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Staff Education: Improving Hypertension Management among African American Adults

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

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Walden University
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Abstract

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MS, Walden University, 2015

BS, Felician University, 2009

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

Hypertension (HTN) is a frequent diagnosis in primary care settings and is disproportionately higher among African Americans. Observed in the clinic were frequent office visits by patients with uncontrolled blood pressure and nonadherence to medication in an outpatient cardiology clinic in Northeast New Jersey. Also, a knowledge gap was noticed among clinical staff on current HTN guidelines. An awareness of evidence-based guidelines was necessary to combat poorly controlled BP in the clinic. The purpose of this Doctor of Nursing Practice project was to create an education program on current HTN guidelines to bridge the knowledge gap among clinic staff. The education program was designed per the American Heart Association /American College of Cardiology and Eighth Joint National Committee guidelines involving recommendations to educate patients on lifestyle modifications. The transtheoretical model of change and the chronic care model were used to develop the training program. The project included educating seven clinic staff on current guidelines for blood pressure measurements assessed among African American patients and lifestyle modifications. The data from questionnaire (10 pre- and post-intervention multiple choice questions) were analyzed using a paired-sample *t-test* to determine knowledge of established approaches for hypertension management from the education program. The results revealed increased staff knowledge post-intervention ($p = 0.20$). This project's findings may positively affect social change by improving adherence to blood pressure medication and improving health care outcomes for African American patients through self-empowerment using evidence-based practice guidelines.

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Dedication

I dedicate this DNP Project to God Almighty, my creator, strength, anchor, and provider. Thank you, Lord, for giving me the strength to make it through this hectic DNP program. This achievement is also dedicated to my parents: My father, Jean Victor Tunis, who is with the Lord, and my mother, Marie Rose Tunis. Thank you both for teaching me the value of education, hard work, and never giving up. As God-fearing parents, you instilled in me biblical principles and values. My father, as an educator, your importance of education significantly impacted my continual pursuit of education. Thank you, Papa; I wish you were here, but I know you are here in spirit, watching down on me and rejoicing. May your soul continue to rest in peace. To my mother, who has always worked hard to support her family and also helped keep my family. Thank you, Mama; your efforts are much appreciated. I love you both!

I also want to thank and dedicate my achievements to my immediate family, my loving husband, and my wonderful children for their invaluable support and encouragement. To my husband and partner for life, Jonas Blanc, thank you for supporting and understanding that my academic endeavor was not futile. To my wonderful children, Chris and Beatrice, who have stood by me and understood why I was often unavailable to spend time with them. I pray that God would always bless you and help succeed in whatever you do. I extend a special dedication to my brothers Emmanuel and his family, Gladson, and his family, a special thanks to my brother Nate for his assistance with my technical issues, and to the rest of the family, my aunts, uncles, and cousins; thank you for all your prayers.

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Section 1: Nature of the Project

Introduction

Hypertension (HTN), also known as high blood pressure (BP), is the leading risk factor for cardiovascular disease originating from combined genetic, environmental, and social determinants (Carey et al., 2018). The Centers for Disease Control and Prevention [CDC], (2020) reported that only 24% of the 108 million hypertensive adults in the United States with high blood pressure have their condition under control. Uncontrolled HTN costs an estimated $131 billion each year (CDC, 2020) to address HTN issues such as healthcare services, medications, and missed work (Cuenca, 2016). Seven to eight out of 10 people have their first heart attack or stroke or develop congestive heart failure because of uncontrolled high blood pressure. BP control is essential to preventing multiple medical conditions from occurring or worsening (Cuenca, 2016; CDC, 2020).

Although other races are affected by HTN, African Americans have the highest prevalence (Mozaffarian et al., 2016). HTN highly impacts the African American population. African Americans bear the burden of suffering cardiovascular disease (CVD) complications (Fuchs, 2011). Evidence-based guidelines are required to guide the clinical decisions in addressing HTN. However, in a cardiology clinic located in Northeast New Jersey (NJ), the clinic staff is unaware of the current HTN guidelines for BP management. Without the knowledge of current evidence-based practice (EBP) guidelines, the clinic staff cannot effectively empower patients toward self-management.

Clinicians rely on sound clinical decisions to manage their patients. Improving outcomes for African American patients taking antihypertensive medications is critical.

Nevertheless, through personal observations at the cardiology clinic, it is evident that knowledge on current guidelines for HTN management is lacking. In this Doctor of Nursing Practice (DNP) project, I educated the clinic staff by demonstrating the significance of nurses' role in patient education related to hypertension management. White et al. (2016) indicated that nurses play a vital role in developing evidence-based solutions by using research to address health care concerns. My overall goal is that if clinical staff educates the patient using EBP guidelines, adherence may be improved.

I developed a nurse staff education program focused on EBP guidelines established by the American Heart Association (AHA)/American College of Cardiology (ACC) and the Eighth Joint National Committee (JNC 8). This training might close the staff knowledge gap identified in the clinic.

This DNP project can positively affect social change by increasing staff knowledge of appropriate BP management skills. My goal was to improve adherence to blood pressure medication and health care outcomes for African American patients through self-empowerment using evidence-based practice guidelines. The implications for social change include a better understanding among the staff of HTN management, its influence on the patients in the workplace and the community.

The development of an educational module had the potential to produce positive social change by imparting knowledge to the clinic staff through proper training based on current guidelines to improve HTN. Moreover, it can also potentially prevent HTN-related complications, such as cardiovascular events or death. The educational intervention presented by the staff members will hopefully be adopted by the patients and

incorporated into their daily lives, contributing to positive outcomes. Providing clinic staff members with appropriate training served as an impetus toward patient self-engagement and empowerment.

Problem Statement

HTN is the most common condition seen in primary care (James et al., 2014). HTN affects 108 million Americans, and over half do not adequately have their blood pressure (BP) controlled (CDC, 2020). The cardiovascular (CVD) consequences of HTN contribute to significant racial disparities in health (Herbert et al., 2012). HTN is one of the most significant public health challenges and is often referred to as the silent killer (Dzau & Balatbat, 2019), especially among African Americans (Lewis et al., 2012). HTN is prevalent and remains one of the most significant causes of mortality worldwide. Elevated BP is a considerable risk factor for coronary artery disease and its complications, heart failure, stroke, renal insufficiency, and blindness in diabetic patients (Abegaz et al., 2017). HTN disproportionately affects African Americans who have the highest rate of nonadherence to medication regimens.

Clinic staff members in a cardiology clinic located in Northeast NJ lacked knowledge about current HTN guidelines and how to properly educate patients regarding their HTN. Various professional guidelines have created several HTN guidelines to assess BP goals in clinical practice. These guidelines established goals for managing HTN, both pharmacological and nonpharmacological interventions. Nevertheless, there was a lack of knowledge and awareness about current HTN guidelines on BP management among clinic staff in a cardiology clinic located in Northeast NJ.

I investigated the effects of clinic staff in-service education on BP management. The results would inform knowledge users of the effectiveness of educational interventions in clinical practice. Closing the gap required practical and sustainable interventions to manage HTN and improve antihypertensive noncompliance in the clinical setting. There was a need to educate clinical staff on recognizing HTN and report blood pressure elevations to clinic providers for effective management.

This educational training will produce a more skillful staff to help patients change their behavior from treatment nonadherence, to improve HTN management, and patient engagement. The project will be significant to nursing practice by educating and improving the knowledge of the clinical staff on the current treatment guidelines for hypertension, thus fostering patient engagement. In this project, I created an educational program to educate clinical staff about current EBP HTN guidelines to enhance knowledge with the best strategies to manage and control HTN. This program's content was necessary to improve staff proficiency and thus make a meaningful contribution to nursing. The results of this project may impact the field of nursing practice if they are used to improve overall healthcare outcomes through this EBP educational module.

Purpose Statement

Annually, the American Heart Association (AHA), combined with the Centers for Disease Control and Prevention (CDC), the National Institutes of Health (NHI), and other government agencies, present the most updated statistics related to heart disease, stroke, and other cardiovascular and metabolic diseases and presents them in its Heart Disease and Stroke Statistical Update (AHA, 2017; Mozaffarian et al., 2016). The Global Burden

of Disease (GBD) study estimated that HTN is now the leading risk factor for disability-adjusted life years worldwide (Abegaz et al., 2017; Carey et al., 2018; Dzau & Balatbat, 2019). The prevalence of HTN and uncontrolled BP is the highest in African Americans among all ethnic groups in the United States U.S. (AHA, 2016; Lewis et al., 2012). African Americans are disproportionately affected by HTN, and they also have lower adherence rates to HTN treatment (Pettey et al., 2016).

In 2017, the ACC/AHA hypertension guidelines lowered the blood pressure threshold for diagnosing HTN to 130–139/80–89 mm Hg. This drastic change significantly increased the HTN prevalence from 32% to 46% in the United States. Although the new guidelines comprehensively address how to define, measure, and treat high blood pressure, HTN management in special patient groups has not been discussed systematically in the U.S. adult population (Al Kibria, 2019; Ioannidis, 2018) and remains suboptimal (Ogedegbe et al., 2009).

Initially, the staff at a cardiology clinic in Northeast NJ was unaware of the current evidence-based practice guidelines for managing HTN in the African American population. The practice gap was a lack of knowledge of BP management's importance and current evidence-based HTN guidelines among clinic staff members in a cardiology clinic in Northeast NJ. My goal was to educate the staff so that the staff will utilize this knowledge to educate patients in this cardiology clinic. Management of HTN and its complications requires an understanding from health care providers on the reasons behind poorly controlled BP. An improvement in awareness in evidence-based guidelines is required to combat poorly controlled BP. Therefore, staff trained regarding current EBP

guidelines will be able to empower and encourage patients to be proactive in managing their BP and adhere to antihypertensive regimen.

The practice-focused question that I addressed in this DNP project was: Will educating clinical staff on hypertension guidelines increase knowledge? I examined the effectiveness of staff education. The practice gap was a lack of awareness of BP management's importance and current evidence-based HTN guidelines among clinic staff members in the office. HTN is a significant issue among the African American population in the practicum setting. Therefore, educating staff about the consequences of HTN is crucial. I aimed to implement and evaluate an appropriate education intervention for clinical staff to educate the patient on BP management to ultimately improve adherence. I created an educational module based on ACC/AHA and JNC 8 guidelines for clinic staff to ensure evidence-based practices in managing hypertension in African American patients.

The project was a staff education program in which I focused on developing an educational module on HTN management based on ACC/AHA and JNC 8 guidelines to increase patient engagement in lifestyle modifications. My goal was to address the need for more adequate knowledge of HTN management guidelines among clinic staff members. I used a staff education to address the knowledge gap of the clinic staff working cardiology clinic in Northeast NJ. Educating clinic staff members on current HTN guidelines may result in closing the knowledge gap in nursing practice by engaging patients in self-management of their condition.

Nature of the Doctoral Project

The Doctor of Nursing Practice project's location was a large cardiology setting in Northeast NJ that provides services to a mixed-race and other populations, but predominantly African Americans. Because of the population it serves, this location was ideal and feasible to offer the opportunity to conduct this project. Pan et al. (2019) specified that HTN is considered one of the most challenging public health problems worldwide and is reported as the leading risk factor for cardiovascular death and hospitalizations (Pan et al., 2019). More than 80 million Americans have HTN, and African Americans are disproportionately affected (Pettey et al., 2016). Because of poorly controlled HTN**,** African Americans are 80% more likely than European Americans to develop a fatal stroke**.** Moreover, poor adherence to treatment regimens is considered one of the most important reasons for uncontrolled BP in hypertensive patients (Adinkrah et al., 2020).

For this project, I developed and implemented an educational program using current HTN management guidelines established by the American Heart Association (AHA)/American College of Cardiology (ACC) and Eighth Joint National Committee (JNC 8) guidelines after an extensive literature review. I reviewed multiple databases for systemic and comprehensive searches for this project, which included Medline, PubMed, Cumulative Index to Nursing & Allied Health Literature (CINAHL), Cochrane Library, ProQuest, EBSCO, Google Scholar, and the Walden Library database. Search keywords included: *hypertension, blood pressure, staff education, staff development, staff training, staff knowledge, African Americans, Blacks, hypertension management guidelines,*

lifestyle modification, AHA/ACC guidelines, and *eighth Joint National Committee hypertension guidelines.* Before beginning the project, I sought approval and consent from the clinic site and Institutional Review Board (IRB) from Walden. I also submitted the signed site agreement form for approval. I completed a search strategy to retrieve the most relevant research articles on the topic to provide staff education on current EBP guidelines on BP management. Sources of evidence for the project included peer-reviewed journals, articles, and professional healthcare websites published within the past 5 to 10 years.

I submitted the educational content to a panel of content experts consisting of the practice owner/physician/chief executive officer (CEO) and clinical director for review and evaluation. The clinic's management team provided a complete evaluation of the project to assess the content of the educational module. I used the analysis, design, development, implementation, and evaluation (ADDIE) model with input from the experts' panel to design and develop the education program. For this DNP project, I used staff education to help inform and improve knowledge and skills based on current evidence-based practices (Walden University, 2020). The education module followed the ACC/AHA and JNC 8 guidelines. I developed an evidence-based intervention to improve HTN control in the cardiology clinic. I educated the clinical staff on how to manage HTN through lifestyle modifications and on proper BP techniques to ensure accurate BP reading to diagnose and manage the disease properly. Egan et al. (2018) noted that poor BP measurement technique contributes to inaccuracy and low reliability of routine office BP measurement.

I presented the educational content to the clinic staff to enhance knowledge on HTN management. The module included educational materials, handouts, feedback, and a PowerPoint presentation consisting of a 30 minute long program highlighting the current ACCA/AHA and JNC 8 guidelines for BP management, emphasizing lifestyle modifications. Olorunfemi et al. (2019) disclosed that that lifestyle modification is the most effective way to remedy the HTN problem. It is imperative to develop interventions to improve the practice and knowledge of lifestyle modification among hypertensive patients (Olorunfemi et al., 2019).

The participants included a nurse practitioner (NP), a physician assistant (PA), and five medical assistants (MAs). All participants were told that participation was voluntary, were given consent to participate, and the option to withdraw from the education program at any time. Data collected from participants were de-identified and remained anonymous. I performed a pre and post-test questionnaire involving multiple-choice questions to assess the program's effectiveness. The staff who participated in the educational module received pretest questionnaires to assess their knowledge of HTN guidelines. After the staff educational module presentation, the clinical staff members who participated were given a posttest survey to evaluate what they learned and can remember about HTN management. I collected data and used descriptive statistics to analyze the data. The education goal was to build a training program to bridge the knowledge gap in clinical staff to achieve practice standards.

Significance

CVD and stroke together produce enormous health and economic burdens in the United States and globally (Babaee Beigi et al., 2014; Mozaffarian et al., 2016). HTN is the leading risk factor for CVD and stroke. However, it is often not taken seriously and not optimally controlled. An effective approach to lowering BP reduces HTN associated risks and complications (Babaee Beigi et al., 2014). Clinicians must comply with up-to-date clinical practice guidelines to prevent harmful events from HTN. Evidence-based recommendations to increase knowledge can help healthcare professionals and essential staff provide face-to-face education to hypertensive African American adults with each primary care setting encounter.

The stakeholders in the DNP project practicum site included one NP, one PA, and five MAs. The participants, who were the primary stakeholders, demonstrated an increased understanding of the importance of managing HTN post-educational intervention established on current HTN guidelines. However, the patients were also considered stakeholders because they will significantly benefit by adopting a healthier lifestyle due to the program. As critical stakeholders, clinical staff members will gain professional growth and development and increased knowledge regarding evidence-based guidelines on BP management.

This project may contribute to knowledge enhancement in nursing practice. Implementing the education program would help clinical staff members possess knowledge of current guidelines to align better care plans for managing HTN, which can lead to self-care and treatment adherence. Wu et al. (2018) emphasized the importance of

instilling EBP knowledge and skills in nurses and staff members to assist in improving patient health and outcomes in nursing practice. The effectiveness of the staff educational program informed clinical leaders of the need to create regular training programs to equip the clinic staff members with the most current knowledge about HTN management and guide patients to self-management.

The potential transferability was evident through the confidence and competence clinical staff members gained from the program, and also the ability to transfer knowledge to the patients. Furthermore, knowledge will be transferable to other practice areas in similar settings. As frontline workers, clinical staff members are in direct contact with the patients with HTN and should have up-to-date information on current evidence-based practice guidelines to manage the condition. The educational module approaches designed to increase staff knowledge on improving the management of HTN can result in interventions that will later be embedded and integrated into existing practice, hence enhancing patient outcomes and truly impact the delivery of care. Similarly, educational programs are potentially transferable to other practice areas, which are fundamental for most settings.

Potential implications for social change for this project are that clinical staff would have increased knowledge about the importance of recognizing, monitoring, managing HTN, and educating the patients about self-management, thus improving adherence. Positive changes can be made as a part of healthcare reform if healthcare professionals effectively address the need to improve BP control, medication compliance, and overall health outcomes for the African American populations. Go et al. (2014)

asserted that equipping healthcare professionals, health systems, and communities with proper tools, strategies, and programs for best practices and expertise to improve BP awareness, treatment, and control can reduce CVD risks (Go et al., 2014). Arming clinic staff members with evidence-based knowledge and skills can change patient behaviors toward improving their health care through patient involvement and healthy lifestyle changes. Through improved interventions and strategies, clinical staff stakeholders can influence change in healthcare policies and effect social change in the African American community and the general population in all organizations.

Summary

HTN is the most commonly seen condition in the clinical environment. Medications nonadherence is encountered continuously in primacy care. Ioannidis (2018) explained that the 2017 ACC/AHA hypertension guidelines lowered the blood pressure threshold for diagnosing HTN. This change resulted in an increase in HTN prevalence in the United States drastically (Ioannidis, 2018). While the new guidelines address how to define, measure, and treat high blood pressure, HTN management, a knowledge gap has been identified among clinical staff members in a cardiology clinic located in Northeast NJ. Therefore, educating staff members was the appropriate approach to close the knowledge gap in managing HTN among African Americans patients in the clinic.

Section 1 of this DNP project provided a brief synopsis of HTN and related health care problems that arise from an inadequate understanding of HTN and HTN management and nonadherence. At a cardiology clinic in Northeast NJ, patients have been unable to manage their HTN effectively. In addition, staff members at the clinic

were unaware of HTN guidelines. Staff members had to be educated on the current practice guidelines, including lifestyle modifications necessary to assist in educating patients on managing HTN.

In Section 2, I will include the background and context of the problem with supporting literature of current knowledge of HTN management. I will also cover the conceptual model for the project, its significance to professional nursing practice, relevance to nursing practice, local background and context, my in pursuing this topic, and the role of the project team in the implementation of the DNP project.

Section 2: Background and Context

Introduction

Section 2 includes a literature review of current knowledge of HTN management, medication nonadherence, the conceptual model for the project, its significance to professional nursing practice, and a discussion of my role in pursuing this topic. In Section 2, I explore the background and context of the problem further to understand how it fits into the existing body of research and current clinical practice. African Americans have an increased incidence of HTN, and they tend to be less than optimal medication adherence compared to other ethnic groups (Ogedegbe et al., 2009). Brown and Bussell (2011) and Burnier and Egan (2019) explained that among those with a diagnosis of hypertension, the World Health Organization (WHO) has stated that suboptimal treatment adherence is a contributing factor to poorly controlled BP in HTN. Therefore, there is a call for research into adherence-promoting interventions (Brown & Bussell, 2011; Burnier & Egan, 2019).

I observed firsthand that clinic staff lacked knowledge on the current AHA/ACC and JNC 8 guidelines for HTN management and lifestyle modifications. Thus, this project aimed to produce an educational program to teach clinical nursing staff members evidence-based guidelines for BP management, focusing on ACC/AHA and JCN 8 guidelines to promote the adoption of healthier lifestyles among African Americans in the clinic. In this DNP project, I sought to answer the following question: Will educating clinical staff on hypertension guidelines increase knowledge?

The purpose of this DNP project was to evaluate the effectiveness of a staff education project conducted in a cardiology clinic focusing on improving medication adherence among African Americans diagnosed with hypertension. For this DNP project, I attempted to fill a knowledge gap by designing and performing a staff educational training program for clinic staff based on ACC/AHA and JNC 8 guidelines to ensure effective BP management. In Section 2, I discuss applying the conceptual/theoretical models appropriate to support the educational training program.

Concepts, Models, and Theories

HTN is a chronic condition that is multifaceted and requires a multifactorial approach. Accordingly, its treatment requires a multifactorial process, including antihypertensive medications and lifestyle modifications (Gosmanova et al., 2015). The theoretical framework that I used for this DNP project's development was the transtheoretical model (TTM) of change and chronic care model (CCM). Along with the TTM, I used the CCM to support this educational module to educate the clinic staff on HTN management.

Transtheoretical Model (TTM)

The TTM was developed by Prochaska and DiClemente as a model to use in individual patients to change health behaviors (DiClemente, 2007; Hodges & Videto, 2011). TTM framework supports interventions to help patients adopt healthy behaviors (Finkelstein & Cha, 2009). The TTM consists of five stages of health behavior change that assist the patient in progressing from an inactive state to an active state, yielding the implementation of healthy behaviors and maintaining overall health (Daniels et al.,

2014). The five major constructs of the model includes: the stage of change, precontemplation, contemplation, preparation, action, and maintenance (Daniels et al., 2014; DiClemente, 2007; Hodges & Videto, 2011). TTM is a model of change that cyclical and allows patients to progress through a series of stages, although not often in a linear manner (Glanz et al., 2008). Breaux-Shropshire (2012) indicated that this model can guide health care providers' understanding of the motivation of individuals treated with medications to control blood pressure. An individual's current stage of change reflects a personal motivation to change an undesired behavior or acquire a healthy and desired behavior. Thus, the TTM is useful because identifying patients' stage allows for tailoring interventions to match the stage of change, potentially leading to optimal results. Johnson et al. (2006) noted that as many as 50 to 75% of hypertensive patients have uncontrolled BP, primarily due to inadequate adherence to treatment (Johnson et al., 2006). Therefore, it is imperative to develop evidence-based interventions tailored to the individual needs of this population through staff education.

I chose the TTM model on the basis that African Americans can achieve better health outcomes by overcoming barriers to adopting behavior change and thus enhancing adherence to medications. DiClemente (2007) and Hodges and Videto (2011) specified that this model of intentional change focuses on decision-making (DiClemente, 2007; Hodges & Videto, 2011). Key constructs from other theories are integrated into the TTM. The TTM has been used in several aspects; for example, it is the basis for EBP that providers try to replicate practices that work in their clinical setting (DiClemente, 2007). In a sample of 1,227 participants, Johnson et al. (2006) examined the efficacy of a TTM-

based expert system intervention designed to improve adherence with antihypertensive medication. The vast majority of the intervention group who were previously pre-action was adhering to their prescribed medication regimen at follow-up time points compared to the control group. The results showed that TTM-based expert system interventions could significantly impact entire populations of individuals who fail to adhere, regardless of their readiness to change (Johnson et al., 2006). The TTM has proven to assist patients in developing habits for change of risk behaviors to health maintenance behaviors, resulting in improved outcomes (Daniels et al., 2014). Thus, my decision on the TTM for this intervention was informed by findings from literature reviews and EBP.

Chronic Care Model

The CCM was developed to care for patients with chronic diseases in primary care settings and uses various strategies to improve care integration (Ogedegbe et al., 2009). Hence, the CCM is a relevant framework also to consider because of the complexity and chronicity of HTN. Carey et al. (2018) explained that the CCM was developed to redesign health care and address deficiencies in treating chronic conditions such as HTN (Carey et al., 2018). CCM has six domains: decision support, self-management support, delivery design, information systems, community resources, and health care systems (Carey et al., 2018; Ogedegbe et al., 2009).

The CCM outlines strategies for overcoming barriers at the health system, physician, patient, and community levels. The optimization and integration of its domains have led to motivated patients, responsive health care teams, improved health services and treatment outcomes, and cost-effectiveness (Carey et al., 2018). This model

emphasizes the importance of incorporating a team-based approach in managing BP. Optimizing and integrating these domains has been shown to lead to activated patients, responsive health care teams, improved health services, and treatment outcomes, and cost-effectiveness. According to Ogedegbe et al. (2009), two most relevant elements include patient self-management and decision support. Patient self-management helps patients to understand the nature of HTN, provides them with self-management tools such as home BP monitors, and teaches them to set goals and monitor their progress via behavioral counseling on lifestyle modification. Decision support gives health care providers access to disease-specific evidence-based guidelines to facilitate optimal HTN management (Ogedegbe et al., 2009). CCM is appropriate for effective patient-centered disease management (Finkelstein & Cha, 2009). The application of both the TTM and CCM are appropriate in guiding clinical staff to address the needs of hypertensive patients. With the knowledge gained from this educational intervention based on current evidence-based guidelines, the clinical staff be able to motivate Black patients to comply with self-care plans to adopt new lifestyle habits effectively lower BP.

Definition of Terms

High blood pressure: HBP is also called HTN and is blood pressure that is higher than normal, which is the pressure blood pushing the arteries. This means the pressure in the arteries is higher than it should be (AHA, 2017).

Hypertension: According to new ACC/AHA guidelines “defined hypertension as a blood pressure at or above 130/80 mm Hg” (CDC, 2020).

Medication adherence: defined by the WHO as the extent in which a patient's medication-taking action or behavior, including following, diet and lifestyle modification changes as prescribed based on agreement with recommendations from the healthcare provider (Brown & Bussell, 2011; Burnier & Egan, 2019).

Medication compliance: defined as the extent to which the patient passively follows the recommendations of the provider (Brown & Bussell, 2011).

Relevance to Nursing Practice

According to the literature by Abegaz et al (2017), HTN is a global burden of CVD, and its prevalence is estimated to increase by 2025 (Abegaz et al., 2017). The AHA classifies HTN as a severe health condition in the United States, affecting 1 in 3 adults (Go et al., 2014) and the most common adult diagnosis seen in primary care (CDC, 2020; Davison et al., 2016; James et al. 2014). The importance of detecting, treating, and controlling hypertension has been documented for decades. However, the majority of patients with hypertension remain uncontrolled. The path from evidence to practice contains many potential barriers, but their role has not been reviewed systematically (Khatib et al., 2014). Poor adherence is one of the contributing reasons for uncontrolled BP. However, nonadherence to antihypertensives continues to play a significant factor. The lack of understanding of the disease plays a part in the nonadherence and nonchalant way chronic disease patients deal with management issues. Health care workers must understand the reasons behind patients' nonadherence to manage HTN properly. Adherence or compliance with the medication regimen is a critical factor in controlling HTN.

Better BP control is a crucial national strategy for preventing cardiovascular events (Egan et al., 2018). Accurate BP readings are needed to help providers make sound clinical decisions (Carey, 2018; Egan et al., 2018). Nonadherence among patients with HTN was notably evident at a cardiology clinic located in Northeast NJ as observed by frequent patient clinic visits. Consequently, there is an urgent need to address drug adherence as a significant issue in HTN management. Therefore, it is necessary to measure hypertensive patient adherence and clarify any barriers, thereby designing proper methods to improve adherence (Pan et al., 2019). There are many barriers to implementing disease management programs that ultimately produce the practice guidelines (Fischer et al., 2016). Practice guidelines can help reduce those barriers and facilitate nurse leaders to establish an effective plan of care by nurses and contribute to high-quality patient care (Kueny et al., 2015). My overarching goal was that if a competent clinical staff educates the patient, adherence may be improved.

HTN is a modifiable disease that can lead to CVD and stroke (Babaee Beigi et al., 2015). HTN and nonadherence to antihypertensives among African Americans, and the lack of knowledge of current guidelines to manage the disease call for immediate intervention. The need to teach clinic staff is pivotal in managing BP and improving adherence in the African American population. Zhu et al. (2018) noted that nurses are critical providers of community-based hypertension education. Evidence shows that nurse-led hypertension management effectively enhances individuals' healthy lifestyles and maintains normal blood pressure readings at the community level (Zhu et al., 2018). Curtis et al (2017) revealed that there is a universal recognition that the clinical care

provided to individuals should be informed on the best available evidence. Knowledge and evidence derived from robust scholarly methods should drive our clinical practice, decisions, and change to improve care delivery. Nurses in the frontline of health care are increasingly recognized as a critical pathway to practical and effective ways of improving patient outcomes supported by nurse-led research (Curtis et al., 2017). For this reason, my proposal for this self-care hypertensive educational program for clinical nursing staff to increase knowledge was appropriate.

The education program I presented in the scholarly DNP project to address the knowledge gap reflected the quality of healthcare clinical nursing staff provides to hypertensive patients. This educational intervention was the first to address this gap-in-practice at this specific organization, which will update the current evidence-based guidelines and best practices and fill the knowledge gap among clinical nursing staff. The educational module development was extremely relevant to nursing as I designed it to increase staff proficiency to enhance patient self-management of HTN and adherence to treatment. Nevertheless, the module has the potential to improve HTN management, increase compliance to lifestyle modification and antihypertensive drugs among African American patients. Jones et al. (2018) established that education and training for nurses supporting protocols or guidelines have been effective at increasing knowledge and positively impacting patient outcomes.

Many patients lack the knowledge about HTN and lifestyle risk factors regarding healthy choices and the needed support to make significant lifestyle modifications directed at BP control (Khatib et al., 2014; Olorunfemi et al, 2019). Nonetheless,

interventions tailored to BP control and informed by evidence-based guidelines are necessary. Hu et al et al. (2014) noted that education programs that target their behavior could benefit African Americans. Interventions to improve medication adherence in minority groups could significantly reduce the health care gap (Hu et al., 2014). Yang et al. (2019) indicated that disease self-management interventions activate individuals to manage their health by increasing disease-specific knowledge, encouraging adoption of healthy lifestyle behaviors, and improving self-monitoring and adherence (Yang et al., 2019).

Nurses play an essential role in uncontrolled HTN detection and can improve medication adherence and healthy lifestyle behaviors (Hacihasanoglu & Gözüm, 2011). Olorunfemi et al. (2019) specified that health care providers, especially nurses, should provide continuously focused health education and training for hypertensive patients to empower them to practice positive health behaviors that will lead to blood pressure control. Miao et al. (2020) added that a nurse-led hypertension management approach to managing hypertensive patients in a community-level setting with well-trained nursing staff can emphasize health promotion and patient empowerment (Miao et al., 2020). Educating clinic staff about HTN guidelines can teach patients to be active participants in their health, thus enhancing antihypertensive adherence. Himmelfarb et al. (2016) and Spies et al. (2018) specified that nurses had played integral roles in many effective hypertension initiatives globally.

Nurse-led initiatives can be attributed in part to the decrease in hypertension-associated morbidity and mortality and the complications in higher-income countries

(Himmelfarb et al., 2016; Spies et al., 2018). Nurses have successfully provided patient education that encourages lifestyle modifications in many settings. Nurse-led HTN interventions are critically needed to globally facilitate significant hypertension-related increases in morbidity and mortality (Spies et al., 2018). According to Wright et al. (2018), nurse-led cocreation techniques can potentially influence self-management practices in the hypertensive population (Wright et al., 2018). Therefore, improving staff knowledge about the HTN guidelines can improve BP management, decrease nonadherence, and improve outcomes in this population.

Local Background and Context

During my practicum in the clinical setting and many years in nursing practice, I learned firsthand about the relationship between HTN and nonadherence. Babaee Beigi et al. (2015) added that HTN is a modifiable risk factor that can be controlled with lifestyle modifications to prevent the complications associated with HTN (Babaee Beigi et al., 2015). As the patients' first contact point in the clinic, the nursing staff is well-positioned to serve as patients' advocates through empowerment and self-care engagement. I observed in the clinic, repeated clinic visits with uncontrolled BP, the prevalence of HTN, and the rate of nonadherence was high among African Americans. In addition, the level of knowledge of the staff on current HTN guidelines was lacking. This observation prompted my investigation to design an education program to fill this gap. The consequences elicited my motivation to improve staff competence relating to patient outcomes. Go et al. (2014) recommended evidence-based approaches for changing at-risk

behaviors and implementing strategies that enable patients and their health care providers to manage heart disease (Go et al., 2014).

I developed the educational module to train clinical staff at a cardiology clinic after discovering a knowledge gap in current practice guidelines to manage high BP. The intended setting was a cardiology practice in a Northeast NJ clinic, which regularly sees 50 to 60 patients a day. As a cardiology office, the rate of HTN was prevalent, which rendered the clinic an ideal location for the DNP project. The patient demographics consisted of mixed race and others, but the makeup was predominantly African American population. The demographics of the staff consisted of the practice owner/physician/chief CEO, the clinical director/physician, the administrator, clinical managers, nurse practitioners (NPs), a physician assistant (PA), and medical assistants (MAs). Therefore, this setting was feasible to accomplish the DNP project. The inconsistency of knowledge noticed among staff to manage HTN based on current guidelines prompted my motivation to create patient-centered training to address the African American population's nonadherence issue. I utilized an evidence-based approach to train approximately seven clinic staff members to address the knowledge gap and instill current knowledge on HTN guidelines to inspire patients to control or take ownership of their health care. There was no state or federal guidelines that impact the project.

Role of the DNP Student

Based on my professional experiences in the clinical practice and new-found knowledge in the DNP courses, I have realized there is a real need to improve patients' blood pressure. From my own experiences with patient care and what I have heard from

other colleagues, the issue of medication adherence is often a topic of high priority for clinicians. As a DNP student and NP, I have personally witnessed the frequent visits of patients with uncontrolled BP, the nonchalant attitude about the seriousness, and the lack of knowledge of clinic staff about standardizing the treatment of HTN. These various gaps identified in the clinical settings informed my interest in developing evidence-based interventions for best practice guidelines and applications that would improve patient outcomes. My motivation was that staff education would equip clinical staff with the skills and knowledge on EBP guidelines for HTN management to fill the practice gap and improve outcomes for African Americans in the clinic.

The educational tools highlighted the necessity of evidence-based approaches within the African American population to understand better epidemiology, disease perception, and effective treatment measures. The learning tool can serve as a platform to guide staff on patient education toward healthy lifestyles. The role of the DNP student was to improve the quality of patient care and increase the knowledge of clinical staff regarding HTN management as delineated by evidence-based guidelines and prevention. Implementing evidence-based interventions is integral to effect behavior change to address the issue of HTN in the clinical setting. As a change agent, I can effectively facilitate the change effort and improve the African American population's outcomes through interpersonal communication and knowledge translation.

This DNP project was aligned with The American Association of the Colleges of Nursing (AACN) essential foundational competencies for all DNP students. This project is aligned with the DNP Essentials II, VI, VII, and VIII. DNP Essential

II: *Organizational and Systems Leadership for Quality Improvement and Systems Thinking.* Essential VI: *Interprofessional Collaboration for Improving Patient and Population Health Outcomes,* Essential VII: *Clinical Prevention and Population Health for Improving the Nation's Health* (American Association of Colleges of Nursing, 2006). Both DNP Essentials II and VI emphasize the importance of interprofessional collaboration and communication as necessary for successfully improving patient and population health outcomes regarding the need for teamwork when caring for patients with HTN. Finally, DNP Essential VIII focuses on knowledge translation. Through education, I guided and supported clinical staff to facilitate patients' active participation in the treatment and management of their health care. Translational leadership integrates knowledge and empowers team members to implement the practice change to yield the expected outcomes.

Some of the presented interventions will promote self-care strategies providers can use to teach patients how to control their blood pressure and prevent HTN progression. Evidence-based recommendations for increasing knowledge can help healthcare providers and staff when face-to-face education is provided to hypertensive adult patients with each primary care setting visit. Education facilitates patients' understanding of the medications, medication adherence, and monitoring and controlling BP while at home (Burnier & Egan, 2019). Therefore, clinical staff can coach the patients on the importance of monitoring their BP at home outside of office visits. The intervention can successfully increase staff proficiency and decrease HTN-related complications, death rates, and healthcare costs. I work as an NP at the clinic, which

allows me to have firsthand knowledge of the systems and the type of care provided. As an NP working in a primary care/cardiology setting, biases are possible. The fact that I am knowledgeable on the HTN issue and the lack of staff knowledge on current guidelines can be interpreted as bias. However, to reduce biases, my project was guided by the most effective evidence-based interventions, which included references from peer-reviewed and scholarly materials for the study.

Role of the Project Team

The project team was to include a panel of three content experts to review my educational module for content, clinical application, and appropriateness in the clinical setting. Initially, the panel comprised the clinic's owner/physician/CEO, clinical director/physician, and administrator. However, I discussed the DNP project's purpose and application with the clinic's owner/physician/CEO, the clinical director, a provider, who is also responsible for the clinical operations of the practice, and a clinical manager. Once the panel of experts approved the education, it was presented to the involved staff for participation, comprising one PA, one NP, and five MAs. The involvement of the panel in the program was critical in helping them develop program ownership, which eventually contributed to their acceptance and implementation of the program (Hodges & Videto, 2014).

I originally discussed the project's purpose and application with the owner, a physician, and the practice's CEO. I sought approval and obtained consent from Institutional Review Board (IRB) before conducting the project. The signed Site Agreement form was submitted for approval. All participants' privacy remained

confidential and anonymous during the survey and questionnaire collection for the project, which included documents, data, and information. Those clinical staff members who participated received a consent form for anonymous questionnaires before initiating the questions of the module survey. The consent stated that it was voluntary and confidential. Throughout the project, the information provided will remain confidential. The participants were informed of the protection of human subjects and that their information and identity will be kept private.

Summary

In Section 2, I explored the theoretical concepts and models for developing educational interventions. I further explored the background and context of the problem to understand how it fits into the existing body of research and current clinical practice. In Section 3, I discuss the introduction, practice-focused questions, sources of evidence, and the steps for analyzing and synthesizing the evidence collected. I also provide the methodology to design, implement, and evaluate the educational intervention.

Section 3: Collection and Analysis of Evidence

Introduction

In Section 1, I outlined a continuous practice problem with HTN and patient nonadherence to antihypertensive regimen, which can result in serious complications in an outpatient cardiology setting in Northeast NJ. During my practicum, I noticed frequent hypertensive patients' visits to the clinic and clinic staff with inadequate knowledge about up-to-date EBP guidelines to manage HTN. The clinic staff required educational training to mitigate this problem and bridge the knowledge gap. As a result, in this DNP project I intended to educate the clinical staff on the ACC/AHA and JNC 8 guidelines to control and manage HTN and improve adherence among African American adults based on healthy lifestyle habits. The participants included an NP, a PA, and five MAs. In Section 2, I discussed the concepts and theories underpinning the educational program. In Section 3, I review the practice-focused questions, then provide an in-depth description of the sources of evidence, analysis, and synthesis of the data required to implement the educational program.

Practice-Focused Question(s)

In an outpatient cardiology clinic in Northeast NJ, I observed that staff needed adequate knowledge of current EBP guidelines on HTN and management. This knowledge gap was evident during repeated patient visits with uncontrolled HTN and nonadherence to antihypertensive drugs. I identified a practice gap stemming from inadequate patient education on HTN treatment and the clinic staff's management. Therefore, the practice-focused question I used to guide this project was: Will educating

clinical staff on hypertension guidelines increase knowledge? The purpose of this project was to create an education program to increase the knowledge of clinic staff on HTN guidelines. In this DNP project, I assessed the effectiveness of staff education in the clinic, emphasizing patient's involvement in self-care management.

Sources of Evidence

HTN is a common medical disease, which occurs in about one-third of young adults and almost two-thirds of adults over 60 (Abel et al., 2015). It is often referred to as the silent killer and remains one of the most significant contributors to chronic disease and mortality. With the release of the Eighth Joint National Committee on Prevention, Detection, Evaluation, and Treatment (JNC 8) guidelines, there have been significant changes in blood pressure management in the various subgroups. Therefore, clinical staff must have adequate knowledge of evidence-based approaches to manage blood pressure and prevent HTN-related complications adequately (Abel et al., 2015). Therefore, the sources of evidence used in the project were guided by guidelines established by the Eighth Joint National Committee (JNC 8) guidelines and the American Heart Association (AHA)/American College of Cardiology (ACC) guidelines.

Hypertension Management Guidelines

The current JNC 8 guidelines outline approaches to manage patients with hypertension by decreasing adverse drug effects and improving therapeutic control (James et al., 2014). The ultimate goal of these developed guidelines by clinical evidence is to guide providers in all clinical settings. Nonetheless, current literature demonstrates no uniformity in clinical practice guidelines, prompting practice evaluation and

improvement interventions through staff education. In the cardiology setting, HTN is a significant issue, as well as adherence to medications. Uncontrolled HTN is a significant problem in the African American population. African American adults have the highest rates of HTN of any racial/ethnic group in the country (Butler et al., 2017; Pettey et al., 2016). They also have lower adherence rates to HTN treatment (Pettey et al., 2016), despite similar rates of awareness and treatment of HTN compared to whites (Butler et al., 2017). Nonadherence is a well-recognized contributing factor to the poor control of blood pressure in HTN. Healthcare providers must emphasize the vital need to address drug adherence as a major issue in HTN management (Burnier & Egan, 2019). There is a need to tailor interventions by linking behavior with daily habits, developing individualized interventions, providing motivational interviews, and engaging family members to improve antihypertensive medication nonadherence (Abegaz et al., 2017).

In 2017, the ACC/AHA lowered the threshold for diagnosing BP stage 1. More than 80% of hypertensive patients in internal medicine had BP > 130/80 mmHg, and according to the new HTN guidelines leading to significant morbidity and mortality (Sadeghi, et al., 2020). The ACC/AHA provides an evidence-based approach to reduce CVD risk by controlling HTN (Carey & Whelton, 2019). The guidelines emphasized proper BP measurement as a fundamental measure for categorizing BP, ascertaining CVD-related risk, and managing BP. The guidelines urge clinicians to base accurate BP measurement and estimates on at least two readings and two separate occasions before diagnosis. Strategies on improving HTN treatment and control for hypertensive adults should include evidence-based care promoting treatment and self-management goals,

comorbidities management, timely follow-up, and CVD guideline-directed management. The ACC/AHA encourages team-based care for both pharmacologic and nonpharmacologic interventions to improve patient care (Carey & Whelton, 2019).

In 2014, the JNC 8 published its updated evidence-based guidelines for managing hypertension in adults (James et al., 2014). Experts agree following its recommendations can help improve the quality of HTN care. However, a subset of experts disagrees with the recommendations for treating HTN in the elderly (Hernandez-Vila, 2015; Kovell et al., 2015; Sessoms et al., 2015). The JNC 8 guidelines provide medication therapy recommendations based on the patient's race, age, and other comorbid factors. The guidelines also offer specific BP goals for HTN treatment. The ACC/AHA goals are to prevent cardiovascular diseases (CVDs); improve the management of people who have these diseases through professional education and research; and develop guidelines, standards, and policies that promote optimal patient care and cardiovascular health. In collaboration with the National Heart, Lung, and Blood Institute (NHLBI) and stakeholder and professional organizations, the ACC/AHA has developed clinical practice guidelines for assessing cardiovascular risk and lifestyle modifications to reduce cardiovascular risk (Eckel et al., 2014).

Blood Pressure Management

Hypertension (HTN) is characterized by high or uncontrolled blood pressure (Sessoms et al., 2015). In the general population, HTN is systolic blood pressure (SBP) ≥ 140 mmHg or diastolic blood pressure (DBP) ≥ 90 mmHg at two or more office visits (Proia et al., 2014; Sessoms et al., 2015), including African Americans (Sessoms et al.,

2015). Inadequate control of HTN can lead to serious vascular complications affecting the major blood vessels in the heart, brain, and body (Sessoms et al., 2015). HTN is known as "the silent killer", and many patients of unaware they have the condition because they have no symptoms. Sessoms et al. (2015) emphasized that uncontrolled BP can lead to end-organ damage such as renal damage, heart attacks, or strokes. Proper treatment of HTN significantly reduces the risk of target organ damage (TOD). When BP a reading begins at 115/75 mmHg, the risk of CVD doubles with each increment of 20/10 mmHg (Chobanian et al., 2003). That is why accurate BP measurements are essential for providers to make effective diagnosis and treatment decisions quickly. In addition, effective intervention strategies in this population are necessary.

The diagnosis and classifications of HTN are based on two or more accurate blood pressure measurements taken on different visits. For measurement to be accurate, the auscultatory method of BP measurement with a properly calibrated and validated instrument should be used (Chobanian et al., 2003). However, current guidelines show that use of auscultatory method can lead to several inaccuracies. Clinicians rely on accurate BP reading to make a diagnosis. Accurate BP readings are needed to make sound clinical decisions. Poor BP measurement technique contributes to inaccuracy and poor reliability of routine office BP measurement (Egan et al., 2018). Uncertainty of a patient's accurate BP is the leading cause clinicians to fail to act on a high BP in the office (Hwang et al., 2018). Several factors, however, can lead to BP measurement error in clinical practice.

Kallioinen et al. (2017) reported that the accuracy of BP measurement can be affected by many factors. The measurement of BP is a standard procedure relied upon in various healthcare settings. In general practice, high BP values are used for the diagnosis of hypertension. Therefore, inaccurate or misleading BP values can be detrimental to the quality of healthcare received by patients. Healthcare providers need to know the factors that can potentially impact the accuracy of BP measurement and contribute to variability between measurements to interpret BP data appropriately. Inappropriate interpretation of BP data can potentially affect the accuracy of BP measurement and contribute to variability between measurements by healthcare providers. Sources that can potentially affect the inaccuracy in BP measurement in adult patients include patient-related, device-related, procedure-related, and observer-related.

Kallioinen et al. (2017) explained that one of the potential contributors to artificially elevated BP readings during an office visit is a condition called white coat syndrome. White coat hypertension, white coat syndrome, or white coat effect is characterized by the variability of a patient's blood pressure measurements between the physician's office and the patient's home environment. A patient with white coat hypertension has high blood pressure levels in the physician's office and normal blood pressure levels in their home environment. This condition is likely caused by the patient's anxiety within the physician's office and the physician's presence. Failing to diagnose white coat hypertension with standardized measurement adequately has led to inappropriate treatment with antihypertensive to patients who are not persistently hypertensive **(**Kallioinen et al., 2017). One strategy to mitigate this problem is through

ambulatory monitoring (Muntner et al., 2019; Whelton et al., 2018). Therefore, ambulatory monitoring is recommended to confirm the diagnosis of white coat hypertension within three months and monitor these patients for risk of developing true hypertension (Cobos et al., 2015).

Health care providers must follow the standards for accurate BP measurement. BP should be categorized as normal, elevated, or stages 1 or 2 hypertension to prevent and treat high BP. Normal BP is defined as <120/<80 mm Hg; elevated BP 120-129/<80 mm Hg; hypertension stage 1 is 130-139 or 80-89 mm Hg, and hypertension stage 2 is ≥140 or ≥90 mm Hg. Before labeling a person with HTN, it is essential to use an average based on two or more readings obtained on two or more occasions to estimate the individual's level of BP. In addition, Out-of-office and self-monitoring of BP measurements are recommended to confirm the diagnosis of HTN and titration of BP-lowering medication, including telehealth counseling (Whelton et al., 2018; McConnell, 2018).

Besides the concern with the white coat effect, in-office BP measurements are also subject to technique errors. Therefore clinic BPs alone should not be used to diagnose hypertension. Reliable blood pressure readings taken at home determine if the patient has actual high blood pressure. Ambulatory blood pressure monitoring (ABPM) uses a device worn for 24 hours. The device takes multiple blood pressure readings, which can help obtain a more accurate reading of overall blood pressure**.** ABPM and Home Blood Pressure Monitoring (HBPM) are superior to clinic BPs in predicting CV outcomes. ABPM correlates well with invasive BP measurement and, based on evidence, remains the gold standard for the accurate measurement of BP in primary care. Therefore,

ABPM remains the preferred method for the diagnosis of HTN. When ABPM is unsuitable or not tolerated, HBPM is a suitable alternative (Whelton et al., 2018; McConnell, 2018).

Proper Technique for Blood Pressure Measurement

All health professionals who measure BP must use the correct measurement technique. In addition to ensuring proper BP measurement technique among staff, nurses are often the ones responsible for ensuring that BP measurement equipment is calibrated and functioning correctly (Himmelfarb et al., 2016). In the clinical or office setting, measuring patient blood pressure in a quiet room with an automatic device may reduce the magnitude of the difference between office and out-of-office blood pressure measurements (Cobos et al., 2015). Evidence-based guidance for the diagnosis, prevention, and management of HTN includes the following recommendations. Accurate clinical assessment depends on proper BP measurement. All measurements should be performed by individuals experienced in the techniques of blood pressure assessment and using standardized equipment. Measurements should be taken in a quiet, well-lit environment (Whelton et al., 2018).

Clinical guidelines emphasize the importance of accurate office BP measurement for diagnostic and treatment decisions (Hwang et al., 2018; Whelton et al., 2018). Application of guidelines without accurate BP measurement may create a gap between outcomes observed in clinical practice and those observed in clinical trials (Hwang et al., 2018). Accurate BP measurement involves patient preparation, positioning, technique, timing, and equipment (Hwang et al., 2018; Whelton et al., 2018). Clinic staff must be

instructed on correct techniques, have the skills to apply their knowledge, and have enough time to measure BP correctly (Hwang et al., 2018). Patient preparation involves ensuring that the patient has not eaten, had caffeine, smoked, or exercised within 30 minutes of the measurement. The patient should empty their bladder if necessary, rest quietly for 5 minutes, and sit in a chair with their back supported and feet flat on the floor. A validated BP device should be used, with an appropriately sized cuff on the patient's bare arm supported at the heart level (Hwang et al., 2018; Muntner et al., 2019; Whelton et al., 2018).

Incorrect cuff size is the most common measurement error (Muntner et al., 2019; Whelton et al., 2018). The patient and clinic staff should refrain from talking during measurement. Multiple measurements should be obtained at least 1 minute apart (Hwang et al., 2018; Muntner et al., 2019; Whelton et al., 2018). Deviation from recommended BP measurement procedures usually produces falsely elevated BP readings, leading to inappropriate treatment (Hwang et al., 2018). For average BP readings, use an average of more than two readings obtained on more than two separate occasions to estimate the individual's BP. Lastly, communicate BP readings to the patient (Muntner et al., 2019; Whelton et al., 2018).

Hypertension Management in African Americans

A significant body of evidence suggests that African Americans represent a population with one of the highest prevalence of hypertension globally, with the worst complications of renal disease, CVD, stroke, retinopathy, and heart failure, and metabolic syndrome. An evidence-based approach aimed at achieving better blood pressure control

among Blacks (Abel et al., 2015). There have been numerous classes of antihypertensive medications used to manage hypertension and reduce the various risks associated with it. However, there's been controversy regarding the most evidence-based HTN management guidelines (Sessoms et al., 2015). According to and in the general black population, including those with diabetes, first-line antihypertensive therapy should include a thiazide-type diuretic or a calcium channel blocker (CCB) (Abel et al., 2015; James et al., 2014; Kovell. 2015; Sessoms et al., 2015). CCB is recommended over an angiotensin convertase enzyme inhibitor (ACE-I) because of the risk of stroke, myocardial infarctions, and other vascular conditions associated with ACEIs in the African American population (Sessoms et al., 2015. In one study, a thiazide-type diuretic was more effective in improving cerebrovascular, heart failure, and combined cardiovascular outcomes compared to an ACEI in the black patients (James, et al, 2014; Abel et al., 2015). Lifestyle changes in diet, alcohol moderation, increased physical activity, smoking cessation, and use of combined antihypertensive agents to achieve blood pressure goal and minimize target organ damage (Sessoms et al., 2015). Increasing clinical staff knowledge on up-to-date, evidence-based guidelines was necessary to decrease the prevalence of poorly controlled BP, associated-HTN cost, improve nonadherence, and ultimately patient outcomes.

Self-management Education on Lifestyle Modification

Despite the increasing emphasis on antihypertensive therapy, lifestyle modification is an integral part of BP control (Babaee Beigi et al., 2015; Himmelfarb et al., 2016). Research has shown that the patients who adhered to medication and lifestyle

regimens had better health outcomes (Babaee Beigi et al., 2015). As the first line in treatment, lifestyle modifications are an essential part of the treatment of HTN. Lifestyle modification can produce significant improvement in BP measurements.

Adults with HTN need a clear, detailed, comprehensive, and current evidence-based plan of care that ensures treatment and self-management goals. Effective behavioral and motivational strategies are recommended to promote lifestyle modification. Such interventions can be accomplished through a structured team-based approach (Whelton et al., 2018). These Nonpharmacologic interventions include weight reduction, salt intake reduction and increase potassium intake, high fruit and vegetable consumption, Dietary Approaches to Stop Hypertension (DASH), physical activity, moderation in alcohol consumption, stress reduction techniques, and cessation of smoking.

Healthcare professionals should encourage hypertensive patients regarding lifestyle habits. Follow-up calls after nursing clinic discussion demonstrated in studies as effective measures in the improvement of the patients' adherence to a healthy lifestyle and their BP control (Babaee Beigi et al., 2015). Nurses play an integral role in counseling all hypertensive patients with lifestyle risk factors recommended with lifestyle modifications measures (Himmelfarb et al., 2016). Davison et al (2016) and Wright et al (2011) indicated that nurse practitioners (NP) have an essential role in meeting the current demand for HTN prevention and management in primary care (Davison et al., 2016; Wright et al. 2011). A systematic review on nurse-led interventions that addressed patient lifestyle modifications reported significant decreases in BP in primary care

patients, especially in African American patients (Clark et al., 2010; Davison et al., 2016). Therefore, increasing knowledge and ability of clinical staff will teach patients how to properly self-manage their chronic conditions. Consequently, transferring knowledge to clinical staff to guide patients' engagement regarding lifestyle changes can be a practical approach for BP control.

Weight Reduction

Weight loss is an important measure that has long been proven to prevent and control BP. Weight loss is advised for those who are obese and overweight to reduce BP. Studies establish a linear relationship between the amount of weight loss and the decrease in BP patterns (Whelton et al., 2018; Himmelfarb et al., 2016). Current guidelines recommend maintaining a healthy weight or weight loss by maintaining a body weight with a body mass index less (BMI) 18.5-24.9 kg/m^2. This measure may decrease systolic blood pressure (SBP) by 5 mmHg (Whelton et al., 2018).

Healthy Eating

The Dietary guidelines recommend a total sodium intake of less than 2.4gm/day in hypertensive patients. DASH diet is based on an eating plan rich in fruits and vegetables, low-fat dairy products, and grains. It is high in fiber and has reduced saturated and total fat, including a diet rich in potassium and calcium supplementation and magnesium. Adopting the DASH diet has been shown to reduce systolic blood pressure from 8-14mmHg. DASH diet is well accepted as an effective diet plan, especially in the African American population (Appel et al., 2011; Whelton et al., 2018).

Physical Activity

Regular aerobic physical activity for hypertensive patients, such as brisk walking, is recommended for at least 30 minutes for most days of the week. Guidelines recommend an increased physical activity with a structured exercise program to manage blood pressure in hypertensive adults. Increased physical activity and its effect on lowering BP have been well-proven in clinical trials, especially during vigorous aerobic exercise. Aerobic physical activity can reduce systolic blood pressure from 5-8 mmHg (Whelton et al., 2018).

Tobacco Cessation

According to Conklin et al. (2019), cigarette smoking has direct cardiovascular effects that affect BP. Current evidence shows that both nicotine and smoking are associated with increases in BP. In addition, cigarette smoking is associated with increased aortic stiffness, which revisable with smoking cessation. Even brief exposure of 15-minute durations of cigarette smoking results in increased heart rate (HR), BP, and aortic stiffness (Conklin et al., 2019). However, Chobanian et al. (2003) explained that acute blood pressure increase from tobacco smoking could decrease 15 minutes after smoking cessation (Chobanian et al., 2003). In addition, the importance of avoiding smoking has been shown as one of the strongest predictors of cardiovascular health and survival in several studies (Babaee Beigi et al., 2014).

Alcohol Intake

Drinking alcohol has been identified as another risk factor of hypertension that can be modified and is proven to lower blood pressure with proper treatment compliance

(Adinkrah et al., 2020). There is a strong, predictable direct relationship between alcohol consumption and BP in observational studies, especially above an intake of 3 standard drinks per day. According to guidelines, men should limit their alcohol intake to no more than two drinks per day and women with no more than one drink per day (Whelton et al., 2018). Alcohol consumption moderation could lead to a systolic blood pressure reduction of 4 mmHg. Interestingly, excessive alcohol intake, along with salt, and fat, has been implicated in the pathophysiology of cardiovascular-related conditions such as hypertension (Adinkrah et al., 2020). In contrast to its detrimental effect on BP, alcohol intake is associated with a higher level of high-density lipoprotein cholesterol and, within modest ranges of intake, a lower level of coronary heart disease (CHD) than that associated with abstinence (Whelton et al., 2018).

Evidence Generated for the Doctoral Project

JNC 8 and ACC/AHA HTN management guidelines were the primary sources of information in developing the HTN educational module for the clinic staff. I created the module to increase staff knowledge of current information about HTN, correct procedures for taking blood pressure, and current EBP guidelines to teach patients how to self-manage HTN through lifestyle modifications. I designed and implemented the education program to provide clinical staff with enough information to encourage patients to be more proactive about HTN self-management.

Burnier and Egan (2017) cited among many interventions, linking medication taking habits along with giving positive feedback on adherence, self-BP monitoring, and using motivational interviewing can lead to patients' empowerment. Involvement of

pharmacists and nurses, which have shown to increase medication adherence is recommended by HTN guidelines (Burnier & Egan, 2017)

Nature of the Data

Data for the project was collected from the electronic health records (EHR) through chart audits and staff observation. The collected data was relevant to the practice problem because it was reflected in the pre and post-intervention education results.

Participants

The participants were healthcare workers who provided direct care to the patients in the cardiology clinic. The participants were comprised one NP, a PA, and five MAs, working in the cardiology clinic. All participants, which comprised of clinical nursing staff at the clinic were invited and directed to attend the education program on HTN management. After the expert panels at the clinic reviewed the educational content with satisfactory agreement of the intervention, the participants were selected for the training. I used an evidence-based approach to train approximately seven clinic staff members to address the knowledge gap. Having all the clinical staff trained was relevant for the intervention. In addition, instilling knowledge through evidence-based guidelines for HTN management will be a helpful solution to producing positive patient outcomes.

Procedures

First and foremost, I conducted a comprehensive literature synthesis on hypertension management supported by evidence-based guidelines. A review of previous literature about staff education about managing HTN helped design the education program based on HTN guidelines. Once the expert panels were satisfied with the

educational plan after review, it was presented to the clinical nursing staff. The approved educational module was then given to the staff, educating them on HTN management guidelines with the goal of improving patient adherence. The educational module included a half hour-long Microsoft PowerPoint presentation with handouts to show current information on HTN in terms of diagnosis, proper blood pressure measurement, and lifestyle management interventions. I performed a pre and posttest questionnaire involving 10 multiple-choice questions to assess the program's effectiveness. I collected data and used descriptive statistics to analyze the data. This project sought to provide insight into the clinical practice problem. An enhanced understanding of the issue was intended to set the stage for developing the DNP project toward improvement in the clinical setting.

Protections

This doctoral project's content was designed toward staff education to increase patient engagement with managing their HTN and improve adherence to antihypertensive regimens. I complied with the organizational and the Walden Institutional Review Board (IRB) guidelines about ethical protection to avoid any potential ethical issues. This project did not involve patients as human subjects. The participants served voluntarily and considered this part of the practice's quality improvement efforts. They were given consents to participate with the option to withdraw from the education program at any time. I ensured that all collected data from participants were held anonymous and confidential. Before data collection, I was sure to seek approval from the Walden IRB.

Data collected from participants was de-identified and remained anonymous, and will be kept in a secure location for five years, based on IRB requirements.

Analysis and Synthesis

The education program was administered to frontline clinical staff members in a cardiology practice in Northeast NJ. The evaluation of the education program was conducted using pre and post-test surveys based on questions to assess staff knowledge on current JNC 8 and ACC/AHA guidelines for the management of HTN. After obtaining IRB approval, the de-identified data obtained from the site was entered into a computer program using a spreadsheet or Microsoft Excel then imported into the SPSS statistical analysis software. Descriptive statistics was used to analyze the data collected from the participants. I used a paired sample *t*-test to determine if improvement resulted in clinical staff knowledge after the pre-and post-implementation of the education program on managing HTN and obtaining correct blood pressure measurements. The results were analyzed based on the program training staff on current HTN guidelines and then summarized and disseminated to improve the healthcare outcomes of patients.

Summary

The literature review on HTN outlined in section 3 set the foundation for the education program based on JNC 8 and ACC/AHA guidelines. The purpose of the proposed project was to evaluate the effect of the staff education program on increasing staff knowledge of evidence-based guidelines for managing blood pressure. The sources of evidence to assess the project can mitigate the difficult nonadherence of HTN. Equipping clinical staff members with knowledge on management about evidence-based

guidelines on lifestyle modifications can potentially reinforce self-management and improve adherence. Before implementing the project and collecting the data, I requested permission from both the Walden University IRB and the clinic's owner/physician/CEO. The intervention was designed and implemented to all the clinical staff members, including a PA, an NP, and five MAs working at the cardiology clinic. In section 4, I deliver the results obtained from the data analysis, findings, implications for outcomes, and recommendations.

HTN, known as the "silent killer", is the most common condition in primary care settings. The patients frequently present with uncontrolled BP, and the clinical staff must learn about HTN guidelines. This DNP project aimed to develop an education program to address a knowledge gap observed in the clinical staff in a cardiology clinic in Northeast NJ. Through the education, clinical staff not only acquired increased knowledge of evidence-based HTN guidelines but also developed and gained confidence and competency to promote self-care measures in their patients. That may significantly improve the patient's lifestyle choices, thereby improving their HTN and reducing their complications risks.

Section 4: Findings and Recommendations

Introduction

I created this educational module based on a practice gap observed among clinical staff that needed to gain knowledge on current HTN guidelines in a cardiology practice in Northeast NJ. In this clinic, many hypertensive patients were frequently seen for uncontrolled BP. Many of them needed to learn how to manage the disease because they were often nonadherent to HTN treatment and lifestyle modifications. Pan et al. (2019) noted that poor adherence to treatment regimens is considered one of the most impactful causes of uncontrolled BP in hypertensive patients.

The risk of developing HTN can be reduced by effective medication therapy management and significant lifestyle modifications. Adherence to antihypertensive medications is the cornerstone for achieving HTN control (Lewis et al., 2012). I developed the educational module to educate clinic staff on HTN guidelines, hoping to empower patients to gain the knowledge and skills needed to self-manage their HTN and successfully prevent associated complications. Evidence from my literature search showed that HTN is a condition that can be managed through lifestyle modifications. Thus, the DNP project question was: Will educating clinical staff on hypertension guidelines increase knowledge? The purpose of this DNP project was to evaluate the clinical staff's knowledge of basic principles of HTN management based on ACC/AHA and JNC 8 guidelines. This project may assist in filling the gap by increasing clinical staff knowledge and competency on HTN management, thus empowering and motivating patients to be involved in self-management and improving adherence. In Section 4,

present my results; I discuss the findings and implications, recommendations, strengths limitations of the DNP project, and a summary.

Findings and Implications

I developed the educational program for seven clinical staff at a cardiology clinic in Northeast NJ after discovering a knowledge gap in current practice guidelines for managing high BP. This cardiology clinic typically sees 50 to 60 patients daily, where the rate of HTN is prevalent. There is usually a large volume of patients seen for uncontrolled HTN. This practice site has an alarming number of hypertensive patients, most of whom do not control their BP. Consequently, they are at increased risk for developing life-threatening events. Through several literature searches, HTN has been categorized as a modifiable disease; hence this educational intervention to increase staff knowledge on current EBP guidelines based on JNC 8 and AHA/ACC to empower patients on self-care is invaluable. As a result, the clinic's location was ideal for the DNP project.

The participants included one NP, one PA, and five MAs working in the cardiology clinic. I invited and directed the participants to attend the educational program; after the expert panels at the clinic reviewed the educational content and were satisfied with the conditions for the intervention, I implemented the training. I used an evidence-based approach to train approximately seven clinic staff members to address the knowledge gap. The pre-and post-test results will be depicted below, describing knowledge of HTN based on EBP guidelines and BP measurement. In addition, instilling knowledge through EBP for HTN management will be a helpful solution to producing

positive patient outcomes. The results of this DNP project demonstrated that the educational program was highly effective in helping to manage BP. A significant increase in HTN knowledge was observed from the clinical staff.

Education Survey/Study Administration

After the panel evaluation for appropriateness and usefulness, I presented the module to the outpatient clinic staff (n = 7). Participants were asked to answer 10 multiple-choice questions before and after the education presentation to assess their knowledge about HTN guidelines on management and BP measurement. The pretest and posttest for all 10 questions administered were identical. With this approach, I assessed the changes in the participants' knowledge levels before and after taking the educational program. Tables 1 and 2 summarize the results of participant responses for the pretest and posttest. Once the panel was satisfied with the module, the clinical staff (n = 7) was asked to answer the pretest, multiple choice questions, assessing knowledge of the AHA/ACC and JNC 8 guidelines on HTN control and management and BP measurement. I administered the tests with written instructions for the participants to follow.

The pretest questions included the following questions about the AHA/ACC and JNC 8 guidelines (See Appendix C). In Questions 1 through 9, I examined the participants' current knowledge of HTN guidelines, and in Question 10, I asked about their attitudes toward managing patients with HTN. In question 1, I asked for the definition of HTN. Question 2 pertained to the normal blood pressure reading according to AHA/ACC guidelines. In question 3, I queried about the goal of treating primary

hypertension (HTN). Question 4 referred to the proportion of American adults estimated to have HTN, as defined by the new ACC/AHA guidelines. Question 5 included the effect of lifestyle modification on HTN incidence or progression according to ACC/AHA and JNC 8 guidelines. In Question 6, I asked for the correct statement about effective lifestyle measures. In Question 7, I examined knowledge about cardiovascular complications of uncontrolled HTN. Questions 8 and 9 pertain to the current recommendations by the AHA for blood pressure measurement. Lastly, in Question 10, I surveyed the confidence of clinical staff in facilitating patients in making healthy lifestyle choices to prevent HTN and associated complications (Appendix C).

I used SPSS software version 28 to analyze the data. I used descriptive statistics to run frequencies to determine the percentage of how many participants answered each question correctly or incorrectly. The tables below provide information on how many participants answered each question based on the percentage of the pretest and the posttest.

Table 1

Results of Pretest Survey Questions (n = 7)

Questions	Answer A	Answer B	Answer C	Answer D
1. What is the definition of Hypertension?	28.6% (n=2)	42.9% (n=3)	0% (n=0)	28.6% (n=2)
2. What is a normal blood pressure reading according to the American College of Cardiology and the	42.9% (n=3)	28.6% (n=2)	28.6% (n=2)	0% (n=0)

Questions	Answer A	Answer B	Answer C	Answer D
American Heart Association (ACC/AHA)?				
3. Which of the following is the goal for treating primary hypertension (HTN)?	71.4% (n=5)	14.3% (n=1)	14.3% (n=1)	0% (n=0)
4. About how many American adults are estimated to be hypertensive, as defined by the new ACC/AHA guidelines?	14.3% (n=1)	14.3% (n=1)	28.6% (n=2)	42.9% (n=3)
5. According to ACC/AHA and JNC 8, HTN the incidence or progression of hypertension can be can reduced with all of the following lifestyle modification EXCEPT?	0% (n=0)	42.9% (n=3)	42.9% (n=3)	14.3% (n=1)
6. An African American woman was recently diagnosed with mild hypertension. During her follow-up appointment, she states she does not want to start medications. Which one of the following	0% (n=0)	42.9% (n=3)	28.6% (n=2)	28.6% (n=2)

Questions	Answer A	Answer B	Answer C	Answer D
statements about effective lifestyle measures is correct?				
7. Cardiovascular complications of hypertension if blood pressure is not controlled include:	0% (n=0)	0% (n=0)	0% (n=0)	100% (n=7)
8. What are current recommendations by the AHA for choosing sphygmomanometer cuffs when measuring blood pressure?	14.3% (n=1)	57.1% (n=4)	0% (n=0)	28.6% (n=2)
9. Which of the following is appropriate to obtain an accurate BP measurement?	14.3% (n=1)	0% (n=0)	85.7% (n=6)	0% (n=0)
10. Nurses can educate and assist patients in making lifestyle changes that will prevent HTN and associated complications. How confident are you to empower the patients in making healthy choices?	71.4% (n=5)	28.6% (n=2)	0% (n=0)	0% (n=0)

Table 2

Results of Posttest Survey Questions (n = 7)

Questions	Answer A	Answer B	Answer C	Answer D
1. What is the definition of Hypertension?	85.7% (n=6)	14.3% (n=1)	0% (n=0)	0% (n=0)
2. What is a normal blood pressure reading according to the American College of Cardiology and the American Heart Association (ACC/AHA)?	100% (n=7)	0% (n=0)	0% (n=0)	0% (n=0)
3. Which of the following is the goal for treating primary hypertension (HTN)?	100% (n=7)	0% (n=0)	0% (n=0)	0% (n=0)
4. About how many American adults are estimated to be hypertensive, as defined by the new ACC/AHA guidelines?	0% (n=0)	14.3% (n=1)	0% (n=0)	85.7% (n=6)
5. According to ACC/AHA and JNC 8, HTN the incidence or progression of hypertension can be can reduced with all of the following lifestyle	0% (n=0)	100% (n=7)	0% (n=0)	0% (n=0)

Questions	Answer A	Answer B	Answer C	Answer D
modification EXCEPT?				
6. An African American woman was recently diagnosed with mild hypertension. During her follow-up appointment, she states she does not want to start medications. Which one of the following statements about effective lifestyle measures is correct?	0% (n=0)	14.3% (n=1)	71.4% (n=5)	14.3% (n=1)
7. Cardiovascular complications of hypertension if blood pressure is not controlled include:	0% (n=0)	0% (n=0)	0% (n=0)	100% (n=7)
8. What are current recommendations by the AHA for choosing sphygmomanometer cuffs when measuring blood pressure?	0% (n=0)	100% (n=7)	0% (n=0)	0% (n=0)
9. Which of the following is appropriate to obtain an accurate BP measurement?	0% (n=0)	0% (n=0)	100% (n=7)	0% (n=0)
10. Nurses can educate and assist	100%	0%	0%	0%

Questions	Answer A	Answer B	Answer C	Answer D
patients in making lifestyle changes that will prevent HTN and associated complications. How confident are you to empower the patients in making healthy choices?	(n=7)	(n=0)	(n=0)	(n=0)

The results of the pretest and posttest with answers from participants include (see Table 1 and 2):

ACC/AHA HTN guidelines (Questions 1-4)

Seven clinical staff members participated in the pre-test survey (N=7). The participants' answers to question 1 showed that (28.6%, n=2) responded correctly to the definition of HTN, while 5 needed more knowledge. Question 2 revealed 3 (42.9%, n=3) respondents were aware of the normal BP, while 4 displayed a knowledge gap. In Question 3, 5 out of the 7 participants (71.4%, n=5) knew the goal for treating primary HTN < 130/70. For Question 4, (43.9%, n=3) of clinical staff knew the number of American adults with HTN (see Table 1).

ACC/AHA and JNC 8 HTN guidelines on lifestyle modifications (Question 5-6) In terms of Question 5 regarding lifestyle modification (42.9%, n=3), participants responded correctly. For Question 6, (28.6%, n=2) answered correctly regarding lifestyle measures.

Complications of uncontrolled BP (Question 7)

Question 7, (100%, n=7) demonstrated the participants had prior baseline knowledge of cardiovascular complications of HTN. All seven participants responded correctly and unanimously scored 100% in question seven (see Table 1).

Guidelines for blood pressure measurement procedures (Questions 8-9)

Regarding choosing the correct BP cuff in Question 8, 4 of the 7 staff members (57.1%, n=4) responded affirmatively; Question 9, an inquiry for measuring blood pressure, showed (85.7%, n=6) baseline knowledge of the staff (see Table 1).

Role of nurses as health educators, facilitators, and promoters of healthy choices (Question 10)

In Question 10, (71.4%, n=5) of clinical staff were extremely confident regarding the role of nurses in helping patients make healthy lifestyle choices (See Tables 1).

The mean score for the participant's knowledge pretest was 60%, and the posttest was 94%. The participant's mean score of 94% on the posttest indicates that most had high test scores (Table 3). Questions 1, 4, and 6, respectively, were answered incorrectly on the posttest, with Question 1 (14.3%, n=1); Question 4 (14.3%, n=1); Question 6 (28.6%, n=2). Three of 4 participants had missed questions on the post test. Four participants scored 100% on the post test. One participant scored 100% on both pre and posttest, indicating no change resulted from the educational program, demonstrating prior knowledge. Most importantly, overall all the participants achieved a passing score after the education program (see Table 1).

After calculating descriptive statistics, I performed a paired *t*-test to determine if the DNP project data collected from participants for the pre and posttest were statistically

significant. A paired-sample *t*-test using Microsoft Excel within the SPSS software was also performed to determine post-education change in clinical knowledge and statistical significance of the results. The post-test results range from 80% to 100%. The p-value for the educational program was 0.20, which is less than .05. The results determined a statistically significant difference between pre and posttest scores. Therefore, it can be assumed that the education was statistically significant (see Table 4). However, a power analysis could not be done due to a small sample size.

Table 3

Paired Samples Statistics

		Mean	N	STD. Deviation	STD Error Mean
Pair 1	Pretest Score	60.0000	7	32.65986	12.34427
	Posttest Score	94.2857	7	7.86796	2.97381

Table 4

Paired Samples *t*-test

		Paired Differences					t	df	Sig. (2 tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
Pair 1	Pretest Score & Posttest Score	-34.28571	28.78492	10.87968	-60.90732	-7.66411	-3.151	6	.020

Recommendations

The project results demonstrated that the educational module increased clinical staff knowledge through the post-test survey. Clinical staff positively responded to the education program in their motivation and willingness to educate and guide the patients toward self-management of their HTN. The clinical staff is well-suited to use evidence-based interventions to help patients achieve HTN control and prevention goals. The

education training that addressed the practice gap to improve knowledge on BP control was noted as an effective intervention in managing HTN. I recommend providing well-structured and interactive educational programs tailored to patients' needs in changing lifestyle practices and improving the management of HTN on an ongoing basis in the clinic.

The practice owner/CEO felt the education module, based on the AHA/ACC and JNC 8 guidelines for HTN management to teach the clinical staff was satisfactory. He also emphasized that the education program could increase staff knowledge on HTN lifestyle modifications, improving patients' lives by encouraging them to adopt healthier lifestyles and help improve adherence. The module can also contribute to positive social change and improved health outcomes. I also recommended that the clinic's management implement steps to initiate practice policy, including staff annual in-service and continuing education on patient HTN control and management using AHA/ACC and JNC 8 guidelines to increase staff competency and motivate patients. Moreover, I recommended that the educational module be part of the new hires' orientation to improve their knowledge base on best clinical practice guidelines before engaging in patient care. Applying current practice guidelines based on the AHA/ACC and JNC 8 guidelines for patient control and management of HTN by clinic management may encourage future DNP projects to provide clinical staff with current EBP guidelines.

Contribution of the Doctoral Project Team

The project team, including my DNP project chair and the committee members, mainly my DNP project chair, guided and supported me throughout my DNP journey.

The practice owner/physician/CEO embraced implementing the education program at the clinical site, deemed the educational program content suitable for the clinical staff, and signed the site approval documentation for the staff education doctoral project. My preceptor extended her support in mentoring me to make my goals a possibility. I currently work at the clinical site as an NP. However, after graduation, I plan to offer my involvement in staff education further and reinforce knowledge of evidence-based practice guidelines to the clinical staff to disseminate primary care-related information about HTN.

Strengths and Limitations of the Project

One of the study's main strengths was the clinical staff's responsiveness to the program. The overall improvement in the participants' post-test scores is evident in improved knowledge. The participants in the DNP project comprised a team with varied experiences, educational levels, and skills, which could have affected the study results. It would help to obtain demographic data in future project presentations. The participants' willingness to voluntarily participate in learning new knowledge of current EBP guidelines and advancing their practice experience was a significant strength of the project.

One of the significant limitations of the project was that it had a small sample size. Another limitation was the inability to address cultural implications in the management of HTN due to limited staff availability and time constraints. Due to limited time, I was unable to include the staff demographic. Despite the small sample size, I

achieved the primary purpose of filling the knowledge gap of the clinical staff in the clinic with the DNP project.

Future recommendations for the project include more time to monitor whether the staff retained knowledge of HTN guidelines and can transfer that knowledge on self-management to the patients. Improving patient health is the primary objective of the educational program. Therefore, providing adequate time to monitor long-term outcomes is essential.

Section 5: Dissemination Plan

In Section 5, I describe the plan to disseminate this work to the institution experiencing the problem in practice. In this DNP project, I found that employing an educational intervention was highly effective in increasing the clinical staff's HTN knowledge, eventually motivating patients toward lifestyle changes and managing their HTN. I will schedule a meeting with the panel of experts at the practice/project site to present the results and disseminate them to the clinical staff. Additional dissemination plans include disseminating the results at local, state, or national conferences or workshops. The intervention was the first of its kind to be implemented at the project site. Thus, it will undoubtedly update the current evidence and best practice knowledge for clinical nursing staff. I plan to meet with the practice physician/owner/CEO and clinical director at the clinic to present the findings. I will offer my assistance in the development of training material for the staff education.

Analysis of Self

My journey in this DNP program has been a great experience since the beginning of the program. As I embarked on this DNP journey, I have gained an abundance of knowledge. Although this DNP journey took longer than anticipated with many moments of discouragement, but I knew I had to push through and hang in there to reach my destination. My personal and professional goal is to strive at my highest ability to gain the knowledge and skills needed to educate my patients and make a difference in the community. This project set the stage to boost or build my enthusiasm to effect social change. As a scholar, this project served as a vehicle to enhance my knowledge, critical

thinking skills, and research abilities to help me implement evidence-based practice for the community's benefit. These critical skills are outlined in The Essentials of Doctoral Education for Advanced Nursing Practice (American Association of Colleges of Nursing, 2006).

As a practitioner, I will also inform healthcare practitioners' decisions toward providing quality, efficient, and competent patient care. I will use my skills, experience, and abilities to impact my profession, communities, and society positively. Through scholarship, I have increased my confidence to influence change among African Americans with hypertension.

As a project manager, I tried to prepare for unforeseen challenges. The project was significantly impacted by the COVID-19 pandemic, difficulties in communicating with the practice site management, and coordinating the education program. Another critical challenge in completing this project was scheduling. The clinic is hectic, and the education program took away time for the staff to see patients. The manager requested that the education be at most 45 minutes. I faced presenting the necessary material in a limited amount of time. One central area for improvement was the time constraint for clinical staff to attend the program. The length of the educational program had to be reduced due to limited time. The educational training was limited to the planned PowerPoint presentation, lectures, handouts, and general discussions without the intended inclusion of group discussions, questions and answers, and return demonstration. Overall, through patience and perseverance, the challenges I faced to complete my DNP project

were worthwhile. I gained self-confidence in my problem-solving ability. Most importantly, I did not let any obstacles prevent me from achieving my goals.

Summary

In this DNP project, I examined the effectiveness of an educational program targeted toward clinical staff on current HTN guidelines and blood pressure measurement at a cardiology clinic in Northeast NJ. The population the clinic serves is hypertensive patients who are not adherent to treatment. Therefore, clinical staff must understand the importance of managing the disease based on current evidence-based guidelines to prevent complications.

After the educational program, the clinical staff had the knowledge base and understood the importance of controlling and managing patients' hypertension. The study demonstrated positive results regarding the clinical staff's willingness to educate and empower patients with HTN on self-care at every clinical visit. The main goal of this project puts me at the forefront of advocating for social change, which is building a healthier community. My skills and knowledge will be used to elevate the nursing practice as I will be a role model for society's betterment.

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Appendix A: An Educational Program on Hypertension

DNP Lecture-Staff Education: Improving Hypertension Management among African American Adults

by
Marie Tunis
MSN Walden University, 2015
Doctor of Nursing Practice

Program Overview

- Blood Pressure
- Normal Blood Pressure
- Hypertension or High Blood Pressure
- Classification of Hypertension
- Causes of Hypertension
- Symptoms of Hypertension
- Risk Factors of Hypertension
- Complications of Hypertension
- JNC 8 and AHA/ACC Guidelines for Hypertension Management with Lifestyle Modification
- Hypertension Management Guideline Algorithm
- Blood Pressure Measurement

Objectives of Program, Upon Completion of the Educational Program the learner will be able to understand

- The new hypertension definition, classification and treatment goal
- The application of lifestyle interventions for prevention and/or management of hypertension
- Accurate BP measurement to improve diagnosis and management of hypertension
- Evidence-based treatment plans for managing hypertension based on guidelines

Overview or Prevalence of Hypertension

- Hypertension:
- Hypertension (HTN) is a major risk factor for cardiovascular disease, which is the leading cause of death in the US and worldwide.
- 108 million or 1 in 3 adults in the United States (US) have high blood pressure
- Only 24 percent have it under control
- Highest prevalence and severity in African Americans

HTN Among African Americans

- African Americans have the highest prevalence in the US and the world
- Approximately 55% of African Americans have high blood pressure
- African Americans have disproportionately high rates of more severe HTN
- African Americans develops HTN earlier in life.
- African Americans have lower adherence to blood pressure medications (AHA, 2017)

What is Blood Pressure?

- Blood pressure (BP) is the force of blood pushing against the artery walls (AHA, 2017; CDC, 2020).
- Blood pressure normally rises and falls throughout the day.
- BP is measured using two numbers known as systolic (top number) and diastolic blood pressure (bottom number) (AHA; CDC, 2020).

What is Normal Blood Pressure?

- Normal blood pressure is a BP that is below 120/80 mm Hg (AHA, CDC).

Hypertension or High Blood Pressure

- High blood pressure, also called hypertension, is blood pressure that is higher than normal (AHA; CDC).
- Hypertension is defined as systolic blood pressure (SBP) of 130 mmHg or greater, diastolic blood pressure (DBP) of 80 mmHg or greater
- (CDC).

Guidelines of Hypertension According to ACC/AHA

Blood Pressure Categories

American Heart Association.

BLOOD PRESSURE CATEGORY	SYSTOLIC mm Hg (upper number)		DIASTOLIC mm Hg (lower number)
NORMAL	LESS THAN 120	and	LESS THAN 80
ELEVATED	120-129	and	LESS THAN 80
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 1	130-139	or	80-89
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 2	140 OR HIGHER	or	90 OR HIGHER
HYPERTENSIVE CRISIS (consult your doctor immediately)	HIGHER THAN 180	and/or	HIGHER THAN 120

heart.org/bplevels

Classification of Hypertension

Blood Pressure Category	Systolic Blood Pressure		Diastolic Blood Pressure
Normal	<120 mmHg	and	<80 mmHg
Elevated	120-129 mmHg	and	<80 mmHg
Hypertension			
Stage 1	130-139 mmHg	or	80-89mmHg
Stage 2	≥140 mmHg	or	≥90 mmHg

- Normal: Less than 120/80 mm Hg;
- Elevated: Systolic between 120–129 *and* diastolic less than 80;
- Stage 1: Systolic between 130–139 *or* diastolic between 80–89;
- Stage 2: Systolic at least 140 *or* diastolic at least 90 mm Hg;
- (CDC, 2020, AHA, 2017)

Causes of Hypertension or Predisposing Factors

- Sedentary life style or lack of physical activity
- Obesity & weight gain
- Certain health conditions, such as diabetes, high cholesterol
- Smoking
- High alcohol intake
- high sodium intake
- increased age
- Family history of cardiovascular disease
- Race-African Americans
- Stress

Symptoms of Hypertension

- Manifestations/complaints are nonspecific or subtle (Silent Killer)
- These symptoms may include
- headaches
- Dizziness and fainting
- chest pain
- shortness of breath
- Epistaxis or nosebleed
- Visual changes

Risk Factors for Hypertension

Modifiable risk factor

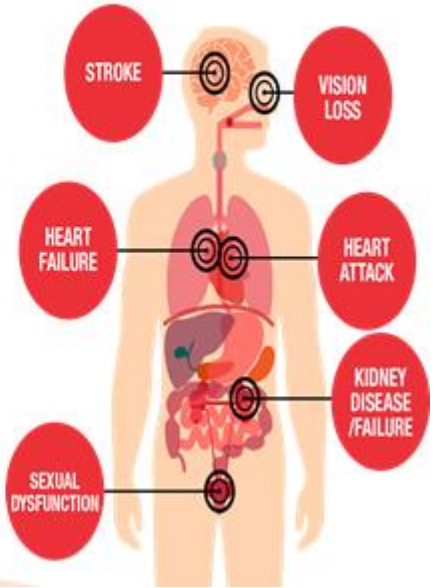
- Overweight or obese
- Lack of physical activity
- Cigarette smoking and exposure to secondhand smoke
- Diabetes
- High cholesterol
- Unhealthy diet (high sodium diet, low dietary potassium, excessive alcohol usage)
- Managing stress (CDC, 2020)

Non-modifiable risk factor

- Family history
- Increased age
- Race or ethnicity
- Gender (males) (AHA, 2017)

Complications of HTN

- myocardial infarction
- Heart failure
- Coronary heart disease
- Stroke or transient ischemic attack
- Chronic kidney disease
- Peripheral arterial disease
- Retinopathy
- Erectile dysfunction (AHA, 2017)



JNC 8 and ACC/AHA Guidelines for Hypertension Management

Goals of Therapy

- Reduce Cardiac and renal morbidity and mortality.
- Aim for a blood pressure treatment goal of less than 130/80 mm Hg if:
- The patients has diabetes, chronic kidney disease or coronary artery disease
- The patient is healthy adult age 65 or older
- The patient healthy adult younger than age 65 with a 10% or higher risk of developing cardiovascular disease (CVD) in the next 10 years (Whelton,2017)

Lifestyle Modifications

- Loose weight, if obese or overweight
- DASH diet (Dietary Approaches to Stop Hypertension)
- Reduce salt and high fat diets
- Regular exercise
- Avoid harmful habits, alcohol, smoking

Lifestyle Modifications

Modification	Recommendation	Approximate SBP Reduction
Reduce weight	Maintain healthy body weight (body mass index 18.5 62 24.9kg/m2	5 mmHg /10 kg weight loss
Adopt DASH eating plan	Consume a diet rich in fruits, vegetables, low-fat dairy, and reduced in fat	11 mmHg
Lower Sodium Intake	Consume less than 1500 mg of Sodium/day which is equal to one teaspoon or 6 grams of salt per day	5–6 mmHg
Physical activity	Engage in regular aerobic physical activity, such as brisk walking at least 150 minutes each week (30 min per day most days, 5 days in a week)	5–8 mmHg
Moderation of Alcohol consumption	Limit consumption to no more than two drinks per day for men and no more than one drink per day for women.	4 mmHg

Healthy Ways to Improve to Prevent and Manage HTN

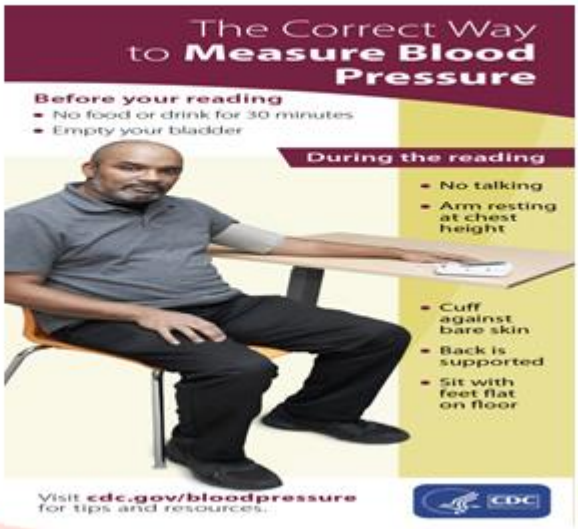
Pharmacologic Interventions

- Initiation of first-line treatment for hypertension for Non-Black population:
- Thiazide diuretics
- Calcium channel blockers (CCBs)
- Angiotensin-converting enzyme (ACE) inhibitors or angiotensin receptor blockers (ARBs)
- Initial therapy for Black population:
- Thiazide-type diuretics or CCBs (Whelton,2017)

Blood Pressure (BP) measurement

- Patient be relaxed and seated quietly for at least 5 minutes in a chair, with feet on the floor and arm supported at heart level.
- A sphygmomanometer with an appropriate–sized cuff (cuff bladder encircling at least 80% of the arm) should be used to ensure accuracy
- At least 2 measurements (Whelton, 2017)
- Blood Pressure Measurement: How to Check Blood Pressure manually https://youtu.be/UoeqSo_ws

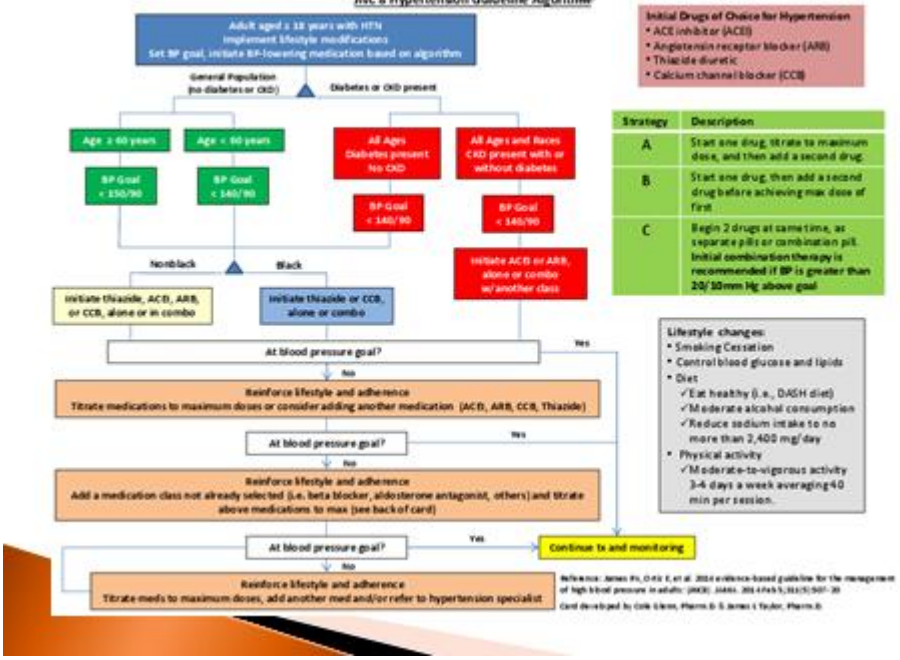
Blood Pressure BP Measurement



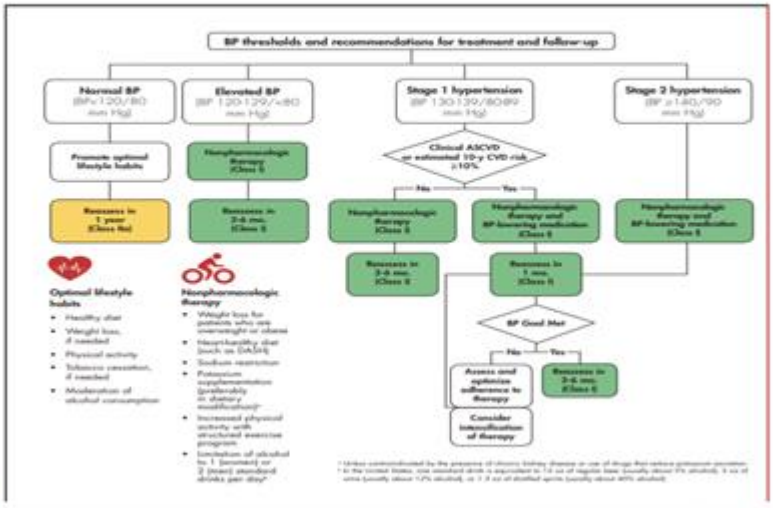
Blood Pressure (BP) measurement

- Blood pressure can measured using a digital blood pressure monitor for automated readings or an instrument called a sphygmomanometer for manual readings, Ambulatory blood pressure monitoring and Home monitoring (self-measured blood pressure).
- Useful for:
- Anyone diagnosed with HTN
- Treatment effectiveness
- Close monitoring for risk factors for HTN
- Evaluate false reading:
- White Coat HTN- high BP in the office but not at home
- Mask HTN- high BP at home but not in the office(Whelton, 2017)

JNC8 HTN Guideline Algorithm



ACC/AHA HTN Guideline Algorithm



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Appendix B: Hypertension Education Flyer

Flyer

Staff Education: Improving Hypertension Management among African American Adults

Date: TBA

Time: TBA

Location: Staff Break Room

Appendix C: Pretest Survey Questions

Please read each of the following statements and circle the appropriate answer that corresponds to your current level of knowledge and attitudes about hypertension guidelines to manage patients at the clinic.

Please make note of the number at the top of your survey and make certain that you indicate it on the pretest survey for identification purposes.

1. What is the definition of Hypertension?
   A. A systolic blood pressure (SBP) 130 mm Hg and diastolic blood pressure (DBP) 80 mm Hg.
   B. An SBP greater than 140 mm Hg and a DBP above 90 mm Hg.
   C. An SBP greater than 150 mm Hg and a DBP above 90 mm Hg.
   D. None of the above

2. What is a normal blood pressure reading according to the American College of Cardiology and the American Heart Association (ACC/AHA)?
A. BP less than 120/80 mm Hg
B. BP 120/80 mm Hg
C. BP 130/80 mm Hg
D. BP 140/90 mm Hg

3. Which of the following is the goal for treating primary hypertension (HTN)?
A. BP <130/80 mm Hg
B. BP 140/90 mm Hg
C. BP 150/90 mm Hg
D. BP 160/100 mm Hg

4. About how many American adults are estimated to be hypertensive, as defined by the new ACC/AHA guidelines?

A. One in ten
B. One in five
C. One in four
D. One in three

5. According to ACC/AHA and JNC 8, HTN the incidence or progression of hypertension can be can reduced with all of the following lifestyle modification EXCEPT?
A. smoking cessation
B. Gaining weight
C. Following a heart healthy diet (such as a DASH diet)
D. Drinking alcohol in moderation

6. An African American woman was recently diagnosed with mild hypertension. During her follow-up appointment, she states she does not want to start medications. Which one of the following statements about effective lifestyle measures is correct?

A. They usually avoid the need for blood pressure medication
B. They can be discontinued once blood pressure medication is started
C. They can lower blood pressure as much as a single blood pressure medication
D. They can be started effectively without good quality written information

7. Cardiovascular complications of hypertension if blood pressure is not controlled include:
A. Coronary heart disease and heart failure
B. Stroke
C. Kidney failure
D. All the above

8. What are current recommendations by the AHA for choosing sphygmomanometer cuffs when measuring blood pressure?
A. Size of the cuff doesn't matter: you should use the cuff that appears to be in the best condition
B .You should choose a cuff bladder with a length of 80% and a width of 40% of the arm circumference
C. You should choose a cuff bladder with a length of 40% and a width of 20% of the arm circumference
D. You should choose a cuff bladder with a length of 120% and a width of 80% of the arm circumference

9. Which of the following is appropriate to obtain an accurate BP measurement?
A Pushing up the clothing to get the arm during measurement
B The patient's legs are crossed during BP measurement
C Patient in a sitting position, at rest, with arm at heart level for 5 minutes
D Caffeine or tobacco are allowed until 5 minutes before reading

10. Nurses can educate and assist patients in making lifestyle changes that will prevent HTN and associated complications. How confident are you to empower the patients in making healthy choices?
A. Extremely confident
B. Confident.
C. Somewhat confident
D Not confident

Note: Correct answers: 1 A, 2 A, 3 A, 4 D, 5 B, 6 C, 7 D, 8 B, 9 C, 10 A

Appendix D: Posttest Survey Questions

Please read each of the following statements and circle the appropriate answer that corresponds to your current level of knowledge and attitudes about hypertension guidelines to manage patients at the clinic.

Please make note of the number at the top of your survey and make certain that you indicate it on the posttest survey for identification purposes.

1. What is the definition of Hypertension?
   A. A systolic blood pressure (SBP) 130 mm Hg and diastolic blood pressure (DBP) 80 mm Hg.
   B. An SBP greater than 140 mm Hg and a DBP above 90 mm Hg.
   C. An SBP greater than 150 mm Hg and a DBP above 90 mm Hg.
   D. None of the above

2. What is a normal blood pressure reading according to the American College of Cardiology and the American Heart Association (ACC/AHA)?
A. BP less than 120/80 mm Hg
B. BP 120/80 mm Hg
C. BP 130/80 mm Hg
D. BP 140/90 mm Hg

3. Which of the following is the goal for treating primary hypertension (HTN)?
A. BP <130/80 mm Hg
B. BP 140/90 mm Hg
C. BP 150/90 mm Hg
D. BP 160/100 mm Hg

4. About how many American adults are estimated to be hypertensive, as defined by the new ACC/AHA guidelines?

A. One in ten
B. One in five
C. One in four
D. One in three

5. According to ACC/AHA and JNC 8, HTN the incidence or progression of hypertension can be can reduced with all of the following lifestyle modification EXCEPT?
A. smoking cessation
B. Gaining weight
C. Following a heart healthy diet (such as a DASH diet)
D. Drinking alcohol in moderation

6. An African American woman was recently diagnosed with mild hypertension. During her follow-up appointment, she states she does not want to start medications. Which one of the following statements about effective lifestyle measures is correct?

A. They usually avoid the need for blood pressure medication
B. They can be discontinued once blood pressure medication is started
C. They can lower blood pressure as much as a single blood pressure medication
D. They can be started effectively without good quality written information

7. Cardiovascular complications of hypertension if blood pressure is not controlled include:
A. Coronary heart disease and heart failure
B. Stroke
C. Kidney failure
D. All the above

8. What are current recommendations by the AHA for choosing sphygmomanometer cuffs when measuring blood pressure?
A. Size of the cuff doesn't matter: you should use the cuff that appears to be in the best condition
B .You should choose a cuff bladder with a length of 80% and a width of 40% of the arm circumference
C. You should choose a cuff bladder with a length of 40% and a width of 20% of the arm circumference
D. You should choose a cuff bladder with a length of 120% and a width of 80% of the arm circumference

9. Which of the following is appropriate to obtain an accurate BP measurement?
A Pushing up the clothing to get the arm during measurement
B The patient's legs are crossed during BP measurement
C Patient in a sitting position, at rest, with arm at heart level for 5 minutes
D Caffeine or tobacco are allowed until 5 minutes before reading

10. Nurses can educate and assist patients in making lifestyle changes that will prevent HTN and associated complications. How confident are you to empower the patients in making healthy choices?
A. Extremely confident
B. Confident.
C. Somewhat confident
D Not confident

Note: Correct answers: 1 A, 2 A, 3 A, 4 D, 5 B, 6 C, 7 D, 8 B, 9 C, 10 A

Appendix D: Site Approval Documentation for Staff Education Doctoral Project

Partner Site

Contact Information

Date

The doctoral student, is involved in Staff Education that will be conducted under the auspices of our organization. The student is approved to collect formative and summative evaluation data via anonymous staff questionnaires, and is also approved to analyze internal, de-identified site records that I deem appropriate to release for the student's doctoral project. This approval to use our organization's data pertains only to this doctoral project and not to the student's future scholarly projects or research (which would need a separate request for approval).

I understand that, as per DNP program requirements, the student will publish a scholarly report of this Staff Development Project in ProQuest as a doctoral capstone (with site and individual identifiers withheld), as per the following ethical standards:

a. In all reports (including drafts shared with peers and faculty members), the student is required to maintain confidentiality by removing names and key pieces of evidence/data that might disclose the organization's identity or an individual's identity or inappropriately divulge proprietary details. If the organization itself wishes to publicize the findings of this project that will be the organization's judgment call.

b. The student will be responsible for complying with our organization's policies and requirements regarding data collection (including the need for the site IRB review/approval, if applicable).

c. Via a Consent Form for Anonymous Questionnaires, the student will describe to staff members how the data will be used in the doctoral project and how the stakeholders' autonomy and privacy will be protected.

I confirm that I am authorized to approve these activities in this setting.

Signed,

Authorization Official Name

Title