The patients are most at risk if he is overweight, does not exercise, consume more salt, do not eat enough fruits and vegetables, drink much alcohol, coffee, or other caffeine-based drinks, smoke, has stress, sleeping disorder, or have a relative who has high blood pressure. Making healthy lifestyle modifications can support patients to reduce hypertension if it is already high. (National Health Service, UK 2019.)

This thesis was written as a narrative literature review and the target was to find and present current knowledge about nursing interventions for hypertension. Nursing interventions are vital services for patients so that patients can treat themselves better, and nurses care for them in every aspect, especially physically, mentally, emotionally, and socially. That is why nurses should execute appropriate nursing interventions to prevent high blood pressure for their

patients' care to make a long-lasting and optimistic impact on patients managing hypertension. If a proper care plan is executed at the right time and the patients can understand their role in the effect of high blood pressure, it is possible to prevent hypertension, and the complications of hypertension, and the patients can live a long and healthy life.

2 NURSING INTERVENTION FOR HYPERTENSION

These chapter discuss the definition of hypertension, its classification, causes, risk factors, symptoms, blood pressure measurement guidelines, benefits of lifestyle modification, dietary approach to stop hypertension, patient risk assessment, and management of severe hypertension. It also describes the definition of nursing intervention, the selection procedure of nursing intervention, nurse capabilities for it, the role of nurses in the prevention and management of hypertension care, and patients engagement in the nursing interventions.

2.1 Definition and Stages of Hypertension

The heart is a muscular organ that pushes blood to the organs and tissues of our body. The left side of the heart pushes blood into the arteries, which supply oxygen and nutrients to the body. Blood is pushed against the arterial walls as it pumps out of the heart, and into the arteries. The measurement of blood pressure in an artery is called blood pressure. Throughout the day, blood pressure rises and falls. When blood pressure is measured, it is affected by the time of day, the quantity of fluid in the patient's body, the medications in the system, and what the patients are doing. Hypertension is a condition in which blood pressure is abnormally high. (National Heart Foundation of Australia 2016.)

According to the WHO (2022), blood pressure is the power produced by the circulating blood against the walls of the body's arteries, the vital blood vessels in the body. When blood pressure is too high, it is known as hypertension. Blood pressure is expressed as a two-digit figures. When the heart contracts or beats, the first number of systolic shows the pressure in blood vessels. The second number diastolic indicates the pressure in the arteries while the heart is at rest between beats. Hypertension is diagnosed when blood pressure is recorded on two

different days. The systolic blood pressure readings on both days are equal to or above 140 mmHg and the diastolic blood pressure readings on both days are equal to or above 90 mmHg.

Table 1: Paraphrasing European guidelines for the management of Arterial Hypertension 2018.

Category	Systolic (mmHg)		Diastolic (mmHg)
Optimal	<120	and	<80
Normal	120-129	and/or	80-84
High Normal	130-139	and/or	85-89
Grade 1 Hypertension	140-159	and/or	90-99
Grade 2 Hypertension	160-179	and/or	100-109
Grade 3 Hypertension	>180	and/or	>110
Isolated systolic Hypertension	>140	and	>90

From the above table, it is observed that blood pressure classification is characterized by corresponding to seated clinic blood pressure and by the maximum level of blood pressure, whether systolic or diastolic. Isolated systolic hypertension is classified as 1, 2, or 3 corresponding to systolic blood pressure values within the limits specified. A similar category is applied to all ages over 16 years.

Hypertension is frequently known as the silent killer. Many patients with hypertension are not aware of the issue since it might have no warning signs or side effects. For this reason, it is important to check blood pressure consistently. Furthermore, severe blood pressure can cause fatigue, nausea, vomiting, confusion, anxiety, chest pain, and muscle tremor. The patients can measure their blood pressure at home using automated devices, however, an evaluation by a health care professional is important for the assessment of risk and associated conditions. It is estimated that around 20% of the adult have high blood pressure control. (WHO 2020.) Heart attacks, and strokes can increase the risk of other diseases seriously if hypertension is not treated. (National Health Service, UK 2019.)

The blood pressure is recorded in millimeters of mercury (mmHg) and is written in two numbers. For instance, if the patient blood pressure is 140/90mmHg, the patient has a systolic pressure of 140mmHg, and a diastolic pressure of 90mmHg. According to the European standard guidelines, high blood pressure is diagnosed when blood pressure is 140/90mmHg or higher. On the other hand, the average blood pressure reading is usually between 90/60mmHg, and 120/80mmHg for adults. If the patient blood pressure readings are between 120/80mmHg, and 140/90mmHg, the patient is at risk of developing hypertension if they do not take steps to get their blood pressure under control. Each person's blood pressure is not the same, such as what is considered low or high for one patient can be normal for another patient. (National Health Service, UK 2019).

2.1.1 Blood Pressure Measurement Guidelines

Blood pressure varies from moment to moment. Patient body position, respiration, emotions, exercise, and sleep all have an impact on blood pressure. When patient sleeps, blood pressure is normally at its lowest. When the patient is excited, stressed, or exercising, it raises blood pressure. Temporary elevations in blood pressure are typical, and when patients take rest, their

blood pressure returns to normal. It can be difficult to get a true picture of blood pressure because of these frequent variations. Home blood pressure monitoring can help to understand how blood pressure changes throughout the day, day after day, and in response to lifestyle changes, and medical treatment. (National Heart Foundation of Australia 2016.)

Before monitoring blood pressure, the patient should not smoke, drink caffeinated beverages, or exercise for at least 30 minutes. It is important to use a cuff that fits the arm properly. Cuffs that are too small can cause blood pressure to rise affectedly. Patients should sit up straight with their back supported, feet flat on the floor, and their arms must be supported at heart level while wearing the cuff on their bare arm. The patient should ensure that the cuff's bottom is directly above the elbow bend. Before taking a measurement, the patients should relax for five minutes, and stop speaking or watching at the mobile phone. The patients should also confirm that their bladder is empty, as a full bladder can raise blood pressure temporarily. Some medications, such as nonsteroidal anti-inflammatory drugs (NSAID), and decongestants, can raise blood pressure. (American Heart Association 2022,)

A high blood pressure reading in one test does not always indicate that patients have the high blood pressure because blood pressure can fluctuate throughout the day. Especially, when patients go to meet their doctor, they may feel tense, and it increases their blood pressure. If the patient’s blood pressure is high, they may be requested by health care professional to take some readings in 24-hour and monitor continuous blood pressure throughout the day. This confirms whether the patients have hypertension regularly. It is referred to as ambulatory blood pressure monitoring or 24-hour blood pressure monitoring, which records the electric activity in the heart. The patients can perform blood pressure tests at home using a blood pressure monitor. This, like 24-hour or ambulatory monitoring, can provide a more accurate picture of blood pressure. It may also help to monitor status more quickly in the long run. Patients can buy low-cost devices to test their blood pressure at home. The patients should measure blood pressure twice a day, ideally while lying down in the morning, and evening. The patient should take two readings, one minute apart each time and continue to measure blood pressure

twice a day for the next seven days. Doctors or nurses can use this information to calculate the patient's average blood pressure. (National Health Service, UK 2019,)

2.1.2 Causes and Risk Factors of Hypertension

Although the exact cause of high blood pressure is unknown, many factors can raise the risk of high blood pressure. Certain health conditions such as diabetes, kidney diseases, and hormone problems can raise blood pressure. Certain medications can increase blood pressure too such as non-steroidal anti-inflammatory drugs (NSAIDs), steroids, contraceptive pills, cocaine, amphetamines, and herbal medicine. Making healthy lifestyle adjustments can help lower blood pressure. (National Health Service, UK 2019.)

Blood vessels, the heart, and other organs, such as the brain, kidneys, and eyes, are put under additional strain if the patient's blood pressure is too high. Heart attacks, strokes, heart failure, peripheral arterial disease, aortic aneurysms, and renal disease, are several severe and potentially life-threatening health disorders caused by persistent high blood pressure. If the patients have hypertension, even a slight reduction in blood pressure can help to reduce the risk of developing these diseases. (National Health Service, UK 2019.) Hypertension can develop common forms of heart disease that lead to stroke, and it can increase pressure on the walls of blood vessels taking blood to the brain, and weakening them, leading to a bleed in the brain known as a hemorrhagic stroke. High blood pressure can also cause blood clots to break off artery walls, and block a brain artery causing a stroke, and it can cause a hemorrhagic stroke in people who were born with the irregular formation of the vessel walls in the brain. (Healy 2017, 42.)

2.2 Management of Severe Hypertension

Severe arterial hypertension is detected when systolic blood pressure is 180 mmHg or higher, and diastolic blood pressure is 110 mmHg or higher. The goal of the initial assessment is to find out any acute or chronic injury to the target organs, such as pulmonary edema, and hypertensive emergency. If this is the case, the patient requires immediate and specialized care in a hospital setting. Management can be performed in outpatient care. Severe hypertension should be confirmed after a time of relaxation in a quiet environment. If blood pressure is abnormally high, the patents should start taking antihypertensive medication. Otherwise, the patient must be referred for further examination within a few days. However, if there is a risk that rapid outpatient follow-up cannot be ensured or the patient has a high cardiovascular risk, antihypertensive therapy must be started immediately. (Leeman 2015.)

Hypertensive crisis is detected when blood pressure is 180 mmHg or higher and diastolic blood pressure is 120 mmHg or higher. After confirming a hypertensive crisis patients need to be hospitalized urgently and start treatment with the intravenous route of administration. Target organ damage should be investigated with the severity of blood pressure and related clinical signs. Hypertensive crises are classified as hypertension emergencies, and hypertensive urgencies. Each case has its prognosis and treatment options. Hypertensive emergencies are potentially life-threatening and usually require rapid blood pressure reductions, whereas hypertensive urgencies can be managed as outpatients by lowering blood pressure. Many patients who seek medical help for a hypertensive emergency do not have a prior diagnosis of hypertension, therefore, healthcare professionals should monitor blood pressure regularly. (Xhignesse, Krzesinski & Krzesinski 2018.)

Patients who have an abnormally high blood pressure history needs to be checked carefully and assessed to identify the real hypertensive crisis. The patients might have the following symptoms headache, dizziness, changed mental status, shortness of breath, chest pain,

decreased urine production, vomiting, and vision problems. It is important to figure out what is causing the sudden onset of hypertension. Nurses need to check patient blood pressure regularly, administer high blood pressure medicine as prescribed, offer oxygen if patient saturation is low, regulate patient fluid volume, and assess the electrical activity of the patient's heart. Nurses need to make sure the patient is not having a heart attack, check the report of chest X-ray to assess heart failure, listen for murmurs in the heart and rales and crackles in the lungs, examine the patient for edema, assess patient renal function, and electrolyte balance. Nurses should teach the patient how to manage with the stress, educate the patient about the importance of a low-salt diet, exercise, and a balanced diet, and finally, instruct the patient on the necessity of taking antihypertensive drugs. (Alley, Schick & Doerr 2021.)

Patients should seek help and the nurse must provide it if the patient systolic blood pressure is more than 200 mmHg, and diastolic blood pressure is 100 mmHg, and the patient is unconscious. The best method to avoid a hypertensive crisis is to take antihypertensive medicine as prescribed. Normal hypertension can be handled by the primary care provider, a cardiologist should be consulted if the patient is taking more than three antihypertensives medicine, and their blood pressure is still high. (Alley, Schick & Doerr 2021.)

Healthy lifestyle adjustments are recommended for anyone with high blood pressure. Blood pressure medicine is recommended depending on the patient's blood pressure level and the risk of developing problems like heart attacks or strokes. To diagnose the risk of other diseases, the doctor may perform blood and urine tests and ask questions about the patient's health. If blood pressure is consistently higher than 140/90mmHg (or 135/85mmHg at home), but the risk of other problems is low. The patent should adopt some lifestyle modifications. If the patient blood pressure is routinely higher than 140/90 mmHg (or 135/85 mmHg at home), and the risk of additional problems are high. In that case, the patient should be offered blood pressure medication, and lifestyle modification to control the blood pressure. If blood pressure is consistently higher than 160/100mmHg, the patient should be prescribed medication and advised to make lifestyle changes to lower it. (National Health Service, UK 2019.)

2.3 Assessment of Risk in Hypertensive Patients

Nursing assessment involves the collection of data regarding the patient's physiological, psychological, sociological, and spiritual needs. It is the first step in identifying a patient's strengths, and weaknesses. The essential elements of assessment are subjective and objective data collection. Data collection is part of the assessment, which includes taking vital measurements like temperature, respiration rate, heart rate, blood pressure, and pain level. By facilitating the creation of a nursing diagnosis, the assessment determines the patient's current and future care needs. The nurse recognizes normal and abnormal physiology in patients, and assists in the prioritization of interventions, and care. (Toney-Butler &Unison-Pace 2020.)

The assessment of a patient with hypertension aims to assess the hypertensive patient's overall cardiovascular risk factors that may cause damage to the heart muscle, such as stroke, ischemic heart disease, heart failure, and peripheral artery disease. The nurse should assess hypertensive patient's lifestyle-related risk factors, cardiovascular-related risk factors, and target organ damage that is related to hypertension. The nurse should assess the presence of related diseases such as diabetes, kidney diseases, the cause of secondary hypertension, and the overall cardiovascular risk of the hypertensive patient. The risk of clinical events in a hypertensive patient depends on the blood pressure readings, diabetes, smoking, dyslipidemia, obesity, male gender, and male age above 55 years. Each of the above components should be assessed by the nurse by asking relevant questions, assessing the physical examination, and performing appropriate laboratory tests. The nurse can detect hypertensive patients risk factors by reading patients history, physical examination, and checking blood glucose, lipids, serum, creatinine, urinalysis, and ECG. Patients should be checked every 4–6 weeks after starting therapy to assess adherence, side effects, tolerability, and efficacy. Shorter review times may be considered for those who have considerably increased baseline blood pressure. Electrolytes, and creatinine should be evaluated at baseline who have a higher risk of changes in renal function and then starting medication after two weeks. The aim is to guarantee that hyperkalemia or drastic changes in renal function are detected. The period between visits can be extended to 3–6

months once the blood pressure has stabilized. If blood pressure is stable, and there is no evidence that real blood pressure has changed within 12 months, then the patient should be assessed every six-month for lifestyle improvements, new risk factors, medication adherence, and repeat prescriptions. Annual evaluation for additional risk factors or end-organ damage should be considered in patients who remain on treatment. The recommended target blood pressure values for antihypertensive treatment are below 140/90. During the evaluation and stabilization of treatment, follow-up should be frequent enough to monitor blood pressure and other cardiovascular risk factors. Patients should be referred to a hypertension specialist if they have any of the following issues: such as emergency or urgent medical conditions, such as malignant hypertension, or hypertensive heart failure. (Dalal, Karkar, Guha, Dasbiswas, Sawhney,Natarajan, Maddury, Kumar, Chandra, suryaprakash, Thomas, Juvale, Sathe, Khan, Bansal, Kumar & Reddi 2021, 667-673.)

2.3.1 Advantages of Lifestyle Modification

Patients do not have to rely on medication alone to control their blood pressure. Several lifestyle changes can help to lower blood pressure and the risk of stroke. Some people with mild hypertension can control their blood pressure simply by making healthy lifestyle changes. Lifestyle changes lower blood pressure and can also increase the effectiveness of blood pressure medication and reduce the risk of stroke, heart attack, and diabetes. Here are a few simple things to remember that will help keep blood pressure down. (Healy 2017, 43.) A disciplined physical workout is one of the primary medicines prescribed to lower blood pressure and improve cardiovascular health among people with hypertension. Exercising consistently has numerous medical advantages and ensures individuals in contrast to hypertension, and cardiovascular illnesses. World Health organization's studies show that by lessening systolic blood pressure by five mmHg, death from strokes can be diminished by 14%, and coronary illness can be diminished by 9%. A disciplined workout is vital to preventing and treating hypertension. Lack of physical activity directly connects with weight gain, which continuously raises

the danger of increased blood pressure. Each age section suggests physical workouts prevent chronic sicknesses, such as cardiovascular diseases, stroke, and hypertension. (WHO 2020.)

The danger between alcohol consumption and hypertension is clear. Individuals have a greater danger of developing hypertension if they consume more alcohol. Having only one beverage daily may increase the danger, and the overall risk rises for each drink after that. The relationship stays serious when age, weight, sex, identity, diet, exercise, and smoking patterns are considered, which means it is one of the most manageable and preventable risk factors for hypertension. Consuming high amounts of alcohol raises blood pressure and expands the opportunity of developing hypertension. Males have a higher risk after consuming only one beverage daily, and females from one, and a half drink. The health risks rapidly and generously increase with higher alcohol consumption. Three drinks a day may increase the opportunity of developing hypertension by as much as 75%. The safest way of improving blood pressure is to reduce alcohol consumption. One of the most modifiable risk factors for hypertension is alcohol. This means lessening alcohol intake is a method of dependably handling hypertension. If heavy consumers lessen their alcohol intake by two-thirds, their normal systolic blood pressure drops by - 3.31mmHG, and diastolic by - 2.04mmHG. (Alcohol Concern Organisation, UK 2015.)

2.3.2 Dietary Approach to Stop Hypertension

Consistent consumptions of a diet that is high in fat substance, refined carbs, sodium, energy drink, added sugar, and low in fruit and vegetables improve the risk of high blood pressure (HTN), and cardiovascular illness. Recent dietary proposals have underlined overall dietary patterns and the connection between food and blood pressure. The Dietary Approaches to prevent high blood pressure (DASH) diet and changes to the DASH diet, combined with decreases in sodium consumption, display dose-dependent reductions in blood pressure. Execution of digital life mediations dependent on the DASH diet have been successful and show potential

for clinical application. Adapting an eating routine rich in plant-based food sources, whole grains, low-fat dairy items, and a lower sodium intake can be viable in avoiding and managing HTN. These eating regimens have been more effective in grown-ups and hypertensive people. (National Heart, Lung & Blood Institute 2015.)

What we consume affects the chances of developing high blood pressure. Research has shown that hypertension could be prevented and reduced by following the dietary approaches. The DASH eating plan is a diet that is rich in fruits, vegetables, fat-free or low-fat milk and milk products, whole grains, fish, poultry, beans, seeds, and nuts. It also includes less sodium, sweets, added sugars, drinks including sugar, fats, and red meats than the typical American diet. This heart-healthy diet is low in saturated fat, trans fat, and cholesterol and rich in nutrients related to lowering blood pressure, mainly potassium, magnesium, calcium, protein, and fiber. DASH could assist with preventing and lowering hypertension. It can also help patients to lower their bodyweight first. It meets nutritional requirements and has other medical advantages for the heart. Following the DASH diet eating plan, patients can do regular workouts, such as walking or swimming, which will help them to lose weight and stay healthy for the long term. (National Heart, Lung and Blood Institute 2015.)

2.4 Nursing Intervention

Nursing intervention is any action that a nurse executes to improve patient outcomes based on nurse findings and knowledge. Nursing intervention includes both direct and indirect care. These are directed at individuals, families, and the community. These are nurse initiated, doctor initiated, and other provider-initiated treatments. A direct care intervention is conducted through collaboration with the client, and it includes both physiological and psychosocial nursing actions. An indirect care intervention contains nursing actions that are directed at managing the patient care environment and interdisciplinary teamwork. These actions help the success of direct care interventions. Moreover, the goal of community intervention is to

improve and protect public health. Community interventions focused on health promotion, health maintenance, and illness prevention. During the time of selecting a nursing intervention, nurses should apply clinical assessment to personnel, families, and communities to improve their health, increase their ability to manage health problems, and promote their overall quality of life. Therefore, the nurse's clinical assessment plays a role in deciding which nursing intervention is best for a particular patient. When selecting an intervention, six features must be considered, such as desired patient outcomes, nursing diagnosis features, evidence-based nursing intervention, feasibility for conducting the intervention, patient acceptability, and nurse capability for the intervention. (Howard, Butcher, Gloria, Bulechek, Joanne, Dochterman, Cheryl &Wagner 2018, 67-92.)

Nurse-led care nursing interventions for hypertension are useful in the management of high blood pressure. The nurses use a variety of successful evidence-based strategies for hypertension and play an important role in controlling their blood pressure when nurses use effective evidence-based approaches in the detection, prevention, and management of hypertension. Selecting effective evidence-based techniques for identifying, preventing, and management of diseases improves patient outcomes. (Katende & Becker 2016.)

2.4.1 The capability of the nurse for intervention

Nurses as an educators teach the patient about health concepts and facts, define the reason for routine care tasks, demonstrate procedures such as self-care activities, promote learning and assess patients learning development. Nurses deliver care and comfort to patients in all health care settings. Nurse care focuses on health promotion and illness prevention, disease and symptom management, and family support. The responsibility of the nurse is to obtain and maintain specialized knowledge and skills and apply both physical and interpersonal skills to deliver evidence-based nursing care to promote patient recovery. Nurses support the patient and family to set their goals and achieve their goals with the least amount of money, time, and effort. By communicating effectively and maintaining good relationships nurses can get to

know patients, their strengths and weaknesses, and their needs, as well as the family's concerns and needs. (Potter, Perry, Stockert & Hall 2017, 7-8.)

The nurse must be capable of performing the interventions. To implement the nursing interventions for the prevention of diseases, the nurse must understand the scientific logic for the intervention, the nurse must have the appropriate psychomotor and interpersonal skills and be able to function within the specific setting to use health care resources successfully. Like other health professions, nursing is specialized, and nurses work within their areas of expertise and co-operate when additional skills are required. The nurse chooses an intervention after examining all the factors for a specific patient. The nurse synthesizes this data and can identify it more quickly with experience. Individualized interventions are created by selecting and modifying activities based on the patient's age and the physical, social, emotional, and spiritual status of the patient and their family. The nurse makes these adjustments based on scientific evidence. (Butcher, Howard., Bulechek, Gloria., McCloskey, Joanne & Wagner 2018, 95.)

The nurse role in improving hypertension control has expanded. Nurses visits start with blood pressure measurement, monitoring, and patient education. It has been one of the most effective ways of improving blood pressure control. The roles of nurse in hypertension management involve all aspect of care, such as detection, referral, follow-up, patient education, counselling, skill-building, care coordination, diagnostics and medication management, clinic management, people health supervision, and assess performance and significant development. A crucial aspect of effective care models that have been found to improve care procedures and control rates are the patient-centered, multidisciplinary teams. Additionally, nurses lead clinic and community-based study is to develop the quality gap of hypertension and ethnic differences by comprehensive assesing social, cultural, economic, and behavioral aspects of hypertension results. (Himmelfrab, Mensha & Hill 2016.)

2.4.2 Patient engagement in the Nursing intervention

Patients need to engage in their care effectively to develop health outcomes, improve satisfaction with the care experience, decrease expenses, and even benefit the clinician experience. Research shows that chronically ill patient who are promised in their care live longer than unpromised patient who otherwise receive similar treatment. Health and wellbeing are promoted by engaged and activated patients, who co-operate with their clinician to better manage care. Patients need training and support to meaningfully participate in their care. Therefore, the co-operative partnership should be planned to educate patient, to develop systems and supports to activate patients, and sustain patient interest in their ongoing care. (Alex, Sebastian, Rebecca & Daniel 2016.)

3 RESEARCH QUESTIONS AND OBJECTIVES

The purpose of the thesis is to explain effective nursing interventions for the prevention of hypertension that can promote self-care with hypertension.

The research questions are

1 What kind of nursing interventions can promote patients' self-care with hypertension?

2. What are the roles of nurses in implementing nursing intervention for the prevention of hypertension?

4 METHODOLOGY

This chapter explains the process of conducting the research study. A narrative literature review was selected for this thesis because it is reliable, provides associated information, and is an easy method of finding all connected critical research to identify appropriate nursing interventions to prevent hypertension. In addition, data was collected from several updated scientific research to clarify the thesis topic. Therefore, this research methodology chapter contains sub-sections on narrative literature review, data collection, and analysis.

4.1 Narrative Literature Review

According to the (Coughlan & Cronin 2017, 3-5.) the literature review method consists of choosing a subject, investigating and taking the literature, assessing and merging the outcomes of the findings, and lastly introducing the research.

A narrative literature review is the most popular source of description in planning because this is less then critical and costly in terms of time and resources. It is more focused on acquiring relevant evidence that adds both context and substance to the author's overall argument. Each research data is extracted into the following two subtopics, the definition, classification, aim of literature review, and the literature review process. Its process is further divided into subtopics such as establishing and validating the review procedure, searching the literature, screening for inclusion, assessing quality, retrieving data, analyzing and summarizing data, and writing the results. (Xaio & Watson 2019.)

An appropriate literature review is an evidence-based, in-depth investigation of a topic. For developing a research plan a literature review is important to combine what is previously identified about a topic and find any information gaps and how research can be devoted more thoughtfully. This supports advancing hypotheses and framing of research inquiry. It is also

essential for assessing information and defining its significance and scientific usefulness after carrying out a part of the research. It allows for classifying further studies that verify findings and outcomes that vary. Conducting a literature review requires the collection of data on a topic or evidence to support a theory to review research facts. These involve careful investigation because they are accountable for conducting literature exploration. (Catherine & Mark 2016.)

In a literature review, considering prior, related literature is needed for all research disciplines and all research projects. The author discusses past research to map and analyze the research area, to help set the study's goal, and justify the research question and hypotheses, regardless of discipline. This is usually described as a literature review, theoretical framework, or research background. However, for a literature review to become a competent research methodology, the same processes must be followed, and action taken as with any other research to ensure the review is exact, precise, and trustworthy. The usefulness of an academic review, like all research, is determined by what was done, what was discovered, and the clarity of reporting. The researcher can apply a variety of methods, standards, and guidelines specifically designed for performing a literature review, depending on the review's goal. It can be the most effective methodological instrument for answering various research questions. For example, reviews are beneficial when a researcher wants to analyze theory or evidence in a specific area or examine the validity or accuracy of a particular theory or competing theories. This method can be narrow, for example, researching the effect of the relationship between the specific variables, or it may be wide such as exploring the collective evidence in a specific research subject. (Snyder 2019.)

In addition, when the goal is to present an overview of a particular issue or research challenge, literature reviews are essential. They are typically used to assess the current level of knowledge on a particular issue. For example, they might develop research agendas, identify research gaps, or simply discuss a topic. Finally, if the goal is to engage in theory formation, literature

reviews can be helpful. This can be used to build a new conceptual model or theory and map the development of a particular area of research over time. (Snyder 2019.)

4.2 Data Retrieval Process

The research was conducted utilizing the literature review method. Research materials were collected from reliable databases recommended by Centria University of Applied Sciences, which enclosed Science Direct, PubMed, Cinahl (EBSCO), SAGE journals, and Medline. These databases were chosen for the study because they offer evidence-based articles for the nursing research field. The study mainly focused on the nursing intervention for the prevention of hypertension and data was searched mainly based on the research topic from academic databases. After this, data were screened by analyzing many articles to answer the research question and research problems in this thesis.

Articles that were not related to this thesis topic were removed. The articles were read several times, with particular attention paid to the title, abstracts, and the entire text to ensure that the contents were relevant to the research topics. The data was summarized and linked to texts primarily from past studies and theories, and only data published in English were collected in this thesis. The time frame of data collection is from 2012 to 2022.

The key searched words that are closely related to the research subject were used to analyze research findings such as "HYPERTENSION," "SYMPTOMS ", "CAUSES", " RISK FACTORS", "TREATMENT", " SELF-MANAGEMENT", and "NURSING INTERVENTIONS". Furthermore, precise inclusive, and exclusive criteria were used in this thesis to select appropriate studies that are suitable for the research. The table below shows other inclusion and exclusion criteria.

Table 2. Inclusion and Exclusion Criteria

Inclusion Criteria	Exclusion Criteria
Articles that relevant to hypertension	Non-relevant to the hypertension
Articles published in the English language	Articles in other languages
Articles from the year 2012 to 2022	Articles older than 2012
Articles with full text	Articles not with full text
Scientific articles	Non-scientific articles
The articles from the academic database, such as SAGE, PubMed, Science Direct and Chinhal	Non-academic database
The research is focused on nursing intervention for the prevention of hypertension.	The research is focused on nursing intervention for other diseases.

Table 3. Initial search results from databases

Search term	PubMed	SAGE	Science Direct	Chinahl	Medline
Nursing Intervention	79	37	22	7	3
Nursing intervention for hypertension	137	22	40	30	25
Nursing management with hypertension	455	104	267	100	50
The management and treatment of hypertension	1066	565	500	200	43
The role of a nurse in the prevention of hypertension	435	260	100	43	7
Nursing guidelines for hypertension	50	67	80	9	5
The risk factors for hypertension	60	26	50	20	10
Drug therapy for hypertension	70	60	98	8	6
Complication of hypertension	54	80	83	10	7

The table above shows the initial search result from academic databases collected from five databases. About 5445 articles were searched on this research topic and collected data that are evidence-based and closely related to research topic. Articles were excluded if they did not directly relate to research subject, and they were old and not evidence-based.

Table 4. The inclusion process is illustrated in the below table.

Database Name	Search results	Coarse Exclusion	Fine Exclusion	Include Research
PubMed	2406	245	17	9
SEGE	1216	37	4	0
Science Direct	1240	142	7	1
Chinahl	427	6	0	0
Medline	156	7	0	0
Total	5445	437	28	10

In this literature review, Nine of ten studies were chosen from PubMed and the remaining one was selected from Science Direct. Nursing interventions that promote self-care in hypertensive patients were investigated in eight of the ten studies. The roles of nurses in implementing nursing intervention for the prevention of hypertension were examined in two studies. Data were subsequently collected and selected the most related, useful, and informative for the research topic. Old, irrelevant, and duplicate pieces of literature were eliminated. The fine exclusion stage was performed in two parts. First, a primary choice was made based on the titles of the articles. In the second stage, the abstracts of selected articles were read through cautiously. The last phase, 28 articles were read thoroughly to make sure that the content is relevant to the thesis topic, and 10 of 28 articles were selected for the study to answer the research question and objectives.

4.3 Data Analysis

While conducting a narrative literature review, the main element of the data analysis is to summarise and present the findings of analysis from the study chosen. This should consist of a comprehensive presentation of search strategy, the outcome of search, the method by which literature was included or excluded and a classification of data about the research subject. The complete purpose of study is to identify the themes from the literature. Therefore, it is crucial that the study is conducted in such way that is apparent that final themes have appeared clearly from the literature. To make sure that first stage is data coding. The meaning of code is a symbol or abbreviation that is used to classify words or phrases in data. (Coglan &Cronin 2017, 93-100.) The crucial aspects of ten studies selected for this narrative literature review can be seen in Table 5.

Table 5. Table of Articles

Authors Name	Articles Names	Journal/Year	Research Method	Findings
Dalal, Kerkar, Guha, Dasbiswas, & sawheny, 2021	Therapeutic adherence in hypertension: Current evidence and expert opinion from India.	ScienceDirect 2021	Meta-analysis	Identify varying rates of adherence to antihypertensive medications. Multiple factors determine treatment adherence in hypertension
Himmelfarb CR, Commodore-Mensah Y, Hill MN,	Expanding the Role of Nurses to Improve Hypertension Care and Control Globally	PUBMED 2016	Randomized Controlled Trial	Nurse-led clinics and team models of care contributed to increasing the number of patients receiving high-quality hypertension care and control

European Society of Cardiology.	Guidelines for the Management of Arterial	European Heart Journal. 2018	Systematic Review	Better Management of Arterial Hypertension.
Lue, U, F, Chen, C, M & Hsu, C, Y.	Effect of home telehealthcare on blood pressure control: A public healthcare center model	PUBMED 2021	Cohort study	the effectiveness of home telehealthcare combined with case management by public health nurses, in improving blood pressure control in patients with hypertension.
McManus RJ, Little P, Stuart B, Morton K, Raftery J, Kelly J, Bradbury K, Zhang J, Zhu S, Murray E, May CR, Mair FS, Michie S, Smith P, Band R, Ogburn E, Allen J, Rice C, Nuttall J, Williams B, Yardley L,	Home and Online Management and Evaluation of Blood Pressure using a digital intervention in poorly controlled hypertension: a randomized controlled trial	PUBMED 2021	Randomized Controlled Trial	The HOME BP digital intervention for the management of high blood pressure by using self-monitored blood pressure led to better control of systolic blood pressure
Omboni, S	Connected Health in	PUBMED 2017	Randomized Controlled Trial	telemedicine is increasingly attaining a key position in the

	Hypertension Management			management of the hypertensive patient
Rego, ML, Cabral, D, A Costa, EC & Fontes, EB,	Physical Exercise for Individuals with Hypertension: It Is Time to Emphasize its Benefits on the Brain and Cognition	PUBMED 2019	Randomized Controlled Trial	hypertension is more susceptible to deleterious changes in brain structure and function which may have negative implications for cognitive function,
Shahaj, Denneny, Schwappach, Pearce, Epiphaniou, Parke, Taylor &, Pinnock.	Supporting self-management for people with hypertension:	PUBMED 2019	A meta-review of quantitative and qualitative systematic reviews.	Supported self-management can improve blood pressure control.
Uei SL, Kuo YM, Tsai CH, Kuo YL.	An Exploration of Intent to Use Telehealth at Home for Patients with Chronic Diseases	PUBMED 2017	cross-sectional study	The correlation between the self-care behaviors, the intent to use telehealth, and the effects on physiological indicators of patients with chronic disease at home were studied
Varma, N, Rastogi, S, Chia, YC, Siddique, S, Turana, Y, Cheng, HM,	Non-pharmacological management of hypertension	PUBMED 2022	Randomized Controlled Trial & Meta-analysis	Lifestyle modifications that effectively lower blood pressure.

Sogunuru, GP, Tay, JC.				

For answering the research topic all the literature was read precisely from the data retrieval process and only the key findings were recorded in a different file. Research findings were coded with a specific colour from each study and given their own colour. The main findings were written down in the file. The next stage was clarifying the recorded findings and making them into brief phrases to explain them.

5 RESULTS

The findings of the research were intended to answer the research questions. What kind of nursing interventions can promote a patient's self-care with hypertension? The findings of the narrative literature review were presented through the research questions as follows. Three main categories were selected during the research process, and they display the main theme that the research focused on.

Table 4. Shows how the analysis was made to answer the research question in the thesis.

Subcategory	Upper Category	Main Category
Patient counselling for Regular Psychical Exercise	Assisting Self-Management	Nursing Intervention for prevention of Hypertension
Patient Counselling for Dietary sodium Restriction	Education and counselling for Lifestyle Modification	Self- Management
Patient counselling for Smoking Cessation.	Tele Nursing	
Self-Efficacy	Detecting Poor Adherence to treatment	
Adherence to Treatment		

5.1 Assisting Self-Management

Assisting self-Management category shows that self-management support regularly lowered systolic blood pressure by between 2mmHg- 6 mmHg, and diastolic blood pressure by between 1mmHg- 5 mmHg. Effective interventions included information about hypertension and treatment, home blood pressure monitoring, and feedback including telemedicine. A supportive relationship between patient and professional change perception of the importance of symptoms and give patients confidence in self-management of hypertension. (Shahaj, Denneny, Schwappach, Pearce, Epiphaniou, Parke, Taylor &, Pinnock 2019.)

Self-care category refers to the steps people take to live a healthy lifestyle, manage their chronic conditions, and prevent additional sickness. Adherence to anti-hypertensive medicine, a healthy low-salt diet, adequate physical exercise, smoking cessation, and moderate alcohol consumption are all suggested self-care behaviors for best disease control in hypertension. Dietary adjustments, exercise intervention, and intervention to reduce alcohol intake have all been proven to lower blood pressure significantly in randomized controlled trials. Research shows that the self-care adherence rate among adults with high blood pressure is low and they often refuse to make the recommended behavioral changes. Lack of motivation is one of the challenges for self-care, but self-efficacy can be the key to improving motivation and promoting engagement in self-care management for hypertension. Self-efficacy is defined as an individual's belief in his or her ability to attain specific goals. The lack of symptoms in essential hypertension may also make it difficult to engage in self-care behavior. (McManus, Little, Stuart, Morton & Raftery 2021.)

5.2 Education and Counselling for Lifestyle Modification

The education and counselling category shows that Patient self-monitoring has also been shown to improve medication adherence and blood pressure control, specifically when it relates to education and counselling. (Williams, Mancia, Spiering, Agabiti, Azizi, Burnier,

Clement, Coca, Simone, Dominiczak, Kahan, Mahfoud, Redon, Ruilope, Zanchetti, Kerins, Kjeldsen, Kreutz, Laurent, Lip, Manus, Narkiewicz, Ruschitzka,Schmieder, Shlyakhto,Tsioufis, Aboyans & Desormais 2018, 3021-3104.)

Patients have a good level of knowledge and awareness regarding hypertension, but they do not have a complete comprehension of the problem. Awareness and treatment are both key factors for controlling hypertension. They found in their study that many people were unable to determine which blood pressure measurement is more important and did know that systolic blood pressure can reduce the risk of myocardial infarction, stroke, and heart failure. (Wei & Omar, 2017.) Effective education and counselling assist adherence to treatment routine and blood pressure control. Nurse and other health care professionals help patients to increase their motivation for controlling hypertension by staying in care, for example, keeping a healthy lifestyle, taking a prescribed drug, and checking progress toward purposes. (Himmelfarb, Mensah & Hill 2016.)

5.2.1 Patient Counselling for Regular Physical exercise

The regular physical exercise Sub-category involves the foundation of non-pharmacological treatment for high blood pressure, and it is recommended for hypertensive patients by several international organizations. It has been proven to be a beneficial practice for cardiovascular health. (Rego, Cabral, Costa & fontes 2019.) According to the European Society of Cardiology, 2018, hypertension is related to excessive weight gain, and reducing weight decreases blood pressure. A meta-analysis found that an average weight loss of 5.1 kg can lower both systolic and diastolic blood pressure by 4.4 mmHg to 3.6 mmHg, respectively. According to Epidemiological studies, routine aerobic physical exercise help to prevent and treat high blood pressure, as well as reduce cardiovascular risk and death. For the treatment of metabolic risk factors, weight loss is advised in overweight and obese hypertensive patients. A multidisciplinary

approach to weight loss should include food recommendations, routine exercise, and motivational counselling. This also signifies that high blood pressure patients should be encouraged to engage in at least 30 minutes of active aerobic exercise five to seven days per week, for example, walking, running, cycling, or swimming. (Williams, Mancia, Spiering, Agabiti, Azizi, Burnier, Clement, Coca, Simone, Dominiczak, Kahan, Mahfoud, Redon, Ruilope, Zanchetti, Kerins, Kjeldsen, Kreutz, Laurent, Lip, Manus, Narkiewicz, Ruschitzka,Schmieder, Shlyakhto,Tsioufis, Aboyans & Desormais 2018, 3021-3104.)

5.2.2 Patient Counselling for Dietary Sodium Restriction

This subcategory describes lowering sodium intake lowers blood pressure. (Varma, Rastogi & Chia, Siddique, Turana, Cheng, Sogunuru & Tay 2021.) Another research found that there is a direct connection between sodium consumption and blood pressure. Excessive sodium intake has been proven to raise the prevalence of high blood pressure. Furthermore, it has been shown in several research that a low sodium intake lowers blood pressure. It is also mentioned that sodium intake per day of 4,4 grams can lower systolic and diastolic blood pressure by 5,4 mmHg to 2,8 mmHg. Successful sodium reduction can minimize the number of blood pressure medications. Prospective cohort studies have mentioned that high salt intake has been linked to an increased risk of death and cardiovascular events. It is also found that lowering sodium intake below a particular level of approximately 3 g of sodium per day decreased blood pressure even further. (Williams, Mancia, Spiering, Agabiti, Azizi, Burnier, Clement, Coca, Simone, Dominiczak, Kahan, Mahfoud, Redon, Ruilope, Zanchetti, Kerins, Kjeldsen, Kreutz, Laurent, Lip, Manus, Narkiewicz, Ruschitzka,Schmieder, Shlyakhto,Tsioufis, Aboyans & Desormais 2018, 3021-3104.)

5.2.3 Patient Counselling for Alcohol and Smoking Cessation

This subcategory describes many cross-sectional epidemiologic studies have shown that higher average alcohol intake increases the prevalence of hypertension, and longitudinal research has suggested that hypertension variations are associated with drinking changes. (Varma, Rastogi & Chia, Siddique, Turana, Cheng, Sogunuru & Tay 2021.)

The prevention and Treatment of Hypertension Study studied the effects of both alcohol and smoking cessation on blood pressure and found that the intervention group had 1.2/0.7 mmHg lower blood pressure than the control group after the 6 months. There is also evidence that passive smoking has negative health consequences, and quitting is likely the single most effective lifestyle intervention for preventing cardiovascular diseases, including stroke, myocardial infarction, and Peripheral artery disease. As a result, at every appointment, the patient's history of smoking should be checked, and high blood pressure smokers should be counseled on how to quit smoking. (Williams, Mancia, Spiering, Agabiti, Azizi, Burnier, Clement, Coca, Simone, Dominiczak, Kahan, Mahfoud, Redon, Ruilope, Zanchetti, Kerins, Kjeldsen, Kreutz, Laurent, Lip, Manus, Narkiewicz, Ruschitzka,Schmieder, Shlyakhto,Tsioufis, Aboyans & Desormais 2018, 3021-3104).

5.3 Tele Nursing

The telenursing category involves a successful technique for improving the self-health care management of chronic disease patients at home. (uei, kuo, tsai, kuo 2017.) A study shows that telehealthcare has a moderate, optimistic, and meaningful effect on clinical results. (Lue, Chen & Hsu 2017.) Several randomized control trials have shown that consistent and long-term use of blood pressure telemonitoring combined with teleconsulting and case management under the supervision of a healthcare professional is linked to a considerable reduction in blood pressure compared to normal care, especially in high-risk patients. Mobile health applications are

suitable to improve a person's blood pressure and its management, particularly medication adherence. These applications help to transfer medical data between patients and their doctors, as well as between healthcare professionals, mostly over the Internet to deliver healthcare services remotely. Blood pressure telemonitoring can also be built on mobile health wireless solutions, which can include educational support, medication trackers and reminders, as well as teleconsultation. In this situation, blood pressure telemonitoring can advise patient self-management as well as patient participation in medical decision-making with logical improvement in blood pressure control and drug adherence. So, e-health especially telemedicine is progressively achieving a vital position in the management of hypertensive patients with enormous potential in terms of improving the quality of care delivered, increasing the chance of successful blood pressure control, and effectively preventing cardiovascular diseases. (Omboni 2019.)

Telemonitoring and smartphone applications have additional benefits, such as it helps to store blood pressure measurement data in memory, reviewing data in a digital diary, and transferring them. (Williams, Mancia, Spiering, Agabiti, Azizi, Burnier, Clement, Coca, Simone, Dominiczak, Kahan, Mahfoud, Redon, Ruilope, Zanchetti, Kerins, Kjeldsen, Kreutz, Laurent, Lip, Manus, Narkiewicz, Ruschitzka,Schmieder, Shlyakhto,Tsioufis, Aboyans & Desormais 2018, 3021-3104.)

5.4 Detecting Poor Adherence to Treatment

Poor Adherence category mentioned that many factors affect treatment adherence, for example, age, gender, literacy, socioeconomic level, duration of high blood pressure, etc. (Dalal, Karkar, Guha, Dasbiswas, Sawhney,Natarajan, Maddury, Kumar, Chandra, suryaprakash, Thomas, Juvale, Sathe, Khan, Bansal, Kumar & Reddi 2021, 667-673.)

Evidence shows that poor treatment adherence is the leading cause of poor blood pressure control. Disagreement with antihypertensive treatment is linked to an increased risk of cardiovascular events. The most common characteristics of poor adherence are early treatment cessation and insufficient daily use of prescribed regimens. It was found that about half of the patients can stop their primary treatment after one year and more than one-third of patients can cease their initial treatment after six months. Research that depends on the finding of antihypertensive drugs in blood or urine has demonstrated that poor adherence to prescribed drugs can affect over 50 percent of patients with seemingly resistant hypertension, and poor adherence is actively related to the number of pills recommended. Early detection of poor adherence can lower the number of expensive examinations and processes. Finding prescribed drugs in blood or urine samples is currently the most accurate method that can be suggested to detect poor adherence to the treatment. This can also be extremely helpful to find out if blood pressure is badly under control. The obstacle to best adherence is the difficulty and acceptability of drug treatment, physician viewpoints, patient trust and behavior, the healthcare system, and various other reasons. As a result, adherence evaluations should always be directed in a blameless approach and favor an open conversation to uncover the precise obstacles that hinder the patient's capacity to follow therapeutic suggestions. It is necessary to find customized solutions and patients should be motivated to take responsibility for their health. (Williams, Mancia, Spiering, Agabiti, Azizi, Burnier, Clement, Coca, Simone, Dominiczak, Kahan, Mahfoud, Redon, Ruilope, Zanchetti, Kerins, Kjeldsen, Kreutz, Laurent, Lip, Manus, Narkiewicz, Ruschitzka,Schmieder, Shlyakhto,Tsioufis, Aboyans & Desormais 2018, 3021-3104.)

6 DISCUSSION OF THE FINDINGS

Hypertension is increasing in adults worryingly all over the world and it is leading to many chronic diseases, but people are unaware of hypertension. An effective measure for treatment is needed. The research result revealed that nursing interventions are highly effective for managing and treating high blood pressure to avoid target organ damage and premature death. The study revealed that nurses play a significant role in the management of high blood pressure in primary health care. The research findings show that these nursing interventions are effective when nurses use evidence-based approach in the detection, prevention, and management of hypertension can develop patient outcomes. (Ketende & Backer 2016.)

The literature review has revealed that lifestyle modification is an essential element that can prevent heart failure, stroke, kidney damage, and other health problems and helps in lowering the overall cardiovascular risk factors along with blood pressure control. This literature review revealed that rregular exercise helps patients with the maintenance of optimal body weight, and a healthy diet complements pharmacological treatment. A good balance should be maintained between psychological, social, and mental well-being in the lifestyle modification process. In serious situations, lifestyle modification is enough to control hypertension and needs pharmacological intervention. Lifestyle modification can be challenging because it is also difficult for some patients to give up their long-held habits. In this stage, nurses can play an important role in helping patients through informative consultations, for example, stopping smoking is the most significant single treatment technique to lessen the overall risk. (WHO 2022.)

The research result indicates that health education is a vital element in the nursing process because it affects nursing interventions. Health education helps hypertensive patient to manage their blood pressure themselves. The nurse should provide accurate and evidence-based information to patients. This is because nurses should follow appropriate educational strategies for the control of hypertension.

6.1 Ethical Consideration and Validity

The thesis was conducted as a narrative literature review. According to the (Coughlan & Cronin 2017, 2-3.) all the appropriate data in the literature review must be collected in a systematic way to guarantee all the important data has been taken and critically assessed. This helps the reader to make a judgement on how robust the original studies were.

Ethical consideration is a vital part of the thesis. This helps the researcher to reach their goals which include information sharing, reporting, or telling the truth, and lastly, the need to correct mistakes. The development and approval of a research proposal is the first stage in the process, which leads to the actual research investigation. A researcher must choose the proper methodology to use, as well as applicable methods of data collection, present the research findings, and interpret them appropriately, resulting in the presentation of information in a logical order. When conducting research, a researcher must adhere to proper values at all phases. If a researcher is unable to follow the proper values at all phases, it can lead to scientific research misconduct. Any researcher who is involved in faking data violates the core goal of research ethics, making him or her dishonest and potentially misleading other researchers, at the same time, damaging their academic credibility. This is common when a researcher misuses their position of authority and uses it for their benefit at the expense of the vulnerable participants. (Akaranga & Makau 2016.)

This study carefully followed the guidelines of Centria University of Applied Sciences. These guidelines assisted in avoiding plagiarism and acknowledging other writer's work. The data was gathered through databases that were recommended by the Centria University of Applied Sciences. Articles picked for the narrative literature review were inspected and examined for a considerable time to guarantee that the data assembled was valid.

6.2 The Thesis Process and Professional Growth

The thesis plan was submitted in January 2021 and accepted in December 2021. The main thesis writing process was started at the beginning of January 2022 and completed the thesis in September 2022. I was guided by a research supervisor. I have deepened my knowledge about current nursing interventions for the prevention of hypertension during numerous literature searches. Relevant data were collected from various search results from academic databases after sorting out irrelevant data by reading them. Therefore, I have learned also some other important components of nursing education that are not related to this thesis topic, but it has improved my knowledge and skills that will support me to provide better care to patients in my nursing career. During conducting this research, I faced many challenges and learned how to overcome them through critical reasoning and critical thinking. This research has increased my self-confidence and competence in patient communication and clinical skills.

REFERENCES

Akaranga, I, S, & Makau, K,B, 2016. Ethical Considerations and their Applications to Research: A Case of the University of Nairobi. *Journal of Educational Policy and Entrepreneurial Research.* Volume 3. Page 1-9. Available at https://profiles.uonbi.ac.ke/kuria_paul/files/429-825-2-pb.pdf. Accessed on 6 April 2022.

Alex H. Krist, Sebastian T, Tong, Rebecca A, Aycock and Daniel R, Longo, 2016. *Engaging patients in decision-making and behavior change to promote prevention.* Studies in health technology and informatics 2017: 240: 284-302. Available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6996004/#!po=60.2273. Accessed September 1, 2022.

Alcohol Concern Organisation, UK, 2015. Alcohol and Hypertension Factsheet. Available at https://www.drugsandalcohol.ie/24301/1/Alcohol-and-Hypertension_Factsheet.pdf. Accessed March 22, 2022.

Alley, WD, Schick, MA, Doerr, C, 2021. Hypertension Crisis (Nursing). Statpearls. Available at https://www.ncbi.nlm.nih.gov/books/NBK568676/. Accessed 12 April 2022.

American Heart Association, 2022. How to accurately measure blood pressure at home. Available at https://www.heart.org/en/news/2020/05/22/how-to-accurately-measure-blood-pressure-at-home. Accessed March 24, 2022.

Arbe G, Pastor I, Franco J,2018. *Diagnostic and therapeutic approach to the hypertensive crisis.* Med Clin (Barc). Available at https://pubmed.ncbi.nlm.nih.gov/29174704/. Accessed on February 14, 2022.

Butcher, Howard K., Bulechek, Gloria M., McCloskey Dochterman, Joanne M. and Wagner, Cheryl M. (2018). Nursing Interventions Classification (NIC). 7th Edition. Publisher: Mosby. ISBN: 0323497705. Page 67 & 92.

Catherine L Winchester & Mark Salji, 2016. Writing a literature review. Available at: https://journals.sagepub.com/doi/full/10.1177/2051415816650133. Accessed 13/5/2021.

Coglan, M. & Cronin,P. 2017. Doing a literature review in Nursing, Health, and social care. 2nd edition. Los Angeles. Sage Publication.

Dalal, J, J, Kerkar,P, Guha, S, Dasbiswas, A, Sawheny, JPS, Natarajan, S, Maddury, S, R, Kumar, A, S, Chandra, N, Suryaprakash,G, Thomas, J, M, Juvale, N, L, Sathe, S, Khan, A, Bansal, S, Kumar, V, & Reddi,R, 2021. *Therapeutic adherence in hypertension: Current evidence and expert opinion from India.* Volume 73, Issue 6, Pages 667-673. Indian Heart Journal. Available at https://www.sciencedirect.com/science/article/pii/S0019483221001905. Accessed 22 March 2022.

Hilal Bahjet Shawki Al Saffar, Abdul Hafid Al Khazragy & Mona A K Ali. 2013. USAID. Hypertension, prevention, diagnosis & Treatment. Primary Health Care Project in IRAQ. Available at https://extranet.who.int/ncdccs/Data/IRQ_D1_Hypertension-MOH.pdf. Accessed 10 April 2022.

Himmelfarb CR, Commodore-Mensah Y, Hill MN, 2016. *Expanding the Role of Nurses to Improve Hypertension Care and Control Globally*. Ann Glob Health. 82(2):243-53. DOI: 10.1016/j.aogh.2016.02.003. PMID: 27372529. Available at https://pubmed.ncbi.nlm.nih.gov/27372529/. Accessed on March 3, 2022.

Healy, J, 2017. Cardiovascular Health. High Blood pressure and stroke. Page, 43. First edition. Publisher, Spinney Press. ISBN 9781921507762.

Katende,G & Becker, K, 2016. *Nurse-led care interventions for high blood pressure control: Implications for non-communicable disease programs in Uganda*. International Journal of Africa Nursing Science. Available at https://www.sciencedirect.com/science/article/pii/S2214139116300038. Accessed 12 April 22.

Leeman M, 2015. Management of severe arterial hypertension. French. PMID: 26591326. Available at https://pubmed.ncbi.nlm.nih.gov/26591326/. Accessed on 4th March 2022.

Lue, U, F, Chen, C, M & Hsu, C, Y, 2017. *Effect of home telehealth care on blood pressure control*: A public healthcare centre model. Journal of Telemedicine and Telecare. Volume 25. Pages 35-45. Available at https://pubmed.ncbi.nlm.nih.gov/29041841/. Accessed 3 March 2022.

McManus RJ, Little P, Stuart B, Morton K, Raftery J, Kelly J, Bradbury K, Zhang J, Zhu S, Murray E, May CR, Mair FS, Michie S, Smith P, Band R, Ogburn E, Allen J, Rice C, Nuttall J, Williams B, 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. Available at https://pubmed.ncbi.nlm.nih.gov/33468518/. Accessed 26 April 2022.

National Health Service, UK, 2019. High blood pressure. Available at https://www.nhs.uk/conditions/high-blood-pressure-hypertension/. Accessed March 28, 2022.

National Heart, Lung & Blood Institute. 2015. Your Guide to Lowering Your Blood Pressure With DASH. NIH Publication No. 06-5834. Available at https://www.nhlbi.nih.gov/files/docs/public/heart/dash_brief.pdf. Accessed on March 9, 2022.

National Heart Foundation of Australia, 2016, Guideline for diagnosing and managing hypertension, page,20. Melbourne. ISBN 978-1-74345-110-6.
Available at: https://resources.heartfoundation.org.au/images/uploads/publications/Measuring-your-blood-pressure-at-home.PDF. Accessed 23 march, 2022.

Omboni S. 2019. *Connected Health in Hypertension Management.* Front Cardiovasc Med. Available at https://pubmed.ncbi.nlm.nih.gov/31263703. Accessed 3 April 2022.
Potter, AP, Perry, GA, Stockert, AP & Hall, A, 2017. Essential for Nursing Practice. Ninth Edition. Elsevier. Chapter 1. Page 8.

Rego, ML, Cabral, D, A Costa, EC & Fontes, EB, 2019. *Physical Exercise for Individuals with Hypertension*: It Is Time to Emphasize its Benefits on the Brain and Cognition. Available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6444761/. Accessed 23 April 2022.

Snyder, H. 2019. Literature review as a research methodology: An overview and guidelines. Available at https://www.sciencedirect.com/science/article/pii/S0148296319304564. Accessed 26 March 2022.

Toney-Butler TJ, Unison-Pace WJ, 2021. Nursing Admission Assessment and Examination. Statpearls. Available at https://www.ncbi.nlm.nih.gov/books/NBK493211. Accessed 5 April 2022.

Uei SL, Kuo YM, Tsai CH, Kuo YL, 2017. *An Exploration of Intent to Use Telehealth at Home for Patients with Chronic Diseases.* Int J Environ Res Public Health. Available at https://pubmed.ncbi.nlm.nih.gov/29232853. Accessed 2 April 2022.

Varma, N, Rastogi, S, Chia, YC, Siddique, S, Turana, Y, Cheng, HM, Sogunuru, GP, Tay, JC, 2021. *Non-pharmacological management of hypertension*. Volume 23, Pages 1275-1283. The journal of clinical hypertension. Available at https://pubmed.ncbi.nlm.nih.gov/33738923. Accessed 22 April 2022.

Wei, T. M., & Omar, M. S, 2017. *Self-management approaches among hypertensive residents in nursing homes in Malaysia.* 12(3): 8–17. Available at https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5842418/. Accessed 22 April 2022.

WHO, 2020. Healthy Diet. Available at https://www.who.int/news-room/fact-sheets/detail/healthy-diet. Accessed March 3, 2020.

WHO, 2021. Hypertension. Available at https://www.who.int/news-room/fact-sheets/detail/hypertension. Accessed March 2, 2022.

WHO, 2022. Hypertension. Available at https://www.who.int/health-topics/hypertension#tab=tab_1. Accessed March 2, 2022.

Williams B, Mancia G, Spiering W, Agabiti Rosei E, Azizi M, Burnier M, Clement DL, Coca A, de Simone G, Dominiczak A, Kahan T, Mahfoud F, Redon J, Ruilope L, Zanchetti A, Kerins M, Kjeldsen SE, Kreutz R, Laurent S, Lip GYH, McManus R, Narkiewicz K, Ruschitzka F, Schmieder RE, Shlyakhto E, Tsioufis C, Aboyans V, Desormais I. European Society of Cardiology, 2018. *Guidelines for the Management of Arterial Hypertension. European Heart Journal.* Page 3021-3104. Available at https://www.escardio.org/Guidelines/Clinical-Practice-Guidelines/Arterial-Hypertension-Management-of. Accessed 12 March 2022.

Xhignesse P, Krzesinski F, Krzesinski JM, 2018. Les crises hypertensives [*Hypertensive crisis*]. Rev Med Liege. May;73(5-6):326-332. French. PMID: 29926574. Available at https://pubmed.ncbi.nlm.nih.gov/29926574/. Accessed on February 12, 2022.

Xiao, Y, Watson, M, 2019. Guidance on Conducting a Systematic Literature Review. Journal of Planning Education and Research. Volume 39, Pages 93-112. Available at https://doi-org.ezproxy.centria.fi/10.1177/0739456X17723971. Accessed 5 April 20.