PRIMARY CARE NURSES CLOSING THE EDUCATION GAPS FOR HYPERTENSIVE OLDER ADULTS: AN INTEGRATIVE LITERATURE REVIEW

by

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B.Sc.N., University of Northern British Columbia, 2018

PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF
THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF SCIENCE
IN
NURSING

UNIVERSITY OF NORTHERN BRITISH COLUMBIA

NOVEMBER 2024

Abstract

The high prevalence of hypertension among the Canadian older adult population is a significant public health care issue. The evidence indicates that primary care nurses are crucial in providing high-quality care and education for older adults diagnosed with hypertension. Further, nurses can close education gaps by focusing on lifestyle modification and action strategies. This project aimed to conduct an integrative literature review investigating the proposed research question: "How can nurses close the educational gaps for older adults diagnosed with hypertension by addressing the risk factors in the primary care setting?" A comprehensive search of several databases retrieved 19 primary sources that provided evidence related to hypertension education for older adults. The following themes emerged from the research: hypertension education, knowledge translation tools, barriers, cultural sensitivity and inclusivity, therapeutic interpersonal relationships, and a collaborative approach. A gap analysis was conducted in Prince George, British Columbia. The gap analysis further solidified the evidence found in the primary research. Recommendations for enhancing education, practice, and future research are discussed concerning hypertension education based on nurse encounters with older adult patients in the primary care setting. The findings from this project have important implications for supporting the nurse's educational role in the treatment and management of hypertension among the older adult population.

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My mother's health journey with hypertension inspired this project. I would like to express my sincere appreciation and thanks to my supervisor, Dr. Davina Banner-Lukaris, PhD for her guidance and support throughout this project. I would also like to thank my family and friends for the unimaginable encouragement, support, and love they have shown me.

Dedication

This project is dedicated to my amazing son, Dylan.

"The Lord bless you and keep you;

the Lord make his face to shine upon you, and be gracious to you;

the Lord lift up his countenance upon you, and give you peace."

Numbers 6:24-26

Chapter One: Introduction

Hypertension, or high blood pressure, is a leading cause of death and disability globally (Padwal et al., 2016; Brown, 2022). Hypertension is a severe medical condition that manifests as persistently raised pressure in the blood vessels (World Health Organization [WHO], 2023). In Canada alone, approximately 7.5 million people are struggling with this disease, equating to almost 20% of the Canadian population (Hypertension Canada, 2016). The prevalence of hypertension continues to rise and is influenced by an aging population, poor dietary and exercise habits, as well as a lack of awareness and education about hypertension. Researchers estimate that 90% of adults who live an average Canadian lifespan of 82.60 years will develop hypertension (Hypertension Canada, 2016; Statistics Canada, 2021). Hypertension is a significant healthcare issue as it often leads to the progression of other injuries and diseases, such as myocardial infarction, heart failure, stroke, kidney disease, dementia, and death (Center for Disease Control and Prevention [CDC], 2021). This results in premature loss of life, disability, loss of productivity, and an increased cost to the healthcare system (DeGuire et al., 2019). More specifically, older adults have a higher prevalence of hypertension than other population groups (Egan et al., 2024). Therefore, preventing, treating, and managing hypertension among this population is particularly beneficial as they are at a higher risk for developing hypertension and other chronic diseases (Padwal et al., 2016).

Nurses play a vital role in identifying, treating, and managing hypertension among the older adult population. By utilizing their skills and knowledge, nurses are well-positioned to combat hypertension by educating older adults about the hypertension risk factors. Nurses identify hypertension through assessment techniques such as blood pressure and vitals monitoring. They facilitate hypertension education through knowledge translation, health

promotion and action strategies. Nurses aid in inspiring and maintaining patient motivation for hypertension treatment adherence. Moreover, nurses actively listen to their patients and communicate with them, to create a mutual understanding of their unique needs. Furthermore, nurses work towards understanding the patient's fears, concerns, and comfort level with treatment. For this project, the term ‘nurse’ refers to a healthcare professional such as a registered nurse, a nurse practitioner, or a nurse educator. In addition, the term ‘older adult’ refers to a person sixty-five years or older. Research demonstrates a higher prevalence of hypertension within this age group (DeGuire et al., 2019).

The broad purpose of this project is to determine what gaps in hypertension education exist among older adults and how nurses can assist them in increasing their skills and knowledge to combat this chronic disease. This final project incorporates a multitude of components: an integrative literature review, a presentation of the findings, a thematic analysis, a gap analysis, and a discussion of the findings of the literature review. This project explores and examines the following pertinent research question: “How can nurses close the educational gaps for older adults diagnosed with hypertension by addressing the risk factors in the primary care setting?” These introduction chapters provide a description of the theoretical framework that underpins the project and an overview of the anatomy, physiology, and pathophysiology of hypertension. In addition, the epidemiology, risk factors, signs and symptoms, screening, detection and diagnosis, the nurse’s role, and the clinical guidelines for managing hypertension are set forth. It is beneficial to study the education gaps among this demographic to potentially find a solution to reduce the prevalence rate of hypertension among older adults living in Canada.

Theoretical Framework

A theoretical framework was selected to guide this project. As the literature review examines the sources related directly to the proposed research question, the fitting theoretical framework supports this research in illuminating the phenomenon and the adopted assumptions. The theoretical framework chosen is the Theory of Planned Behavior (TPB) proposed in 1985 by Iceland Ajzen. The TPB provides a framework for understanding human behavior and its psychological determinants. In simplified terms, the TPB outlines that (1) behavior is determined by a person's intention to perform that behavior; (2) the intention to perform a behavior or not is influenced by the following three factors: the attitudes toward the behavior, subjective norms, and perceived behavioral control (Godin & Kok, 1996; Fishbein & Azjen, 2010; Shi et al., 2019). The components of perceived behavioral control, attitude, and normative behaviors influence intention (Godin & Kok, 1996). The importance of these factors and their influence varies across behaviors and situations and is on a continuum that extends from absolute lack of control to total control (Godin & Kok, 1996). The concepts forming the foundation of the TPB are attitude, subjective norms, perceived behavioral control, intention, and behavior (Shi et al., 2019; Fishbein & Azjen, 2010). This framework is notably practical when the observed behaviors are under volitional control (Godin & Kok, 1996). Therefore, this theory relates to the project in that patient compliance with hypertension education and management could be enhanced by providing appropriate educational materials, thereby changing patient attitudes towards compliance and increasing their control for hypertension treatment and management. Overall, the TPB has been utilized to research and develop health-promoting interventions (Shi et al., 2019; Fishbein & Azjen, 2010).

Chapter Two: Background and Context

Hypertension is the intermittent or sustained elevation of diastolic or systolic blood pressure (Ministry of Health [MOH], 2020). A current definition of hypertension is a systolic blood pressure value of 130 mmHg or more and/or a diastolic blood pressure of more than 80 mmHg. According to the Ministry of Health, blood pressure and hypertension have multiple stages and classifications (Government of British Columbia, 2019; MOH, 2020). Hypertension ranges are described in Table 1. A detailed visual representation of the blood pressure classifications is located in Appendix A.

Table 1

Classification of Hypertension by Iqbal & Jamal (2023) and Government of BC, 2019.

Classification	**Range**
Low normal	<120 mmHg systolic and <80 mmHg diastolic
Normal	120-129 mmHg systolic and 80-84 mmHg diastolic
High normal	130-139 mmHg systolic and 85-89 mmHg diastolic
Hypertension stage 1	140-159 mmHg systolic and 90-99 mmHg diastolic
Hypertension stage 2	160-179 mmHg systolic and 100-109 mmHg diastolic
Hypertension stage 3	180 mmHg or greater systolic and/or 110 mmHg or greater diastolic

There are two significant types of hypertension: essential (primary or idiopathic) and secondary. Essential hypertension involves several interacting homeostatic mechanisms, while

secondary hypertension occurs when a systemic disease raises peripheral vascular resistance or cardiac output (Iqbal & Jamal, 2023). Malignant hypertension is the fulminant form of hypertension that can occur from either type (Iqbal & Jamal, 2023).

Hypertension and Older Adults

For older adults, hypertension is a very serious health condition that may result in the development of other life-altering ailments. There is currently no consensus among the medical community for a definitive treatment target for older adult blood pressure; however, Buford (2016) recommended a target blood pressure of < 145/85 mmHg. Further, treating older adults with this blood pressure reading significantly reduced mortality, stroke, and other cardiac events (Buford, 2016).

Careful consideration is required when managing an older adult patient's blood pressure. It is important to note that frailty is a known reason for a paradoxical relationship between lowered blood pressure in an older adult and increased mortality (Chinnakali et al., 2012). However, continued and sustained elevated blood pressure has been noted to cause a greater mortality rate than the former (Buford, 2016). Frailty is associated with a limited life expectancy. Thus, those older adults with frailty must weigh the risks and benefits with their healthcare provider to receive the appropriate treatment for their condition(s) (Chinnakali et al., 2012). To understand hypertension, it is critical to outline and understand the structure, function, and pathology of the blood pressure organs, described in the following sections.

Cardiac Anatomy and Physiology: Structure and Function

The Heart

The heart is a vital organ that functions to transport blood and nutrients to the body. The heart is cone-shaped, hollow, muscular, and about the size of a closed fist (Gavaghan, 1998; Jarvis & Saman, 2018). The heart is located in the center left of the chest and posterior to the sternum, within the thoracic cavity (Gavaghan, 1998). Three layers of tissue make up the composition of the heart: the outer lining called the epicardium, the middle muscle layer called the myocardium, and the inner lining called the endocardium, which function in muscle contraction, protection, the prevention of over-expansion, and maintenance of the shape of the heart (Jarvis & Saman, 2018). The heart consists of four chambers: right and left atria and the right and left ventricles. These chambers have two pumps: left atria and ventricle, and right atria and ventricle. The septum separates the left atrium and left ventricle from the right atria and right ventricle. The cardiac pumps provide blood to both the pulmonary and systemic circulations. The atrial muscle is separated from the ventricle muscle by a tissue that does not have any electrical conduction between the two except through the atrioventricular node (Rehman & Rehman, 2023).

The Heart Valves

The heart valves have thin but strong flaps of connective tissue (Cleveland Clinic, 2022). In optimal conditions, the cardiac valves prevent the backflow of blood and a one-way transport of blood flow (Jarvis & Saman, 2018). Each cardiac valve has cusps that are secured by chordae tendinae (Jarvis & Saman, 2018). The right atrium and ventricle are separated by the tricuspid valve, and this valve facilitates deoxygenated blood movement from the right atrium into the

right ventricle (Gavaghan, 1998). The left atrium and ventricle are separated by the bicuspid valve, and oxygenated blood flows through this valve from the left atrium into the left ventricle (Gavaghan, 1998). Then, oxygenated blood passes through the aortic valve into the aorta, transporting oxygenated blood to the rest of the body (Gavaghan, 1998, Jarvis & Saman, 2018).

Circulation of Blood Flow Through the Heart

The right atrium receives deoxygenated blood from the body, returning it to the heart via the superior and inferior vena cava (Gavaghan, 1998). The right atrium functions as a reservoir collecting deoxygenated blood. The blood then travels through the tricuspid valve to fill the right ventricle (Jarvis & Saman, 2018). The right ventricle pumps the deoxygenated blood through the pulmonic valve and into the pulmonary artery, where the blood receives oxygen.

Oxygenated blood is collected by the four pulmonary veins, two from each lung (Jarvis & Saman, 2018). These pulmonary veins transport the blood to the left atrium, collecting oxygenated blood. The left atrium empties the oxygenated blood through the mitral valve into the left ventricle through both passive flow and active pumping (Gavaghan, 1998). The oxygenated blood is then pumped through the aorta to provide oxygen and nutrients to the rest of the body (Jarvis & Saman, 2018). This blood circulation cycle repeats with each heartbeat.

Coronary Circulation

The heart requires an oxygenated blood supply from the right and left coronary arteries to support its function (Jarvis & Saman, 2018). The coronary arteries are located on the epicardium at the coronary ostia and penetrate deeper into the myocardium (Jarvis & Saman, 2018). The left coronary artery divides into the left anterior descending artery and the left circumflex artery. The

right coronary artery divides into the marginal artery and posterior descending artery (Gavaghan, 1998).

The deoxygenated blood flows through the coronary veins. The coronary sinus consists of small, middle, great and oblique veins, a left marginal vein and a left posterior ventricular vein that drains into the right atrium (Jarvis & Saman, 2018). Most coronary venous blood is drained into the coronary sinus, and the rest is drained directly into the heart (Jarvis & Saman, 2018). The lymphatic vessels form a dense network below the epicardium and endocardium of the ventricles and open into a lymphatic duct in the atrioventricular groove (Rehman & Rehman, 2023).

The Conduction System of the Heart

The cardiac electrical impulse starts in the sinoatrial node (the cardiac pacemaker) of the right atrium. The generated impulse fires to the internodal tract of Bachmann, Wenkebach, and Thorel (Gavaghan, 1998). This depolarization of the myocardium creates a contraction among the cells and leads to an impulse transmitted to the atrioventricular node in the interatrial septum with a slight delay (Jarvis & Saman, 2018). The delay allows the atria to empty the blood into the ventricle before the contraction of the ventricle. The impulse then travels to the Bundle of His and Purkinje fibers contracting the right and left ventricles (Jarvis & Saman, 2018).

Cardiac Cycle

The cardiac cycle is measured from the beginning of one heartbeat to the beginning of the next heartbeat, in a coordinated manner. This cycle involves systole, diastole, and diastasis cordis (Jarvis & Saman, 2018). Systole, or the relaxed phase, and diastole, the contraction phase, complete the cardiac cycle. The pressure within the chambers increases or decreases, which

opens and closes the cardiac valves. Blood flow relies on these pressure changes and blood flows from areas of higher pressure into lower pressure areas (Marieb & Hoehn, 2015).

In the atrial systole, the chamber is relaxed and filled with blood. After the atria are depolarized, they contract and push blood into the ventricles. At this point, the ventricles are in systole and fill with blood from the atria, increasing their pressure (Jarvis & Saman, 2018). This action pushes open the aortic and pulmonary valves to transport the blood to the larger vessels (Jarvis & Saman, 2018).

Cardiac Output, Stroke Volume, and Peripheral Vascular Resistance

Cardiac output is defined as the amount of blood ejected by the heart in one minute. It is determined by an equation: the stroke volume multiplied by the heart rate. Stroke volume is the amount of blood ejected from the left ventricle per heartbeat (Lakna, 2020). The amount can vary and depends on metabolic demands and any presence of pathology (Jarvis & Saman, 2018). On average, there are between three and five liters of blood each minute for cardiac output and between 60 and 70 milliliters of blood each heartbeat for stroke volume (Lakna, 2020). Stroke volume is determined by the equation: end-diastolic volume minus the end-systolic volume (Lakna, 2020). Peripheral vascular resistance is the blood vessel walls' ability to expand and accommodate increased blood flow without an increase in resistance or blood pressure (Lapum et al., 2017). Overall, blood pressure is influenced and regulated by five internal factors: cardiac output, peripheral vascular resistance, volume of circulating blood, blood viscosity, and elasticity of the blood vessel walls (Lapum et al., 2017).

Cardiac Anatomy and Physiology Changes among Older Adults

Several changes occur in older adults' cardiac anatomy and physiology and this often progresses with age. Specifically, the heart, blood vessels, and blood relay notable changes. The sinoatrial node loses some of its cells, and some of the pathways of this cardiac system develop fibrous tissue and fat deposits with age (Brodkey, 2022). These processes may result in a reduced heart rate. There is a slight increase in the size of the heart with age, specifically with the left ventricle (Brodkey, 2022; Nature Publishing Group [NPG], 2009). The wall of the heart thickens with age, leading to a heart that fills with blood at a slower rate (Stokes, 2009; Brodkey, 2022). In terms of the electrocardiogram (ECG) of the heart, there are often slight changes, and arrhythmias such as atrial fibrillation are more common in this demographic (Brodkey, 2022). Furthermore, some typical changes with advanced age include lipofuscin deposits, slight degeneration in cardiac cells, and stiffening and thickening of the heart valves (Brodkey, 2022).

The blood vessels have various changes that occur as a person ages. The baroreceptors that maintain blood pressure, especially when a person moves or changes their positioning, lose their sensitivity with aging, causing less blood flow to the brain (NPG, 2009). This results in a condition called orthostatic hypotension. The symptoms manifest as lightheadedness, dizziness and falls, especially among older adults (Rehman & Rehman, 2023). Furthermore, the capillary walls thicken with aging, which results in a slower delivery and exchange of nutrients and waste in the blood system (Brodkey, 2022). Lastly, the connective tissues of the aorta thicken and stiffen, making it less elastic and have decreased flexibility (Brodkey, 2022). This negatively impacts the ability of the cardiac muscle to pump blood to the lungs and the body, and also results in increased blood pressure.

The anatomy and physiology of the blood also impacts the aging process. As a person ages, there is a reduction in the amount of water in the body (Stokes, 2009). This means there is less fluid in the bloodstream which lessens the overall blood volume in the body. Additionally, the pace at which red blood cells are formed and made is slowed down (Brodkey, 2022). In turn, this leads to a reduced response time to blood loss and anemia. Furthermore, white blood cells remain the same in number but frequently lose some of their ability to fight off infection and bacteria, thereby decreasing the ability to fight infection (Brodkey, 2022).

Pathophysiology of Hypertension

Hypertension is caused by an increase in cardiac output, total peripheral resistance, or both. For cardiac output, a condition that increases heart rate or stroke volume will increase cardiac output and therefore create hypertension (Rebar et al., 2019). For peripheral resistance, any condition that increases blood viscosity or reduces the lumen size, especially the arterioles, will increase peripheral resistance, and increase blood pressure (Stokes, 2009; Rebar et al., 2019).

Hypertension starts with renin released from the kidneys into the bloodstream. Renin converts angiotensin into angiotensin I. In the lungs, Angiotensin I is converted to angiotensin II, a potent vasoconstrictor. Angiotensin II causes arteriolar constriction and aldosterone secretion, which causes sodium and water retention and increases the blood volume. Arteriolar constriction increases peripheral vascular resistance. Therefore, increased blood volume and vascular resistance cause increased blood pressure. There are several suggestions explaining the development of hypertension, as outlined by Rebar et al. (2019):

- Changes in the arteriolar bed which leads to increased resistance

- Increased tone in the sensory nervous system, originating in the vasomotor system, increases peripheral vascular resistance
- Increased blood volume from renal or hormonal dysfunction
- Increased arteriolar thickening resulting from genetic factors, therefore increasing peripheral vascular resistance
- Abnormal renin release results in the formation of angiotensin I (which constricts the arterioles and increases blood volume)

Secondary hypertension is thought to be caused by renovascular disease, renal parenchymal disease, pheochromocytoma, primary hyperaldosteronism, Cushing's syndrome, diabetes mellitus, dysfunction of the thyroid, coarctation of the aorta, pregnancy, and neurologic disorders (Rebar et al., 2019). The most common cause of hypertension is chronic renal disease. The pathophysiology process starts with injury to the kidney from chronic glomerulonephritis or renal artery stenosis, the renin-angiotensin-aldosterone system, or renal perfusion, which interferes with sodium excretion and increases blood pressure (Iqbal & Jamal, 2023). In Cushing's syndrome, the increased cortisol levels raise blood pressure by increasing renal sodium retention, angiotensin II levels, and vascular response to norepinephrine (Iqbal & Jamal, 2023). In primary aldosteronism, the increased intravascular volume, altered sodium concentrations in the vessel walls, or high aldosterone levels cause vasoconstriction, increasing resistance (Rebar et al., 2019).

Pheochromocytomas are secreting tumors of chromaffin cells in the adrenal medulla that function to increase the secretion of epinephrine and norepinephrine, causing hypertension (Stokes, 2009; Rebar et al., 2019). Hypertension is frequently asymptomatic until there are vascular changes in the heart, brain, or kidneys. High blood pressure damages the intima of the small blood vessels, resulting in vessel fibrin accumulation (Stokes, 2009).

Pathophysiology of Hypertension in the Older Adult Specifications

As humans age, there is more to learn about in regard to the pathophysiology effects of hypertension. The systolic blood pressure often increases, but the diastolic blood pressure tends to decrease (Rebar et al., 2019). This causes an increase in the pulse pressure. The increases in systolic blood pressure and pulse pressure are important risk factors to consider for cardiovascular disease. The increase in pulse pressure indicates a decline in the Windkessel function from a decline in the extensibility of the aortic wall, associated with the progression of atherosclerosis (Stokes, 2009).

The issue of the hemodynamics of hypertensive older adults is characterized by arteriosclerosis, decreased vascular elasticity and baroreceptor reflex, hypertrophy of the cardiac muscle, a decline in left ventricle diastole, and the impairment of fluid volume regulation in the body (Stokes, 2009). A further issue is the autoregulation of the blood flow to the target organs, leading the lower blood pressure limit to shift towards hypertension, leading to circulation disorders (Rebar et al., 2019). For metabolic processes, there may be disturbances of electrolyte homeostasis, such as hyponatremia and hypokalemia; there may also be insulin resistance and glucose intolerance in some older adult patients. (Stokes, 2009).

Epidemiology

Hypertension is a global public health issue and a leading cause of death worldwide (Olitobi & Kushitor, 2018). An estimated 1.28 billion people globally live with hypertension, and approximately 46% are unaware of their condition (WHO, 2023). Less than half of those with hypertension (approximately 42%) are diagnosed and treated (WHO, 2023). Additionally, only one in five of those with hypertension have the condition under control (Heart and Stroke

Foundation [HSF], n.d). These statistics make hypertension a significant cause of premature death worldwide. Those diagnosed with hypertension are three and a half times more likely to develop heart disease and other chronic diseases (HSF, n.d). The World Health Organization has set a global target to reduce non-communicable diseases such as hypertension by 33% between 2010 and 2030 (WHO, 2023).

In Canada, hypertension affects almost one in four adults, with a lifetime incidence of approximately 90% (DeGuire et al., 2019). Currently, there are an estimated six million adults who are struggling with hypertension, which equates to 19% of the Canadian population. Alarmingly, 17% of Canadians are unaware of their condition, and only 66% have received treatment for their hypertension (DeGuire et al., 2019). Interestingly, one in three Canadians would reduce their blood pressure to a healthy range if they consumed less sodium in their diets (DeGuire et al., 2019). Further, 71% of males and 69% of females aged 70 to 79 were three times more likely to be hypertensive than males and females aged 40 to 59 (WHO, 2023). Looking at the statistical trends over time, hypertension rates among all adults aged 20 to 79 remained relatively stable at 23% (crude) or 18% (age-standardized) (DeGuire et al., 2019). Furthermore, isolated systolic hypertension is twice as prevalent among females than males in Canada (DeGuire et al., 2019). Applying a new, lower blood pressure threshold significantly increased hypertension prevalence among males and females aged 20 to 79 (DeGuire et al., 2019). In British Columbia, the age-standardized prevalence rate for hypertension is 22.5 per 100 residents, and the annual incidence rate is 20.2 per 1000 residents over 20 years old in 2017-2018 (MOH, 2020).

As this project is focused on older adults, it is essential to note the epidemiology for this demographic. The burden of hypertension among older adults is high and is a significant

contributor to the morbidity and mortality in this demographic. For example, in the Chinnikali et al. (2012) study, the prevalence of hypertension among older adults was 40.5 %. Additionally, in male participants, the prevalence of hypertension was 39.2%, and in female participants, the prevalence was 40.8%. Of these participants, 38% were unaware of their hypertensive health status (Chinnikali et al., 2012). The locations where participants were diagnosed ranged from health facilities, primary health centers, and hospitals (Chinnikali et al., 2012). These statistics demonstrate that hypertension is a significant health problem among the older adult population and requires attention.

Risk Factors for Hypertension

There are a variety of risk factors for developing hypertension. The risk factors include older age, genetics, those who have diabetes, being overweight/obese, a lack of physical activity/a sedentary lifestyle, a high-salt diet, drinking too much alcohol, and tobacco use. These risk factors are explained in more detail below.

Age

Healthcare providers understand that blood pressure can increase with age. Approximately 90% of older adults will experience high blood pressure as they enter adulthood (Daskalopoulou et al., 2015; Government of British Columbia, 2019; & MOH, 2020). The incidence of hypertension is most significant among older adults. Despite age being a risk factor, there are many steps older adults can take to decrease their chances of being diagnosed with hypertension.

Genetics

Common hereditary factors and characteristics, such as race and ethnicity, are involved in developing hypertension. For example, black people are more likely to develop hypertension than white people, Hispanics, Asians, Pacific Islanders, American Indians, or Alaska Natives (Daskalopoulou et al., 2015). Moreover, black people are more likely to develop hypertension earlier in life than white people (Daskalopoulou et al., 2015; CDC, 2021; MOH, 2020). In terms of sex, men and women are approximately equal in terms of their risk for developing hypertension (MOH, 2020; Leung et al., 2019). However, family units share genes and environments that may influence health behaviors and increase their risk for hypertension (Daskalopoulou et al., 2015). The risk of being diagnosed with hypertension increases when considering both genetics and environmental factors such as smoking, poor diet and exercise, and tobacco use (Government of British Columbia, 2019; MOH, 2020; & Leung et al., 2019). Healthcare providers must obtain an accurate family history of their patients to assess their health risk for developing hypertension and all other risk factors.

Diabetes

Diabetes is an indicator of increasing a person's chance of developing hypertension. Approximately six out of ten people diagnosed with diabetes will also have or develop high blood pressure (MOH, 2020; Leung et al., 2019). This is because diabetes enables glucose to build up in the circulatory system. Glucose is not meant to build up in the circulatory system, and when it does, it causes damage by scarring the kidneys, which then raises a person’s blood pressure (Government of British Columbia, 2019; MOH, 2020). With time, too much glucose in the circulatory system also damages the small blood vessels which causes them to stiffen and not function properly (Government of British Columbia, 2019; MOH, 2020; & Leung et al., 2019).

Lifestyle Factors

There are also several lifestyle behaviors that contribute to the development of hypertension. First, consuming an unhealthy diet high in sodium puts a person at risk of developing high blood pressure (Leung et al., 2019). Sodium is mainly present in processed and fast foods. Not consuming enough potassium, a mineral required for proper bodily functions, also increases blood pressure. Second, poor amounts of physical activity and a sedentary lifestyle diminish the heart and vessels' ability to stay strong and healthy. Regular physical activity aids in maintaining a healthy weight, which can, in turn, help lower blood pressure (Leung et al., 2019). Third, when a person is overweight or obese, they have excess adipose tissue in their body. This leads to the heart having to pump harder to move the oxygenated blood around the body (CDC, 2021; Leung et al., 2019). With time, this often leads to added stress on the heart and blood vessels. Obesity is linked to high cholesterol and triglyceride levels (CDC, 2021; Leung et al., 2019). Fourth, a person who drinks alcohol may also develop hypertension. The current recommendations from the Center for Disease Control state that a woman should not consume more than one drink per day and a man should not consume more than two drinks per day (CDC, 2021). Fifth, the Center for Disease Control outlines that using tobacco increases a person’s risk of developing high blood pressure (CDC, 2021). Using tobacco damages the heart and blood vessels, and nicotine raises blood pressure (CDC, 2021). Breathing in carbon monoxide actually reduces the amount of oxygen a person’s blood carries (CDC, 2021; Leung et al., 2019).

Signs and Symptoms of Hypertension

Several signs and symptoms can occur when an older adult is experiencing high blood pressure. The NPG (2009) outlines that hypertension is often asymptomatic; however, a patient

may experience the following signs and symptoms, especially when their blood pressure is very high, such as greater than 160/110 mmHg:

- Headache
- Chest pain
- Dizziness
- Difficulty breathing
- Nausea
- Blurred vision or other vision changes
- Confusion
- Buzzing feeling/sounds in the ears
- Nosebleeds
- Abnormal heart rhythm (palpitations) or feeling of pulsations in the neck region

As hypertension can be asymptomatic, healthcare providers must check their patients' blood pressure, especially older adult patients', during routine visits to combat this chronic disease. It is also essential for healthcare providers to educate their patients on the signs and symptoms of hypertension so they may seek healthcare and treatment upon recognition of the disease.

There are specific manifestations that may occur among the older adult population. Blood pressure characteristics among older adults include an increasing systolic and pulse pressure, instability of blood pressure, increase in orthostatic and postprandial hypotension, an increase in the non-dipper-type nighttime blood pressure, an increase in morning surge, increased prevalence of white coat hypertension, auscultatory gaps (absence of Korotkoff sounds) as well as the presence of pseudo hypertension (Buford, 2016; NPG, 2009; Chinnikali et al., 2012).

Nurses Role

Nurses are uniquely positioned to make a difference in the lives of older adults with hypertension (Waters et al., 2022). Nurses have special training and expertise in assessing, screening, treating, and managing older adults with hypertension, among many other ailments. Nurses have the opportunity to bridge the gaps in hypertension education and knowledge among their patients. Nurses work in locations like public health clinics, private consultation offices, within the community, hospitals, and other venues. They meet with patients who have hypertension and who exhibit the risk factors for hypertension daily, which allows for education, support, and improvement in the quality of life for hypertensive older adults. Nurses can access resources and tools the general older adult population may not have. So, nurses can utilize these educational resources to combat the high prevalence of hypertension among older adults.

Nurses regularly face barriers that prevent and delay appropriate assessment, treatment and management of hypertensive older adults. Barriers include a lack of time and resources, excessive workload, and requiring more training and specific education regarding hypertension (Vendanthan et al., 2016). Nurses take steps to combat these barriers by seeking funding for resources and training and keeping abreast of the current data on hypertension.

The following sections outline aspects of nurses' roles and involvement. They explore screening, detection, and diagnosis, the clinical guidelines for managing hypertension, and how nurses can educate older adult patients. In addition, they present the barriers nurses face and the current gaps within hypertension education.

Screening, Detection and Diagnosis

Screening a patient's blood pressure must be completed as accurately as possible to diagnose and treat hypertension. Blood pressure is measured by a device called a sphygmomanometer. At each visit, patient consent is obtained to take their blood pressure using the appropriate device such as the recommended automated office blood pressure electronic device (AOBP) (Government of British Columbia, 2019; & MOH, 2020). The patient is informed of the tight sensation of the blood pressure cuff around their upper arm, not to exercise, drink coffee or smoke cigarettes 30 minutes prior to the blood pressure measurement, to use the washroom beforehand, and to sit in a chair for five minutes before the test (MOH, 2020).

The standard technique for blood pressure measurement requires the patient to be in a sitting position, their arm bare, and the cuff size appropriate for their arm. The middle of the cuff is at the heart level, and the lower edge of the cuff is three centimeters above the elbow crease (Government of British Columbia, 2019; MOH, 2020). In addition, the patient should not move during the measurement, have their legs crossed, and place their feet flat on the floor (Government of British Columbia, 2019; MOH, 2020).

Hypertension is diagnosed in adults when the AOBP reading is ≥ 135/85 mmHg. When a manual office blood pressure device (MOBP) is used, hypertension is diagnosed when the blood pressure reading is ≥ 140/90 mmHg (MOH, 2020; National Heart, Lung, and Blood Institute, 2022). 24-hour ambulatory blood pressure monitoring or standardized home blood pressure monitoring is recommended when a hypertension diagnosis needs to be confirmed (MOH, 2020; National Heart, Lung, and Blood Institute, 2022).

False blood pressure readings occur due to white-coat hypertension and masked hypertension. White-coat hypertension happens when a patient's blood pressure is elevated in front of the healthcare provider or their office but is in the normal range at home (Government of British Columbia, 2019; MOH, 2020). In this case, the provider leaves the blood pressure untreated. Meanwhile, masked hypertension refers to the opposite: when a patient is hypertensive at home and within the normal classification range in front of the healthcare provider or their office (MOH, 2020). Multiple blood pressure readings are necessary in both cases to determine if a patient has hypertension.

In addition to measuring a patient's blood pressure using the sphygmomanometer, many medical tests can be completed for a more definitive diagnosis of hypertension. The following tests are recommended: urinalysis, blood chemistry (potassium, sodium, and creatinine), fasting blood glucose/glycated hemoglobin, serum total cholesterol, low-density lipoprotein, high-density lipoprotein, non-HDL cholesterol, and triglycerides, fasting or non-fasting lipids, and standard twelve-lead electrocardiography (Government of British Columbia, 2019; MOH, 2020).

There are several reasons these medical tests are completed. One reason is that abnormalities in laboratory tests are common. Another reason is that laboratory tests can guide the prescribing of appropriate medications. For example, if the lab findings show a low potassium level, a prescriber would avoid prescribing certain diuretic classes of drugs for a hypertensive patient as it is not potassium-sparing (Wilson et al., 2016). A third reason is determining the risk for cardiovascular disease in hypertensive patients based on the severity of concomitant vascular risk factors (Wilson et al., 2016; Wen-Chun et al., 2022). In practice, the electrocardiogram can reveal abnormalities that show an increased risk for cardiovascular events

in the future (Wilson et al., 2016). Therefore, such a result would provide supportive evidence for a patient at a higher risk, affecting the prescribed therapy choice.

Screening older adults for hypertension is vital for optimal health. Hypertension among the elderly is often related to adverse cardiovascular outcomes like heart failure, strokes, myocardial infarction and death. There have been multiple clinical trials, such as the Systolic Hypertension in the Elderly Program (SHEP) and the Systolic Hypertension in the Very Elderly Trial (HYVET), that demonstrate the health benefits of controlled blood pressure (Bénétos et al., 2019). However, there is no consensus in the medical community on specific blood pressure measurement targets, and the guidelines are only recommendations for the older adult population (Bénétos et al., 2019). Treatment guidelines are tailored to each older adult patient's uniqueness and specific needs. Upon screening and diagnosis, the healthcare provider weighs the risks and benefits of various treatments. The provider determines the likelihood of their older adult patients developing complications from treatments such as orthostasis, falls, and renal dysfunction (Oliveros, 2020; Bénétos et al., 2019). This is often due to comorbidities, advanced age and their level of frailty. The research indicates that drastic or sudden reductions in blood pressure may harm the older adult population and exacerbate adverse outcomes (Oliveros, 2020; Bénétos et al., 2019).

When healthcare providers screen older adult patients, they must consider how they feel about their hypertension diagnosis and their needs and comfort during detection, screening, and diagnosis. Being diagnosed with hypertension is an emotional experience, as it is a condition that has no cure and can lead to other life-threatening diseases. It is vital that nurses provide support for their patients, including older adult patients, when it comes time for a definitive diagnosis and a discussion of management. Ultimately, within the patient-provider therapeutic relationship,

a discussion of the risks and benefits must be undertaken when screening and diagnosing hypertension so that the patient receives the best outcome possible.

Clinical Guidelines for the Management of Hypertension

Once a patient is diagnosed with hypertension, healthcare providers manage and treat it. A patient-centered discussion with the older adult patient is necessary to create an individualized treatment regimen that addresses the patient's specific needs. This strategy engages the patient and motivates them to create positive change through informed decision-making in their health condition, their current lifestyle, and their health behaviors. Discussion of the management of hypertension must also include conversations about the risks and benefits of each treatment.

The patient and the healthcare provider should work together to obtain an AOBP of less than 135/85 mmHg for those with no comorbidities like diabetes, kidney disease, or other conditions that target organ damage (MOH, 2020). In any case, the blood pressure that is considered most desirable differs for each patient as it is influenced by age, target organ damage, cardiovascular disease risk level, or other risk factors for cardiovascular disease. Further, it is also influenced by the patient's preference, medication side effects, and medication compliance.

The British Columbia Clinical Guidelines for hypertension suggest the desirable blood pressure reading of ≤135/85 as guidance only since optimal health for everyone is different (Government of British Columbia, 2019; MOH, 2020). In addition, the word “target” is not recommended to be used because hypertension as a treat-to-target approach is not considered a beneficial approach for hypertensive patients (MOH, 2020).

There are multiple avenues for managing hypertension, such as pharmacological and non-pharmacological approaches. Despite their usefulness, the pharmacological approaches to the

treatment and management of hypertension will not be emphasized for this project, as the pharmacological aspect of managing hypertension is not the focus of this project. This project focuses specifically on educating older adults regarding managing the risk factors of hypertension.

The first treatment healthcare providers recommend for hypertension management is healthy behavior changes (Waldstein et al., 2010). The fundamental benefits of changing lifestyle behaviors like smoking cessation, limiting alcohol intake, increasing physical activity and exercise, losing weight if overweight/obese or maintaining healthy body composition, and consuming a well-balanced diet while monitoring sodium intake show benefits in patients with high normal, stage I and stage II hypertensive patients (Waldstein et al., 2010; MOH, 2020).

A collaborative approach is very important in managing the risk factors for hypertension. Patients can access allied health professionals such as a registered dietician and exercise physiologist in British Columbia by referral from their healthcare provider or by calling Health BC on 8-1-1. In addition, patients can read information specific to British Columbia residents online through HealthLinkBC via articles such as *Lifestyle Steps to Lower Your Blood Pressure* and *A Guide for Patients: Diagnosis and Management of Hypertension*. These documents have been created for hypertensive patients and their families to educate themselves on steps they can take to manage their or their loved ones' newly diagnosed condition.

As mentioned above, health behavior modification is a crucial management strategy and a first-line intervention for those in the high normal, stage I, and stage II hypertensive patient categories. Recent studies demonstrated taking pharmacological treatment for hypertension but not initiating health behavior modification showed no reduction in all-cause mortality (Government of British Columbia, 2019; MOH, 2020; Leung et al., 2019). A diagnosed

hypertensive patient should aim for a body mass index (BMI) of less than 25, consume less than 2000 milligrams of sodium per day, consume less than two alcoholic drinks per day, receive 30 to 40 minutes of physical activity for an average of four to seven days per week, and aim to live in a smoke-free environment (McEwen, 2018; MOH, 2020).

The dietary approach to stop hypertension (DASH) focuses on vegetables, fruits, and grains and is recommended for those diagnosed with hypertension (Kaplan, 2016; McEwen, 2018). It includes fat-free or low-fat dairy products, fish, poultry, beans, and nuts (Kaplan, 2016; McEwen, 2018). The DASH diet limits foods high in salt, added sugar, and saturated fat. The research found the DASH diet reduced the systolic blood pressure by 11.4 mmHg and the diastolic blood pressure by 5.5 mmHg (Kaplan, 2016; McEwen, 2018; MOH, 2020). The research also found weight control reduced the systolic blood pressure by 6 mmHg and the diastolic blood pressure by 4.8 mmHg, reduced sodium intake resulted in a 5.4 mmHg reduction in systolic blood pressure and a 2.8 mmHg reduction in diastolic blood pressure (MOH, 2020). For heavy alcoholic consumption, a decreased alcohol intake reduced the systolic blood pressure by 3.4 mmHg systolic and diastolic blood pressure readings (MOH, 2020). Participation in physical activity resulted in a 3.1 mmHg systolic reduction and a 1.8 mmHg diastolic reduction in blood pressure (MOH, 2020). Lastly, various behavioral interventions resulted in an average 5.5 mmHg reduction in systolic and a 4.5 mmHg reduction in diastolic blood pressure (MOH, 2020).

Implementing self-management strategies can be helpful for older adults struggling with hypertension. This includes the patient completing ongoing blood pressure measurements at their home, committing to healthy behavior strategies for managing hypertension, and engaging with their healthcare provider and allied health professionals. At the least, an annual review of the

patient's medication, assessment of the continued implementation of health behaviors, evaluation of their risk factors, and examination for any evidence of target organ damage or deterioration of the older adult patient is pertinent (MOH, 2020). This chapter discussed the background and context of hypertension in significant detail. The next chapter presents the methodology and the findings of the integrative literature review.

Chapter Three: Literature Review and Findings

An integrative literature review with a comprehensive search was performed to answer the proposed research question: "How can nurses close the educational gaps for older adults diagnosed with hypertension by addressing the risk factors in the primary care setting?" This chapter will outline the methodology, such as how the research problem was identified, and the question was developed; the determination of the search strategy; database and article selection; data extraction and the critical appraisal of the results. Finally, the findings will be presented as a thematic analysis derived from the articles selected for this integrative review.

An Integrative Literature Review

An integrative literature review is an essential method of reviewing literature that analyzes empirical or theoretical research and seeks to obtain a greater understanding of a phenomenon or a healthcare problem (Torraco, 2005; Whittemore & Knafl, 2005; Dhollande et al., 2021). An integrative review examines data and concludes with dependable results that apply to practice and policy development (Torraco, 2005; Whittemore & Knafl, 2005; Dhollande et al., 2021). An integrative review may include various research designs, such as qualitative, quantitative, and mixed-methods research designs. This research approach enables the researcher

to obtain a holistic view of the chosen topic due to its synthesis of various forms of evidence (Whittemore & Knafl, 2005; Dhollande et al., 2021).

To provide patients with the best possible care, nurses require research evidence in various forms, such as experimental and non-experimental research, to inform their practice (Dhollande et al., 2021). Within nursing, integrative literature reviews inform care provision from a comprehensive perspective (Dhollande et al., 2021). This solid foundation of evidence provides healthcare professionals, such as nurses, with accurate evidence to use in practice.

Overall, an integrative review shows strength by thoroughly analyzing and evaluating the literature, recognizing gaps in the current knowledge, synthesizing research from various designs, creating new research questions, and developing theoretical frameworks (Whittemore & Knafl, 2005).

Integrative reviews warrant a specific skill set and format for completion. For such a comprehensive review, a researcher requires adequate time, energy, resources, patience, and a high literacy level. The formatting of an integrative literature review generally follows a systematic format as outlined by Dhollande et al. (2021):

- Identify the problem/write a research question
- Determination of a search strategy
- A critical appraisal of the results found
- A summary of the search results
- The data extraction and dissemination of results
- Thematic analysis
- Conclusion and the implications of the research

Integrative reviews are sufficient when they follow a specific format or guideline. A clear explanation of the review process is necessary to relay how the information foundation was understood, organized, and analyzed (Dhollande et al., 2021). Therefore, the following pages describe in detail these seven steps of the integrative review process.

Identification of the Problem and the Development of the Research Question

A research question forms the foundation for an integrative literature review. A clear and concise research question helps the researcher develop a research protocol and/or design (Whittemore & Knafl, 2005). The research question developed for this project was inspired by a number of events that occurred in my life experience. There are individuals in my family who have been diagnosed with hypertension. These individuals have taken steps to decrease their blood pressure through education on the modifiable risk factors for hypertension. They have made tremendous strides in improving their blood pressure and overall health. To aid in continuing this process, I wanted to gain further insight into the condition of hypertension and identify other potential solutions to combat this condition.

In my work as a registered nurse in Prince George, British Columbia, I saw first-hand the adverse effects hypertension has had on my patients' health, well-being, and their ability to manage activities of daily living. My experience was working in a long-term care facility, where part of my work was completing medication reviews twice a year for each patient. These medication reviews were part of a collaborative effort from the registered nurse, the pharmacist, the physician, the family of the patient, and the patient. In these meetings, I witnessed the prevalence of hypertension and the use of blood pressure medications. It became evident that hypertension is a significant health problem among the older adult population. Despite the reported benefits many hypertensive medications may have for patients, I was curious to explore

other measures patients could take to improve blood pressure control. It was these experiences and inspiration from my mother's health journey with hypertension that piqued my interest in gaining a greater understanding of hypertension. Not only can blood pressure be reduced through the modifiable risk factors for hypertension, but also how nurses close the gaps in hypertension education among the older adult population. These are the experiences that contributed to the identification of a current healthcare problem and the development of the research question.

Research Question Development

For this integrative literature review, the Sample, Phenomenon of Interest, Design, Evaluation, and Research type (SPIDER) template tool was fitting (Cooke et al., 2012). This template narrows down the research question and alludes to more targeted results for a literature search (Cooke et al., 2012). Again, the research question developed for this project is "How can nurses close the educational gaps for older adults diagnosed with hypertension by addressing the risk factors in the primary care setting?" The SPIDER template structure is outlined in Table 2 below.

Table 2

SPIDER Template

Title	**Explanation**
Sample	Nurses in the primary care setting
Phenomenon of **I**nterest	Provision of hypertension education to older adults
Design	Integrative
Evaluation	Any outcomes
Research Type	Integrative: qualitative, quantitative, mixed methods

Determination of a Search Strategy

When determining the search strategy, the researcher considers a preliminary search, search terms, the databases employed, the Boolean operators, the use of truncation and subject headings, as well as the inclusion and exclusion criteria (Whittemore & Knafl, 2005; Dhollande et al., 2021). The integrative literature review includes a detailed description of the search strategy. This format enables readers of the research to be able to reproduce the results. The steps taken to complete the search strategy are explained in detail below.

Preliminary Search

The research process for this project initially involved completing an environmental scan. An environmental scan is the search and examination of information about the chosen topic and the process of gathering information already available on a topic from both external and internal sources. I analyzed the current clinical guidelines for hypertension and various online cardiac and hypertension resources, such as the Heart and Stroke Foundation, Cardiac Services BC, Hypertension Canada, the Government of Canada (Statistics Canada), and the World Health Organization. I also completed an environmental scan within the local healthcare system, exploring where information was sourced from, the content of the information being shared, and how it is being relayed to patients in the older adult population. I also received guidance from my supervisor, Dr. Davina Banner-Lukaris, to gain further insight into the appropriate selection of sources to complete this integrative literature review. Completing an environmental scan ensures a holistic understanding of the topic and an accurate overview of the current information available about hypertension.

Terms Searched

After establishing the SPIDER template to create an appropriate research question and completing the preliminary search, the next step was to delineate the critical elements of this research question (Dhollande et al., 2021). The search terms generated for this review were derived by observing keywords within related published resources on hypertension, the thesaurus, nursing textbooks that discuss hypertension, and suggested search terms within the University of Northern British Columbia (UNBC) library database. The key search terms derived from these resources were:

- Sample: nurse, nurses, nursing, nurse-led. Primary care, primary care setting, primary care context.
- Phenomenon of Interest: hypertension, hypertensive, high blood pressure, resistant isolated systolic hypertension, malignant hypertension, white coat hypertension. Education, ongoing-education, patient education, teaching, schooling, instruction, information, training, enlightenment, explanation, illumination. Older adult, aging, aged, elderly, senior, geriatric, old-timer, old age pensioner

The list was refined to obtain relevant literature on the gaps in hypertension education for older adults. A key action was to ensure the appropriate search terms were used regarding the healthcare environment (primary care), healthcare professionals (nurses), and population (older adults). The Boolean operators “AND” and “OR” were used to connect the search terms.

Selecting Databases

The next step in the literature review process was choosing the databases. The databases selected for this literature review looked at the research aim and the scope of the information within each database (Whittemore & Knafl, 2005). A search of several databases revealed an extensive collection of research, ensuring the literature selected for this project had a collective

snapshot of the hypertension education gaps in the primary care setting (Dhollande et al., 2021). I met with the University of Northern British Columbia (UNBC) librarian, Keelan McCabe, at the end of January 2024. Together, we began the search database process on the UNBC library website. We utilized the Elton B. Stephens Company (EBSCO) website to access research databases. A narrow but comprehensive search strategy through the EBSCO host was pursued to capture the literature for this extensive literature review. Such a general search provided a result that captured the appropriate information.

The next step was to complete the searches independently within the databases named previously and screen the results. Due to the frequent research publishing, the date each database was researched was recorded. In all, I completed database searches on February 8, 2024. The databases searched for this literature review were the Cumulative Index to Nursing and Allied Healthcare Literature (CINAHL), Web of Science, APA PsychINFO, Medline/Ovid, and Google Scholar, upon recommendation by the UNBC librarian.

Selected Articles and Critical Appraisal

Criteria

Inclusion and exclusion criteria provided the specified search parameters that revealed pertinent data (Dhollande et al., 2021). Caution is used when determining the inclusion and exclusion criteria because it can lead to data searches that are too large and gather irrelevant information about the research topic; or too narrow, excluding pertinent information needed (Torraco, 2005). There are certain elements that must be considered when deciding on inclusion and exclusion criteria, such as the types of studies included, the topic being explored, the

outcome(s), the language of publication, the time frame, and the methods utilized (Whittemore & Knafl, 2005; Dhollande et al., 2021).

The following inclusion criteria were used in consideration of the research regarding appropriate inclusion and exclusion criteria. The inclusion criteria to obtain research from the outlined databases included the following:

- Human beings diagnosed with hypertension
- Human beings aged sixty-five years and older
- Human beings who have the cognitive ability to communicate and obtain knowledge
- Human beings who do not have other comorbidities, such as diabetes
- Patients who are educated by nurses in the primary care setting

Furthermore:

- Articles produced in the English language
- Articles published within the last ten years
- Articles addressing the non-pharmacological measures/interventions for hypertension reduction
- Articles discussing nurse-led education strategies
- Articles outlining experiences of nurse-led education of modifiable risk factors for hypertension among older adults
- Articles that are peer-reviewed

Exclusion Criteria

Choosing exclusion criteria in a database search has risks and benefits. Limiters save time by decreasing the vast amount of literature generated. However, some exclusion criteria require caution if used to introduce bias and/or obtain particular outcomes (Dhollande et al., 2021). In such circumstances, it is important for the researcher conducting the search to be aware of confirmation bias.

According to Whittemore and Knafl (2005), a researcher can decrease bias without limiting or excluding randomized controlled trials (RCTs), cohort studies, case-control studies, cross-sectional studies, systematic reviews, and meta-analyses. No limits were put on these types of studies for this search strategy. However, non-peer-reviewed briefs, editorials, unofficial documents, and opinion pieces, were excluded.

Expert researchers caution against restricting and limiting the sample size (Dhollande et al., 2021). This is because some studies, such as qualitative studies, naturally have small sample sizes, and this type of study contains helpful information informing the research question. For this literature review, no limits were put on the sample size.

The research warns about restricting the publication date of literature (Whittemore & Knafl, 2005). This is due to the general need to complete a broad scoping literature review to obtain comprehensive results (Dhollande et al., 2021). For this literature review, the publication date was limited to the previous ten years. This action was taken because there was an enormous amount of literature on my chosen research topic, and I sought the most accurate, up-to-date literature. However, I added two pieces of literature beyond this publication time frame because they provided valuable information to the project.

Research articles published in a language other than English, with no accepted translation available, were excluded from this literature review. According to the research, limiting the search strategy based on language may introduce some bias; however, it also prevents language translational errors as well as misinterpretations of cultures (Whittemore & Knafl, 2005; Dhollande et al., 2021). In addition, locations with significant differences in healthcare services and those with restricted resources may need more generalizability and clinical relevance to inform practice decisions (Dhollande et al., 2021). However, such exclusion of studies due to

their location may introduce a location bias (Dhollande et al., 2021). For this integrative literature review, no limits were placed on the location of the study.

Finally, the literature selected for this integrative review was peer-reviewed. A peer review occurs when researchers ensure appropriate and accurate data (Whittemore & Knalf, 2005). It is recommended that a search strategy removes the full-text limiter and changes to Boolean proximity operators that are peer-reviewed as well (Dhollande et al., 2021). When there was an inability to limit peer-reviewed articles in databases such as the Medline/Ovid database, article type limiters were selected to exclude briefs, editorials, and expert opinions. After determining the inclusion and exclusion criteria, the final search strategy was implemented in the databases.

Search Strategy and Summary of the Search Results

The search strategy completed for CINAHL Complete was DE “hypertension” AND DE “aged” AND DE “patient education.” The age search term was narrowed to human beings sixty-five years and older, and the term patient education used the function called ‘explode.’ The search was narrowed to include English-language articles only and limited the publication date to within the last ten years. This resulted in the CINAHL database retrieving 145 results.

The MEDLINE database's search strategy preferred the following search: hypertension AND aged OR older adults AND education OR health education OR education, continuing OR patient education as topic; it was limited to English-language articles published within the previous ten years, which yielded 185 articles.

The search strategy for the APA PsycINFO database was: DE hypertension AND DE education OR client education OR continuing education OR nursing education OR health

education AND DE geriatrics OR gerontology OR else care OR older adulthood OR geriatric patients OR older adult with limits to English language only and published within the last ten years, produced 12 results.

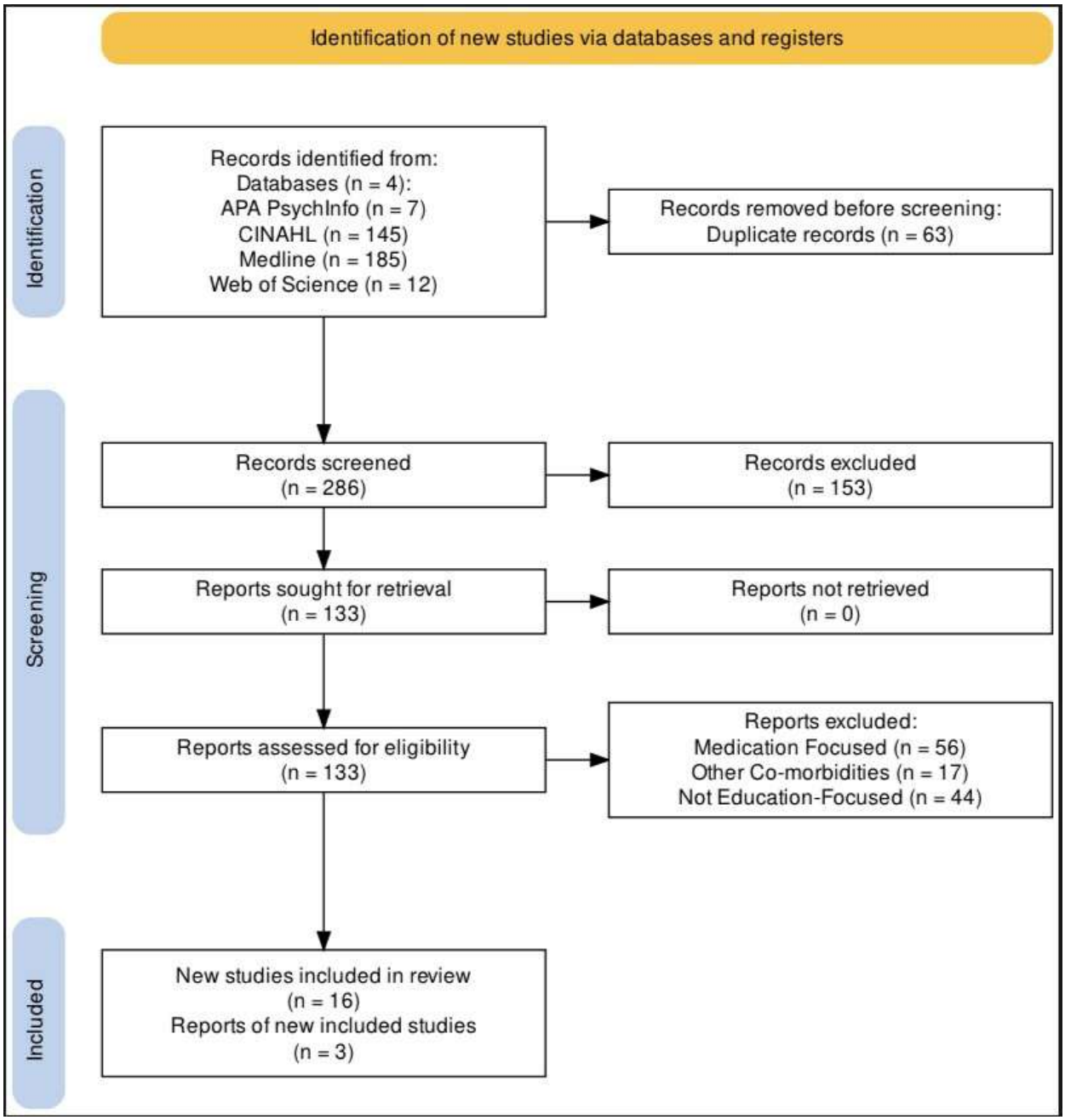
The search strategy for the Web of Science database was “hypertension AND patient education AND older adults”, with the limit of English language articles only, which yielded 40 results. The search strategy for Google Scholar was: “nurse-led” hypertension education for older adults which produced 220 results. Google Scholar was only used to obtain background information and the hand-searched clinical guidelines. Overall, 19 articles were chosen for this integrative literature review.

The Data Extraction and Dissemination of Results

The next step was the screening process, in which articles detected in the databases were assessed for their suitability for the integrative review. The screening process has been summarized in Figure 1 in the form of a Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram. Within the screening process, duplicate results were removed, and each article was screened via their titles and abstracts. A second screening was completed, and it was based on the full text of the retrieved articles. The purpose of this second screening was to remove the articles that were not relevant to the proposed research question. After this step, I retrieved the full-text articles and completed the critical appraisal.

Figure 1

PRISMA Flow Diagram by Haddaway et al. (2022)



Critical Appraisal

Each article was critically appraised and analyzed after the screening process. The tool that was used to complete this process was the Critical Appraisal Skills Program (CASP) tool. A critical appraisal of the research determined the relevance and trustworthiness of each particular study (Dhollande et al., 2021). Thus, each article's relevance to the research question was determined for sufficient quality (Dhollande et al., 2021). A review matrix in the form of an annotated table (Appendix B) was created. The annotated table was divided into columns and rows, which included a description and summary of the author and the study's location, the study's aim, the study, the type of study, the population being studied, the intervention taking place, and any essential findings from the papers. The methodology has been discussed, and the findings will be presented in the following pages.

A Presentation of the Findings and a Thematic Analysis

This section presents a synthesis of the research findings of the literature that informed the research question, “How can nurses close the educational gaps for older adults diagnosed with hypertension by addressing the risk factors in the primary care setting?” The 19 sources selected for this literature review included articles and clinical guidelines that addressed how nurses can close education gaps for hypertension among the older adult population. Each source met the inclusion and exclusion criteria. The research was completed in many different locations around the world, such as Greece, Spain, Iran, Thailand, Columbia, China (n=2), Brazil (n=4), South Africa, Uganda, the United States of America (n=2), and Canada (n=4). Most articles were produced within the last eight years (n=12), and all except three clinical guidelines were made within the previous 10 years. The sources older than ten years were hand-selected due to their

valuable and relevant information. Various articles were chosen, including six qualitative studies, five quantitative studies, five mixed-methods studies, and three clinical guidelines.

Upon thorough assessment and comprehension of the sources selected for this project, the following seven themes arose: hypertension education programs and tools for older adults, the barriers and facilitators in modifying the risk factors, self-efficacy, cultural inclusivity and sensitivity, therapeutic relations, and collaboration. Nine sources discussed educational programs to reduce high blood pressure for older adults. Four sources discussed cultural inclusivity and sensitivity, four sources emphasized the importance of self-efficacy, five sources explored nurse-patient therapeutic relations, eight sources examined collaboration, and four sources discussed the barriers to lifestyle modification. A brief description of each article is presented as an annotated table in Appendix B.

Hypertension Education Programs and Tools for Older Adults

This section outlines the hypertension education programs and tools presented in the literature findings. The findings revealed nine education programs and five intervention tools helpful for hypertensive older adults. Education programs were collectively defined as individuals or groups of individuals who took part in teaching lessons conducted by nurses and/or health educators to improve blood pressure control. Education programs and intervention tools were critical findings in the literature and necessary findings to answer the research question comprehensively.

The Roudi et al. (2016) experimental study enrolled 60 elderly participants in a primary care nurse and peer-led education program. The program consisted of four nurse-guided education sessions, 45 to 60 minutes in length, and were held in primary care settings. In the first

session, the participants shared their lived experiences with hypertension, hypertension symptoms and the challenges they face. In the second session, the participants learned what hypertension is, its causes, parameters warranting a diagnosis, treatments, and measurement techniques. In the third and fourth sessions, the strategies to improve quality of life were discussed. At the end of each session, the participants received a pamphlet.

The findings of Roudi et al. (2016) demonstrated an improved quality of life for the participants after improving their knowledgebase about hypertension through the education sessions. The findings of the one-way ANOVA in the intervention groups revealed hypertension education facilitated an increase in the participants' physical functioning ($p<0.001$), reduced bodily pain ($p<0.03$), negated role limitations due to emotional problems ($p=0.01$), and improved emotional wellbeing ($p<0.04$) (Roudi et al., 2016). The Roudi et al. (2016) study differed from other studies in this review in terms of the topics discussed within the educational strategy, they involved peer educators, and there was a significant focus on improving quality of life.

The mixed-methods study by Nanyonga et al. (2021) implemented a lifestyle change education and support program called *The Bundled Education and Support with Text (BEST)* intervention. This program incorporated diet, physical activity, smoking cessation and stress management as participant interventions, and included a weekly text message. Blood pressure and weight were obtained at the baseline assessment and then at three-, six-, and nine-month intervals to observe the changes. A 'self-care hypertension inventory' was implemented to observe lifestyle modifications. The education sessions included nurse-led meetings twice a month where older adults participated in a fifteen-minute educational session that encouraged lifestyle modification. The topics included the following: improving diet, increasing physical activity, smoking cessation, minimizing alcohol use, and treatment adherence. The findings of

this intervention revealed enhanced lifestyle modification, improved biometric outcomes, and behaviour changes at 3, 6, and 9 months into the intervention (Nanyonga et al., 2021).

Additionally, the Nanyonga et al. (2021) study found that the program enhanced participant ability in the following: eating more fruit and vegetables ($p = 0.043$), eating a low-fat diet ($p = 0.016$), and trying to lose weight/control body weight ($p = 0.015$). The results also indicated reduced stress levels ($p = 0.038$), and calling a doctor/nurse for guidance ($p = 0.013$). There were significant improvements in recognizing changes in one's health ($p = 0.031$), following treatment regimens ($p = 0.018$), and taking action that will control blood pressure ($p = 0.005$). The initial average systolic blood pressure was 148.9 mm Hg (SD = 24.8) and the final was 139.4 mm Hg (SD = 21.3), resulting in an overall decrease in systolic blood pressure of 9.5 mm Hg ($p = 0.001$). The initial average weight was 80.5 kg (SD = 13.7), and the final weight was 72.8 kg (SD = 11.5). The average difference in weight was statistically significant at 7.7 kg (SD = 4.5; $p = 0.001$).

Another program was implemented in the Alves de Lima et al. (2017) qualitative study, and they created a six-session hypertension education program conducted by a registered nurse. These sessions were completed over an eight-month period, equating to approximately one visit per month. Primary care nurses who met with the participants had discussions on eating habits, sodium consumption, obesity, physical activity, dyslipidemia, smoking cessation and alcoholism. Activities were carried out using materials like explanatory posters, engravings, folders, demonstration of exercises and interactive games to evaluate knowledge regarding healthy eating habits were utilized.

The findings of the Alves de Lima et al. (2017) study revealed that hypertension prevention occurs through lifestyle and environment changes and that conducting regular health

exams to identify and diagnose hypertension promotes population health. The Alves de Lima et al. (2017) study particularly emphasized that maintaining a healthy weight, consuming healthy foods, and participating in physical activities are necessary to reduce blood pressure. The study concluded with the finding that committing to health education promotes the adoption of healthy habits to reduce hypertension prevalence among older adults (Alves de Lima et al., 2017).

Ho et al. (2016) observed an educational initiative consisting of oral and written information that defined hypertension, its causes, and the cardiovascular risk factors. This program was an effective way to increase hypertension awareness and knowledge for the older adult population through both written and oral information. Overall, the findings revealed that an individualized approach to educating older adults about hypertension is favorable (Ho et al., 2016).

The Wright et al. (2022) study was a focus group education intervention implemented by a registered nurse, two graduate nursing students, and a licensed dietician. Over a period of four weeks, the topics covered in the focus group sessions were: (a) learning more about hypertension, (b) interpersonal communication stress, (c) sleep and pain, and (d) healthy eating (Wright et al., 2022). The assignments over the course of the sessions focused on content to try at home such as, keeping a food and sleep diary, practicing interpersonal communication skills, and setting health related goals. Each session was 120 minutes in duration. During week one, participants were asked to complete a food intake diary and a sleep journal. For week two, participants were encouraged to share personal experiences in the context of hypertension and African American Culture to learn problem-solving and communication breakdown. During week three, participants completed a ten-minute mindfulness body scan exercise. In addition, participants were given a food diary to fill out two full days of eating consumption and a

www.choosemyplate.gov sheet that visually illustrates a healthy plate of food choices (Wright et al., 2022). During week four, participants worked with the dietitian and completed a salt quiz. At the end of the focus group, participants could "volunteer to have their food diary reviewed by the dietitian and the group. Together they identified healthy substitutes for cooking favorite ethnic meals (soul food), such as using olive oil, celery, and spices for seasoning collard greens instead of cured fatty cuts of pork" (Wright et al., 2022, p 236). The findings revealed by Wright et al. (2022) determined that culturally tailored strategies are a potential solution to improving blood pressure self-care, and lifestyle interventions to reduce blood pressure must fit within an individual's culture, routine and self-care practices.

Meanwhile, the Ongkulna et al. (2022) study implemented the Geragogy-Based Self-Management Education Program (GBSEP), a group-based intervention with eight to ten participants per group to transform participants from passive to active care recipients. The program was presented in person over three consecutive weeks, and the six sessions were two hours long. The various educational sessions incorporated the following: enhancing awareness and motivation for change; information about hypertension, complications, treatments, and proper self-management; essential skills for effective self-management like dietary planning, practical exercises for older adults, emotion management, and relaxation techniques. The resource used for this intervention was a personal use booklet for older adults called *Living a Happy Life with Hypertension.*

The findings demonstrated that pre-intervention, health literacy scores were at a moderate level, and post-intervention health literacy scores increased to a high level (Ongkulna et al., 2022). Furthermore, pre-intervention, the self-efficacy scores of both groups were at a moderate level; post-intervention, the intervention group had a high level of self-efficacy, and the control

group remained at a moderate level (Ongkulna et al., 2022). Lastly, during the pre-intervention, both groups' self-management behavior scores were mild; post-intervention, the experimental group reached a high level, while the control group had no change (Ongkulna et al., 2022).

Learning how to self-manage hypertension through education programs was found to be the most successful means of improving blood pressure control (Magobe et al., 2017; Li et al., 2022; Chen et al., 2020; Ho et al., 2016; Roudi et al., 2016; Ongkulna et al., 2022). Self-management is the "self-care activities individuals engage in to maintain their lives, health, and comfort. The purpose of self-management education is to improve the patient's self-management skills through education" (Li et al., 2022, p. 73). Notably, the Li et al. (2022) article conducted a systematic review and network meta-analysis that determined ways to self-manage hypertension. The systematic review involved a total of 464,000 patients, which found a ten mmHg decrease in systolic blood pressure and a five mmHg decrease in diastolic blood pressure significantly reduced a patient's chance of suffering from cerebral vascular events and heart disease (Li et al., 2022). Interestingly, self-management was more effective than other interventions, such as moderate-intensity aerobic exercise and resistance training, isometric training, the DASH diet, traditional health education, and lifestyle interventions (Li et al., 2022).

Despite these findings, Li et al. (2022) encouraged other strategies to control blood pressure and improve overall patient health. Li et al. (2022) also determined a helpful educational strategy for older adults when learning about self-management is continuous courses and tailored education programs. An individualized approach is favored, and one-time interventions with no tailoring are less impactful for controlling blood pressure (Li et al., 2022).

On the other hand, the meta-analysis by Chen et al. (2020) found that sodium-reduction training, efficacy maintenance, individual and group education, self-monitoring strategies, lifestyle behavior modification education, and high blood pressure advice were the most effective methods of controlling blood pressure (Chen et al., 2020). Therefore, it was concluded from the findings that "repeated group education and tailored counselling based on personal needs and preferences are crucial for older patients with hypertension and significantly increase their adherence to lifestyle changes" (Li et al., 2022, p. 75).

Similarly, the Magobe et al. (2017) qualitative study reinforced the Li et al. (2022) study by determining patient experiences in facilitating their self-management of hypertension. Magobe et al. (2017) found that those patients suffering from hypertension for one to 10 or more years had significant experience with their condition that motivated the facilitation of making their lifestyle changes. Therefore, controlling blood pressure is possible with nurse-led education for self-management of hypertension and experience managing the condition (Magobe et al., 2017).

Alternatively, the Chatziefstratiou et al. (2021) interventional randomized study incorporated a specific nurse-initiated education intervention called HeartScore, for hypertensive older adults. HeartScore is an online interactive assessment tool for predicting and controlling the risk of cardiovascular events. HeartScore provides a visual representation of cardiovascular disease risk (see Figure 2) (Chatziefstratiou et al., 2021). HeartScore is based on the following measurements: systolic blood pressure, total cholesterol, and smoking habits (Chatziefstratiou et al., 2021). The findings demonstrated that older adult patients and their nurses who use HeartScore can match their systolic blood pressure and cholesterol levels with their age and smoking habits to estimate their cardiovascular risk (Chatziefstratiou et al., 2021). Furthermore,

the findings revealed that older adults who use HeartScore can easily visualize their place on the risk chart, ranging from the color green, indicating low risk, to the color red, indicating high risk (Chatziefstratiou et al., 2021). The findings showed that patients and their providers who use the HeartScore tool multiple times can measure their baseline and, over the long term, assess the severity of their condition and the effectiveness of an intervention (Chatziefstratiou et al., 2021).

The Chatziefstratiou et al. (2021) study also found that total cholesterol was reduced in both the control and intervention groups and "the rate of decrease in intervention group patients who completed the study (n=47) was significantly higher than in the controls who completed it (n=45) ($P<0.05$)" (Chatziefstratiou et al., 2021, p. 725). At the time of the initial assessment, "systolic blood pressure was at the same level in the two groups, as was the rate of variation during the 12-month follow-up period ($P>0.050$)" (Chatziefstratiou et al., 2021, p. 725). Lastly, 8.0% of the control group had smoked upon initial assessment, and this rate dropped to 5.3% over the following 12 months ($P>0.050$) (Chatziefstratiou et al., 2021). The percentage of smokers in the intervention group had been 10.6% at baseline assessment, increasing to 13.6% over the following 12 months. A barrier noted by Chatziefstratiou et al. (2021) was the lack of local smoking cessation services, which negatively impacted successful smoking cessation. Overall, the total cardiovascular risk was reduced in the intervention group from 4.75 to 4.33 ($P>0.05$), while the control group saw an increase in risk from 10.03 to 12.65 ($P=0.035$). More specifically, the incidence of major adverse cardiac events was 1.3% in patients to whom the HeartScore was applied and 2.0% among those receiving usual care (Chatziefstratiou et al., 2021).

The Chatziefstratiou et al. (2021) study emphasized a limitation in the HeartScore tool relaying that the actual risk will be higher than what is calculated in the following circumstances: people who have a sedentary lifestyle, who are overweight, who are socially isolated, who have a family history of sudden cardiac death, who have other comorbidities such as diabetes mellitus, a high level of low-density lipoprotein (LDL) cholesterol and/or high triglyceride levels, and patients without symptoms but who have atherosclerosis identified through a diagnostic methods (Chatziefstratiou et al., 2021). Overall, the findings of this study indicate the HeartScore tool should be incorporated into the routine care of older adult patients with hypertension (Chatziefstratiou et al., 2021).

Figure 2

HeartScore Chart by Chatziefstratiou et al. (2021)

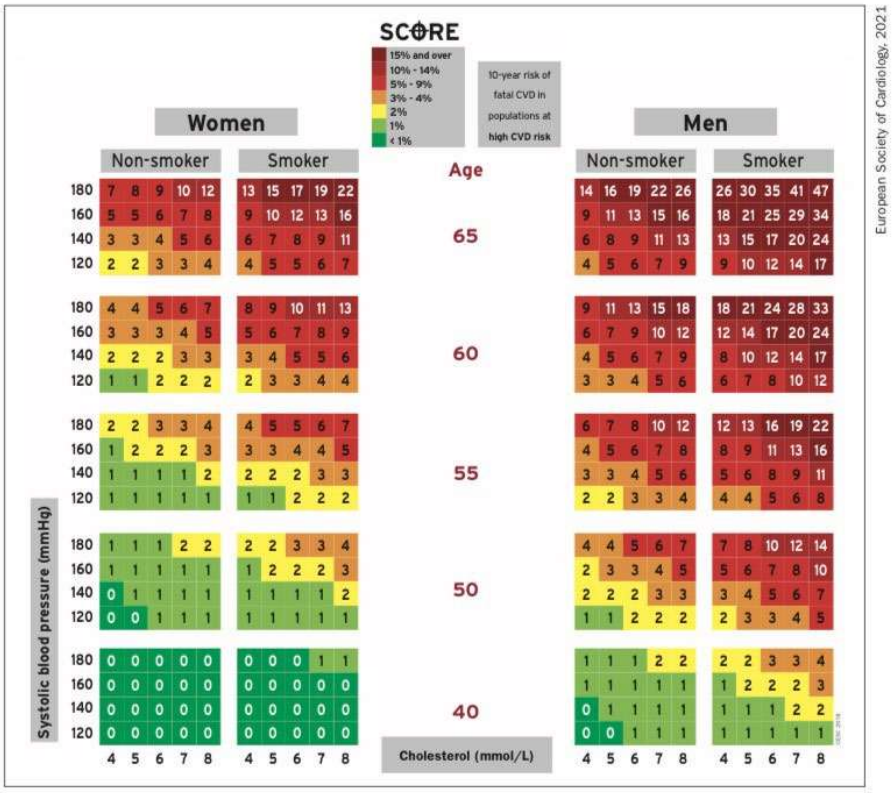


Figure 1. Score: European risk chart. 10-year risk of fatal cardiovascular disease in high risk regions of Europe by gender, smoking status, age, systolic blood pressure and total cholesterol (Source: European Society of Cardiology, 2021)

Alternatively, the Zou (2019) study was the only study that implemented a dietary-specific educational training program that was five weeks in length called Dietary Approach to Stop Hypertension with Sodium (Na) Reduction for Chinese Canadians (DASHNa-CC), which involved 30 Chinese-Canadian older adults. The participants completed a telephone interview at the end of the educational program in which they identified facilitators and barriers that influenced their ability to follow the DASHNa-CC. The impact of this hypertension education intervention was helpful in focusing on dietary habits and improved health literacy of the participants as well as lending to the identification of unique factors experienced by older adults, such as mobility and frailty-related issues that may influence cardiovascular health and other health outcomes (Zou, 2019).

Education Materials and Health Literacy Tools

This section presents the literature findings of the education materials and the health literacy tools nurses use in their practice to increase hypertension knowledge and management of the disease for older adults. Educational materials that convey hypertension education were reported to be a helpful intervention, including pamphlets, posters, folders, journals, songs, videos, interactive games, handouts, and booklets for note-taking (Alves de Lima et al., 2017; Nanyonga et al., 2021; Wright et al., 2022). Out of these material options, written materials were the main focus of the literature. However, the Machado et al. (2014) study specifically highlighted the use of visual images to communicate and teach older adults about hypertension. Education materials that have pertinent takeaway messages that reinforce the main concepts and ideas of the lesson were found to be the most helpful to study participants (Alves de Lima et al., 2017; Machado et al., 2014; Nanyonga et al., 2021; Wright et al., 2022).

The Machado et al. (2014) article found that health literacy assessment tools were used by nurses to "identify the abilities of elderly patients regarding the search, understanding and use of health information to improve the management of hypertension" (Machado et al., 2014, p.106). The Machado et al. (2014) study found age was negatively correlated with health literacy, which demonstrated the need to include educational materials in the form of visual images and involve nurses and professionals with this vulnerable population (Machado et al., 2014). Researchers used S-THOFLA for a sample of American citizens diagnosed with hypertension and obtained a prevalence of inadequate health literacy rate of 30.3% and 8.2% of marginal health literacy (Machado et al., 2014). This was thought to be due to "fewer years of schooling, as well as old age and a greater number of years living with hypertension were associated with inadequate abilities" (Machado et al., 2014, p. 105-6).

Machado et al. (2014) used the *High Blood Pressure-Health Literacy Scale* (HBP-HLS) instrument to assess various health literacy dimensions. The dimensions are reading, understanding, and pronouncing words related to hypertension and its treatment. A final dimension is functional literacy, which is the instruction to perform specific tasks associated with managing hypertension (Machado et al., 2014). The multiple-choice questions were divided into the ability to read and pronounce words related to hypertension and its treatment (30 items) and functional literacy (7 items). The classification consisted of mastery of reading/pronunciation (correct/incorrect, ranging from 0-30) and mastery of functional literacy (correct/incorrect, ranging from 0-13). The estimated time to complete this assessment was 10 to 15 minutes. The HBP-HLS asked questions assessing a patient's ability to understand nutritional information. For example, HBP-HLS utilized a nutritional information label on a package of ramen noodles with high sodium content. The findings revealed that the assessment identified whether the patient

could decide if this food should or should not be consumed, as sodium reduction is one of many aspects involved in healthier eating habits. This scale had excellent internal consistency of the items with coefficients of 0.88 and 0.89, respectively (Machado et al., 2014). The test in English for clinical validation of the scale was conducted on older adults (Machado et al., 2014).

Another tool used by Machado et al. (2014) was the *Korean Health Literacy Scale.* This tool asked twenty-four assessment questions in a multiple-choice format. These twenty-four numerous-choice questions were divided into the following categories: ability to read, use numbers, and health-related terminology that contained short passages, images, and charts (Machado et al., 2014). The tool assessed abilities for reading and numeracy (13 items) and recognition of health-related words (11 items) also via the multiple-choice question format (Machado et al., 2014). The classification was the cutoff point to distinguish health literacy levels (Machado et al., 2014). The estimated time taken to complete this assessment was 15 to 20 minutes.

The *Short-Test of Functional Health Literacy in Adults (S-TOFHLA)* was another tool discussed in the literature that assessed baseline knowledge. The questions used were related to reading comprehension (36 items) (Machado et al., 2014). The classification system for this tool was scored as the following: inadequate (0-16); marginal (17-22); and adequate (23- 36) (Machado et al., 2014). This tool is the short version of the *Test of Functional Health Literacy in Adults (TOFHLA)*. The difference between the two tests is that the TOFHLA includes four numeracy items that are not present in the short instrument (Machado et al., 2014). The estimated time to complete S-TOFHLA was between seven and 12 minutes.

Lastly, the *Rapid Estimate of Adult Literacy in Medicine (REALM)* tool was developed for use in adults and provides a quick estimate of the reading level of words commonly used in a

medical environment, involving only the recognition of words and not the understanding of the individuals (Machado et al., 2014). The test consists of simple words organized into two columns containing words with one or two syllables and with three or more syllables (Machado et al., 2014). The instrument is validated in English, Spanish, and Portuguese languages. The assessment tool asks about patients' ability to recognize and pronounce health-related words/terms (66 items) (Machado et al., 2014). The classification for this tool was converted into reading levels (0-9) (Machado et al., 2014). The estimated time to complete the application was three minutes.

The findings clearly showed that the education materials and health literacy assessment tools presented in the literature are helpful in providing a solid baseline of the patient's level of understanding of hypertension and facilitating hypertension education (Machado et al., 2014). Nurses were found to use various education and health literacy tools to aid older adults in learning about hypertension (Machado et al., 2014; Nanyonga et al., 2021; Wright et al., 2022). The following section briefly presents the literature on practical nurse assessment strategies for hypertensive older adults.

Assessment Strategies

The findings revealed helpful assessment strategies nurses can use for hypertensive, older adult patients in their practice. First, oral information shared directly by nurses to the patient expanded their knowledge base regarding hypertension, and they were able to apply the information to their own personal lives (Roudi et al., 2015; Ho et al., 2016; Resende et al., 2018; Wright et al., 2022; Wen-Wen Li et al., 2015; Chen et al., 2020; Zou, 2019). For example, Ho et al. (2016) used oral information to teach participants what blood pressure readings are, what organs can be targeted and damaged by hypertension, and the risk factors associated with

hypertension. Oral information about healthy eating, physical activity, smoking cessation, and minimal alcohol intake was also helpful for participants (Magobe et al., 2017; Chen et al., 2020)

Second, the findings showed limiting the distractions in the setting where education is occurring was impactful for older adults (Nanyogna et al., 2021; Roudi et al., 2016). It is a priority to reduce distracting stimuli like background noises and information that is not relevant (Nanyogna et al., 2021). For example, Nanyogna et al. (2021) conducted interviews in a quiet room that was free of distractions.

Third, nurses who pronounce their words, speak slowly, and use a low-pitched tone are better received by older adult patients (Wright et al., 2022; Roudi et al., 2016). Fourth, avoiding technical terminology and jargon and instead using plain language that older adult patients are comfortable with is beneficial to educating older adults about hypertension (Parrish, 2022). For example, a nurse may use 'heart attack' instead of 'myocardial infarction' or 'knee' instead of 'patella.' Fifth, the literature revealed that determining the best way for a patient to learn new knowledge is an influential factor in hypertension education (Chen et al., 2020; Lopez-Mateus et al., 2017). Sixth, stimulating the patient's interest or making them interested in their condition was an essential strategy for hypertension education in the literature (Nanyogna et al., 2021; Lopez-Mateus et al., 2017). Moreover, an individualized approach is pivotal for this strategy because each patient has differing needs (Lopez-Mateus et al., 2017; Parrish, 2022).

Seventh, the research found that settings where older adults felt familiar, comfortable, and safe, were beneficial in improving education outcomes (Nanyogna et al., 2021; Lopez-Mateus et al., 2017; Chen et al., 2020). Settings that were recommended for education in the literature were: Adult Day Centers, primary care clinics, and patient home visits (Lopez-Mateus

et al., 2017). Nanyogna et al. (2021) noted a barrier due to their surroundings, as some participants struggled to walk up the stairs. Furthermore, it was determined that the morning or afternoon hours were best for the older adult demographic (Lopez-Mateus et al., 2017). It is also recommended that the location remain the same if multiple sessions occur (Nanyonga et al., 2021).

Lastly, routine follow-up is when the nurse contacts the older adult patient and/or their caregiver(s) after the first appointment at a later and specified time (Lopez-Mateus et al., 2017; Ho et al., 2016; Roudi et al., 2016). Following up with patients was found to be a way of preventing complications and hospital readmissions by educating patients and having them take steps toward improved lifestyle management (Ho et al., 2016). Routine follow-up provides continuous monitoring of older adult patients' goals and tracking their progress on their health journey to support their ongoing efforts and encourage their sustained success in improving blood pressure control (Wright et al., 2022).

Barriers to Hypertension Education and Modifying the Risk Factors

Several barriers outlined in the literature were experienced by both the older adults and the nurses involved in achieving controlled blood pressure. Barriers were prominent in the findings when it came to making changes and improvements to health and well-being from both the perspective of the patient and provider (Magobe et al., 2017; Resende et al., 2018; Zou, 2019; Wright et al., 2022). There were four articles that identified barriers to blood pressure control and managing risk factors.

Individual and Familial Levels

The literature review found barriers to hypertension education on individual and familial levels. The Resende et al. (2018) study determined that having a lack of knowledge is a barrier to adherence to treatment. When hypertension education is lacking, or there needs to be a better understanding of information, this leads to poorer health outcomes (Resende et al., 2018). Moreover, when patients understand their disease condition, how it affects them, and the potential consequences, they are more likely to adhere to treatment (Resende et al., 2018). However, participants considered high risk for or experienced an adverse hypertensive event were more motivated to consume a healthier diet and increase physical activity (Resende et al., 2018).

The Resende et al. (2018) article outlined other barriers, such as forgetfulness and cognitive ability, fear of various treatments and making changes, and a lack of family and social support. Socio-demographic aspects, changes in emotional state, and a lack of accessibility to health professionals influenced the participants' ability to educate themselves on reducing their blood pressure (Resende et al., 2018). In addition, there was a strong relation found between non-adherence to treatment and forgetfulness, fear of treatment, and a lack of personal and professional support. On top of this, participants expressed emotional distress as a barrier, resulting from their condition and having to manage it (Resende et al., 2018).

A second study by Zou (2019) noted different barriers experienced by hypertensive older adults such as difficulty changing regular routines and traditions, having a personal health condition, and having low intrinsic motivation, especially when the individual is otherwise healthy (Zou, 2019). Meanwhile, on a familial level, barriers to healthy eating behaviors

included: succumbing to different preferences within family and having a unique family structure such as living alone (Zou, 2019).

In the Zou (2019) article, the participants reported difficulty in changing eating habits they acquired over their lifetime, suggesting it is a time-consuming process requiring substantial willpower. More specifically, participants expressed those consuming healthier foods equates to eating less flavorful food, and there is a barrier to maintaining a balance between what they consider healthy food and delicious-tasting food (Zou, 2019). Another barrier disclosed by Zou (2019) was some study participants expressed their current health conditions were a barrier to eating healthier. For example, the study outlined that some participants had food intolerances which limited the foods they consume, such as lactose intolerance, posing a barrier to healthier eating (Zou, 2019). In the same study participants also reported a lack of motivation to engage in diet changes when they perceive themselves as already healthy individuals.

On the familial level, the Zou (2019) participants expressed a barrier in circumstances where they felt they lacked control when one family member cooked for the family unit and in circumstances where there was the inability to cook themselves. Family influence can create difficulties where there are differences in perceived health needs and diet needs across family members and if they are not supportive of the older adult trying to initiate positive diet changes (Zou, 2019). On the other hand, some participants reported living alone was a barrier to healthier eating. Further, it was reported cooking and eating nutritious foods felt overwhelming and was an immense responsibility (Zou, 2019). The findings emphasized that some participants require that food is convenient, and convenient foods are often not considered to be healthy as these types of foods are processed and have large amounts of sodium (Zou, 2019).

Community Level

On a community level, the one barrier identified in the findings was the influence of community gatherings. In such situations, it was gathered that it is particularly difficult to meet healthy eating recommendations at parties and gatherings (Zou, 2019). The findings also revealed positive benefits to older adults participating in community health education workshops, reading printed educational materials from community organizations, and engaging with friends and/or online social groups to share ideas and gain knowledge (Zou, 2019).

Societal Level

On the societal level, the societal factors identified in the research that acted as barriers to healthy eating included living a busy and fast-paced lifestyle and frequently eating at restaurants (Zou, 2019). The findings revealed a societal factor promoting healthy eating behaviors in the participants, and this included the accessibility and promotion of more nutritious food options located in supermarkets and grocery stores (Zou, 2019). Participants expressed that the local markets in their area provide various food options to facilitate a healthy diet (Zou, 2019).

Cost

Wright et al. (2022) briefly discussed cost as a factor in hypertension treatment both from the view of the government and the individual. The researchers found a common issue among the participants was the inability to afford hypertension treatment (Wright et al., 2022). They alleviated the cost burden for the participants by providing them with enough funds to cover their transportation to the research location and found free and cost-effective educational resources from the National Heart, Lung and Blood Institute, as well as the American Heart Association (Wright et al., 2022). Overall, the estimated intervention cost was approximately $227.00 in

American currency for each participant, far less than that of a hospital admission and/or re-admission.

Location

The Wright et al. (2022) article emphasized the impact location has on the ability to improve health conditions. Magobe et al. (2017) further suggested there are higher rates of hypertension in rural areas as opposed to urban areas. It is recommended that health care for hypertension in the primary care setting is accessible to the patients it intends to serve. Therefore, healthcare near the patients' location is one way to improve health and lower blood pressure (Wright et al., 2022).

Self-Efficacy

Three articles focused on self-efficacy, a theme in the research explored for this integrative literature review. Self-efficacy is a belief in one's ability to exhibit behaviors by reaching a particular goal (Ongkulna et al., 2022). A person with a higher level of self-efficacy can view challenges as opportunities rather than threats and recover from any failures more quickly than a person with a low level of self-efficacy (Ongkulna et al., 2022). A person with a lower level of self-efficacy will tend to avoid complex or challenging tasks, lose faith in their potential and abilities, and view such tasks as personal threats (Ongkulna et al., 2022). Interestingly, those who have a low level of self-efficacy tend to struggle also with higher rates of depression and anxiety (Magobe et al., 2017). The Ongkulna et al. (2022) study indicated people with hypertension with high self-efficacy could better control their blood pressure.

The Magobe et al. (2017) qualitative study explored the experiences of older adults diagnosed with hypertension regarding facilitating their health-promoting lifestyle changes

through education in a primary care clinic. The researchers identified through six focus groups and 14 individual interviews that the participants' perception of their ability (self-efficacy) to engage in regular physical exercise and dietary changes impacted their ability to make changes (Magobe et al., 2017). Overall, the findings showed that participants who had poor self-care practices, in turn, had poor self-efficacy, which was demonstrated by a lack of health behaviour changes. This snowballed into a result of uncontrolled blood pressure as well as health complications from hypertension. For example, some participants described poor self-efficacy and had reasons for not engaging in health behaviour changes, such as anxiety and fear. The same participants described themselves as self-conscious and considered themselves to be under the scrutiny of others (Magobe et al., 2017). The study determined that all people, including hypertensive older adults, have the personal quality of self-efficacy, which can be developed within everyone (Magobe et al., 2017).

Ongkulna et al. (2022) implemented the *Hypertensive Self-Management Self-Efficacy Scale (SMSES)* in a pre-test and post-test format that measured self-management self-efficacy of older adults with uncontrolled hypertension. The SMSES "consisted of 26 items, including taking antihypertensive medication (6 items), dietary modifications (4 items), weight control (2 items), physical exercise (6 items), avoiding risk factors (4 items), stress management (2 items), and follow-up visit (2 items) (Ongkulna et al., 2022, p. 694). The questions were framed as the following: "You have confidence to take antihypertensive drugs every day" and "You have confidence to reduce or avoid high-sodium consumption" (Ongkulna et al., 2022, p. 694). A 4-point Likert scale scoring system was used that measured participants' level of self-efficacy: ranging from 1 (less confidence) to 4 (most confidence) (Ongkulna et al., 2022). The total possible scores range from 26 to 104, and the scores were separated into 3 levels based on class

intervals: low (26-52), moderate (52.01-78), and high (78.01-104); and higher scores indicate higher levels of self-efficacy (Ongkulna et al., 2022). Using Cronbach's alpha coefficients, the internal consistency reliability in the study was 0.97 (Ongkulna et al., 2022).

The findings in the pre-test were that the mean scores of both groups were similar at a moderate level (Ongkulna et al., 2022). After the intervention was completed, the self-efficacy mean scores of the experimental group increased to a high level (Ongkulna et al., 2022). They were gradually higher at the end of the program and one- and three-months post-program (Ongkulna et al., 2022). In contrast, the control group remained moderate in the pre-test and the post-tests. The findings show that self-efficacy is one of the decisive factors affecting hypertension self-management (Ongkulna et al., 2022). A high level of self-efficacy strengthens and maintains healthy self-management behaviors to reduce blood pressure (Ongkulna et al., 2022). The Ongkulna et al. (2022) randomized control trial further aligned with the Magobe et al. (2017) study, finding those with hypertension and low self-efficacy had low self-management behaviors, resulting in a lack of motivation and discontinuation of healthy behaviors.

Cultural Inclusivity and Sensitivity

Another theme that appeared in the literature is cultural inclusivity and sensitivity. Cultural sensitivity and inclusivity create an understanding of cultural differences, promote respect for everyone's culture, and foster a culture of collaboration and diversity (Wen-Wen Li et al., 2015). Cultural sensitivity and inclusivity were found to be essential in creating a safe and inviting environment where individuals are encouraged to relay unique perspectives, beliefs and cultural backgrounds (Wen-Wen Li et al., 2015). Currently, the literature findings noted limited culturally sensitive health education materials available regarding hypertension management tailored for the older minority populations (Wen-Wen Li et al., 2015). \

Nurse-led interventions in the primary care setting that are effective and culturally tailored are needed for older adults to improve blood pressure control (Wen-Wen Li et al., 2015). The findings of this study revealed effective interventions for improved blood pressure control among older adults include culturally sensitive and inclusive education (Lopez-Mateus et al., 2017). In contrast, the Wen-Wen Li et al. (2015) study found this was the case, along with carefully assessing individual characteristics. The findings further revealed many older adults are grounded in their cultural history and hold dear to their cultural traditions and values throughout their lives (Li et al., 2015).

A culturally sensitive education intervention explored in the literature was developed by Wen-Wen Li et al. (2015), and it is the Chinese Medicine as Longevity Modality (CALM) protocol. The protocol consisted of three general parts: (1) culturally sensitive educational material on hypertension management provided in a video format, (2) two nurse-led individualized counselling sessions, and (3) four phone call follow-ups with the same nurse (Wen-Wen Li et al., 2015). The CALM protocol integrates known effective intervention modalities for hypertension management, incorporated via patient assessment, education, and behavioral approaches in the patient's culture (Wen-Wen Li et al., 2015).

The educational materials developed by Wen-Wen Li et al. (2015) had the following culturally sensitive and inclusive aspects: (1) a video presenting the educational material, narrated in Chinese with background music; (2) vivid and relevant images, such as Chinese herbs and medicine logo; and (3) appropriate volume for the Chinese music to ensure pleasurable viewing of the content (Wen-Wen Li et al., 2015). The video was accessible as evidenced by the developers uploading the video to YouTube. The video content contained four main cultural themes: "(1) general hypertension knowledge and management with Chinese cultural health

practices; (2) salt intake reduction using alternative spices or Chinese herbs; (3) incorporation of Chinese herbs into a Western-style HTN management regimen; and (4) improvement of medication adherence by incorporating the Chinese elders' cultural lifestyle and health practices into strategies to achieve optimal blood pressure control" (Wen-Wen Li et al., 2015, p. 497). The findings of this study demonstrated that the availability and feasibility of the implemented educational tool are important factors in the success of a hypertension education intervention (Wen-Wen Li et al., 2015). Furthermore, the study found that culturally appropriate interventions are vital when helping older adults achieve increased control over their blood pressure (Wen-Wen Li et al., 2015).

The Lopez-Mateus et al. (2017) study explored cultural inclusivity and sensitivity as it identified local resources of the municipality of Sopó-Cundinamarca, Colombia, as part of an educational strategy promoting healthy diet and exercise for hypertension management in the elderly. Lopez-Mateus et al. (2017) integrated the municipality's culture, traditions and resources into their education intervention. Lopez-Mateus et al. (2017) agreed with Wen-Wen Li et al. (2015), finding that "interventions aimed at supporting the adherence of healthy lifestyles to the elderly should include and preserve the context of the community of which they are part, where community resources are the inputs that allow health promotion" (p. 1-2). Lopez-Mateus et al. (2015) determined that "an effective and sustainable intervention for the elderly can be achieved through the following activities: appropriation of the agricultural resources, the strengthening of dance as a form of exercise, use of motivational strategies, support of institutions that work with the welfare of the elderly, and the empowerment of facilitators" (p. 2).

Wright et al. (2022) also incorporated cultural inclusivity and sensitivity into their focus group sessions. The study's participant population was 31, and they were asked to talk about both

positive and negative experiences with their family and friends in the context of their culture. The study found that participants discussing family support, spirituality, and reverence for their elders impacted hypertension management (Wright et al., 2022).

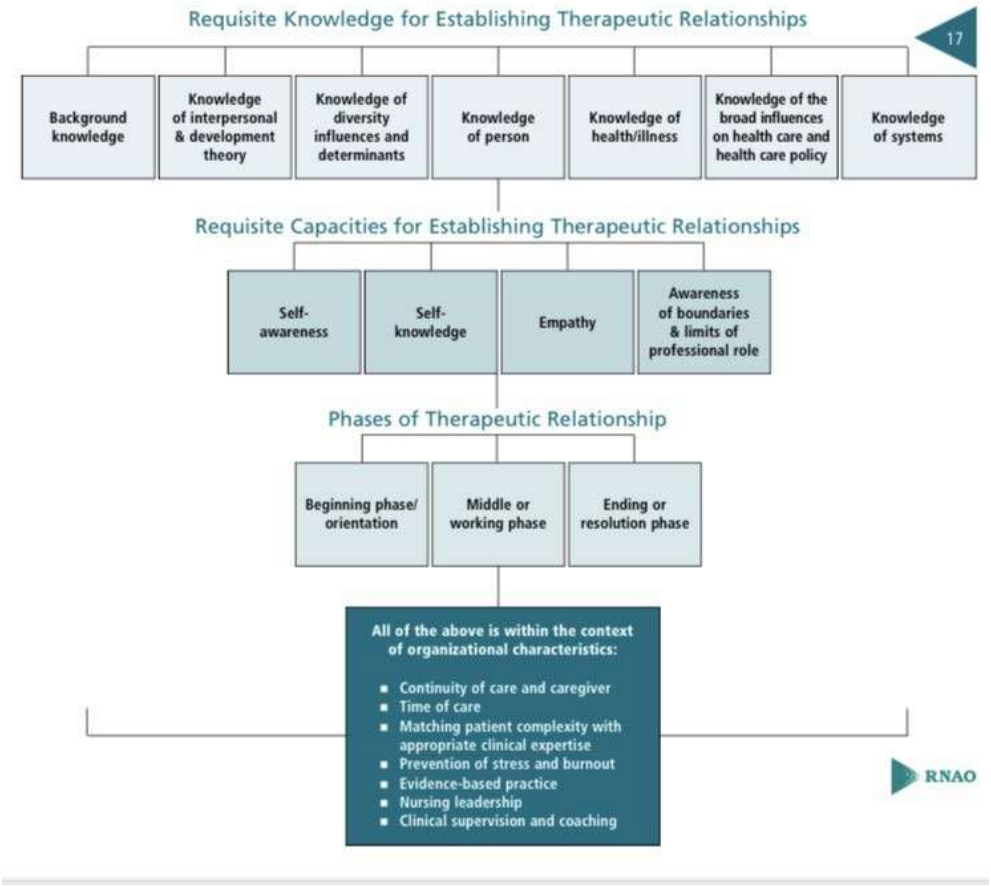
Promoting Therapeutic Interpersonal Relationships

Another relevant theme in the literature was therapeutic interpersonal relationships between the nurse and the patient. The literature revealed the nurse-patient therapeutic relationship is the core of nursing (College of Nurses of Ontario [CNO], 2006). Furthermore, the therapeutic relationship is "grounded in an interpersonal process that occurs between the nurse and the client(s)" (RNAO, 2002, p.13). The findings demonstrated five main aspects of the nurse-patient relationship that must be present are: trust, respect, empathy, professional intimacy, and the appropriate use of the nurse's power (CNO, 2006).

The RNAO (2002) clinical guideline revealed therapeutic interpersonal relationships are a primary component in every healthcare interaction that facilitates the creation of positive nurse-patient experiences through effective communication (RNAO, 2002). Furthermore, they are ideally relationships that encompass caring, provide support, express no judgment, and incorporate safety through an often-stressful time in a patient's life (RNAO, 2002). Interpersonal therapeutic relationships between the patient and nurse were reported to last briefly or over the long term. Lastly, the interpersonal relationship between the patient and the nurse follows a process of phases: orientation, working, and resolution (RNAO, 2002). In addition, some relationships follow a series of non-therapeutic phases: orientation, grappling and struggling, and mutual withdrawal (RNAO, 2002). RNAO (2002) developed the following framework to guide the therapeutic relationship between the patient and the nurse (See Figure 3).

Figure 3

Framework for Therapeutic Relationships by RNAO (2002)



Machado et al. (2014) described nurses in the role of health educator in the therapeutic relationship as one of enabling the older adult patient to improve their coping ability. This is developed by forming a therapeutic relationship that increases the level of involvement of the patient, with the aim of empowering them (Machado et al., 2014). Due to cognitive decline in many older adults, the findings reported that a nurse must also assess the individual's ability to make decisions for their health (Machado et al., 2014). The findings also determined that a nurse must work towards the patient's best interest and not take advantage of or disregard any potential disability impacting decision-making (Machado et al., 2014). Furthermore, the nurse must

uphold the ethical principles of informed consent, autonomy, and non-malfeasance, which fosters the therapeutic relations between the nurse and the patient (Machado et al., 2014).

For older adults, specifically in a nurse-patient therapeutic relationship, a nurse must pay attention to any peculiarities that may compromise an older adult's ability to make treatment decisions (Machado et al., 2014). In addition, the nurse must pay close attention to the patient's level of health literacy (Machado et al., 2014). The therapeutic relationship breaks down when the patient feels misunderstood or cannot grasp the information being shared with them (Wright et al., 2022). This often leads to poor compliance and adherence to the recommended treatments (Machado et al., 2014). When a solid therapeutic relationship is facilitated, patients can feel comfortable and safe to ask questions, and the nurse can implement continuous education over many encounters instead of a one-time encounter to share hypertension information (Li et al., 2022). In this way, the therapeutic relationship helps navigate emotional feelings like chaos, which regularly occurs upon diagnosis (Wright et al., 2022). In this context, the findings state the overall purpose of the nurse and patient therapeutic relationship is to promote well-being, foster trust, and add to the success in implementing ways to improve health and reduce blood pressure (Wright et al., 2022).

A Collaborative Approach and Support

A final theme in the literature was a collaborative approach to educating hypertensive older adults. According to the research, a collaborative approach involves healthcare professionals taking complementary roles and working together as a team while sharing responsibilities for decision-making and solving problems to create effective care plans for patients (O'Daniel & Rosenstein, 2008). Similarly, a similar finding was a collaborative approach exists when people with various professional backgrounds deliver holistic and

comprehensive healthcare to patients, families and their local communities to deliver the highest quality of care (Anand, 2024). One study determined that a collaborative approach to care is the type of healthcare services provided at different levels to ensure “continuity of health promotion, disease prevention, diagnosis, treatment, disease management rehabilitation, and palliative services based on individual needs across the lifespan” (Anand, 2024, p 77). Furthermore, the same study relayed that a collaborative approach to healthcare is used to “organize, fund, and deliver health care and other resources to achieve better outcomes, experiences, and better utilization of resources" (Anand, 2024, p. 77).

The Wright et al. (2022) paper identified a negative effect on older adults when there is a lack of collaboration from peers, family, and caregivers when making dietary changes to improve blood pressure control. For example, a particular challenge was noted when peers, family, and caregivers cook foods with high fat, sugar, and salt, negatively influencing older adults trying to implement healthier food choices (Wright et al., 2022). Resende et al. (2018) confirmed that low-income families and social collaboration interfere with any supportive and collaborative effort for adherence to modifying hypertension risk factors. The Resende et al. (2018) study recommended that in consultation with their primary care nurse, older adults can determine appropriate support, such as healthcare professionals, to contribute to a collaborative approach to combating hypertension. In support of this finding, the Alves de Lima. (2017) revealed that primary care nurses are well-positioned to collaborate with their patients and colleagues to make informed choices and to connect their patients with other supportive groups to empower them.

Ho et al. (2016) further supported the other studies, expressing those older adults believed it was essential to have support from family or friends involved collaboratively in their disease process. In addition, Ho et al. (2016) determined the support of a peer, friend, and family

member(s) in a patient's adherence behaviors, together with educational measures, is efficacious in improving adherence to control hypertension (Ho et al., 2016).

The Roudi et al. (2016) study also aligned with the Ho et al. (2016) and Resende et al. (2018) studies in that it found patients who collaborate with both peers and caregivers and the healthcare team play a significant role in improving blood pressure control for hypertensive older adults. Furthermore, the Roudi et al. (2016) study determined that primary care nurses who choose to empower caregivers and peers of hypertensive older adult patients affect their efficiency and public health (Roudi et al., 2016). In addition, education interventions implemented by peers and caregivers, in collaboration with nurses, identify hazards to health and aid patients in choosing a healthier lifestyle (Roudi et al., 2016). The Resende et al. (2018) paper supports this evidence by identifying the difficulties older adult patients experience without a caregiver and peer support. This study further found hypertensive older adults who did not have peer support were less likely to seek and adhere to hypertension treatment (Resende et al., 2018). Magobe et al. (2017) aligned with the other findings by identifying that older adult patient can increase their self-efficacy in adhering to hypertension treatment by being supported by peers, family, and healthcare professionals. Roudi et al. (2016), Magobe et al. (2017), Resende et al. (2018), Alves de Lima. (2017) and Ho et al. (2016) all agree that education by both peers and healthcare workers in collaboration plays an essential role in the adaptation of elderly patients to a healthy lifestyle, thereby reducing blood pressure.

Conclusion

In this section, the findings of the literature review were presented. The themes revealed in the literature were hypertension education, the barriers, the importance of self-efficacy, therapeutic relations, and collaborative approaches have been given. Many complex factors

influence the education for lifestyle modification to control blood pressure among older adults. Hypertension knowledge gaps are present and often reflect missed opportunities for engaging patients and sharing educational resources with them for behavior modification (Nanyonga et al., 2021). However, older adults supported and empowered with knowledge and skills can be conduits to their communities by sharing expertise and lived experiences (Nanyonga et al., 2021). Overall, it is clear that nurse-led hypertension education significantly improves quality of life and enhances positive patient outcomes (Nanyonga et al., 2021).

The next step in this literature review is to complete a knowledge gap analysis. A gap analysis identifies missing information and gaps in education impacting the improvement of blood pressure control for older adults. The literature and the information collection inform this gap analysis in the form of a quality initiative in northern British Columbia, Canada, where I live. This provided evidence to understand better what is presently being implemented in this location and the following steps to fill in the gaps to decrease the prevalence of hypertension among the older adult population.

Chapter Four: A Gap Analysis

A gap analysis is a technique that reveals the issues affecting performance in healthcare services or processes (Snively, 2022; Miyake, 2024). A “gap” refers to discrepancies between current practices and actual performance (Snively, 2022; Alordiah, 2023). In other words, a gap analysis illuminates the differences between the current and ideal state of practice (Miyake, 2024). A gap analysis aids an organization by fostering solutions and focuses resources and energy on identified areas (Miyake, 2024). As it is sometimes difficult to identify specific problems, this tool helps determine where a service is falling short or where the most remarkable improvement in an organization may occur (Alordiah, 2023; Snively, 2022). This gap analysis

focuses on learning the goals and educational needs of older adults diagnosed with hypertension and the practice gaps nurses experience in their practice.

This gap analysis was conducted in the form of a quality initiative. A quality initiative is defined as a systematic process guided by data to improve healthcare quality and safety (Gagnon, 2024). A quality initiative is different from conducting research. Research seeks to add new knowledge in the literature and test a hypothesis or scientific question (Jackson, n.d) Meanwhile, a quality initiative looks at improving a gap in the performance standard in a particular area that is not efficient, appropriate, or consistent in its implementation (Jackson, n.d). It is a process that reduces the risk of adverse events and creates a secure environment for patients while promoting the highest quality of healthcare (Puri et al., 2023; Gagnon, 2024; Kelley, 2023).

A quality initiative recognizes potential risks and harms in the current system and aids in developing protocols for reporting incidents and safety protocols (Puri et al., 2023). Furthermore, a quality initiative assesses and evaluates the effectiveness of the current healthcare delivery processes and how they can be improved or adapted (Puri et al., 2023; Gagnon, 2024). Ultimately, how nurses, patients, technology, and healthcare processes interact and function with one another affects patient outcomes. Conducting a quality initiative can highlight the strengths and weaknesses of the healthcare system (Faiman, 2021). There are six areas of quality improvement in healthcare: safety, effectiveness, timely delivery, efficiency, equitable care, and patient-centered care (Faiman, 2021; Gagnon, 2024).

As part of this project, a gap analysis was undertaken to examine the present practices of nurses educating older adults about hypertension. Building on the foundation of the literature review, key informant interviews obtained from practicing nurses in primary care highlight contextual strategies and approaches to education. The quality initiative data collected for this

project likely provides supporting evidence for the eventual improvements to hypertension education for many older adults residing in northern British Columbia.

Gap Analysis Context

This gap analysis took place in Prince George, a moderately sized city in northern British Columbia. Prince George has approximately 12,390 people aged 65 years and older, equating to 16.2% of the city's total population (Statistics Canada, 2021). The city of Prince George resides within the Northern Health Authority region, serving 300,000 citizens across 32 communities and six regional districts (Northern Health Authority [NHA], 2021).

The older adult population in northern British Columbia has been steadily increasing compared to southern parts of the province and is predicted to continue to rise over the next decade (Northern Health Authority, 2021). In turn, there has been an increased demand for hypertension education for older adults struggling with hypertension as well as the increased demand for access to primary health care. Many older adults residing in the Northern Health Authority region experience chronic health issues, such as hypertension. In fact, this region had the highest prevalence rates in hypertension, CVD and asthma, among all British Columbia health authorities (Provincial Health Services Authority, 2010). Older adults require education for their condition to improve blood pressure control and overall health in order to remain active participants in their day-to-day lives. While many older adults experience a progression in their disease, education and support can improve healthcare experiences and outcomes.

This gap analysis is conducted across the main primary care and clinic settings where hypertension is managed or related education is provided. The key informants in nursing roles who participated in this quality initiative were employed in the community at the following

locations: the Network of Regional to Tertiary Healthcare (NORTH) heart function clinic, Home and Community Care, primary care clinics, Interprofessional Nursing Team offices, and the Central Interior Native Health Society clinic. The NORTH clinic is a specialty clinic that provides healthcare to cardiac patients by providing advice, medication adjustments, monitoring, patient education, and care (NHA, 2023). This clinic also offers patients a cardiac rehabilitation program and specialized cardiac education. Home and Community Care provides publicly subsidized nursing care in the patient's home/community for acute, chronic, palliative and rehabilitative patients, complementing caregiver and individual efforts to care for the individual in need (Government of British Columbia, 2019). The Interprofessional Team has various office locations in the community and coordinates the involvement of multiple healthcare providers and professionals in patient care. For a hypertensive older adult, this may include a prescriber, a nurse, a care aide, an occupational therapist, a dietician, a counselor and more to navigate a team-based approach to providing quality care (College of Family Physicians of Canada, 2022). Lastly, the Central Interior Native Health Society clinic identifies inequity in health between Indigenous and mainstream society. It seeks to restore balance holistically while promoting physical, spiritual, emotional and cultural harmony to those who live in northern British Columbia (Central Interior Native Health Society, n.d).

The Gap Analysis Process: Five Steps

Five steps were taken to complete the healthcare gap analysis for this project. The first step involved identifying the current state of older adult patients and hypertension education programs and processes (Wittich et al., 2012; University of Toronto [UoT], 2020; Miyake, 2024). The second step identified and defined the ideal conditions and states, or the 'gold standards and best care practices (UoT, 2020; Miyake, 2024). Step three involved determining the nature of the

practice gaps (Miyake, 2024). In other words, this step analyzed the gaps and discrepancies between steps one and two and identified whether these gaps/discrepancies are tied to knowledge, skills, attitudes, or practices (Wittich et al., 2012; UoT, 2020). Step four involved developing goals to achieve change and reach the desired state of practice (Wittich et al., 2012; UoT, 2020; Miyake, 2024). The fifth step was monitoring and following up on any improvements or problems in the implementation process (Miyake, 2024). The gap analysis five-step process was solidified by examining the strengths, weaknesses, opportunities, and threats of the collected data (SWOT) analysis.

Step One: Identifying the Problems, Current State and Process

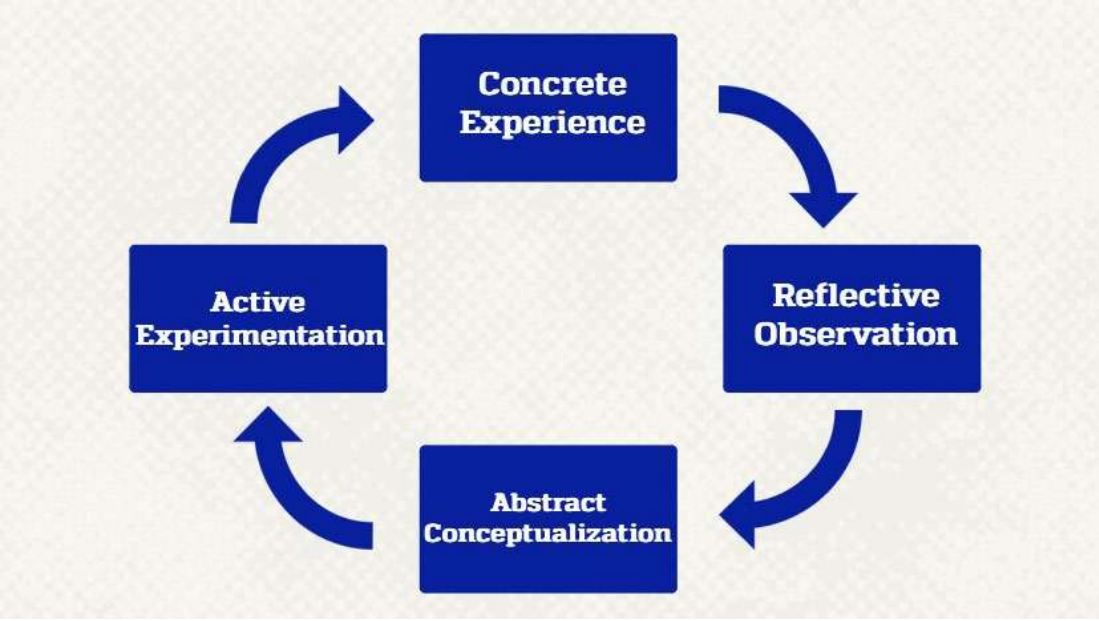
The first step of completing the gap analysis involved identifying and defining the current problems, setting the stage to recognize the gap (Miyake, 2024). This step aims to narrow and clearly focus the issue, which directs the gap analysis process (UoT, 2020). The problem is the high prevalence of hypertension among older adults, and this called for an assessment of current hypertension education delivery methods and primary healthcare processes. Furthermore, to inform these actions, the literature was reviewed to narrow the focus of the problem (as reported). To build on this and to understand the contextual factors underpinning the work, personal accounts and observations were obtained through the key informant interviews.

Understanding Current Hypertension Education Practices. Data on the current state of practice must be analyzed to determine effective education strategies to improve blood pressure control for older adults. Each of the critical informants held pivotal roles in caring for older adults who were managing hypertension or were older adult patients diagnosed with hypertension. Gathering the data from different perspectives (both patients and nurses) provides further insight into education practices for hypertension.

An intriguing occurrence throughout the interviews was the key informants aligning with the same process patients follow when learning new information. Kolb's *Four Stages of Learning* model defined learning as "the process whereby knowledge is created through the transformation of experience" (University of Florida, n.d, p. 38). Kolb's model consists of four stages: Concrete Experience (CE): feeling, Reflective Observation (RO): watching, Abstract Conceptualization (AC): thinking, Active Experimentation (AE): doing (University of Florida, n.d) (See Fig. 5). These four stages of the learning process typically move through a cycle that begins with an older adult having a solid experience and ends with them actively experimenting with the knowledge they obtained (University of Florida, n.d). The following section will explore each key theme in detail and outline the data collected in the key informant interviews.

Figure 4

Kolb's Four Stages of Learning by University of Florida (n.d)



Step Two: Identifying and Defining the Desired Practices

The second step of the gap analysis defined and identified the best care practices. This step was completed by observing primary research and clinical guidelines for hypertension, such as the Northern Health Strategic Plan for Healthy Aging. The clinical guidelines and primary research sources compile the current, highest, and expected care practices for hypertension education and management (UoT, 2020). These materials informed both the gap analysis and the development of the interview questions asked of the key informants. Documenting realistic target goals for further analysis in the following steps is a crucial component of step two (Miyake, 2024). Variations in clinical practice and how nurses interpreted these guidelines helped to identify the SWOT.

Education Foundation: Hypertension Literature and Resources. The recommendations from the literature review and practice guidelines determined discrepancies between current nurse practice and documented evidence-based practices. The literature review contained three Canadian clinical guidelines for hypertension management. The literature review focused on hypertension treatment and management, the creation of educational tools, therapeutic communication approaches, self-efficacy, cultural inclusion and sensitivity, and continuity and collaboration of care.

There were no specific guidelines were found for Canadian hypertension education guidelines on the Northern Health Authority website. However, this website mentions a significant number of resources available to both patients and nurses: Cardiac Services British Columbia, Heart Health - HeartLinkBC, the British Columbia Heart and Stroke Foundation, and the Northern Health Regional Chronic Disease Program. Furthermore, a Google search for

Northern Health Authority older adult guidelines for health was implemented, and it retrieved the comprehensive document called *Healthy Aging in the North: Action Plan,* 2021.

There is a plethora of online hypertension guidelines that have been published in Canada over the last 20 years. These guidelines have changed and improved as knowledge about hypertension has also improved over time. However, a problem recognized by the key informants and the literature is that practice patterns often need to be more consistent within the published guidelines. The guidelines used by the key informants in practice were the British Columbia Ministry of Health *Hypertension Diagnosis and Management* guidelines, the Registered Nurses Association of Ontario (RNAO) *Nursing Management of Hypertension* guidelines, and the *Canadian Hypertension Education Guidelines (CHEP)*. The British Columbia College of Nurses and Midwives *entry-level practice standards* were also recommended, which solidified the expected practice standards for nurses. These guidelines were noted to be a positive resource to nurses with ample information applicable to this area of nursing practice. The British Columbia guidelines need to demonstrate teaching methods, and both the British Columbia Ministry of Health and the RNAO guidelines include some information about older adult patients. The guidelines are not solely directed toward the older adult demographic. These guidelines are utilized for nurse-led education for older adult patients diagnosed with hypertension. For example, within the RNAO document, six key recommendations are aligned with nurse-led hypertension education for older adults in the primary care setting, outlined below.

Table 3

RNAO Recommendations

#	**RNAO (2005) Recommendations**
1	"Nurses working with adults with hypertension must have the appropriate knowledge and skills, acquired through basic nursing education curriculum, ongoing professional development opportunities and orientation to new workplaces" (p. 39).
2	"Nurses will work with clients to identify lifestyle factors that may influence hypertension management, recognize potential areas for change and create a collaborative management plan to assist in reaching client goals, which may prevent secondary complications" (p.39).
3	"Nurses will endeavor to establish therapeutic relationships with clients" (p.62).
4	"Nurses will provide the information needed for clients with hypertension to make educated choices related to their treatment plan" (p. 65).
5	"Nurses will advocate that clients who are on antihypertensive treatment receive appropriate follow-up, in collaboration with the healthcare team" (p. 68).
6	"Nursing best practice guidelines can be successfully implemented only where there are adequate planning, resources, organizational and administrative support, as well as appropriate facilitation" (p. 72)

Following the review of the best practice guidelines, successfully educating an older adult about improving blood pressure control involves the older adult themselves, a supportive environment, accurate information, and a competent nurse and healthcare team. Furthermore, organizational readiness, educational tools and resources, and patient self-efficacy reduced hypertension prevalence in older adults (MOH, 2020; Ongkulna et al., 2022).

Step Three: Determination of Current Practices and Nature of the Gap

The third step of the gap analysis was to determine what the current practices are through key informant interviews and thus, also determining the nature of the gap between gold standard

practices and current practices. During this step, the size of the gap, whether small or large, is discovered and there is an investigation into why the gaps exist (Miyake, 2024). A glance through organizational policies is also helpful (Miyake, 2024). To complete this step of the process, a selection of a sample of key informants and interviews are conducted. Then, the data was thoroughly analyzed. Key informant interviews, guided by the integrative review findings, provided insight into a better understanding of the daily education practices surrounding hypertension. The purpose was to investigate how nurses educate their older adult patients about hypertension, such as what tools, resources and practices they implement. In addition, the gap analysis aimed to determine the nature of the education gaps and how hypertension education can be improved in the primary care setting.

Step Four: Plan Development and Implementation

In step four of the gap analysis, the course(s) of action is planned and developed to close the gaps in care (Miyake, 2024). In this step, the researcher considers a cost-benefit analysis of the proposed solutions (Miyake, 2024). For example, resource allocation and reviewing previous proposals are considered. This step involves using the SWOT analysis tool described below.

The 'Strengths, Weaknesses, Opportunities, and Threats' Analysis. According to van Wijngaarden et al. (2012), there are four basic steps to conducting a SWOT analysis: "formulate external developments as opportunities or threats; formulate internal means and capabilities as strengths and weaknesses; confront strengths and weaknesses with opportunities and threats; and use the results to formulate strategic options" (p. 5). With the identification of these steps, a goal of a SWOT analysis is that a new strategic course may be identified going forward that would potentially improve patient outcomes (van Wijngaarden et al., 2012; Teoli & Sanvictores, 2024) A SWOT analysis is a social process based on factual data; however, the conclusions drawn from

this type of analysis are that of expert opinion (Harrison, 2010). Overall, a SWOT analysis guides healthcare service development, has flexible guidelines and adapts to various contexts (Harrison. 2010). Most importantly, a SWOT analysis is a tool that healthcare organizations can use to improve patient outcomes and reduce adverse effects by gaining insight into the strengths, weaknesses, opportunities and threats of a particular area of healthcare. The SWOT analysis unveiled the current landscape for hypertension education in the primary care setting, including developments and recommendations, weaknesses, and potential future opportunities to benefit older adult patients with their health outcomes (Sharma, 2005).

Step Five: Monitoring and Follow-up

This last step of the gap analysis involves monitoring and following up on the progress of the implemented plan (Miyake, 2024). Following up is essential to further assess improvements and downfalls, address any concerns and complications, provide continued guidance, and promote optimal health outcomes. Furthermore, following up and monitoring aid in developing the next steps in implementing the plan (Miyake, 2024). Such follow-up would occur after changes were implemented in the primary care setting that were identified in the gap analysis.

Determining the Sample, Interview Strategies, and Data Organization

Selection of the Key Informant Sample

The key informants were selected initially using convenience sampling and then by a snowball sampling to refine and hone the focus of the work. The sample of participants included nurse practitioners, a care management leader, registered nurses, and a nursing student. Additionally, two older adults diagnosed with hypertension also consented to provide input for this quality initiative. A letter outlining the nature of the quality initiative and a request for input

was drafted (see Appendix C). Eight key informants gave their input by email or telephone. The details about the interview process are presented in Table 3.

Table 4

Quality Initiative Key Informant Data

Key Informant Data

Quality Initiative

Overview

A total of nine key informants participated in this quality initiative. There were two hypertensive older adult patients (one male, one female), one student nurse, four registered nurses, and two nurse practitioners.

Date	January to April 2024
In What Way Can I Engage Them?	Interview, build rapport, therapeutic communication, involve in the process of healthcare reform. Share lived experience, empowerment, encourage genuine feedback.
Key Informant Group Assets	Patient, student and provider perceptions, experiences and insights with healthcare, education, assessing, treating and diagnosing.
Key Informant Group Needs	Respect for time and role, flexibility with interview dates and times, valuing input/feedback; respect for decision-making and non-judgemental approach, appropriate communication and professional intimacy, building trust.
What Am I Asking Them to Commit to?	Telephone or in-person interviews; e-mail responses; follow-up as needed

Key Informant Interview Questions

To facilitate a better understanding of the current practices and the nature of the gaps, interview questions were developed for each key informant to provide their input. There were four main questions asked of the nurse key informants in relation to hypertension education for older adults in the primary care setting, which were the following:

1. What tools, resources, and practices are used when educating older adults about hypertension to support the modification of cardiovascular risk factors?
2. Are there any cultural tools/resources/practices you have used or feel would be helpful in your practice when educating older adults about hypertension?
3. Do you use any specific strategies for therapeutic communication when educating older adults?
4. Have you come across any barriers when educating older adults with hypertension?

Alternatively, there were four main questions asked of the patient vital informants which were:

1. What tools/resources have you received in healthcare encounters for hypertension education?
2. Do you use any cultural tools/resources/practices for hypertension?
3. What has your experience been in terms of communicating with primary care nurses?
4. What barriers, if any, have you experienced to gaining education for hypertension?

Interview Strategies and Data Organization

The informal interviews with the key informants answered generalized, open-ended questions. This way, the key informants could better express their perceptions, experiences, and input. The questions were adapted to each participant and their circumstances, situations, and level of understanding. For example, for the older adult key informants, plain language was used, and for the nursing professionals, the questions were worded to fit the context of their role and scope of practice. Furthermore, follow-up questions were asked based on some answers provided to gain a more fulsome understanding and clarity.

On the individual level, reflexivity was a strategy I used to enhance the quality of the interview questions of this gap analysis. For example, while developing the questions, I attempted to mitigate any confirmation bias by ensuring that no personal opinions or leading questions were asked. In addition, I ensured the time of day chosen for the interviews was favorable and appropriate for each of the key informants; I took my time with my interactions and ensured there was enough time for each key informant to complete the interview.

Triangulation was used using the data collected from the integrative literature review, the practice guidelines, and the key informant interviews and response data. Triangulation enabled a greater depth of knowledge and understanding gained from a variety of sources. This vast background of information also provided the opportunity for further questioning. Identifying various matters, concerns, and gaps was examined in the integrative literature review data and the clinical practice data collected. The data was coded into the following themes: cultural considerations, therapeutic relations, patient experiences, education strategies utilized in practice, collaboration approach to care. The findings of the gap analysis are presented in the following pages, organized into these themes.

Findings of the Gap Analysis

The gap analysis was completed between the months of January and April 2024. The factors that influence hypertension education gaps are explored, and these influencing factors likely contribute to suboptimal care and patient health outcomes. The hypertension education delivery methods and resources used within the primary care setting were analyzed. Effective education strategies to optimize hypertension education in nursing practice are proposed. This section delves into the current literature used to support hypertension education, what the current practices are, an investigation into the gaps in hypertension education for older adults, and a

SWOT analysis. The findings of the gap analysis have been complied into themes which are: cultural considerations for inclusivity, sensitivity and competency; the patients' experiences; therapeutic communication approaches; educational tools and resources used in practice; and a collaborative approach to care. Finally, a SWOT analysis is presented.

Cultural Considerations for Inclusivity, Sensitivity and Competency

A common theme in the data findings was cultural considerations for inclusivity, sensitivity, and competency. Cultural inclusivity, sensitivity, and competency are essential aspects of hypertension education that contribute to its success. A registered nurse key informant noted that assessing a patient's background and identity is crucial for hypertension education. For example, when educating an older adult patient about diet and exercise, it is helpful to be familiar with healthy foods, drinks, and physical activities that are popular among various cultures. This aligned with the findings of the review, highlighting that a patient may be more motivated to participate in changes that improve blood pressure control if it is food, drink, and activities familiar to them or if they are already consuming regularly (Wen-Wen Li et al., 2015). Furthermore, a patient key informant reported that a nurse recommended completing puzzles like sudoku to keep his mind preoccupied with anxiety, stress, and fear about various problems occurring in his life. He noted these were easy and familiar activities to implement and reduced his stress levels.

A student nurse key informant noted they had yet to come across cultural tools, resources, and practices for hypertension education to use in their practice. However, theysaid nursing students are well-informed about cultural competencies in the University of Northern British Columbia's Bachelor of Science in Nursing program. Three required courses focused on various cultural topics and cultures: Indigenous studies, First Nations studies, and Anthropology.

Furthermore, a nurse practitioner key informant noted that for entry into the Master of Science in Nursing Graduate Degree programs, a cultural competency course was required. The course was called San'yas Indigenous Cultural Safety Training Program, an online education program that requires active participation and focuses on uprooting anti-indigenous racism and promoting cultural safety (Provincial Health Services Authority, 2024).

Once a nurse learns about cultural inclusivity and sensitivity, they can use this knowledge in their daily practice. All nurses who are regulated under the British Columbia College of Nurses and Midwives (BCCNM) are required to maintain entry-level cultural inclusion and safety competencies to meet the standard of care to preserve their yearly-renewed licenses. The commitment is necessary to act out and support cultural safety and humility toward making the health system more culturally safe for minority and Indigenous people. BCCNM continues its commitment to "safe, ethical person-centered care for everyone" (British Columbia College of Nurses and Midwives [BCCNM], 2021, p. 27). BCCNM upholds their commitment to increasing cultural knowledge and the calls to action in the Report of the *Canadian Truth and Reconciliation Commission Calls to Action*, as the recognition of discrimination adversely impacts healthcare access and treatment. The BCCNM promotes nurse self-reflection so they understand personal and systemic biases and provides learning resources about cultural safety, cultural humility, and systemic racism on its website.

Within the Northern Health Authority, there are also courses and programs for cultural humility and safety available to employees. A registered nurse key informant noted self-paced learning modules and an in-person cultural safety course during orientation when hired as an employee for the Northern Health Authority. For example, multiple webinars, videos, and cultural assessment tools are available on the Northern Health Authority website for nurses to

utilize. The Northern Health Authority also recommends a Respectful Relationships course offered via the Northern Health Indigenous Health website that focuses on cultural safety and anti-Indigenous racism. In this way, nurses promote cultural safety in their practice.

Nursing is a self-regulated profession which requires nurses to be self-aware of their actions, thoughts, and biases. Despite the education institutions, healthcare organizations, and regulatory colleges implementing cultural safety education, it is ultimately up to each individual nurse to digest this knowledge and implement it appropriately into their practice. According to the BCCNM competencies, nurses can act as "advocates for the use of Indigenous health knowledge and healing practices in collaboration with Indigenous healers and Elders consistent with the Calls to Action of the Truth and Reconciliation Commission of Canada" (BCCNM, 2021, p. 11). The BCCNM competency 6.6 requires nurses to "demonstrate self-awareness through reflective practice and solicitation of feedback" (BCCNM, 2021, p. 10). Therefore, the nurse key informants reported perceiving their experience as positive and prepared when it comes to education for cultural inclusivity and sensitivity strategies. This extends to the community and regional contexts as there are many minority populations living in Prince George; who nurse key informants are comfortable both learning from and sharing knowledge with. This creates a sense of connectedness and safety in the community and in accessing the healthcare system.

The Patients' Experience with a Hypertension Diagnosis

A second common theme found in the interview data was amidst the experiences of patients who received hypertension education in the primary care setting. Whether the patient's experiences are positive or negative, they have an impact on everyone in attaining management and control of their blood pressure and overall health. One patient key informant described her

experience as a ‘trial and error’ process because it took several strategies to figure out what strategy improved her blood pressure control. They were initially alerted to her hypertension condition upon going into hospital for a scheduled cardiac ablation surgery. The surgeon noted feet and ankle edema bilaterally. He said her blood pressure throughout the surgery was high. It was then they were diagnosed, but they were not given any educational resources about hypertension and were only minimally informed about the condition. They took matters into their own hands for a time, investigating different strategies to control her blood pressure along with taking the prescribed medication.

A second patient key informant described their experience being diagnosed with hypertension. For this key informant, the diagnosis came as a surprise as they fell ill and were admitted to the hospital due to a heart attack. They recalled they did not know if they were “going to live much longer” after this health incident. In their time in the hospital, they had many nurses educating them about hypertension, so they felt they were well informed by the time they saw a primary care nurse in the outpatient clinic setting. However, they said they were provided with a pamphlet with suggestions for modifying their diet and further instructions for exercises they could participate in. They reported that this educational pamphlet was helpful and that they understood the content clearly. They were able to implement the suggested strategies into their life, but noted it was difficult to maintain the dietary changes long-term because they “love food too much.” Both examples highlight that hypertension was an accidental find. While limited by the sample size, it may be worth considering how routine screening is enacted for hypertension across the region, along with education to promote awareness as part of general health screening. Greater upstream initiatives, including health promotion programs, could be of value.

Diagnosis and Mental Health

Another theme drawn from the critical informant interview data was the effects of a hypertension diagnosis on one's mental health. One patient key informant described their experience of being diagnosed with hypertension as very emotional. They said they felt depressed, anxious, and hopeless. They formed a negative attitude initially because they were told a family history of hypertension significantly impacts health outcomes, and there was not much they could do to change their circumstances. At this point, they were offered medication which they were not keen on taking, as they stated they "do not like to take pills unless necessary." They did not feel supported or fully informed of all their options. Overwhelmed with their emotions and finding it difficult to cope, they took matters into their own hands; they eventually asked for a second opinion from a primary care nurse practitioner. This nurse practitioner was able to restore their hope and faith in being able to improve their quality of life. This nurse practitioner provided them with education about hypertension, relaying what blood pressure measures to watch out for, discussed lifestyle modifications extensively, and fully informed them of the various medications available to alleviate the high blood pressure.

A second patient key informant experienced anger, disbelief, and shock when they were first diagnosed with hypertension. As this disease is known as a 'silent killer,' this key informant had no clue that they were experiencing high blood pressure. They noted they "struggled for months" after the diagnosis with such a drastic change in their health and decreased quality of life. However, after receiving support and care from a caregiver, they took steps to learn about lifestyle modifications to improve their well-being and quality of life. When they stopped smoking cigarettes and focused on reducing portion sizes, they realized that improvement was possible, reporting that they "felt better" than they had "in years" with losing some weight and

being able to breathe better. They noted they “feel hopeful to this day that my health will continue to improve,” and they feel proud of themself for “taking care of my health and maybe even extending my lifespan.”

The patient's essential informant experiences relayed here are common among those diagnosed with hypertension. The patient key informants perceived their experiences as stressful, frustrating, hopeless and scary. For some patients, a hypertension diagnosis can feel devastating and as though their life is out of control. In these circumstances, some patients will turn to addictive substances or binge eating, for example, as a means of coping. Therefore, the impact of a diagnosis contributes to the broader community and regional issues, such as the opioid overdose epidemic, if it is not identified and managed, further straining the healthcare system.

A regional health issue was also noted regarding the lack of access to timely healthcare from a patient key informant when they needed specialist follow-up care from a cardiologist. They had to travel to the lower mainland, which was expensive and required more time than if they could have been treated in their home community. They also noted a community-level health issue in that it impacted their mental health, not having adequate support in place. Poor mental health affects the ability to carry out activities in the community, such as school, work, personal/familial responsibilities and the community contexts.

From the nurse critical informant perspective, the consensus was that the patients had various reactions and emotions with each hypertension diagnosis, and each nurse advocated and supported their patients. In the nurse's positions, they all tried to maintain a positive approach, assess each patient’s needs, connect patients to the necessary services, and educate them. These standards of care outlined by the nurse key informants aligned with the BCCNM (2021) advocate competency: “…nurses are advocates who support clients to voice their needs to achieve optimal

health outcomes. Nurses also support clients who cannot advocate for themselves" (p.11). In their experiences, the nurse key informants advocated for timely, appropriate, and holistic care for their older adult patients struggling with hypertension.

Therapeutic Communication and Approaches

A third common theme that arose in the key informant interviews was the therapeutic approaches for communication between the patient and the nurse. In order to provide "safe, ethical, competent, compassionate, patient-centered and evidence-based care…" to hypertensive older adults, nurses use therapeutic communication (BCCNM, 2021, p.6). Nurses integrate their knowledge, judgment, and skills from both nursing and other diverse sources into practice (BCCNM, 2021). Nurses also communicate with their patients through strategies that develop and maintain professional relations, relay knowledge, and foster therapeutic environments (BCCNM, 2021). This is also supported by the RNAO (2005) recommendation number two.

A primary care registered nurse key informant experienced patients who were hypertensive but also asymptomatic. Some of these patients did not see the potential for experiencing adverse events in the future. In addition, this key informant noted that because these patients were asymptomatic, they also had a more difficult time accepting their diagnosis. These experiences identified by the registered nurse key informant are essential to address with patients using the 'confronting' and 'presenting reality' therapeutic communication techniques. The therapeutic communication technique called 'confronting' is a communication method that challenges patient assumptions and may help a patient better understand their current health situation (Ernstmeyer & Christman, 2022). Presenting reality, on the other hand, allows the patient to restructure some disordered thoughts with valid information (Ernstmeyer & Christman, 2022). For example, this key informant defined high blood pressure for these patients and

outlined the adverse effects like heart attack, stroke, and heart failure in detail and plain language for the cognitive older adult patients. Evidence-based communication promotes trust and therapeutic relationships between the patient and the nurse (BCCNM, 2021).

Conversely, the community registered nurse key informant observed many people among the older adult population who complied with any teachings from primary care nurses and prescribers. This key informant stated that older adult patients want "to be good patients for their healthcare providers." Through their assessments, nurses identify the "influence of personal values, beliefs, and positional power on clients and the health care team and act to reduce bias and influences" (BCCNM, 2021, p. 8). In these circumstances, nurses can provide a therapeutic communication strategy called 'giving recognition.' Giving recognition acknowledges and validates positive health behaviors (Ernstmeyer & Christman, 2022). This key informant provided the example that they praised their client when they joined a senior's walking club that takes place at the mall, and through this effort, was able to reduce their stress and blood pressure level. Nurses assess patient understanding and their ability to be active participants in their health care while facilitating appropriate strategies for those who are unable to be fully involved (BCCNM, 2021).

Silence and actively listening are also crucial therapeutic communication techniques used for educating older adults about hypertension. The NORTH clinic nurse key informant suggested assessing what the patient already knows about hypertension. For example, this key informant inquired whether or not the patient understands the hypertension risk factors, the functions of their medications, and what other diseases hypertension puts them at risk for. Then they carefully and quietly listened to the patients' answers. The key informant further noted having candid conversations with patients about the risks is especially helpful, and that hypertension prevention

conversations are particularly good as well, although such prevention conversations are more geared towards younger adults. They engage in active listening to build rapport and aid in understanding a patient's experiences and goals for their health (BCCNM, 2021).

Clarification and restating therapeutic communication techniques also emerged in the key informant interviews of the registered nurse and IPT nurse. Clarification involves asking the patient to rephrase or repeat what they previously said, and restating involves saying back to the patient what the patient said to ensure understanding. These techniques can help identify differences in information relayed as health information has changed drastically. For example, the key informants identified that the understanding of hypertension some older adults may have is informed by old knowledge that may need to be corrected.

In turn, the older adult may become resistant to change. The encouraging comparisons communication technique can be helpful in this circumstance, as the nurse reminds the patient of times when the patient coped effectively and was able to make the appropriate changes (Ernstmeyer & Christman, 2022). The critical informants described experiences where the older adult would scoff at the recommendations for thirty-minute daily exercises and lowered salt intake. They determined it was because of the attitudes of the older adult patients who took the stance that they had already lived to their old age, so they must be doing something right. In these instances, the key informants agreed they showed understanding, honored their wisdom, and respected these patients' wishes. For example, one key informant stated they encouraged a patient to consume minimal alcohol, choose foods at their local grocery store, and shop around the store's perimeter, as these foods are generally known to be healthier and have a lower sodium content. Another critical informant guided a patient to reduce the number of cigarettes they smoked. Both key informants encouraged their patients also to reduce sodium intake and to keep

a journal about the effects they experience from their medications and lifestyle modifications to be reviewed by their prescriber.

Overall, the key informants agreed that efforts to educate older adults, letting them know hypertension is the silent killer, keeping a log of symptoms and blood pressure levels, and attempting to implement health-promoting behaviors linked to hypertension helped reduce blood pressure. Using a more robust emphasis, validating, and actively listening to patient concerns helps stop the further progression of hypertension to a potential state where older adult patients are clinically and objectively breathless and struggling. Finally, strategies for conflict resolution promote positive nurse-patient relations and optimal patient outcomes (BCCNM, 2021).

Educational Tools and Resources Used in Practice

Using hypertension education tools and resources is helpful for relaying information to older adult patients, and is a vital recommendation within the best practice guidelines (RNAO, 2005). The investigation into the educational tools and resources used in practice aided in answering the question for this project. The hypertension education tools and resources used in the primary care setting were identified and evaluated as a part of the key informant interviews. The results gathered in the critical informant interviews related to how the educational tools and resources are used in practice and there were noted similarities in the tools and resources mentioned in the literature and used in practice.

It was interesting to learn of the educational tools and resources the key informants use in their primary care practices. One nurse practitioner utilized the *Canadian Hypertension Education Program (CHEP) guidelines* when making an accurate hypertension diagnosis. The interprofessional team registered nurse, and the registered nurse employed at the NORTH clinic

use the information from online sources, including Cardiac Services BC, the Heart and Stroke Foundation, Hypertension Canada, and the BC Ministry of Health guidelines for Hypertension Management. The registered nurse working for home and community care noted that they do not use any particular educational tools to teach patients about hypertension. Still, they relied on the knowledge gained in their nursing school education to educate older adult patients about their high blood pressure. However, this home and community care nurse elaborated that they keep up with the current guidelines and recommendations on the Northern Health Authority's pre-printed order set filled in by prescribers as well as the Hypertension Canada guidelines to ensure the knowledge is kept up-to-date so they can provide the best care possible to their patients. Furthermore, this home and community registered nurse has recommended community programs to patients with hypertension, such as the *YMCA Healthy Heart program*. This education and exercise program in the community prevents, rehabilitates, and maintains cardiac health while supporting patients with cardiac risk factors.

The nursing student key informant noted that there are no specific published educational tools they have used to teach patients about hypertension in their clinical education. Still, there has been a vast amount of information in their course textbooks, particularly in the pathophysiology course. The student nurse key informant explained they learned the complexities of hypertension and then relayed the information to their patients in plain language. The student nurse key informant gained a history and background in their assessment data and "met the patients where they were at." This means if a patient has a higher level of medical education and understands medical terms, they will use this type of medical language to communicate with them; if a patient has a low level of literacy and education, they will adapt as

necessary to ensure the patient understands their condition and the following steps to take in managing it.

The student nurse key informant felt that brochures, handouts, and/or documents with clear teaching goals have been helpful for patients in previous clinical shifts. For example, they described in their maternity clinical experience that there were checklists of mandatory teaching for mothers. Furthermore, they explained that a similar-styled tool for hypertension education would be helpful to educate older adults and patients in general. This type of educational tool for hypertension would guide teaching and ensure accountability in the primary care setting.

The older adult patient key informants expressed that they also utilized educational tools and resources in the interviews. An older adult key informant used a multitude of resources and tools. They used a blood pressure log where they manually recorded the blood pressure readings obtained from an at-home sphygmomanometer over the course of six months, and continued any time thereafter when they felt a spike in blood pressure. The purpose of the log was to monitor the trends of their blood pressure levels over time. At the same time, this key informant took the information they learned from their nurse practitioner provider regarding stress management and dietary changes. This key informant began participating in daily affirmations, which involved saying positive phrases about alleviating stress aloud and noticed a reduction in their stress level. They noted feeling more hopeful and excited when thinking about the many tasks needed each day. A third education tool they used were various books, one mentioned was focused on improving diet and it was called *Eating Right 4 Your Type* by the author Dr. Peter J. D'Adamo. This key informant could, over about six months, modify their lifestyle to significantly reduce their blood pressure level so that it was within the recommended parameters.

Similarly, another older adult key informant reported they also used guidance from his health care provider, as well as learning about his newly diagnosed condition from both online sources and his prescriber. This key informant read the guidelines published by the Hypertension Canada organization, including information about healthy blood pressure levels, food choices, and smoking cessation guidance. This key informant reported that they perceive they are well-educated about his condition; however, they had difficulty making significant dietary and exercise changes over the long term. This key informant reported success in his smoking cessation attempt, having wholly stopped smoking cigarettes after three decades. This change, along with taking hypertension medication, they said, made about an 8-mmHg improvement in his systolic blood pressure. This key informant also obtained education about smoking cessation verbally from his prescriber, pamphlets provided through the primary care clinic they attend, and government advertisements. They reported further that they are motivated to continue attempting to modify his lifestyle (diet and exercise) patterns to reduce his blood pressure.

Another registered nurse key informant summarized having success with hypertension education by using “simple steps.” They explained further by simplifying the process of improving blood pressure control by outlining the potential consequences of the condition and educating older adult patients on lifestyle choices that negatively impact blood pressure levels. For example, if the older adult was participating in smoking, had a high alcohol intake, or was adding lots of sodium to their food, they would advise the patients these activities contribute to high blood pressure and help patients create goals to reduce and eliminate these activities from their lifestyle. Overall, a variety of tools and resources were used and adapted in the NHA region.

Knowledge Translation Tools

Knowledge translation (KT) involves the use of a variety of tools and activities to share knowledge and evidence across diverse groups, including healthcare practitioners, and policymakers. The goal of which is to develop improved policies, activities, and interventions (Salvo & Moxon, 2021; Hua et al., 2012). KT tools facilitate the movement of evidence into practice (Salvo & Moxon, 2021). This is an advantageous practice because KT can simplify and enhance the exchange of information (Hua et al., 2012). Additionally, KT seeks to reach evidence-based health decisions that align with patient values and preferences (Salvo & Moxon, 2021; Hua et al., 2012). Some examples of KT practices were identified during the gap analysis process and are highlighted below.

I asked the nurse key informants if they use KT tools when educating older adults. One key informant said they use checklists to ensure the patient and provider are clear and understand the different aspects of hypertension education. Another key informant said they found a helpful video explaining hypertension on YouTube that they showed a client and received positive feedback.

Educational tools and online options were investigated to understand what is available for hypertension education for older adults. Several educational pamphlets incorporate plain language, larger fonts, colorful visual images, and condensed hypertension education information. Through the Center for Disease Control, I discovered a hypertension “tool kit” that includes numerous resources and highlights hypertension education on “Heart Health Steps” that provides encouragement for older adults to get on track by taking small steps in ways such as scheduling medical appointments and discussion of strategies to address the risk factors for hypertension as people age.

A Collaborative Approach to Care

The common theme of collaboration of care was found when analyzing the data collected from the key informant interviews. Specific challenges were noted as much of the responsibility is put on older adult patients when they receive many healthcare services in collaboration. For example, a nurse key informant noted a patient may relate to nurses, prescribers, physiotherapists, nutritionists, dieticians, and others who seek to provide them with education and resources. A nurse practitioner key informant noted they collaborated with another prescriber, may refer to general internal medicine, and collaborate with pharmacists when working with older adult hypertensive patients. Having many professionals involved in one's healthcare may be confusing and stressful when it comes to keeping appointments. Another critical informant noted, “Some older adult patients may not be cognitively well enough to understand their situation and what is going on to make decisions to change their lifestyles, which is also very challenging.” This creates further complexities in educating the older adult demographic, requiring support from a caregiver.

This key informant data about collaboration aligns with the BCCNM (2021) entry-level competency 2.1 which states: “…seeks assistance as necessary for decisions and actions within the legislated scope of practice,” and they have demonstrated collaborative professional relationships (p. 7). The key informant data also signifies the importance of the BCCNM (2021) competency: “initiates collaboration to support care planning and safe, continuous transitions from one health care facility to another, or residential, community or home and self-care” (p.7). This data also complies with the sixth recommendation from the RNAO guideline, emphasizing the importance of collaboration and continuity of care.

The IPT nurse key informant used collaboration as well. The nurse explained this process: the nurses assess, monitor and document their findings regarding an older adult's health, and based on the findings, the IPT nurse collaborates with the interprofessional team to educate and intervene for their older adult patients with hypertension. For example, the IPT nurses will set blood pressure targets with their patients and update the physician regularly on their findings to note any changes over time. All the while, the IPT nurses use their knowledge and skills to educate their patients regarding the risk factors for hypertension. IPT nurses also educate about the steps to work towards a healthier blood pressure reading. In this northern, smaller community context, collaboration is an advantageous team approach that improves patient health.

Registered nurses collaborate and play an integral part in the healthcare team (BCCNM, 2021). Nurses are to "initiate collaboration to support care planning and safe, continuous transitions from one health care facility to another, or to residential, community or home and self-care" (BCCNM, 2021 p. 9) Furthermore, nurses analyze and interpret data obtained in their assessments, which inform ongoing decision making about patient care (BCCNM, 2021). Nurses also evaluate the effectiveness of the plan of care, and modify this plan as needed (BCCNM, 2021). Finally, nurses consult and collaborate with their patients and local allied health professionals, to make continual adjustments as required (BCCNM, 2021).

From the patient experiences, collaboration was described by the key informants as a valuable process. However, they noted facing barriers to accessing the various health professionals. They felt, at times, it was easy to be lost in follow-up and found they had to be their own advocates. The patient key informants perceived that continuity of care was dependent upon the availability of resources, time, and adequate staffing levels.

Nurses are required to promote health equity for the vulnerable and/or diverse patients and populations (BCCNM, 2021). This type of advocacy both supports and empowers patients in making informed and consensual decisions about their health treatments and respects their autonomy in decision-making (BCCNM, 2021). For collaboration of care to occur, nurses determine "their own professional and interprofessional role within the team by considering the roles, responsibilities, and the scope of practice of others" (BCCNM, 2021, p. 9). Moreover, nurses apply knowledge about the scopes of practice of involved professionals to strengthen the collaboration process that enhances the health and well-being of older adult patients. Lastly, nurses contribute to team functioning by "applying group communication theory, principles and group process skills" (BCCNM, 2021, p. 9).

Strengths, Weaknesses, Opportunities, Threats

Strengths

There were many strengths revealed in this SWOT analysis from nurses, patients and the healthcare system. Nurse key informants identified the positive impact front-line nurses have on therapeutic communication practices, sharing knowledge and skills, meeting the patient where they are at, and collaborating with other healthcare workers. The nurse key informants had a solid foundation of cultural sensitivity and competence. The nurse key informants have the base knowledge to educate patients in a culturally sensitive way about their hypertension and how some cultural practices may promote or impede hypertension management.

Another strength noted from the nurse key informants was them taking responsibility and accountability for their role in educating their patients about hypertension. Additionally, nurses who identify and treat mental health concerns related to a diagnosis were deemed a strength. Yet

another strength was the nurse key informants empowering patients by respecting their wishes, promoting patient self-efficacy, valuing patient beliefs, and fostering education through collaboration. Nurses who were increasing the use of hypertension knowledge translation tools, clinical guidelines, and other resources were a strength because the more access to resources there is, the more likely a patient will become educated and make effective health changes. For the nurse key informants, there was value in collaboration and working towards improving blood pressure control and sustained mental well-being through educational tools and collaboration strategies. There is a system of communicating and working together in collaboration that promotes referral and consultation, followed by the discussion of patient options and plans. With their expertise and skills, nurses are well-positioned in the primary care setting to provide appropriate hypertension education for older adults.

The patient key informants showed strengths in various ways in this SWOT analysis. The first way was showing resilience when facing a troubling diagnosis of hypertension. However, in general, the way in which a patient manages a diagnosis is dependent on the individual and the sum of their experiences, and so it will not be the case that every patient shows such resilience. The patient key informants revealed another strength in that those who were provided with emotional support can be inspired to improve their blood pressure.

Lastly, the organization's educational resources and settings were a strength, like pamphlets, verbal explanations, and checklists to further support hypertension education for the older adults. The organization’s strength was that healthcare took place in a variety of settings, which increases the accessibility of care. The settings in which hypertension education took place demonstrated in the data findings were clinic and community settings.

Weaknesses

There were some weaknesses identified in the SWOT analysis. The first weakness revealed was there is no official consensus within the medical community at this time on the various blood pressure guidelines. Another weakness noted was the lack of hypertension education tools and cultural tools specifically designed for older adult patients utilized in practice. There is also a lack of access to healthcare practitioners and clinics bursting at the seams with long wait times, patients can easily fall between the cracks, and not receive continuous follow-up and continuity of care they require. Furthermore, it became apparent some older adult patients are resistant to change in terms of lifestyle modifications. Lastly, there is currently a lack of older adult community programs for hypertension education and lifestyle modification.

The weaknesses found in this analysis included inconsistencies and variations in education tools and strategies, nurse and resource shortages, a lack of access to care, miscommunication between patient and nurse/prescriber, as well as a lack of self-efficacy, patient stubbornness and/or poor motivation. All of these aspects are deemed current weaknesses in care, potentially leading to discrepancies in hypertension healthcare. Identifying these weaknesses enables a first step to potentially combatting the high prevalence of hypertension and allows opportunity for change.

Opportunities

A number of opportunities became apparent in the SWOT analysis. There are opportunities to invest in hypertension education courses for nurses to guide patients to improve blood pressure control. There are also opportunities for including more KT tools in nursing

practice, geared towards hypertensive older adults. There are opportunities for the expansion of primary care facilities that allows more patients to receive and access cardiac healthcare and education. In addition to this, there is an opportunity for recruitment and retention strategies to obtain more nurses to fill the vacant positions. There is also the opportunity for nurses to provide hope and inspiration to their patients to increase patient self-efficacy and mental health. In this way, nurses can use their opportunities in patient consultations to influence patients in a positive way. Lastly, there are always opportunities for nurses to increase self-awareness with patients which comes from individual motivation, and seeking out education opportunities.

Threats

There were three main threats identified in the analysis which were: a burdened healthcare system leading to delayed education and treatment of hypertension, a lack of staffing and resources, and the potential for poor patient mental health. The COVID-19 pandemic created delays in diagnosis and education and worsened health conditions among older adults (Kim et al., 2022). Some key informants reported they are still seeing effects of the delays, having patients with adverse events like strokes and heart attacks that may have been prevented had they sought care and made changes earlier. Delayed treatment and poor access to care contributed to a threat because it allows for disease progression to continue. Delayed treatment also contributes to isolation of the patient which may lead to a decline in their mental health. Poor mental health of the patient was determined to be a threat because it impedes on patient treatment and management of hypertension. For example, if a patient has poor mental health, they will have decreased function and motivation to aim at combating their hypertension. Table 5 displays a summary of the SWOT analysis.

Table 5

SWOT Analysis

Strengths • Therapeutic communication practices, sharing knowledge and skills, and collaboration • Cultural competencies • Multitude of hypertension research • Organized, systematic process • Adapted to individual needs	Weaknesses • Variations in guidelines, lack of consensus among the medical community • Low-self efficacy in patients • Poor communication skills, communication/potential cognition barriers
Opportunities • Investment in hypertension education programs • Utilization of knowledge translation, cultural, and educational tools • Expansion of primary care • Learning about community programs • Providing hope to patients, working towards increasing their self-efficacy • Increased nurse education opportunities	Threats • Delayed diagnosis, education, and treatment due to COVID-19 pandemic and overburdened healthcare system • Difficulty accessing care and education, lack of staff and resources • Lack of timely access to care • Poor patient mental health

Conclusion

Overall, the gap analysis and SWOT analysis were a success in determining some of the positives and negatives influencing the current education practices for hypertension in the primary care setting. It was a fantastic experience learning other patients' and professionals' perspectives and practices in regard to hypertension education. Completing a gap analysis is

helpful for gaining insight into the strengths, weaknesses, opportunities and threats within the primary setting in northern British Columbia. Many positive actions are being implemented for hypertension reduction in the north. However, as presented, there is more to be done in Prince George to combat the high prevalence of hypertension. The final chapter is a discussion of the integrative literature review and the gap analysis that brings together the implications and recommendations for closing the education gaps for hypertensive older adults.

Chapter Five: Discussion and Conclusion

Older adults aged sixty-five years and older diagnosed with hypertension require education regarding the modifiable risk factors including diet, exercise, smoking cessation, and alcohol intake. Patient knowledge gaps are present and this reflects missed opportunities for education and behavior modification (Nanyonga et al., 2021). Education is a pivotal intervention for hypertension self-management and for nurses to help older adults improve their cardiac health. Change requires significant effort from both the older adult patient and the healthcare provider(s) and professionals involved in their care. Nurse-led hypertension interventions significantly improve lifestyle modifications (Nanyognga et al., 2021). For patients, improving blood pressure control through education involves increasing self-efficacy, gaining the necessary support, and developing a therapeutic relationship with their healthcare team. Older adults who are supported and empowered can be conduits for positive health improvements. This graduate project has been comprised of an integrative review and gap analysis for the purpose of generating contextual insights and recommendations that can improve the outcomes of older adults with hypertension. This aligns with the overarching goals in the earlier chapters of this project which was identifying effective ways of hypertension management such as self-management strategies, and various team-based approaches.

The integrative literature review consisted of a cohort of 19 sources. Five articles were quantitative studies, six were qualitative studies, five were mixed methods studies, and three were clinical guidelines. The themes of the integrative literature review were hypertension education, therapeutic relationships, self-efficacy, cultural inclusivity and sensitivity, barriers to education and lifestyle modifications, and collaboration. The gap analysis built on these findings and revealed the strengths, weaknesses, opportunities, and threats based on key informant

interviews from the Northern Health Authority region. Strengths included sharing knowledge, collaboration and resources for hypertension education. Weaknesses included variation in hypertension education quality, dependence on patient motivation, and availability of/access to healthcare. There are opportunities for developing new resources through KT research and designated funding. The threats involved competing economic interests, inflation of food prices, and limited access to healthcare due to location and availability. The gap analysis determined some critical differences between day-to-day practice and the current best Canadian practices from the policies, guidelines, and recommendations.

The research and data collection in both the findings and gap analysis chapters of this project has provided the foundation for discussion of the research question: "How can nurses close the educational gaps for the modification of the risk factors for hypertension among older adults in the primary care setting?" This final chapter will discuss the interpretations, implications, limitations and recommendations discovered while completing this project. Recommendations for research, education, and practice will also be discussed.

The Learning Cycle

A finding in both the literature and the gap analysis was that nurses and patients followed the same process when: (1) the nurses were teaching patients new information and (2) when the patients were learning new information. Patients learned what hypertension is, how it affects the body and health of an individual, and how to make lifestyle changes to improve blood pressure control. This process was outlined in Kolb's four stages of learning model: concrete experience, reflective observation, abstract conceptualization, and active experimentation. This process followed the cycle of feeling, watching, thinking, and doing.

The patient key informants described Kolb's process with differing experiences in the gap analysis. Both of the patients increased their knowledge through having new experiences due to their hypertension diagnosis. The key informants reflected on their experiences adapted their thinking based on new experiences and reflection and applied these to real-world situations. For example, both patient key informants identified their initial experiences of high blood pressure negatively and felt the need to find a solution through reflection. The key informants learned of treatments and strategies to reduce their blood pressure. They both implemented lifestyle changes to improve their condition and quality of life.

For the nurse key informants, they guided their patients through an assessment which identified any symptoms and completed blood pressure monitoring which created the opportunity for hypertension awareness in their patients. Then the nurse key informants informed their patients about hypertension and what was happening in their patients' bodies. This situation informed the concrete experience and reflective observation stages. These types of experiences also prompted nurse-led education and knowledge translation implementation. When the nurse key informants were sharing their knowledge, it allowed for abstract conceptualization, and active experimentation to occur. Similarly, within the literature, the same four stages were identified in the studies completing a nurse-led hypertension education intervention where the nurses are teaching the older adult patients ways they can improve blood pressure control (Lopez-Mateus et al., 2017; Ho et al., 2016; Wright et al., 2022; Roudi et al., 2015; Alves de Lima et al., 2017; Chen et al., 2020; Chatziefstratiou et al., 2021; Li et al., 2022; & Nanyonga et al., 2022).

Recognizing the process of learning is an essential factor in implementing education on all fronts. The learning process depends on a number of skills like focusing attention, planning,

determination, tenacity, and reflection. The learning process provides stability and a guide for both nurses and patients to follow. For hypertensive older adults, the learning process increases confidence and happiness, improves reasoning skills, promotes adaptability, enables a sense of empowerment and challenges perspectives.

The Primary Care Nurse's Role

To close the educational gaps for hypertension among the older adult population, nurses must implement educational tools and knowledge translation activities, use a therapeutic approach, empower their patients, consider cultural inclusivity and sensitivity, and use collaboration. It is essential to discuss these topics from the perspective of the nurse. The key discussion will be organized via the nursing process structure: assessment, diagnosis, treatment, management and evaluation. The steps nurses can take to close the educational gaps for hypertension in the primary care setting will be presented and discussed.

Assessment

A nurse's assessment has tremendous importance as a first step in closing the education gaps for hypertension among the older adult patient population. On an initial encounter, a nurse will complete a baseline assessment, where the nurse gathers information about a patient's physical, mental, emotional, and spiritual health status. The findings demonstrated a typical baseline assessment focused on hypertension will include height, weight, heart rate and blood pressure measurements (MOH, 2020). A nurse gathers assessment data about food consumption and eating patterns, physical activity regimens, pain and/or discomfort, and dyspnea. An assessment of cognitive function and physical ability is necessary for older adults. The findings

of nurses actively listening to patients, effectively communicating, and cultural awareness also promote an accurate assessment of older adult patients who are diagnosed with hypertension.

Nurses must observe for signs and symptoms of cardiac dysfunction, such as increased vascular resistance, an imbalance in oxygen supply and demand, and generalized weakness. A limitation is that many of these signs and symptoms are not obviously present in the earlier stages of hypertension. This is why nurses complete a thorough and accurate assessment so that any indication of hypertension and organ damage can be detected and managed promptly. The baseline assessment is a marker to observe a patient's health status trends over time. A nurse can rely on the baseline assessment for any future encounters and compare the data to observe changes in health status over time.

Assessment of Knowledge

Another way nurses close educational gaps for hypertension is to gain insight into the patient's baseline knowledge. In their assessments, nurses ask the patient questions and actively listen to responses, inquiring further if there is a lack of understanding. Nurses also gather a patient history, which provides insight into a family history of disease, employment, education level, and any previous medical interventions and disease history. These details can be utilized by nurses when navigating a plan moving forward. For example, if a patient has previously completed medical training, the nurse can spend more time on lifestyle modification strategies than explaining the primary pathology of hypertension, as the patient will already understand what hypertension is and the negative effect it has on the body. In this way, nurses can meet the patients where they are in their health journey, create a focused plan, and use their resources effectively.

A potential limitation to the baseline assessment is if a patient is dishonest with the nurse and relays false information or does not share all of the details of their symptoms or health concerns. This may occur because of perceived stigma. If this occurs, it will negatively impact patient care due to the inaccuracy of the information. It may lead to an inaccurate diagnosis and a poorer health outcome for the patient. Despite this, nurses can use the baseline assessment in their daily practice as a starting point in the nurse-patient relationship as a means to improve blood pressure control and for virtually any health ailment patients may seek future treatment for. Overall, nurses use various tools in their practice, and perhaps the persistent use of a toolkit would be beneficial.

Self-Efficacy Assessment and Patient Empowerment

A surprising discovery in the literature review was self-efficacy's influence on whether a patient successfully made the necessary lifestyle modifications to reduce blood pressure levels (Nanyogna et al., 2021; Ongkulna et al., 2022). Assessing self-efficacy gives the nurse insight into a patient's confidence and feelings about managing hypertension. Self-efficacy is particularly important in modifying health behaviors and education, such as learning to make health changes in diet and exercise to reduce blood pressure (Ongkulna et al., 2022). For older adults struggling with hypertension, self-efficacy is an attribute worth increasing to face the challenges in this realm. Interestingly, the findings revealed that hypertensive older adults require a higher level of self-efficacy so they may have the confidence and courage to make choices that align with their goals (Ongkulna et al., 2022). Older adults often struggle with low-levels of self-efficacy and also a decrease in self-efficacy with age (Ongkulna et al., 2022). There are many potential causes for a low level of self-efficacy in old age such as frailty, cognitive impairment, decrease coordination and mobility, and feelings of depression, fear, and anxiety, to name a few.

To combat this, the Nanyonga et al. (2021) study found that group support, shared learning and knowledge reinforcement created significant improvements in reported self-efficacy levels.

The patient key informants involved in the gap analysis agreed with the literature review findings in that they found themselves having a lowered level of self-efficacy in the beginning of their health journey with hypertension. Additionally, they faced barriers and challenges that negatively influenced their thoughts, emotions, and motivation to seek support and treatment that also impacted their level of self-efficacy. However, with time, the patient key informants were able to raise their level of self-efficacy and begin taking positive steps towards making lifestyle modifications and controlling their blood pressure. Both the literature findings and the key informants noted a motivation for increasing their self-efficacy and making lifestyle changes was the increased probability of target organ damage if they left their condition untreated.

When patients have an increased level of self-efficacy, they are more receptive to receiving education and are more likely to take steps to treat and manage their condition. Nurses can close the educational gaps in this way as they are well-positioned to impact patients' level of self-efficacy through their approach and educational strategies. Nurses can gauge their patient's level of self-efficacy by learning about how they feel about their condition and what goals they hope to achieve in terms of managing their hypertension. Nurses who used positive reinforcement, encouraged their patients, and who developed rapport with their patients, were better able to help them increase their self-efficacy (Ongkulna et al., 2022). Furthermore, nurses who implemented time and effort towards increasing self-efficacy in patients had more success educating them and had better patient outcomes (Ongkulna et al., 2022).

Nurses can also apply this strategy in their daily practice to patients with other health conditions, such as stroke. For example, a patient who suffered a stroke may have impaired

movement in one arm. The nurse recognizes this is a life-altering change for the stroke patient. Upon assessment, the nurse recognizes a lowered level of self-efficacy in the stroke patient. When the patient relays that they are embarrassed, they cannot move their arm and complete activities of daily living. The nurse works with the patient to improve their self-efficacy. A potential limitation nurses may face is when there are moderate to severe levels of cognitive decline or brain injury, impacting their ability to utilize the method of increasing self-efficacy.

Assessing Resource Needs

Once the primary care nurse or nurse practitioner has completed a baseline assessment, they can also complete an assessment that identifies what types of resources a patient may require. This action is another step towards closing the educational gaps for hypertension among the older adult population because acquiring specific resources will provide support and promote opportunities to educate the patient. Some examples of resources include education materials and programs about healthy food options, physical activity regimens suited for the older adults' ability, support groups, older adult-specific community programs, and access to a variety of healthcare professionals.

In the literature, food was mentioned as a resource needed for older adults aiming at controlling their blood pressure (Zou, 2019). Older adults may need assistance with new recipes, or they may require assistance in obtaining recipe ideas. Older adults may need education regarding food preparation and cooking if they are purchasing healthier food options. Not to mention, older adults may need assistance with food costs due to the high inflation rates occurring in BC and across Canada. The nurse key informants took an individualized approach to older adult patients and food in the gap analysis. The nurse key informants discussed food likes and dislikes with their cognitive older adult patients and explained healthy food options. A nurse

practitioner key informant noted that wild salmon is a popular healthy food option for Indigenous foods.

Nurses can assist in closing educational gaps by sharing local knowledge about food options, referring their patients to the appropriate groups and professionals, and advocating for financial resources. For example, if an older adult is struggling with food costs, the nurse can share the location of the local food bank and how the older adult can obtain their services. Nurses can also refer their patients to a dietician who has specialized knowledge in food preparation and creative ideas for healthy meal options. Nurses can also refer their older adult patients to a social worker who can advocate for financial resources such as social assistance and other government programs that help seniors struggling to keep up with the rising costs. Nurses can also connect older adults with day centers and community programs that participate in cooking classes or serve healthy lunch options as part of their initiative.

The literature findings and the gap analysis highlighted the need for physical activity engagement. The research recommended that older adults work with their nurse educators to learn about various physical activities they can take part in if they were unaware of them. Physical activity recommendations depend on the ability of the older adult. Some older adults have excellent physical mobility after age sixty-five, where they can walk, whereas others are confined to a wheelchair. Many older adults can participate in low to moderate-intensity exercises such as aerobics, walking, swimming and yoga. Older adults confined to a wheelchair can be referred to physiotherapists and occupational therapists to learn about and complete appropriate arm and leg exercises, such as minimal weightlifting. The gap analysis findings agreed with the literature that an individualized approach to physical activities is necessary, specifically accounting for the unique challenges of the Northern Health Authority setting, which

includes extremes of weather, limited public transportation, and more limited access to formal programming. A nurse practitioner key informant stated they had some patients in their 80s who spent their weekends hiking, while other patients in their 70s were confined to a walker or wheelchair devices. No matter the extent of the older adults' capabilities, nurses can assess their resources and educate/refer appropriately. In turn, older adults can receive the education opportunities presented to them and choose to incorporate them into their daily routines.

To further assess resource needs, nurses can be aware of community exercise programs that align with the older adult patient's goals. For example, in Prince George, the Aquatic Center runs various fitness classes such as Aqualite, a low-intensity cardio session focusing on balance, core strength and stretching. When nurses can recommend local programs, patients report it to be less challenging and overwhelming to navigate physical activity options. By educating patients about appropriate physical activities, they can participate in, nurses can further close this aspect of education gaps.

Overall, patients may need more support regarding transportation, being waitlisted for popular classes/events, keeping track of appointments/classes, and physical activity regimens. Nurses can combat these potential limitations for patients by assessing the ongoing and changing needs for resources, making referrals as appropriate, and keeping abreast of current information about local groups, events, and activities. Older adults facing cognitive decline and physical limitations naturally have significant challenges. However, nurses can work with these patients to educate them as appropriate through increased support and care. Lastly, by navigating problems that stand in the way of consuming healthier food options and participating in physical activity, nurses are facilitators of educating their older adult patients about how they can improve blood pressure control.

Assessing Support Systems

Older adults who have support systems in place while navigating a hypertension diagnosis have better health outcomes (Zou, 2019). Those who have a lack of support experience isolation, more incredible difficulty in learning about hypertension, and negative emotions such as feelings of being overwhelmed, stressed, and anxious (Zou, 2019; Wright et al., 2022). The literature and gap analysis findings were clear, agreeing that nurses should identify with their older adult patients, who in the patient's life would be a positive influence that can support them during this new phase. For example, one patient key informant expressed gratitude when her sister supported her by calling her once weekly and asking about her emotional well-being. In the same way, support persons can participate in the older adult patient education process by checking in with them, sharing healthy recipes or physical activity regimens, and communicating encouragement for the older adult patient. Learning about and managing hypertension is a continual, trial-and-error process that requires a stable, positive support system.

A limitation noted was when the older adult patient chooses a support person who negatively influences them. A negative influence would discourage the patient from choosing nutritional foods, promote a sedentary lifestyle and alcohol intake, and instill a negative belief system within the patient. This negates the motivation to participate in any positive lifestyle changes. Nurses can intervene by asking the patient questions in regard to how they view their support system, how their support team is involved and what effect they are having on the older adult patients' goals. Nurses can suggest changes to their support person(s) and what a positive support system looks like. If it becomes the case a patient does not have positive influences, nurses can step in and refer patients to programs and other professionals like nutritionists and dieticians so the patient can receive the appropriate support. Having a positive support system

impacts hypertension literacy and the ability to adopt healthy lifestyle habits. Overall, those older adults with positive support systems live longer, have improved health quality, and report increased emotional well-being (Zou, 2019).

Diagnosis

All human beings, including older adults, are able to implement education for hypertension. Additionally, a diagnosis supplies a label for symptoms, experiences, problems, and potential health problems (Kentucky Mental Healthcare [KMH], n.d). Obtaining a diagnosis can be a step forward for many older adult patients in alleviating the fear and anxiety of the unknown (KMH, n.d). Finally, obtaining a diagnosis aids in identifying potential solutions, such as education interventions, that will negate and manage hypertension, as well as other chronic diseases.

Nurse Practitioner versus Registered Nurse Roles

Both nurse practitioners and registered nurses were interviewed for this project. There are vital differences in the scope of practice between registered nurses and nurse practitioners. One key difference is that nurse practitioners can formally diagnose diseases and illnesses (BCCNM, 2021). In terms of approach, each professional, according to their designation, will implement hypertension education slightly differently. For example, a nurse practitioner key informant relayed they would first assess the older adult patient and obtain the appropriate data to produce an accurate diagnosis. Once the diagnosis was established, they would educate their patient about lifestyle modifications and implement this strategy as a first-line treatment. A second line of treatment would then be a medication regimen. The nurse practitioner provides continuous care for the older adult patient and monitors their trends over time.

There is some similarity with the registered nurse role in that they can monitor trends in the patients' hypertension condition by completing tasks such as blood pressure monitoring and observing trends in health status through completing the head-to- toe assessments. However, they do not officially diagnose their patients. The registered nurse accepts the diagnosis from the nurse practitioner or prescriber and implements the education strategies as appropriate. Registered nurse key informants create "nursing diagnoses," which are essentially clinical judgments about the older adult's responses to actual or potential health ailments. An example of a nursing diagnosis for an older adult with hypertension is "Knowledge deficit related to new hypertension diagnosis as evidenced by obese body mass index rating, sedentary lifestyle, type 2 diabetes mellitus, and inconsistent attempts at lifestyle modification." It is essential to emphasize the distinctions in the scope of practice and communicate to patients what role each healthcare professional plays in educating the older adult about hypertension, and all other diseases for that matter. The older adult patients are already facing a complex circumstance with their diagnosis, and if they are confused about the different healthcare provider roles, they may become reluctant to ask questions and remain confused. Such a circumstance would negatively impact the nurse's ability to educate the older adult patient.

Ensuring an Accurate Diagnosis

A precise diagnosis is required to effectively treat and manage hypertension and educate the older adult patient appropriately, following their displayed risk factors. The literature review and the gap analysis emphasized ensuring an accurate diagnosis. The literature requires a correct diagnosis because it explains a patient's health issues and informs subsequent treatment and management decisions (Balough et al., 2015). Consequently, the negative implications of a diagnostic error can lead to serious adverse health outcomes, psychological distress, and

financial losses (Balough et al., 2015). For the gap analysis, a nurse practitioner key informant noted one of the first steps they take when navigating the topic of hypertension with their patients is ensuring that the diagnosis is correct. This same key informant noted the high prevalence of white coat hypertension they have experienced in their clinical practice. The key informant further noted to ensure the sphygmomanometer is appropriately calibrated to obtain an accurate blood pressure reading. These are important details to highlight because they infer that a misdiagnosis of hypertension may quickly occur. Therefore, nurses must negate barriers by recognizing cases of white coat hypertension and maintaining devices used to obtain blood pressure. In addition, they assess their patients for further signs and symptoms of hypertension, even though these symptoms are frequently silent. Overall, ensuring an accurate diagnosis both confirms the patient has hypertension and it lays the foundation to begin the hypertension education process.

Understanding and Processing a Hypertension Diagnosis

Receiving a hypertension diagnosis was described in the literature and the gap analysis as a negative experience. Those diagnosed regularly reported to have felt scared, overwhelmed, hopeless, depressed, and as though this could be the beginning of the end of their lives. This suggests a potential opportunity for nurses to be open to patients expressing their feelings, barriers, and circumstances they face in a healthy manner after receiving their hypertension diagnosis. Upon patient encounters, nurses can inquire how the patient feels about their diagnosis. Depending on the response of the patient, it may lead to an appropriate discussion regarding how the nurse can provide support for the patient as well as how others, such as counsellors, support groups, and/or community groups such as the YMCA Healthy Heart program could be of support for the patient. This can be an effective solution for patients

struggling with their new diagnosis. Education programs open opportunities for learning about health conditions and ways to manage and share personal experiences. engage in self-expression and receive support to face complex challenges. Participating in such groups and appointments aid in the older adult being able to obtain the specialized care they need.

A further example is a nurse practitioner key informant referring a patient to a geriatrician. A geriatrician specializes in the health care of older adult patients. A geriatrician can support older adults navigating their health journey by ensuring regular blood pressure monitoring, any loss of function, and alterations in the ability to complete the activities of daily living.

A patient's ability to cope with a hypertension diagnosis is also influenced by the signs and symptoms experienced by the patient (Resende et al., 2018). It was noted in the literature that patients who experienced an adverse event from hypertension were more likely to seek help and treatment and modify their lifestyle to improve blood pressure control (Resende et al., 2018). This was also the case in the gap analysis. For example, one key informant reported the symptoms of new onset swelling in their feet and ankles, and the other noted motivation for coping and making changes to improve health after experiencing a myocardial infarction. This indicates the need for nurses to educate and diagnose their patients early on about the terrible adverse effects hypertension can have. Suppose hypertension is not addressed and patients do not receive the necessary education for managing it. In that case, they may feel even higher levels of emotions such as anger, depression, desperation, and hopelessness, creating a crisis for the patient and an inability to cope. Over time, patients who can implement proper coping strategies and lifestyle modifications may overcome this period of crisis, having had the emotions subside and, because of this, may revert to their previous habits that negatively impacted their cardiac

health in the first place. This creates a vicious cycle for the patient, putting them at a higher risk for an adverse event and the potential for another experience of crisis.

Receiving a diagnosis for a chronic condition of any type can take a considerable toll on the older adult, which feelings of denial can further complicate. Being in denial is a common experience for patients diagnosed with hypertension. This can occur because patients are often asymptomatic but also because it is a complex reality for the patient to grasp and come to terms with. Ultimately, cognitive older adults are all autonomous individuals and can make their own decisions regarding how they manage their newly diagnosed condition. However, it is often the case that family members and caregivers become concerned when they realize their loved one is in denial about their diagnosis and not taking steps to manage their condition. The type of situation increases in complexity when the problem of denial is not addressed, which can create an enormous barrier due to the support persons' reluctance and skepticism to assist the older adult. Similar experiences have occurred with people who struggle with mental health disorders like schizophrenia and Alzheimer's disease. People who are diagnosed with these conditions are more likely to avoid and resist treatment for other health conditions, opening Pandora's box when it comes to coping with the diagnosis and then planning to treat the condition. In these situations, the nurse should prioritize assessing the difficulty experienced due to the news of the diagnosis and ongoing health changes for the older adult.

The difficulty expanded for newly diagnosed patients attempting to cope, as early treatment is necessary for reducing the risk of adverse events and improving overall health. This means that patients can feel increased pressure to quickly determine the next steps after diagnosis and navigate the facilitation of lifestyle modification. This was portrayed in a qualitative study about older adult experiences with hypertension management (Magobe et al., 2017). In this

article, the participants described factors that influenced poor coping ability with their diagnosis: poor levels of self-care and self-efficacy. Moreover, some of the participants expressed anxiety, self-consciousness, and being under extra-special scrutiny of others as influencing factors impairing the ability to cope and participate in lifestyle modifications (Magobe et al., 2017). Upon speculation, it could be that the participants are attempting to provide reasons they feel justify not making the necessary lifestyle modifications to improve blood pressure control.

The gap analysis also identified adversity in coping with a diagnosis. From the nurse key informant perspective, a nurse practitioner reported seeing their patients face difficult emotions during encounters where they were diagnosing them. Additionally, the nurse practitioner key informant described that the patients had poor receptiveness and absorption of the information when trying to educate them during the same appointment as the diagnosis. This highlights the need for nurses to have separate appointments for diagnosis and education where possible. If it is the case that the patient is receptive to learning and retaining new knowledge in the same encounter as they receive the diagnosis, the nurse may feel it is appropriate; however, this was not found to be the case during the gap analysis. From the patient's perspective, one key informant described on her first encounter, where they received their diagnosis, the information they was provided with was not retained because they felt so overwhelmed by the news of her diagnosis. This result suggests the requirement for clear communication and observant nurses and nurse practitioners. In such circumstances, nurses must support their patients, regularly follow up, and refer them to the appropriate resources. These actions will increase the likelihood of meeting the patients' ongoing and changing needs and keep them engaged as active participants in their health.

The review of the literature and the gap analysis have highlighted that receiving the diagnosis of hypertension is an emotional experience often filled with depression, fear, and stress. A decision to partake in lifestyle modification and process emotions is ultimately up to each older adult, and the support they receive from those surrounding them is impactful. This already complex circumstance becomes more complicated if the patient enters the phase of denial, which can extend to caregivers and supporters of the hypertensive older adult feeling helpless as well. In light of this, nurses must be attuned to recognizing their patients' emotions and coping abilities to support, advise, and work towards creating an effective plan to alleviate some of the burden and stress patients and their loved ones feel. Finally, addressing the emotions and feelings of both the older adult patients and their support people is a step forward in closing the gaps in terms of education. This is because the patient will be more emotionally available and able to focus on the information being shared with them.

Treatments

Healthcare treatment is well known as an action that healthcare professionals take to help their patients control, lessen, and/or manage a health ailment. For the purpose of this project, treatment is an educational approach to hypertension care that involves teachings around lifestyle modifications to control blood pressure. The discussion around treatments for hypertensive older adults was narrowed to hypertension education, a therapeutic approach, and cultural considerations.

Hypertension Education

Education for hypertension was a central intervention in the literature and gap analysis for implementing lifestyle modifications. Education for hypertension occurs in a variety of

different primary care settings, including adult day centers, clinics, and patient homes. There are also a variety of ways education can be presented to patients so that understanding occurs, and this is also known as knowledge translation. Education can be given through written materials, videos, songs, interactive games, stories, shared experiences, and more. Education for hypertension is diverse, which allows the opportunity for patients to choose how they learn the best. A limitation is accessibility to education materials for hypertension. It can be the case that an older adult patient is unable to seek out information for themselves as they need transportation, access to technology, or the motivation or ability to obtain hypertension resources. Nurses can identify this barrier in their assessment and provide materials for the patient or connect them to the appropriate resources, such as computer access to the recommended hypertension websites and online research.

The findings illuminated what hypertension education is as well as its effects and importance. As previously described, hypertension is a condition that profoundly affects the older adult population, and education is one way to improve control of it. Education for hypertension involves teaching older adults ways to modify the risk factors for hypertension through healthier eating habits, increasing physical activity, minimizing alcohol intake, smoking cessation and stress management. For example, hypertensive older adult patients can learn about the Dietary Approaches to Stop Hypertension (DASH) diet and consume the recommended foods such as fruits, vegetables, whole grains, chicken, fish, and dairy. Patients can also consume potassium-rich foods with minimal saturated and trans fats. Older adult patients can determine, on their own or with support, what physical activities work well for them, considering any present health conditions or other circumstances impacting their ability for physical activity. The current recommendation is approximately 150 minutes each week of physical activity for people

aged sixty-five years and older. Physical activity includes walking, moderate-intensity aerobic exercises, running, hiking, swimming, yoga, bowling, and cycling. Finally, stress management for older adults can be implemented by addressing fears, learning more about their health condition(s), using mindfulness and meditation, and in many other ways.

Hypertension education has a fundamental importance in that it is a primary healthcare intervention to reduce mortality and the burden of disease (Ho et al., 2016; Roudi et al., 2016; Gomes dos Santos & Christovam 2014; Resende et al., 2018; Beigi et al., 2014; and Nanyonga et al., 2021). Hypertension education positively affects patients and improves control of high blood pressure levels (Ho et al., 2016; Li et al., 2016). Lifestyle and hypertension education as interventions for older adults seeking to control blood pressure levels is as effective as pharmacological management (Ho et al., 2016; Lopez-Mateus et al., 2017). Overall, educating older adults about hypertension allows the active participation of patients and increases knowledge while optimizing disease control (Lopez-Mateus et al., 2017).

A surprising finding in the literature was in regard to self-management of hypertension being the most successful form of managing this condition. This method relies on the nurse teaching the patient what hypertension is, its effects, and the steps to take to combat it in terms of a treatment and management plan. Not only is this a steep learning curve for the patient, but it also requires strong motivation to make the lifestyle modifications necessary to improve blood pressure control. This method promotes the individual's autonomy and manifests the notion of “always let the patient do what they can for themselves.” Similarly, this same notion is promoted in the long term care settings for older adults who are completing activities of daily living. Despite the difficulty of watching patients struggle to complete basic tasks, patients must do what they can to maintain their skills and knowledge. In other words, this does not mean letting

the patient suffer, only that promoting self-management has the best health outcomes for older adults (Ongkulna et al., 2021).

The literature review findings presented many educational strategies and tools; however, it became apparent in the gap analysis that education tools need to be more utilized in practice. The primary educational tools implemented are oral information and verbal sharing and relaying of knowledge from the nurse to the patient. For example, one community nurse relied on the information they learned in their university education and through the evidence-based practice online resource tool called Up-To-Date. Another education tool regularly utilized by the nurse key informants was reliance on other colleagues like physicians and other nurses. Thus, a collaborative approach is a tool for gathering information, educating patients, and providing a plan of action to manage hypertension.

There is a need to increase the implementation of KT tools in clinical encounters. An increase in the prevalence of hypertension pamphlets, for example, for older adults diagnosed with hypertension, would make a difference in hypertension knowledge retention. The most impactful written materials were those with approximately three to five crucial takeaway points that older adults can read at home to reinforce their knowledge (Parrish, 2022).

Another opportunity to close education gaps for hypertension among older adults was found to be community education classes for hypertension education (Wright et al., 2022). These classes can be administered in the community setting by a nurse or health educator. In the gap analysis, there was no mention of the key informants being informed of any education classes running in the Prince George area. Therefore, there is an opportunity to promote education in this realm.

Another interesting finding in the literature was from the Nanyonga et al. (2022) study that implemented a community education program. An intriguing aspect of the education program was the limited time (15 minutes) allotted to learning about hypertension from a lecturer in each session. Then the rest of the time was spent sharing experiences and participating in activities. This is intriguing because it demonstrates that teaching patients about hypertension does not take much time. In this way, nurses can use this strategy by incorporating concise and transparent information about hypertension into each encounter with their patients. This can easily be prioritized despite the barriers, such as needing more time and adequate nursing staff.

To summarize, several factors influence successful hypertension education for older adults. First, the older adult population has a wealth of ancestral knowledge, a fundamental pillar of health that must be incorporated harmoniously (Lopez-Mateus et al., 2017). Second, gaining knowledge about hypertension improves blood pressure control (Ho et al., 2016). Ho et al. (2016) found no statistically significant differences in ability or willingness to obtain knowledge based on sex, educational level, and occupational status. However, the Resende et al. (2018) article conflicts with this evidence as it found individuals with higher levels of education were more open to educational teachings. Third, those older adults who are diagnosed with hypertension are likely to be open to obtaining hypertension education. The Ho et al. (2016) study highlighted the influential factor that both low and high-risk hypertensive participants were open to hypertension education about the risk factors and how to modify them. Fourth, education reinforcement and follow-up visits influence successful hypertension education and solidify knowledge about hypertension while answering any questions that arise (Ho et al., 2016; Lopez-Mateus et al., 2017). Fifth, the lack of hypertension knowledge negatively influences cardiac health. In the literature, many study participants needed to learn they could reduce their blood

pressure by modifying the risk factors through lifestyle changes such as diet and exercise (Resende et al., 2018; Lopez-Mateus et al., 2017). This evidence emphasizes the importance of hypertension education and how educating patients is associated with a decrease in hypertension-related events.

Therapeutic Relations and Communication Approaches

Another relevant theme in the literature and the gap analysis was the importance of therapeutic interpersonal relationships and the communication approaches between the nurse and the patient. The findings demonstrated that five main aspects of the nurse-patient relationship must be present: trust, respect, empathy, professional intimacy, and the appropriate use of the nurse's power (CNO, 2006).

Trust is required in the nurse-patient relationship, so the patient feels safe, supported, and comfortable with the healthcare they receive from the nurse (CNO, 2006). Trust enables patients to reveal the fuller details of their health conditions and the state of their well-being. Trust can be established by being realistic, telling the truth, honoring commitments, and communicating clearly. When trust is eroded, it is tough to reestablish, and the nurse-patient relationship is broken down (CNO, 2006).

Respect recognizes the "inherent dignity, worth and uniqueness of each patient, regardless of socioeconomic status, personal attributes and the nature of the health problem" (CNO, 2006, p. 4). A respectful therapeutic relationship between the patient and the nurse is a priority as it builds trust, safety, and improved well-being.

Professional intimacy is present in nursing care and services. It may relate to virtually any aspect of care, including assessing and communicating, measuring blood pressure, bathing,

and more. Professional intimacy creates a sense of closeness between the nurse and the patient. This aspect also involves psychological, spiritual, and social dimensions within a nursing care plan (CNO, 2006).

Empathy is the "expression of understanding, validating, resonating, and meaning that the health care experience holds for the client." (CNO, 2006, p. 6). Empathy includes an "appropriate emotional distance from the client to ensure objectivity and an appropriate professional response" (CNO, 2006, p. 6).

The nurse-patient relationship has a power imbalance (RNAO, 2002). Depending on the circumstance. It may not seem like the nurse has more power than the patient; however, it is the case because the nurse is in a position of authority in the primary health system. Although the nurse may not immediately perceive it, the nurse has more power than the client. The nurse has "specialized knowledge, access to privileged information, and the ability to advocate for the patient" (CNO, 2006, p. 4). When there is a misuse of power, it is referred to as abuse (CNO, 2006). Therapeutic interpersonal relationships are a primary and necessary component of healthcare experiences for older adults trying to achieve blood pressure control. Positive interactions between the nurse and the patient involve effective communication, the facilitation of goal setting, and active participation (RNAO, 2002). The literature reported that therapeutic relations encompass caring, support, non-judgmental, and incorporating safety through an often stressful time in a patient's life (RNAO, 2002). Such ties have the potential to both transform and enrich a patient's healthcare experiences. Interpersonal therapeutic relationships between the patient and nurse can last briefly or over the long term.

Therapeutic interpersonal relationships are created between the nurse and the patient, laying the foundation for implementing and facilitating education strategies for blood pressure

control for hypertensive older adults (CNO, 2006; RNAO, 2002). When hypertensive older adult patients form a trusting relationship with the nurse that empowers them to make positive health changes, it is possible to improve blood pressure control with such a strong foundation. In addition to this, the nurse must also "acquire the necessary knowledge to participate effectively in therapeutic relationships" (RNAO, 2002, pp. 18,19). Nurses must obtain background knowledge, theoretical knowledge about interpersonal relationships, knowledge of diversity influences and determinants, knowledge of health and illness, knowledge of broad influences on healthcare and policy, and knowledge of systems (RNAO, 2002). Therefore, therapeutic relationships work toward improving patient satisfaction, quality of life, and adherence to treatments like education for combating hypertension among older adults (RNAO, 2002; CNO, 2006; Machado et al., 2014; Wright et al., 2022). These relations also decrease fear, anxiety, and depression, as well as overall healthcare costs (RNAO, 2002; CNO, 2006). 6).

It is vital that nurses therapeutically engage with their patients to improve blood pressure control. An interesting finding in the literature demonstrated that therapeutic relationships improve patient satisfaction, quality of life, and treatment adherence (RNAO, 2002). Additionally, these relations also decrease fear, anxiety, and depression as well as overall healthcare costs (RNAO, 2002). The impact of nurse-led education interventions for hypertensive older adults is vital in reducing the incidence of hypertension among the older adult population. Those who experience a breakdown in the patient-provider relationship are left to navigate solutions to improving health independently. Frequently, patients who continue with no health provider experience the adverse effects of hypertension, including damage to their organs, due to insufficient treatment and management. A supportive patient-provider relationship is required to improve blood pressure control among older adults over the long term.

As relayed in the gap analysis, no improvement in blood pressure control occurred when the patient key informant had a negative experience with a healthcare provider with a poor bedside manner. The provider did not explain or provide education to this patient. In turn, this left the patient feeling lost, fearful, depressed, and anxious. In this instance, the patient-provider relationship was abrupt; did not accommodate an opportunity for education, and it was not supportive of the patients' feelings, emotions, and desire to address concerns and improve their health.

Nurses can negate experiences like this by utilizing the therapeutic relationship concept and effective communication strategies. Despite their busy schedules, nurses can take time to listen to their patients and address concerns. For the older adult population, nurses can use appropriate communication strategies such as enunciating speech, speaking in a low-pitched tone, and sitting at face level while maintaining eye contact when communicating with older adults who are hard of hearing (Parrish, 2022).

These strategies can be applied in a general context as well. Older adult patients who go to emergency room departments for treatment for life-threatening conditions experience stress, fear, and anxiety. It is critical that nurses working in this setting pay close attention to the nurse-patient relationship so that it does not become broken down and fragmented, leading to a lower quality of healthcare. Nurses can be attentive to the needs of their patients and explain procedures, tests, and processes as appropriate and at a level the patient understands. Nurses can ensure patient understanding by asking the patient to describe the information the nurse shared with them. Due to emergency patients needing immediate medical care, care is provided at a fast pace. These strategies should be solidified in a nurse's practice so they can incorporate them into their daily practice. A barrier may become apparent when a patient has a poor experience and a

lack of a therapeutic relationship and communication in the emergency room setting, contributing to the patient being reluctant to seek future medical care when they require it.

Similarly, the findings also discussed the importance of interpersonal communication skills to navigate life chaos (Wright et al., 2022). This is considered a critical factor in the promotion of the adoption of behaviour modification in older adults living with hypertension (Wright et al., 2022). Trust is fundamental to the success in improving blood pressure control. If an older adult patient does not trust the nurse, the therapeutic relationship will be eroded, and the patient will not implement the recommended treatment into their lifestyle (Wright et al., 2022). In addition, when it comes to education sessions for a hypertension intervention, the participants require trust in the nurse delivering the education materials because participants must engage in self-disclosure activities (Wright et al., 2022).

According to the Machado et al. (2014) study, nurses in the health educator roles enable elderly patients to improve their coping ability to handle high blood pressure. This is a potential solution to narrowing education gaps for hypertension based on therapeutic relational interventions that increase the patient's level of involvement, aiming to empower them (Machado et al., 2014). A nurse must address any peculiarities that may compromise an older adult’s ability to make treatment decisions (Machado et al., 2014). This upholds basic ethical principles such as informed consent, autonomy, and non-malfeasance, promoting the therapeutic relationship. In addition, the nurse must pay close attention to limited health literacy and explain health procedures in a manner that is fully understood by the patient (Machado et al., 2014). A negative result can occur in the nurse-patient relationship, such as poor compliance and adherence to the recommended treatments when health illiteracy is not addressed (Machado et al., 2014). Li et al. (2022) noted older adults have improved blood pressure control when there are continuous

educational courses as opposed to one-time interventions, which a therapeutic relationship between the nurse and the patient can accommodate.

Therapeutic relations and communication play a fundamental role in creating a trusting and safe environment that promotes a suitable environment for education. Due to the health-threatening nature of hypertension, nurse-led interventions are vital to reducing blood pressure levels, and this requires the development of a therapeutic relationship between the nurse and the patient. Without nurse assistance, the progress of the disease manifests in organ damage and even death. To prevent this from occurring, a supportive patient-provider relationship is required. Nurses are the key facilitators of the therapeutic relationship and implementation of appropriate communication strategies. Without a therapeutic relationship between the nurse and the patient, practical education for older adults regarding hypertension cannot occur due to the communication breakdown that creates confusion and discourages patient motivation for implementing lifestyle modifications.

Cultural Considerations

Implementing cultural awareness into education practices was a pertinent and necessary intervention identified in this project. Cultural sensitivity and inclusivity create an understanding of cultural differences and promote respect for each individual's culture, fostering collaboration and diversity. Cultural sensitivity and inclusivity are essential in creating a safe and inviting environment where individuals are encouraged to relay unique perspectives, beliefs, and cultural backgrounds. In addition, feeling heard, valued, and secure creates an atmosphere of productivity and promotes potential fulfillment.

The literature revealed that effective and culturally-tailored nursing interventions in the primary care setting are necessary for older adults to improve blood pressure control (Wen-Wen Li et al., 2015). Lopez-Mateus et al. (2017) emphasized that the most effective interventions for improved blood pressure control among older adults include culturally sensitive and inclusive education. This is due to the intertwined nature between culture and health. For example, a Chinese-identifying patient may consider integrating the Chinese cabbage, bok choy, into their diet to lower their blood pressure. During the encounter with the older adult, nurses may ask the patient about various cultural foods and physical activities related to the patient's culture. The nurse may present related cultural resources and knowledge if the patient is open to learning more about specific foods and activities to control blood pressure. A fundamental approach is respecting a patient's spirituality, religion, cultural identity and values. In addition, nurses must be vigilant about any adverse interactions cultural foods and activities may have with medications or the activities of daily living. Generally, herbs like St. John's Wort and foods like grapefruit have negatively interacted with many prescribed drugs. Despite this, nurses who implement culturally inclusive education strategies will have more patient success due to ties to personal identity, familiarity, and feeling safe and respected.

Another important finding outlined in the literature was that many older adults are grounded in their cultural history and hold dear to their cultural traditions and values throughout their lives. Their cultures and traditions are a crucial part of their identity and something they live out in their daily lives. The patient must communicate this to the nurse, or the nurse is provided with this information. This is another reason for incorporating cultural inclusivity into strategies for closing education gaps. Furthermore, nurses must provide an attentive and careful assessment of individual ancestral characteristics (Wen-Wen li et al., 2015). For example, the literature

demonstrated that many African-American females suffer disproportionately from hypertension than males and other ethnicities (Wright et al., 2022).

Another example is a higher proportion of people who have Indigenous heritage are diagnosed with type two diabetes mellitus than those who do not have Indigenous heritage. Nurses can identify the risk factors from a patient's assessment and ancestral history and warn them about any high-risk factors for both the development of hypertension and other chronic diseases. Moreover, the gap analysis identified that nurses' training involves extensive cultural education components. Therefore, learning is a lifelong process. Nurses are well-equipped with knowledge from their university education and access to cultural online resources to assist patients in closing some cultural and educational gaps regarding food and exercise regimens.

An advancement opportunity for cultural inclusivity and sensitivity tools became apparent in the gap analysis. During the key informant interviews, the nurses described the extensive knowledge they had obtained during their education; however, none mentioned any cultural tools currently being used in practice. Many key informants noted they are using an individualized approach focusing on cultural foods that have nutritional value. Despite this being a terrific approach to patient-centered care, an educational gap may close with the addition of physical materials such as a pamphlet patients can take home tailored to their culture. This knowledge translation activity can include suggestions for culture-specific hypertension-reducing foods with detailed preparation, cooking, and storage instructions. This would be a helpful way to close an educational gap as the patient can read and re-read the pamphlet as needed to solidify the knowledge they gained. Older adult patients can share these educational tools with their families, friends, and caregivers.

Overall, cultural inclusivity, sensitivity, and educational tools are essential to close education gaps in hypertension healthcare. These methods provide stability, safety, and respect in patient journeys navigating hypertension. There are abundant opportunities to develop cultural knowledge translation tools that further solidify cultural knowledge and methods of improving blood pressure control through diet, exercise, and other lifestyle modifications.

Management and Evaluation

For this project, management refers to the continual proactiveness of healthcare delivery. Furthermore, management involves a multidisciplinary approach that promotes collaboration and continuity of healthcare. Evaluation refers to analyzing current management strategies and assessing their quality. Management and evaluation of healthcare delivery optimize patient encounters via both disease prevention and health promotion.

Regular Follow-up

Regularly meeting and following up with older adult patients was found to be a way of narrowing the educational gaps for hypertension among older adults. Follow-up appointments create an opportunity for an extended time to learn the information between the first and second appointments and any other subsequent appointments. Follow-up appointments also allow older adults to ask questions and alleviate confusion. Hypertension is a complicated disease that takes time and effort to learn about. In this way, nurses can be accommodating by allowing extra time for the patient during appointments, ensuring scheduled appointments are communicated with the patient or caregiver, and understanding the date and time of the appointment. Furthermore, follow-up appointments incorporate a trial-and-error process allowing for management adjustments. For example, patients may report increased pain at a follow-up appointment while

completing their new exercise routine. In this instance, the nurse can recommend adjustments to the exercise regimen, seek a physical therapy referral, seek medication changes, and make recommendations such as instructions for applying ice or heat to alleviate the pain. Lastly, routine follow-up is an opportunity to motivate the patient through their challenges while attempting to improve blood pressure control. Some potential limitations of routine follow-up involve transportation and a lack of time for nurses to schedule follow-up appointments in the primary clinic setting. However, these limitations can have potential solutions dealt with on a case-by-case basis utilizing individualized and collaborative approaches.

A Collaborative Approach to Healthcare

The findings explored the positive effects of a collaborative approach for the quality of hypertension education and healthcare. A collaborative approach to healthcare utilizes different levels of nursing, such as registered nurses and nurse practitioners. They work together to improve patient outcomes by sharing responsibility for a group of patients, practicing to their full scope of practice, and sharing decision-making (O'Daniel & Rosenstein, 2008). If dysfunction occurs with this dynamic, a lack of communication occurs and can create circumstances where medical errors, severe injury, and unexpected death can happen (O'Daniel & Rosenstein, 2008).

Improving collaboration in the primary care setting is a vital strategy to reform hypertension healthcare (Huber, 2022). The characteristics that lead to a successful collaborative effort to improve blood pressure control are accountability, communication, leadership, discipline, coordination, a defined purpose, and a coordinated strategy (Huber, 2022). A collaborative approach is required to be successful, along with role clarity, trust and confidence, a plan to overcome adversity, the ability to overcome personal differences, and collective leadership (Huber, 2022). Additionally, a collaborative approach has been shown to benefit

primary care nurses by reducing their workload and increasing job satisfaction (Huber, 2022). Six studies identified the impact of a collaborative approach to hypertension care for older adults in the primary care setting.

Huber (2022) reported a collaborative approach has been a critical component of healthcare reform. The literature discussed recurring themes outlined as improved access to primary healthcare, improved coordination and integration of care, increased team-based approaches to clinical care, and better quality and appropriate healthcare (Hutchison et al., 2011). A collaborative approach enables an efficient use of resources, a reduction in the incidence and prevalence of disability, and a more holistic and safe healthcare system responsive to the health needs of the population it serves (World Health Professions Alliance, n.d; Huber, 2022).

Similarly, a collaborative approach requires accountability, leadership, self-discipline, a clearly stated purpose and goals, and a coordinated strategy to improve health (Huber, 2022). This means the nurse communicating information with the patient and other professionals is effectively working with the others to educate the older adult and improve their blood pressure control. For example, a nurse coordinates an appointment between a patient who struggles with mobility and a physiotherapist and communicates to the patient what to expect of the appointment and to the physiotherapist the recorded vital signs and assessment data obtained. Patients are accountable to the nurse and others involved by completing the agreed-upon tasks such as reading about hypertension, eating healthy food, and participating in physical activities. In this example, a nurse used a collaborative approach, drawing upon their critical thinking skills to inform the most effective way to educate the patient and improve physical mobility to achieve blood pressure control. The nurse demonstrated leadership by taking initiative and communicating the expectations to the healthcare team to reach the predetermined goals between

the nurse and the patient. Finally, the nurse took a broad approach to accomplishing a daily task, which is collaborating to educate hypertensive patients, positively impacting the overall goals of the health system. A benefit of a collaborative approach is that it reduces nurses' workload and increases job satisfaction (Huber, 2022). For patients, a collaborative approach improves access to health education interventions and better coordination between different sectors of healthcare (World Health Professions Alliance, n.d).

Overall, nurses must be accountable to their patients and their colleagues involved to ensure the patient's interest is heard and protected from harm. Nurses strengthen their duty to maintain accountability by ensuring competency while safeguarding patient care outcomes and taking responsibility for those affected by their nursing practice (BCCNM, 2021). For example, a nurse shows accountability when they accidentally administer the wrong medication to a patient by relaying this to the collaborative team involved in the patient's care (physician, other nurses, the patient, and the family, etc.) and take steps to minimize the potential or actual harm caused by the error. This example demonstrates leadership as this nurse took the initiative to work towards a solution. This example also demonstrated discipline because the nurse promptly dealt with the consequences of medication errors. Furthermore, a clearly stated purpose and goal was to save this patient from harm and reverse any damage caused by the medication error. The coordinated strategy was to resolve the error and decrease harm.

The gap analysis revealed collaboration as one approach to educating older adults with hypertension. One nurse practitioner reported collaborating with and referring their high-risk and very ill patients to the general internal medicine team. One aspect of this medical team's many services is relaying specific information to patients about their health conditions and chronic

diseases. In other words, this team can investigate serious health matters and share education strategies to help patients improve their health.

Another key informant who participated in the quality initiative noted the need for increased awareness about hypertension. The nurse key informant noticed many patients need to recognize the importance of treating and managing hypertension because there are often no signs and symptoms related to the disease. Therefore, a collaborative effort is recommended to raise awareness to share information and resources about hypertension and increase awareness. To achieve this goal, nurses can collaborate with other advocacy groups such as Hypertension Canada and the Global Health Advocacy Incubator. Furthermore, nurses can collaborate with caregivers and patient family members. This creates a well-informed, supportive environment for the patient. However, the nurse's lack of time to connect and collaborate with the patient's supporters is a potential limitation. Nurses can strive to overcome this by using a strategy called clustering care, which means patients and their caregivers attend appointments with the nurse and do not have separate appointments.

A collaborative approach was a key theme presented in the literature and was found to be one of many ways nurses can narrow the educational gaps for hypertension among the older adult patient population. The gap analysis findings aligned with the literature findings as nurses reported using a collaborative approach regularly in their practice to increase awareness about hypertension and create a supportive learning environment for their patients to achieve their health goals. The final section below will discuss the recommendations.

Recommendations

Recommendations are an important part of enhancing healthcare, providing future direction, and overcoming barriers. In this context, recommendations are helpful for the planning and implementation of the promotion of cardiac health. The following recommendations address the research question regarding how nurses can close the current gaps in hypertension education for older adults in the primary care setting regarding recommendations for practice, education, and research.

Recommendations for Practice in the Primary Care Setting

With the results of the integrative literature review, the findings lead to recommendations for enhancing hypertension education among the older adult population in the primary care setting. Older adults who are diagnosed with hypertension have unique needs; however, they do require a similar, generalized education like all demographics, such as lifestyle modification and risk factor identification. Current primary care education could be improved, as there is still a high prevalence rate of hypertension among the older adult population. The threat of progression of the disease, the healthcare system's lack of adequate staffing levels and resources, as well as complex factors related to individual older adult patients, also lead to the following recommendations. Becoming educated about hypertension is a multi-layered process and involves individual self-efficacy and motivation, supportive and empowering influences, continuity and collaboration, and reinforcement. The findings addressed many of the education gaps for hypertension via lifestyle modification strategies at the nurse-patient encounter. Therefore, the following recommendations seek to increase the primary care nurses and their older adult patients' capacity to improve practices for blood pressure control. The recommendations for practice within the primary care setting are provided in Table 6.

Table 6

Recommendations for Practice

Theme/Topic	Recommendation	Rationale/Implementation
Assessment and Diagnosis	1 Physical assessment: ensure an accurate assessment and diagnosis	1 Comprehensive head-to-toe assessment; family history; blood pressure reading >140-90 mmHg, height, weight, BMI, food diary, physical activity patterns, and capabilities
	2 First-line treatment: education regarding lifestyle modifications	2 Teach the patient about the adverse effects of hypertension, about healthy eating and physical activity: DASH diet, minimal sodium alcohol, and smoking cessation
	3 Assess mental health and cognitive function	3 Determine if the patient is competent to make decisions for themselves; stress, worry, and poor coping attribute to increased blood pressure
	4 Comprehensively assess personal, familial, community, and societal factors	4 Who are the patient's main influences, and are they positive influences? Family and friend conflicts increase blood pressure; intervene to minimize stress
	5 Assess cultural beliefs and cultural rituals and practices	5 May incorporate healthy cultural food and cooking options in the dietary changes such as salmon or herbs, cultural, and physical activities like dancing, interactive games, hunting
	6 Assess self-efficacy and personal motivation	6 Determines how a patient approaches challenges, changes, tasks, and goal setting
	7 Assess current resources and access to resources	7 Increases probability of improving blood pressure control; advocacy; patient may need financial assistance, transportation, or caregiver supports

Self-management Approach	1 Include older adult patients in decision-making; seek patient input in all matters	1 Ask the patient about goals for their health; respect decisions; promote informed consent and autonomy
	2 Determine the patient's learning style and preferences	2 Improves the learning experience and ability to retain information; use KT tools
	3 Use clear communication and information tailored to the patient's needs	3 Accommodate for hearing impairment using a pocket talker or hearing aid. Clear information negates confusion; tailoring creates familiarity and ease when learning new, intimidating information. Use plain language
	4 Therapeutic nurse-patient relationship: ensure a welcoming, comfortable environment where the patient feels safe	4 Active listening, promotion of trust, respect, empathy, professional intimacy, and appropriate use of power
Education	1 Increase awareness of the adverse effects of hypertension	1 Advocacy for funding; community health education initiatives; education regarding how to control blood pressure improves health outcomes and reduces adverse events
	2 Educate older adults as early as possible, even before diagnosis	2 Adoption of healthy lifestyle modifications reduces the likelihood of premature, poor health outcomes
	3 Promote hypertension self-management strategies	3 Self-management is the most successful hypertension education strategy
	4 Ensure adequate time and appropriate location and setting for education	4 Ideal conditions for older adults to learn involve having enough time, a quiet and distraction-free setting, and a familiar, comfortable, and safe location
	5 Patient-centered education approach to hypertension education	5 Nurses communicate information related to hypertension, treatment, and management options and respect patient decisions

Collaboration and Continuity	1 Refer patients to necessary resources	1 Physical activity programs such as water aerobics, local hiking groups, cooking programs
	2 Collaborate with healthcare providers and other professionals	2 Connect with all members of the healthcare team; establish clear guidelines and roles; delegate tasks (cooking assessment completed by occupational therapist, detailed mobility assessment completed by physiotherapist)
	3 Reinforce hypertension education at routine and follow-up encounters	3 Repetition solidifies knowledge; knowledge is applied to daily life to improve blood pressure control
	4 Encourage hypertension education programs and support groups	4 Promotes feeling welcomed in society, encourages sharing knowledge, learning to live with disease, ensures support
	5 Ensure adequate support system	5 Identify and connect older adults with caregiver, family, or friend support who understand and are willing to support the older adult, and who have similar health experiences

Recommendations for Education

The integrative literature review highlighted seven recommendations for education. For patient education, Ho et al. (2016) recommended that education interventions are essential to enhance patient adherence to management and should be prioritized in nurse-patient encounters for hypertensive older adults to adopt lifestyle modifications. In addition, this study emphasized the need for an individualized approach to hypertension education as the intervention used is different for each older adult and their environment. Another recommendation was education that promotes self-management of hypertension, enhancing health literacy, self-efficacy, and health behaviors (Wright et al., 2022). More specifically, self-management education aims for older

adults to actively participate in the education process, implement the changes they learned, and transform their mindset to effectively self-manage their hypertension (Wright et al., 2022).

On the other hand, to combat some of the barriers to education, Zou (2019) recommended hypertension awareness campaigns to educate the local population and facilitate health promotion and the prevention of this chronic disease. The Zou (2019) study further suggested policymakers can consider supplying funding for this type of education initiative and other community health projects involving media platforms to educate older adults and other minority populations. Adding to this, Wen-Wen Li et al. (2015) recommended culturally sensitive education interventions that consider various learning styles like auditory narrations, cultural music and images, and diverse materials that are both in written and video formats. This method of education was recommended because a variety of methods convey the hypertension information in many different ways that reinforce the information, meeting health literacy needs and the various learning styles of the older adult population. Nanyonga et al. (2022) confirmed this by recommending that education interventions be bundled and that a combination of education strategies and tools be used in routine encounters. Furthermore, nurses utilizing a combination of education methods had patients who were empowered with knowledge and supported in making the necessary lifestyle modifications (Nanyonga et al., 2022).

Finally, the continued education of nurses is recommended by the BCCNM and is one aspect of nursing licensure. It is vital for nurses to learn about the treatment and management of chronic diseases like hypertension and educate their patients. It is further recommended that education for nurses is provided on an ongoing basis as information changes over time and new advancements in health and medicine are discovered. Education can be implemented for nurses in their employment settings or sought out individually using resources such as Up-To-Date.

Recommendations for Research

Attained from the integrative literature review were seven recommendations for future research. Ho et al. (2016) recommended a future longitudinal study that includes an assessment of the hypertension education intervention and whether it makes significant health improvements in older adults over the long term. This type of study would illuminate whether or not the intervention is sustainable and realistic to implement throughout older adults' lives. The Wright et al. (2022) study recommended future research in the form of a randomized controlled trial to test the efficacy of hypertension education interventions among minority populations, such as older African Americans, as this demographic has a higher risk of developing hypertension. In a broader context, the article by Ongkulna et al. (2022) recommended further testing of their education intervention, extending it to other medical settings like hospitals and patients with other chronic diseases to ensure the efficacy of the intervention. This study further recommended that more mixed-methods studies be conducted to investigate clinical outcomes, like measuring blood pressure as a quantitative variable and participants' experiences implementing hypertension education interventions as the qualitative variable.

The Machado et al. (2014) study emphasized the need for more research into assessing health literacy based on constructing and validating health literacy assessment tools. Similarly, the Nanayonga et al. (2021) article recommended that future studies explore the provision of enabling structures that support nurse-led education interventions for chronic disease care in general. Finally, Wen-Wen Li et al. (2015) suggested the seventh recommendation which was regarding implementing randomized controlled trials testing the effectiveness of hypertension education interventions, such as the CALM protocol, at the local and regional levels. This is due

to measuring the effectiveness of the intervention among a local population that the intervention is intended to be employed.

Strengths and Limitations

This project has provided an in-depth exploration of hypertension in older adults. Buildng on a literature review and gap analysis, this has allowed for recommendations for practice, education and research to be made that can directly improve the quality and experience of care in the NHA region. Another key strength of the findings was that most of the findings were not age specific and have the potential to benefit the whole population, across the lifespan. Age is a heterogeneous category in the case of this project, and the findings suggest they are applicable outside of the chronological age category.

There are some limitations that should also be considered. First, for a more focused literature review, diabetes and other comorbid conditions were excluded, however, there are many conditions that are linked and including these could have yielded new or different insights. Second, the gap analysis was conducted across a distinct setting in NHA. As hypertension may be managed broadly across all healthcare settings, it is likely that some perspectives were not captured. Third, inclusion of setting across the whole rural and remote regional would have yielded a more comprehensive SWOT analysis, however, this was beyond the scope of this project. Finally, the gap analysis relied on self-report of practices and perspectives. Further evaluation of clinical practice, including chart review and clinical observations may offer additional insights.

Conclusion

This project explored the ways nurses can identify and close the gaps in hypertension education for older adults in the primary care setting. To answer the research question, an integrative literature review and a gap analysis was undertaken. In this process, the themes of hypertension education interventions, self-efficacy, cultural considerations, therapeutic relations and communication, and collaboration became apparent. Nurses are well-positioned to support and educate their older adult patients in the primary care setting. In turn, older adult patients require perseverance, coping skills, informative education and motivation among other attributes that provide the foundation for success in improving blood pressure control through lifestyle modification. Older adults who are equipped with knowledge are conduits in their communities in championing hypertension knowledge dissemination (Nanyonga et al., 2021). There is a need to amplify the awareness of hypertension as a silent killer; however, nurses who educate, support and empower their older adult patients are potentially the greatest hope of combating the high prevalence rate of hypertension among the older adult population.

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Appendix B

Annotated Table

Study/Location	Research Goals	Design/Type	Participants/Key Data	Pertinent Findings
Alves de Lima et al. 2017	To report experiences about the educational activities related to cardiovascular health with elderly people in primary care	Qualitative study/Descriptive study	10 elderly patients aged 65+ -six individual visits for a period of eight months	-materials used were posters, folders, songs and explanatory videos, and interactive games -creation of relationships of confidence (patient-provider relations) -increased knowledge through education programs -consider individuality, environment, circumstances -nurses educate about activities participants can do at home -follow up, continuity -modifiable risk factors
Chatziefstratiou et al. 2021/Greece	Hypertension education tool implemented, HeartScore, assessing the effects of the intervention	Interventional randomized study Patients randomized into a control and an intervention group, with the selection of participants for both groups standardized for sex, age and education level	92 hypertensive participants who visited the Clinical Hypertension Unit between December 2017 and March 2018.	Nurse-led educational intervention resulted in significant improvement in the management of hypertension -HeartScore tool in clinical practice is a valuable addition to the prevention of cardiac events like hypertension
Chen et al. 2020	To evaluate the effectiveness of health education	meta-analysis Five databases were searched in March	Seven articles with 1,105 participants were included. In them, 393 (35.56%)	Education positively impacts cardiovascular health

	intervention for the control of blood pressure (BP) in older adults with hypertension	2018 for randomized controlled trials to manage hypertension in older adults by health education. The primary outcomes were changes in systolic and diastolic BP. RevMan5 was used for meta-analysis.	older adults participated in health education interventions in the form of courses, and 226 (20.45%), in health education sessions. The meta-analysis suggested an overall reduction in systolic BP after health education courses (SMD, standardized mean difference = 4.80, 95% CI: 7.01-2.59, $p < .05$).	Primary care nurses well positioned to aid in hypertension education
Gomes dos Santos, M., & Pompeu Christovam, B. (2014)/Niterói	To use hypertension education in the older adult population to prevent further deterioration and promote health	quantitative study/descriptive and exploratory research	39 hypertensive older adults with self-care capacity or with a caregiver	educational strategies are humanized, preserve family relations, sociocultural habits + values -health promotion, disease prevention, reduction of disease -autonomy -increased individual responsibility -barriers:SDoH -health modification through educational strategies
Ho et al. 2016/Spain	To assess patient knowledge of hypertension and to verify the impact of educational initiative.	multicentre quasi-experimental study/ non-probability sampling	120 patients with hypertension/Hypertension had been diagnosed for 0–5 years: 36%; 6–10 years: 28%; more than 10 years: 36%	Patient education enhances patient adherence to achieve optimal blood pressure control Educational intervention (EI) = educational pamphlet

				an EI has a positive impact on patients' level of knowledge about hypertension EIs should be routine care for patients with hypertension validated questionnaire can be a useful tool for nurses to evaluate intervention effectiveness
Roudi et al. 2015/Iran	to compare the effectiveness of a healthy lifestyle education program, implemented by peers and community health nurses in improving QOL among elderly patients with hypertension	experimental study	60 elderly patients with hypertension Random cluster sampling, random assignment	barriers: limitations due to physical health, physical functioning, bodily pain, role limitations due to emotional problems, and emotional well-being -healthcare workers play an important role in the adaptation of elderly patients to a healthy lifestyle -educational sessions, educational pamphlet -SDoH -effective educator, trusted by participants is key -empowerment -women reported lower quality of life -effective strategies: teachings by peers and

				primary care nurses Strategy: “active aging”
Ongkulna et al. 2022/Thailand	To investigate the effectiveness of the Geragogy-Based Self-Management Education Program (GBSEP) in enhancing health literacy, self-efficacy, and self-management behaviors of older adults with hypertension	parallel, two-group randomized controlled trial (RCT) with a pretest- posttest design, random assignment	100 people aged 60–80 years, diagnosed with primary hypertension, presenting with systolic blood pressure ≥ 140 mmHg and/or diastolic blood pressure ≥ 90 mmHg at least twice during measuring of blood pressure (1-minute duration between each measurement, taking on the same arm, and 5 mmHg for difference in blood pressure twice); able to do basic ADLs with a score of Barthel Index ≥12 points; able to communicate, read, and write in Thai language; and willing to partake in study	-post intervention participants had significantly higher health literacy, self-efficacy, and self-management behaviors - aiming at encouraging being active, concerning learning limitations, and transforming mindset of older learners -effective self-management education program that nurses can use with older adults with hypertension to enhance their health literacy, self-efficacy, and self- management behaviors -investigation of clinical outcomes such as blood pressure is recommended in further study
Li et al. 2022/China	To determine effective non-pharmacological interventions to control the blood pressure variation in older hypertensive patients	systematic review and network meta-analysis	36 eligible studies (3,531 patients) with a median follow-up of 12 weeks, assessing 18 non-pharmacological interventions. The percentages of high, moderate, low, and very low certainty evidence were 16.7%, 38.9%, 33.3%, and 11.1%	-Non-pharmacological interventions are mainly lifestyle changes, including a low sodium diet, increased physical activity, weight reduction in obese individuals, and reduction of anxiety and fear. -self-management education was ranked as the most effective

				intervention for reducing BP and traditional health education
López-Mateus et al. 2017/Columbia	To strengthen the development of an educational strategy that promotes healthy habits as part of the comprehensive management of hypertension in the elderly	Qualitative study/participatory-action research initiative	121 older adults, of whom 64% were women and 36% were men. All were in an age range of 60-90 years; 35% in the range of 71-80 years; 33% in 60-70 years; and 32% in 81-90 years.	Interventions aimed at supporting the adherence of healthy lifestyles to the elderly should include and preserve the context of the community of which they are part, where community resources are the inputs that allow health promotion. -Resuming traditions +customs as a source of knowledge -Taking into account the recognition + appropriation of resources re: traditions and customs -education intervention: videos, facilitators, projections of the future, training + reflection forums -Challenges: achieving adherence, barriers to access Education w/ cultural sensitivity focusing on lifestyle/risk factors Considers dynamics of culture, traditions, beliefs

Study/location	Research Goals	Design/Type	Participants/Key Data	Pertinent Findings
Machado et al. 2014/Brazil	To analyze nursing research regarding the instruments used to evaluate health literacy and education in elderly hypertensive patients	Literature Review/meta analysis	8 studies were analyzed	- the gaps in care/knowledge related to measures aimed to increase patient's involvement in decision-making, and the instruments used in health literacy/education assessment have limitations -the use of educational tools can facilitate the communication between the professional and the elderly patient -knowledge translation
Magobe et al. 2017/South Africa	To present the experiences of patients with hypertension regarding the facilitation of their own health-promoting lifestyle change measure of regular physical exercise	qualitative, exploratory, descriptive and contextual research design, Focus group and individual interviews, open coding method	44 participants diagnosed with HTN, audio taped interviews and focus groups	-participants experienced poor self-care due to poor self-efficacy, demonstrated by not engaging in regular physical exercise, which in turn, resulted in uncontrolled BP and cardiovascular complications from hypertension. -emphasizes importance of education in HTN reduction -noted ethics (autonomy, beneficence, non-malfeasance), trustworthiness
Nanyonga et al. 2022/Uganda	To assess the impact of a nurse-led intervention on hypertension physiologic measures and lifestyle modification, and to explore perceptions of	Qualitative study/ Blood pressure and weight were measured at baseline, three, six, and nine months. The Self-Care of Hypertension Inventory was used	54 participants were enrolled in two study groups. Two focus groups with 16 participants and 2 nurse-educator interviews were conducted	-Knowledge and understanding, Attitude change, Participants found group support, shared learning, and knowledge reinforcement enhanced their knowledge and self-efficacy. Nurse educators motivated by the patients' favorable responses to the Bundled Education

	the study interventions	to assess lifestyle modification. Monthly education and group-support with text-message follow-up were implemented. Two focus-groups and nurse-educator interviews were conducted to assess perceptions post-implementation	Participants were clinic patients with hypertension currently under care	and Support with Text (BEST) intervention -use of nurse-led interventions to enhance the achievement of hypertension treatment goals. To sustain achieved lifestyle modification and blood pressure outcomes, -participants expressed desire for continued support, information access, and inclusion of patients as champions for knowledge dissemination -gaps in knowledge: Future studies need to explore the enabling structures to support nurse-led interventions in non-Communicable disease care. -Hypertension knowledge-gaps exist among patients and may reflect missed opportunities for patient engagement and education for behavior change -Persons supported and empowered with knowledge can act as conduits to wider communities in championing knowledge dissemination
Resende et al. 2018/Brazil	To analyze the difficulties older adults have in adherence to the treatment of Systemic Arterial Hypertension	Qualitative study/ descriptive study/semi structured interview	17 elderly people diagnosed with hypertension > 6 months ago	Majority were 76 years or older, female, married, low level of education and income, and the increase in age interfered in adherence to treatment due to forgetfulness and self-care deficits -health promoter:

				spousal/caregiver support, higher education -therapeutic relations -recommended education on physical activity, diet
Wen-Wen Li et al. 2015/USA	To offer a culturally appropriate, nurse-led intervention tailored towards older Chinese immigrants - effective in managing hypertension and promotes self-management leading to increased blood pressure control	Qualitative	target population: (1) being a self-identified Chinese immigrant, (2) 65 years or older, (3) dx of HTN, (4) currently taking at least one form of Western antihypertensive medications OD, and (5) speak and read in Chinese Mandarin or Cantonese dialects	-intervention protocol is implemented as a patient education health program delivered via video format in combination with an individual consultation provided by a nurse in the initial intervention, followed by four phone calls between the initial intervention and the second follow-up visit -culturally appropriate intervention
Wright et al. 2022/USA	Implementation of education strategies for low income African American women who are older adults	Qualitative/Focus group Educational materials from the National Heart, Lung and Blood Institute and the American Heart Association. The Dietary Approaches to Stop Hypertension, Understanding Blood Pressure Reading, Healthy Food Under $1.00, Heart Healthy Soul Food, and Managing Stress to Control Your Blood Pressure. a 2-day food journal,7-night	African American women from low-income communities, age 65 years and older with a diagnosis of hypertension Four weekly group co-created education intervention sessions	Significant benefit to them, their families, and society Education intervention -health professionals -in person sessions, or recorded video -cost variable -increased complexities if in rural setting -requires trust, therapeutic relationships -self-disclosure needed -interpersonal relations

		Sleep Diary. Paper, three-ring binders, and pens		
Zou, 2019/Canada	To determine the facilitators and barriers influencing healthy eating among Chinese-Canadian older adults with hypertension	-5 weeks of dietary educational training (Dietary Approach to Stop Hypertension with Sodium (Na) Reduction for Chinese Canadians; DASHNa-CC), - Telephone transcripts coded using computer software and categorized into personal, familial, community, and societal facilitators or barriers	30 aged Chinese-Canadian participants in a telephone interview	-SDoH - increasing educational literacy =better HTN outcomes -facilitators and barriers to dietary behaviours in Chinese-Canadian older adults -facilitate health promotion and prevention of chronic illnesses -health policymaker funding

Annotated Table Continued: Clinical Guidelines

Study/Location	Goal	Type of Study	Key Data
Registered Nurses of Ontario/2005/ Canada	To create a comprehensive guide to hypertension management for nurses	Clinical Guidelines	Lifestyle modifications, education, DASH diet, educational resources, body weight classifications, stages of change model
Registered Nurses of Ontario/ 2002/Canada	To create a comprehensive guide to nurse-patient therapeutic relationships	Clinical Guidelines	Practice, education, and policy recommendations
College of Nurses of Ontario/ 2006/Canada	To create a practice standard guideline for nurses for therapeutic relations	Clinical Guidelines	Components of nurse-patient relationship, communication, boundaries, protection from abuse

Appendix C

Request for Key Informant Input for My Quality Initiative Project

Hello, my name is Emily Williams, and I am currently in the Master of Science in Nursing program at UNBC. I am completing my final project, a quality initiative, for which the question I am exploring is, "How can nurses close the educational gaps for older adults diagnosed with hypertension by addressing the risk factors in the primary care setting?"

I am looking for nurse and nurse practitioner input on the following questions:

1. What tools and/or practices are used to guide you in educating older adults about hypertension to support modifying the risk factors?
2. Are there any cultural tools and/or practices you have used or feel would be useful in your practice when educating older adults about hypertension?
3. Do you use any specific strategies used for therapeutic communication when educating older adults?
4. Have you encountered any barriers when educating older adults with hypertension?

I would be grateful to hear from you. Please email me at william9@unbc.ca.

Thank you,

Emily Williams RN, MScN Student