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Conducting an Assessment for Hypertension in African American College Students

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Walden University

College of Health Sciences

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Frances Montague

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2017

Abstract

Conducting an Assessment for Hypertension

in African American College Students

by

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MS, Hampton University, 1985

BS, Hampton University, 1979

Project Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Nursing Practice

Walden University

February 2017

Abstract

Hypertension (HTN) in African American (AA) young adults is diagnosed, treated, and controlled at a lower rate than it is among older AA adults and Caucasians. Untreated high blood pressure (BP) can progress to pre-HTN, HTN, and cardiovascular disease (CVD), which is the leading cause of death in the United States. Guided by Pender's health promotion model, this project sought to identify modifiable and nonmodifiable risk factors for pre-HTN and HTN in AA students at a historically black university. In this quantitative study, 115 students completed a questionnaire regarding personal and family medical history and health behaviors, and had their height, weight, BP and heart rate measured by a nurse. The data were summarized descriptively using frequencies and percentages and revealed that, while 81% of the students presumed that their BP was normal, 45% had a BP reading that indicated pre-HTN and 5% had a BP reading that indicated HTN. Some students had nonmodifiable risk factors: 62% reported a family history of HTN and 5% reported a personal history of HTN. Ten percent of students smoked, 44% were not physically active daily, and 62% were overweight/obese. These are modifiable behaviors and risk factors that can be altered with lifestyle changes. The rate of behavioral risks, whether personal or familial, could predispose the AA college student to HTN later in life. This project has the potential to produce positive social change by providing a guide to nurses working in student health services departments in developing educational programs designed to promote general health and prevent HTN. These programs can help reduce AA students' rates of mortality and morbidity in later life.

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Dedication

This project is dedicated to my most beautiful and blessed mother, Lillian Trent Montague, who was my greatest supporter, cheerleader, and confident in this journey until she suddenly and unexpectedly departed this life on April 22, 2016. I also dedicate this project to my late father, Rev. Horace S. Montague, who always supported my endeavors and encouraged me in my relationship with God.

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Section 1: Introduction

Introduction

Cardiovascular disease (CVD) is the cause of death in one out of every four Americans. At approximately 600,000 deaths per year, this disease is the leading cause of death. CVD is the leading cause of death in most racial and ethnic groups in the United States including African Americans (AAs), Hispanics, and Caucasians (Centers for Disease Control and prevention [CDC], 2014). Several medical conditions and lifestyle choices are key risk factors for CVD and increase the risk of morbidity and mortality (Jorgensen & Maisto, 2008).

The CDC, (2014), estimated that about 67 million adults have HTN and only about 47% have their condition under control. HTN and CVD are frequently associated with aging but appear in young adults as well. Young adults have a slower diagnosis rate of HTN than middle-aged or older adults (Johnson et al., 2014). Adults 18-24 years old have a lower initial diagnosis rate for HTN than middle-age and older adults, except for young adults with chronic disorders such as diabetes, chronic kidney disease, stage 2 HTN (Johnson et al., 2014).

Healthy People 2020 provides a comprehensive set of 10-year, national goals and objectives for improving the health of all Americans (U. S. Department of Health & Human Services [USDHHS], 2010). The document includes 42 topics with over 1,200 objectives identified as necessary for improving the health of the nation. Twelve leading health indicators (LHIs) have been identified as high-priority health issues to motivate action at the state, national, and community levels. Among the identified LHIs are

behaviors that lead to HTN and other CVD, such as nutritional intake, physical activity, smoking, and alcohol consumption. In this project, I will use a convenience sample of undergraduate students to identify behaviors and risk factors that influence blood pressure and could lead to HTN and CVD if left undiagnosed and untreated.

One third of the adult population in the United States has HTN and another third has prehypertension (pre-HTN), a blood pressure reading between 120/80 mm Hg and 139/89 mm Hg (Weber et al., 2014). In the AA population, the prevalence of HTN is one of the highest in the world (Net Wellness Consumer Health Information, 2015), affecting 40% of the population (WebMD, n.d.; Price & Cooper, 2003; Ferdinand & Saunders, 2006; Net Wellness Consumer Health Information, 2015). Compared to other ethnic groups in the United States, HTN tends to develop earlier in life in AAs; among AAs HTN is more severe and results in more complications. AAs have a higher risk of cardiac arrest and death. Twenty percent of AAs die from HTN, which is double the number of Caucasians (Net Wellness Consumer Health Information, 2015). Kelly and Lowing (1997) found that the risk of pre-HTN/ HTN in young adults can lead to chronic CVD in later adulthood. Interventions to control pre-HTN/HTN among AA young adults can prevent the development or reduce the incidence of HTN and CVD in later life. The potential positive social change implications of this project are the reduction of HTN and CVD in the AA population. Reduction or avoidance of modifiable risk factors in AA young adults is a positive social change that will reduce the rate of HTN and CVD in later life.

Problem Statement

HTN is seen in AA young adults but is diagnosed, treated, and controlled at a lower rate than AA adults and Caucasians (Watkins, 2013; Park, 2009). AAs with uncontrolled blood pressure are at higher risk of developing chronic HTN and CVD. Additional risk factors include nonmodifiable factors such as increasing age, family history, and coexisting metabolic disorders. Modifiable causes include increased body mass index (BMI), poor nutrition, physical inactivity, and smoking (Berman, Snyder, & Frandsen, 2016).

AA college-age students (18 to 24 years) with pre-HTN or HTN may have some nonmodifiable risk factors for HTN, such as family history or other CVD or metabolic diseases. They may also have some risky lifestyle behaviors that can be modified by lifestyle choices, thus slowing or eliminating the disease progression. Fuchs, Moreira, Camey, Moreira, & Fuchs (2008) discussed the risk factors associated with CVD. They identified modifiable risk factors (obesity, low nutritional intake, and physical inactivity) and nonmodifiable risk factors (HTN and diabetes) that were strongly associated with, and clustered among, participants who self-reported CVD. The problem at the local level was the lack of definitive data about risk factors for AA college students on the target campus who had pre-HTN/HTN. Obtaining this data was expected to help inform college health officials and others about what may or may not be modifiable lifestyle factors that could slow or stop the progression of CVD. Fuchs (2011) concluded that the reason for the higher prevalence of HTN and the lower rate of control in AAs was unclear.

Research shows that college students away from home for the first time are easily influenced by the environment. According to a study at the University of New Hampshire (Morrell & Burke, 2007), students were making their own choices of food for the first time. They readily chose fast foods with high sodium and fat content along with high sugar energy snacks with poor nutritive values (Silliman, Rodas-Fortier, and Neyman, 2004). Some researchers contend that social and economic factors, including discrimination and economic inequalities, are responsible for pre-HTN/HTN in AAs (Clark & Adams, 2004; Jackson & Adams-Campbell, 1994). Stress level has been identified as a risk factor that causes HTN (CDC, 2014). Ludescher et al. (1993) extracted major themes related to stress-induced HTN as racial prejudice and stereotypes, racial discriminations, and coping with policemen.

Education programs, sponsored by the student health department in a college setting, could be developed to guide college-age students to lifestyle behaviors that could mitigate the development or worsening of CVD. Such a project holds significance for nurses at the student health center (SHC) who support students' health by developing educational programs on lifestyle behaviors. The goal of this assessment was to provide detailed information to the SHC that could support the development of a health education program to reduce the prevalence of HTN and other CVDs in the AA young adult population. The project is significant for nursing practice, which seeks to better understand the factors underlying HTN in young adults.

Purpose

The purpose of this project was to conduct an assessment to identify risk factors for HTN in AA college-age students. While some risk factors are not modifiable, some lifestyle choices can be addressed through education.

Meaningful Gap in Nursing Practice

College and university students may frequently engage in lifestyle choices such as smoking, poor nutrition, and physical inactivity; these can lead to HTN and other CVDs (Hujova', 2013). Unhealthy modifiable behaviors (smoking, physical inactivity, poor nutrition), coupled with nonmodifiable risk factors (male, AA, and family history of HTN), could increase the risk of HTN and other CVDs. Other risk factors may increase the potential to develop HTN: behavioral/mental health conditions, body mass index, diabetes mellitus and other metabolic syndromes (USDHHS, 2010).

The meaningful gap in nursing practice is the disproportionate rate of HTN among AAs and other races and ethnic groups. This project addresses the gap in practice by identifying the risk factors associated with HTN and CVD in the college-age students on this campus. Based on the findings, recommendations will be made to suggest content for educational programs aimed at making behavior changes that will slow or prevent the progression of HTN and CVD in later life. This project could help reduce the disproportion of HTN and CVD among AAs and other racial and ethnic groups.

Practice-Focused Question, Goal, and Objectives

The practice-focused question was as follows: What is the prevalence rate of risk factors in AA college-age students who exhibit risk factors for pre-HTN/HTN?

Determining the prevalence rate of risk factors may support the need for targeted education that changes students' behavior. The educational intervention may differ with modifiable and nonmodifiable risk factors: For instance, prevalence of smoking may be low, but high levels of family history would mean a different intervention. A holistic picture of the student with pre-HTN/HTN may provide the data the student health department needs to define the purpose and desired outcomes of a strategic educational intervention. Thus, the ultimate goal of this project was to determine the need for educational and behavioral strategies and to recommend them to the SHC, which was targeting students with pre-HTN/HTN in order to reduce or prevent HTN and CVD in later life. The specific objectives of this assessment were as follows:

1. Determine the prevalence of modifiable/nonmodifiable risks factors among AA students on the target college campus.
2. Provide insight into which risk factors (modifiable or non-modifiable) are most prevalent in the young adult college-age student with pre-HTN/HTN in the target population.
3. Present the findings to college stakeholders and identify opportunities for targeted health education.

The practice-focused question will consider the factors that can affect pre-HTN/HTN in the AA college student, including smoking, poor nutritional intake, physical inactivity, nonmodifiable risks factors, and metabolic syndrome disorders.

Nature of the Doctoral Project

A systematic analysis of the data obtained from AA college-age students may help reduce the gap in the HTN disparity between AAs and other races. This descriptive research surveyed a convenience sample of undergraduate students to identify behaviors and risk factors for pre-HTN/HTN (Polit, 2010; Terry, 2012). Participants consented to collecting the following data: blood pressure, heart rate, height, and weight.

Students in the College of Natural and Health Sciences (CNHS) volunteered to participate in the project. Data on their modifiable and nonmodifiable risk factors and behaviors were obtained from the questionnaire. Students height, weight, heart rate, and blood pressure were measured in the Behavioral Health Lab and recorded by the Doctor of Nursing Practice (DNP) student or a research assistant. Using the Statistical Package for the Social Sciences (SPSS), the descriptive statistics were used and the data summarized.

The findings from this project could inform nurses and other student health care professionals about the factors that influence blood pressure in AA college students. They could help address the gap in nursing practice regarding early diagnosis, treatment, and management of high blood pressure in young AA adults and reduce or prevent HTN and CVD in later life. This would narrow the health care disparity between AAs and other ethnic groups.

Significance

The stakeholders identified in this project are the SHC staff at the facility which include administrative staff, nurse practitioners, staff nurses, administrative assistant

staff, medical assistants, health educators, and the medical physician. Other stakeholders are counseling staff, nutritionist, health and exercise staff, persons in other colleges and universities serving AA students, people in the local community with pre-HTN/HTN, and the students. By addressing the local problem, the stakeholders may identify the significance of HTN in the students reporting to the SHC and become active in managing the care of students enrolled in the university. Some potential contributions of the study were: (a) to identify the risk factors that influence the blood pressure in college age students on the campus of the target population, (b) to identify the prevalence rate of the risk factors, and (c) to gain awareness of the modifiable and nonmodifiable factors that significantly influence the blood pressure which could progress through pre-HTN, HTN, and CVD if not diagnosed and treated early. The staff will be directly involved in the development of any educational program that will aid the students in reducing and preventing HTN and CVD in later life. The nutritionist and health and exercise staff will be instrumental in providing coaching strategies for life-long changes that can enhance the management and control of factors leading to HTN. Transferability of this doctoral project to student health services practice areas at historically black colleges and universities (HBCU) is possible because of the similarities of the student population.

Identifying behavioral risks in college-age students will provide the factors exhibited by the students for the stakeholders. Health interventions can then be aimed at the risk and behaviors factors. The significance of the assessment project is to understand the behavior risks and health-related factors among AA college-age students with pre-HTN/HTN. The project targeted at-risk students, 18-to 24-years old, with pre-HTN or

HTN. College-age students with pre-HTN are three times more likely to develop HTN later in life than normotensive students (Maharishi University of Management, 2009).

Modifiable behaviors such as smoking, poor nutrition, and physical inactivity contribute to the progression of HTN. Pre-HTN, HTN, and cardiovascular disease are global health problems that can affect all people. Health and disease result from the accumulation of risk factors, risky behavior, and other determinants over time. Healthy People 2020 examines the LHIs that affect HTN and CVD across the life span (USDHHS, 2010). This study could contribute to understanding the need for health aimed at education programs college-age students to stop the progression of HTN and CVD. Such programs could help improve the overall health of the individual, family, community, and the nation.

Young adult AA students must understand the risk of HTN and CVD to engage in behaviors that can reduce the risks of CVD later in life (Holland, Carthon, Duren-Winfield, & Lawrence, 2014). The risks include family history, health and health behaviors, and lifestyle choices (Holland et al., 2014).

Implications for Positive Social Change

This study has the potential to provide positive social change which may improve cardiovascular health and quality of life through prevention, detection, and monitoring of risk factors in young AAs (Healthy People 2020, USDHHS, 2010). Cardiovascular diseases are the number one cause of death in the world, is one in every three deaths globally, and one third of the deaths in the United States (CDC, 2015). Deaths related to HTN declined in those 20 years of age and over by 3.5% from 2013 to 2014 (Kochanek,

K. A., Murphy, M.A., Xu, J., & Tejada-Vera, B., 2016). HTN among adults aged 20 and over in the United States, 1999–2000 through 2013-2014 was stable at 30.8%. In 2011–2014, AA men and women had the highest percentage of HTN compared with adults in the other racial and ethnic groups (CDC, 2015). Age adjusted HTN in the United States adult population age 20 and over was 31.0% for men and 29.7% for women in 2011-2014. In 2013-2014, AA men and women present with HTN at 42.4% and 44.0%. HTN in Caucasian men and women was at 30.2% and 28.0%, Asians 28.0% and 25.0%, and Hispanic 27.7% and 28.6%, respectively (CDC, 2015). This project was directed at AA college-age students between 18- to 24-years old with pre-HTN and HTN to understand modifiable risk factors to better target interventions which could reduce or prevent HTN, CVD in later life, and death caused by hypertensive diseases in AAs. This assessment will inform health education programming sponsored by a SHC that can modify behaviors that put young college age AA students at increased risk of CVD, thus having potential of closing the gap between the mortality and morbidity rates of AAs and other races.

This study has two implications for positive social change. First, to reduce the healthcare disparity between AAs and other races by encouraging the behavior changes that could slow the progression of HTN and CVD. Such changes would involve preventing or reducing the modifiable risks, such as decreasing in smoking, increasing physical activity, improved nutrition, and decreased BMI. Second, health education programming could change the behavior of young AA adults with pre-HTN early enough to avoid developing high blood pressure.

Summary

This section provided a brief overview of the assessment project on college-age students at a small HBCU in the southeastern United States. The project consists of quantitative data collected by questionnaire from AA college-age students, 18- to 24-years, who are enrolled in the university. The data looked at modifiable behavioral risks and nonmodifiable factors that could influence the blood pressure in young adults, Undiagnosed, untreated and uncontrolled blood pressure in AA young adults can lead to HTN and CVD in later life. This project could culminate in the development of a health education program that would promote a healthy lifestyle in AA college-age students and thus help reduce or prevent HTN or CVD in later life.

In Section 2, the literature review, I will address the findings related to pre-HTN/HTN in young adult AAs and specifically those for college-age students. This section will discuss the theoretical framework best suited to influence behavior that could reduce or prevent HTN and CVD while promoting a lifelong desire for improved health and a better quality of life.

Section 2: Background and Context

Introduction

HTN in AA young adults is diagnosed, treated, and controlled at a lower rate than older AA adults and Caucasians (Watkins, 2013; Park, 2009). AAs with uncontrolled blood pressure are at higher risk of developing chronic HTN and CVD. The practice-focused question is: What is the prevalence of risk factors in AA college-age students who exhibit risk factors for pre-HTN/HTN? HTN may result from behavioral risk factors (lifestyle) that can be changed through education, such as smoking, poor nutritional intake, or physical inactivity. HTN can also result from nonmodifiable risk factors such as family history, race, and gender. The purpose of this project was to identify risk factors for HTN in AA college-age students.

In this section I will review the scholarly literature on HTN in the general population and in the AA population; the emphasis is on the young adult AA student between 18 and 24 years. I will offer a brief discussion of the AA students enrolled in the target university.

The theoretical framework used for this project was Pender's health promotion model (HPM, Pender, 2011). The HPM is an approach-oriented model that can be used across the life span. The model concentrates on behaviors geared toward enhancing health and behavior motivated by a desire to promote personal health and well-being.

This project is relevant to nursing practice; it addresses the gap-in-practice of diagnosing and treating young AA adults in the early stages of pre-HTN and

HTN. College-age students with pre-HTN are three times more likely to develop HTN later in life than normotensive students (Maharishi University of Management, 2009). HTN has been identified as a high priority health issue that leads to other CVDs. Prevention or reduction of pre-HTN/HTN among AAs may reduce HTN and CVD in later life and reduce the mortality rate.

Conceptual Model

The evidence-based practice model that supports the outcome of this project is Pender's HPM (Pender et al., 2006; Pender, 2011). The HPM has three components which are: the individual characteristics and experiences, behavior-specific cognitions and affects, and behavioral outcomes (Pender, 2011). The Pender HPM offers several theoretical propositions for investigative work on health behaviors. Two theoretical statements that are significant to this project are: (a) prior behavior and inherited and acquired characteristics influence beliefs, affect, and enactment of health-promoting behavior and (b) situational influences in the external environment can increase or decrease commitment to or participation in health-promoting behavior (Pender, 2011).

The components of this model are focused on establishing a means of encouraging the college-age student to become involved in the reduction and prevention of HTN and other cardiovascular diseases in later life. Each person has unique personal characteristics and experiences that will affect their actions (Pender, 2011). Each student brings to college individual characteristics, values, and beliefs that are instilled in them by their parents/guardians, personal factors, and external environment (McEwen & Wills,

2011; Pender et al., 2006). The personal experiences and related behaviors have a direct effect on the individual's pursuit of health promotion or disease prevention.

This assessment will look at the prevalence of pre-HTN/HTN among AA college-age students 18- to 24-years old. The focus of the assessment is on health promotion and disease prevention. Health promotion is defined as behavior motivated by the desire to increase well-being and actualize human health potential (Pender et al, 2006). Disease prevention is behavior motivated by a desire to actively avoid illness, detect it early, or maintain functioning within the constraints of illness (Pender, 2011). The assessment may identify students with pre-HTN/HTN and the behaviors and/or factors of concern. These behaviors and/or factors may include smoking, physical inactivity, poor nutrition, and family history. The number of students with pre-HTN/HTN will determine the need to establish a health educational program for students who might benefit from a facilitator directed health program that will promote a healthy lifestyle on an active college campus. The student's participation in the program to make the necessary life style changes to reduce or prevent HTN and CVD in later life will exemplify the theoretical statements of the HPM used in this assessment project. The college-age students who willingly engage in activities to change modifiable risky behaviors are actively participating in disease prevention. The students are demonstrating desire to avoid illness, detect illness early, or maintain functioning within the constraints of the illness (Pender et al, 2006). This behavior is consistent with the proposition that beliefs, affect, and enactment of health promoting behavior are influenced by prior behavior, inherited and acquired characteristics, and situational influences in the external environment (Pender, 2011).

Relevance to Nursing Practice

Addressing populations at risk of HTN due to race, poor behaviors, or other factors early in life may improve the control of HTN in young adults and reduce the development of CVD in later life. According to Johnson et al. (2014), young adults have a low prevalence of HTN control (38%) compared with middle-aged (54%) and older adults (53%). Although overall rates for HTN control have improved in the United States, young adults with HTN are less likely to have their condition under control. The age-adjusted prevalence of HTN among adults aged 18 and over was 29.1% in 2011-2012 (Nwankwo, Yoon, Burt, & Gu, 2013). The prevalence of HTN for men (29.7%) and women (28.5%) was similar. The prevalence increased with age, being higher among older adults. The young adults, 18 to 39 years old, had a prevalence rate of 7.3%, the 40-59 years old had 32.4%, and the 60 years and over had a rate of 65.0%. The AAs had the highest prevalence rate of 42%, while Caucasian adults had 28%, and the Hispanic population had a rate of 26%. Awareness of having HTN and treatment with medication were lower among the 18 to 39 years old, 62% and 45%, respectively, than the 40-59 years old at 83% and 74% or the 60 years old and over at 86% and 82% (Nwankwo et al., 2013).

Studies conducted in colleges and universities indicate pre-HTN/HTN is prevalent in college-age students of all races and ethnic types, with AA college students having the highest rate (Al-Majed & Sadek, 2012; Hujova', 2013; Kelly & Lowing, 1997; Simao, Hayashida, Benedita dos Santos, Cesarino, & Nigeria, 2008). Behavior patterns and lifestyle choices made in young adulthood may accelerate health trajectories that lead to

chronic disease risk, including CVD in later life (Winham & Jones, 2011). Therefore, a program for early detection of young AAs with HTN or pre-HTN that incorporates efforts to reduce or prevent disease progression may be needed to close the gap between the mortality and morbidity rates of AAs and other ethnic groups (Price & Cooper, 2003; Winham & Jones, 2011; Savoca et al., 2009). The focus on HTN among young adults is to recommend a health education program that may encourage and promote the AA college-age students to make lifestyle changes that will last for the long-term.

HTN in college-age students is often overlooked. However, review of the literature on HTN studies provides data that this age group is, in fact, affected by HTN. One study revealed that 7.2% of the population screened had a systolic blood pressure of 140 mm Hg or above and/or a diastolic blood pressure of 90 mm Hg or above (Williams, Iravani, Richard, Luengnaruemitchai, & Shulman, 1978).

A study at the University of New Hampshire (UNH) on students 18-24 years old revealed they are traveling a path to chronic disease (Morrell & Burke, 2007). The UNH data, collected from more than 800 undergraduates enrolled in a general-education nutrition course, found that at least one-third of UNH students were overweight or obese, 8% of the male students had metabolic syndrome, 60% of the male students had HTN, and more than two-thirds of the female students were not meeting their nutritional needs for iron, calcium or folate (Morrell & Burke, 2007).

In a study that particularly relates to the targeted population identified for this project, a sample of 238 first year AA students in a HBCU in the south found that 2% of men and 3% of women had HTN (Kelley & Lowing, 1997). In a study at a historical

black university consisting of 91 students with an average age of 24 years, 18% of students had elevated systolic pressure and 15% had elevated diastolic pressure representative of pre-HTN or HTN (Valentine, Duren Winfield, Onsomu, Hoover, & Cammock, 2012). Ten percent of the students in this study had systolic and diastolic pre-HTN/HTN. (Valentine et al., 2012).

Global studies reaffirm that college-age students are affected by pre-HTN or HTN. A study at the Trnava University in Slovakia consisting of 122 first-year students 19.82 ± 0.5 years of age found that 21% were pre-hypertensive while 18% were hypertensive. The students were also at risk of other CVDs related to risky modifiable behaviors of obesity, smoking, and inactivity (Hujova, 2013). Fifty-six percent of initial diagnoses of HTN in the 18- to 24- year old age group is made four years after criteria are met (CDC, 2014; Johnson et al., 2014).

Although there is a plethora of information on blood pressure, few articles are related to AA college-age students. Some HBCUs have conducted small studies on health care disparities related to risk factors for HTN, CVD, other heart diseases, and metabolic syndromes (Valentine et al., 2012; Tope & Rodgers, 2013; Holland et al., 2014). A limited number of programs were found at HBCUs specific to the young adult AA college-age student that promotes behavioral changes to produce a long-term effect on diseases. One example of a program was found at Tennessee State University (TSU) which has a nutritional program that assists student to make healthy food choices now and for their future (Roach, 2013). Strategies used at TSU and four other HBCUs in Tennessee as discussed by Roach (2013), were mainly related to the awareness of obesity

to help individuals learn about healthy eating to decrease health disparities. Another strategy used to promote change was a study of an e-mail-delivered program to improve nutrition and physical activity among 18-to 20-year old AA college students (Mackey et al., 2015). The program participants reported learning about and changing health behavior and sharing the knowledge in their social circles. Results suggested that the intervention was helpful in setting health goals (Mackey et.al, 2015). Jackson et al. (2016) described a behavior-specific study of AA Women to engage in physical activity behaviors and physical functioning to reduce pre-HTN and HTN. Barriers preventing physical activity were identified that prevented improvement in the health outcomes (Jackson et al., 2016). The World Heart Federation and CDC have recommendations to control or modify risk factors that can be used to reduce HTN and CVD. They include knowing the blood pressure numbers through regular checks, quit smoking, maintaining a healthy weight, eating a healthy diet, and exercising regularly with 30 minutes of moderate exercise five times a week or 20 minutes of vigorous activity three times a week (CDC, 2015; World Heart Federation, 2016).

The present project advances nursing practice while identifying the level of prevalence for HTN on a college campus in a state with a high prevalence rate. Using the Essentials of Doctoral Education for Advanced Nursing Practice, the project will focus on Essential VII, “clinical prevention and population health for improving the nation’s health” (AACN, 2006, p. 15). Health promotion, risk reduction, and illness prevention are key components in closing the gap to reduce disparity in the AA population with HTN and CVD (Winham & Jones, 2011; Savoca et al, 2009). Working with Pender’s HPM to

help people of all ages stay healthy, to optimize health in the presence of chronic disease and disability, and to create healthy environments in which to live will complement Essential VII to bring awareness to the need for young adult AAs to embrace the chance to reduce morbidity and mortality in later life (AACN, 2006; Pender et al., 2006). The model relates to and supports the project because the motivational source for behavior change is based on the individual perception of the need to change. The focus is on strategies and interventions for behavior change that will be maintained throughout the life span.

Local Background and Context

The states in southeastern United States have the highest prevalence rates of HTN and the state in which the project will be conducted is at a median level of prevalence. A 2010 statistical report shows 31.2% or 1.9 million individuals in this state revealed they were diagnosed with HTN (Virginia Department of Health [VDH], 2016). The age adjusted mortality rate from HTN was 14.4 per 100,000 or 1,142 people which makes HTN the 13th leading cause of death in this state. The morbidity rate estimates a total of 6,868 hospitalized at an average cost of \$31,546 per case. The findings are consistent with the global and national trends with 6.0% of the total population with HTN being 18-24 years old and 35.7% being AA as discussed in the statistical report (VDH, 2016).

The accessible population of this project was students enrolled in a predominately black university in a southeastern state of the United States. The director of the SHC had concern for the number of students seen in the clinic with elevated blood pressures. Students come to the SCH for various reasons and are found to have blood pressure

readings consistent with pre-HTN/HTN. As important stakeholders interested in student health, the staff of the SHC is concerned with what appears to be an increase in the number of students with potential for HTN and CVD. HTN usually has no warning signs or symptoms, so many people don't realize they have an elevated blood pressure until informed by a health professional (CDC, 2015).

The prevalence of HTN and CVD in the general population has become a global health problem affecting people of all ages, genders, ethnic origins, and races (CDC, 2014). In particular, research supports that AAs have the highest incidence of HTN in the world (Net Wellness Consumer Health Information, 2015). Healthy People 2020, (USDHHS, 2010), envisions a future society in which all people live long, healthy lives. One of the overarching goals is to promote quality of life, healthy development, and healthy behaviors across all life stages (Healthy People 2020, USDHHS, 2010). Healthy People 2020 (USDHHS, 2010) has established a set of objectives, LHIs, to assist in reaching the goals. The LHIs are selected to communicate high-priority health issues and actions that can be taken to address the goals. For example, good nutrition, physical activity, and a healthy body weight contribute to the overall health of the individual, family, community, state, and nation is the LHI which is addressed in the assessment (USDHHS, 2010).

Definitions of Terms

This project used the following definitions:

HTN (also known as high blood pressure) - is when a person's systolic blood pressure is >140 mm Hg or the diastolic blood pressure is > 90 mm Hg or both (Weber et

al., 2014). HTN is the force of blood against the walls of the arteries as the heart pumps blood to other parts of the body. HTN is also a major risk factor for cardiovascular disease (heart disease and stroke) which is a leading cause of death (CDC, 2014).

pre-HTN - is when a person's systolic blood pressure is between 120 and 139 mm Hg or a diastolic blood pressure is between 80 and 89 mm Hg. (AHA, 2015; Weber et al., 2014).

Risk factors/behaviors - which contribute to the development of HTN include advancing age, poor nutritional intake such as high sodium and fat intake, overweight (BMI of 25.0-29.9) or obesity (BMI of 30.0 or higher), physical inactivity or being sedentary, and a family history, smoking, and diabetes (Swartzberg & Margen, 2011; Berman et al., 2016, WebMD, n.d.). Practices that have potentially negative effects on health are also known as risk factors (Berman et al., 2016).

Modifiable behaviors – behaviors influencing high blood pressure that can be changed, reduced or lessened in degree and include cigarette smoking, diabetes, obesity, and sedentary lifestyle (Berman et al, 2016).

Nonmodifiable behaviors – behaviors influencing high blood pressure that cannot be reduced, are indispensable, necessary, or essential and are incapable of being disregarded or neglected (Berman et al, 2016).

Physical inactivity – is a term used to identify people who do not get 30 minutes of moderate activity five times per week or 20 minutes of vigorous activity three times per week or equivalent (World Heart Federation, 2016). Physical activity is any body movement that works your muscles and requires more energy than resting. Walking,

running, swimming, dancing, and exercise are examples of physical activity (National Institute of Health, NIH, 2011).

Behavioral Health Lab-is a private room in the CNHS that the facility allows the DNP student to use for providing privacy and protection while collecting data from the project participants.

Student Health Center - offers medical care to all enrolled students and makes referrals for medical cases beyond its capacity (VSU, 2015).

University Counseling Center- is committed to excellence and believes in the value of the whole student. The center is student centered and aids to remove barriers to student success (VSU, 2015).

Role of the DNP Student

One of my interests as a nursing practitioner is to identify effective interventions that can be implemented in early adulthood to prevent development of chronic disorders later in life. I completed a practicum at the SHC and established a collegial relationship with the staff. I elected to examine the need to develop an educational program sponsored by the SHC that could reduce or prevent the prevalence of HTN and other CVDs in the AA adult population later in life. The decision was influenced by overhearing that an increase in HTN was being observed in the SHC. I am not employed in the SHC and there were no monetary or promotional incentives. I was a learner in this setting.

I am a faculty member in the College of Natural and Health Sciences (CNHS). I had no relationship with the respondents who were strictly volunteers. I allowed none of my students to participate in the study.

My motivation for this doctoral project was to identify the risk factors exhibited by students on this campus who may also have pre-HTN/HTN. Located on a predominately black campus in the southeastern United States where the prevalence rate of HTN is high, I wanted to see how our student population compared to the prevalence in the state. I wanted to know if there was a need on this campus to improve the overall health of the student population, a population that comes from various parts of the country.

Potential biases may have been reflected in this project as related to the convenience sampling, being in the CNHS. The DNP student is faculty in the department of nursing, under the umbrella of the CNHS. Nursing students were not asked to participate in this project to avoid feelings of coercion, pressure, or obligation.

Summary

This section has reviewed pre-HTN/HTN in the U.S. population, specifically for the AAs college-age students. Also included is information on college-age students in other countries because HTN is not exclusively found in one population, race, or color. The data from these studies shows the importance of addressing HTN and other factors that contribute to CVDs, and support the concept that behavioral changes in young adults may decrease the risk of CVDs later in life.

The conceptual model guiding this project is the HPM by Nola Pender. Health promotion and disease prevention are influenced by prior behavior and personal characteristics. The HPM is a guide to the motivation of individuals to engage in behaviors to change health. The major concepts of the conceptual model are individual characteristics and experiences, behavior-specific cognitions and affect, and behavioral outcomes. The model can be used to develop and execute health-promoting interventions to individuals, population, or communities at large.

The professional role and relationship of the DNP student to the doctoral project was also discussed. The DNP student is a faculty member in the university where the project is being conducted. The DNP student has no connecting role or relationship with the project participants.

In Section 3, I will discuss the rationale of the study and the connection to the gap in practice related to the prevalence rate of pre-HTN/HTN in young adult AA college-age students. The ethical protection of the project will be discussed in terms of seeking IRB approval from the involved institutions and the integrity of the proposal will be supported and upheld. The assessment project will provide information on the health behaviors of college age AA students with pre-HTN/HTN, risky modifiable behaviors and lifestyle factors that can be changed, and nonmodifiable factors that influence HTN and cannot be changed.

Section 3: Collection and Analysis of Evidence

Introduction

The purpose of this project was to identify risk factors for HTN in AA college-age students. The problem is that HTN in AA young adults is diagnosed, treated, and controlled at a lower rate than older AA adults and Caucasians (Watkins, 2013; Park, 2009). AAs with uncontrolled blood pressure are at higher risk of developing chronic HTN and CVD. HTN may result from behavioral risk factors (lifestyle) that can be changed through education, such as smoking, poor nutritional intake, or physical inactivity; HTN can also result from nonmodifiable risk factors such as family history, race, and gender. The purpose of this project was to identify risk factors for HTN in AA college-age students.

The prevalence of HTN and CVD in the general population has become a global health problem that affects people of all ages, genders, ethnic origins, and races (CDC, 2014). Global and national trends show that 6% of the total population with HTN are 18- to 24-years old and 35.7% are AA (VSU, 2015). Research supports that AAs have the highest incidence of HTN in the world (Net Wellness Consumer Health Information, 2015). Addressing the population at risk and recommending the development of an educational program that promotes a reduction or prevention of disease progression may close the gap between the mortality and morbidity rates of AAs and other ethnic groups (Winham & Jones, 2011).

This section clarified how the purpose of this project aligned with the local problem and the gap in practice. The evidence used to support this project was discussed

in relationship to the purpose. Data were collected from a convenience sample of participants who responded to a questionnaire and agreed to have the height, weight, and blood pressure measured and recorded. The data collected for the project were analyzed using the Statistical Package for the Social Sciences (SPSS) for descriptive statistics. The participants and procedures were described in detail. Ethical protection was approved by the Institutional Review Board (IRB) and provided to all participants. The systems, which addressed the practice-focused question, were used to record, organize, and analyze the data.

Practice-focused Question

The practice-focused question was as follows: What is the prevalence rate of risk factors in AA college-age students who exhibit risk factors for pre-HTN/HTN? The problem on a local level is that there is a lack of data on the risk factors for AA college students who have pre-HTN/HTN at this university. The gap in practice is that HTN in the AA young adult is diagnosed, treated, and controlled at a lower rate than older AA adults and Caucasians (Watkins, 2013; Park, 2009). AAs with uncontrolled blood pressure are at higher risk of developing chronic HTN and CVD.

The purpose of identifying the factors for pre-HTN/HTN was to provide stakeholders with information on the modifiable and nonmodifiable risk factors and behaviors that affect blood pressure. The practice focus question looked at the risk factors students with pre-HTN/HTN exhibited to see what the prevalence rate was among this population.

Operational Definitions

This project used the following operational definitions:

HTN (also known as high blood pressure) - is when a person's systolic blood pressure is >140 mm Hg or the diastolic blood pressure is > 90 mm Hg or both (Weber et al., 2014). HTN is the force of blood against the walls of the arteries as the heart pumps blood to other parts of the body. HTN is also a major risk factor for cardiovascular disease (heart disease and stroke) which is a leading cause of death (CDC, 2014).

pre-HTN - is when a person's systolic blood pressure is between 120 and 139 mm Hg or a diastolic blood pressure is between 80 and 89 mm Hg. (AHA, 2015; Weber et al., 2014).

Risk factors/behaviors - which contribute to the development of HTN include advancing age, poor nutritional intake such as high sodium and fat intake, overweight (BMI of 25.0-29.9) or obesity (BMI of 30.0 or higher), physical inactivity or being sedentary, and a family history, smoking, and diabetes (Swartzberg & Margen, 2011; Berman et al., 2016, WebMD, n.d.). Practices that have potentially negative effects on health are also known as risk factors (Berman et al., 2016).

Modifiable behaviors – behaviors influencing high blood pressure that can be changed, reduced or lessened in degree and include cigarette smoking, diabetes, obesity, and sedentary lifestyle (Berman et al, 2016).

Nonmodifiable behaviors – behaviors influencing high blood pressure that cannot be reduced, are indispensable, necessary, or essential and are incapable of being disregarded or neglected (Berman et al, 2016).

Physical inactivity – is a term used to identify people who do not get 30 minutes of moderate activity five times per week or 20 minutes of vigorous activity three times per week or equivalent (World Heart Federation, 2016). Physical activity is any body movement that works your muscles and requires more energy than resting. Walking, running, swimming, dancing, and exercise are examples of physical activity (National Institute of Health, NIH, 2011).

Sources of Evidence

Conducting an assessment project is a valuable tool for use in planning or promoting a new program (Hodges & Video, 2011). The assessment project may identify the behaviors of the targeted population and provide an organized pertinent flow of information to be used in the decision-making process for developing a health education program (Hodges & Video, 2011; Kettner, Moroney, & Martin, 2013). Evidence was obtained from a questionnaire that the students completed. The questionnaire, derived from a health history form used by the SHC, included information on family history and personal history. The physiologic parameters measured were the height, weight, blood pressure, and heart rate. The height and weight were used to determine the BMI. Three questions on perception of blood pressure, physical exercise, and nutritional intake were also included. Results will be presented and discussed with stakeholders who have an interest in promoting long term change in the accessible population.

Evidence Generated for the Doctoral Project

The project was conducted at a predominately black university in a southeastern state in the United States with an enrollment of 4,481 undergraduate students. In

reviewing the information on enrollment as published by the Office of Institutional Planning Effectiveness (VSU, 2015), 4,283 or 85.2% of the students are AA, 148 (2.9%) are Caucasian, 99 (2.0%) are Hispanic, and 9.9% are others or not reported. Female students make up 59.5% of the total enrollment population; males 40.3% and 0.2% are not reported or unknown.

Participants

The population of interest for the project was AA young adult college students 18- to 24-years old. The students may have behaviors or risk factors that predispose them to pre-HTN/HTN. The DNP project aimed to obtain information from no less than 100 AA college-age students 18- to 24-years old enrolled in this university who volunteered to participate in the project. With permission of the instructor, students were approached for the study while attending their respective classes. The instructors agreed to offer credit to students who completed the survey, thereby creating an incentive for participation. These incentives are typically offered for research participation by course instructors in the CNHS. All students had the opportunity to participate in the study and to receive the incentive offered by the instructors. Inclusion criteria for the study was 18- to 24- years old, enrolled in an undergraduate degree seeking program, and AA. Interested students met with the DNP student and a research assistant in the Behavioral Health Lab in the CNHS.

Procedures

A quantitative method was used for data collection that consisted of a questionnaire completed by a convenience sample of undergraduate students in the

CNHS at the university. The students who participated in this project had a reading of their current blood pressure, height and weight measured and completed a questionnaire that include age, gender, height, weight, personal and family history questions and questions on modifiable risk factors (smoking, physical inactivity, and nutritional habits) (See Appendix A). The questionnaire used to collect data, (data tracking form, See Appendix A), was created using the SHC Health Evaluation Form (VSU, 2015) required to be completed by full-time students enrolled in the university. The data tracking form included a list of medical diagnoses extracted from the list of personal and family medical conditions on the health evaluation form. The medical diagnoses selected may be influenced by HTN (stroke, heart disease) or may predispose the student to HTN (high blood pressure, diabetes). Three questions that required the students to divulge their perceptions were asked to determine if the students engaged in modifiable risk activity that would prevent or avoid an increase in their blood pressure. Nutritional status was assessed by using the height and weight to calculate the BMI which was used as a proxy for suggestion of eating habits (See Appendix B). Smoking, a form of tobacco use, which causes about 10% of all CVD, was added to the data tracking form (World Heart Federation, 2016).

Modifiable and nonmodifiable risk factors that may contribute to HTN in the target population were identified from the health evaluation form and provided insight into the incidence of prevalence in the young adult college-age student with pre-HTN/HTN. Modifiable behavioral and nonmodifiable risk factors were frequently identified in the literature. HTN is a major risk factor for CVD and affects one third of

the United States adult population (CDC, 2014; CDC, 2015; Nwankwo et al., 2013). Nonmodifiable risk factors that include age, gender, race, and chronic diseases (diabetes, heart disease, stroke, and psychiatric disorders) are identified throughout the literature as determinants of HTN and CVD (CDC, 2014; Harman et al., 2013; Valentine et al, 2012). Modifiable or behavioral risk factors such as smoking, nutrition, physical activity, and obesity are clearly identified as leading health indicators by Healthy People 2020 (2010) and CDC (2014). The risk factors that are present will be considered by the SHC staff for developing a health education program for students, who might benefit from a program that will promote a healthy lifestyle on an active college campus. The goal of the assessment was to determine the prevalence of risk factors to inform recommendations for educational and behavioral strategies to the SHC targeting students with pre-HTN/HTN. The recommendations were designed to reduce or prevent HTN and CVD in later life. Using the HPM to reduce the prevalence of HTN in later life may improve the quality of life throughout the life span (Pender et al., 2006).

Prior to the start of data collection, the students were informed of the opportunity to participate in the study. The DNP student and the research assistant went to the classrooms with permission of the instructors to share information on the project and offer the students a chance to participate. The opportunity was offered to all students enrolled in the class to assure everyone was eligible for the extra credit. After the students were notified of the opportunity to participate in the study, they reported to the Behavioral Health Lab where they were seen by the DNP student and the research assistant.

The research assistant was a student in the Behavioral Health Lab assigned to assist with this project. The research assistant received training on how the participant should complete the consent form and the questionnaire. Instructions were also given on how to measure and record the height, weight, blood pressure, and BMI. The BMI was calculated using the National Institute of Health BMI calculator. The student was then shown how to input the data into the SPSS.

Completion of the questionnaire and measurement of the height, weight, and blood pressure were obtained to assist in deciding the status or level of HTN (normotensive, pre-hypertensive, or hypertensive), nutritional status (poor, fair, or good) and the engagement in physical activity (daily, weekly, three times a week, or never). The participants also answered questions on their personal and family history which were used to assist to identify the modifiable and nonmodifiable factors presented by the students. The metabolic, cardiovascular, and other nonmodifiable risk factors leading to HTN were assessed as personal, belonging to the student, or family history, belonging to a parent, grandparent, or sibling. Finally, each student was provided the opportunity to indicate a current perception of their nutritional intake, physical activity, and blood pressure. After the participants completed the consent form, the research assistant checked for the signature and date. The participants then completed the questionnaire.

After completion of the questionnaire the participants were asked to stand on the SECA weight scale to measure height in inches and weight in pounds which were recorded on the worksheet (See Appendix B). The participants were then taken to a quiet room and seated in a comfortable chair with feet flat on the floor. The blood pressure cuff

was placed on the left upper arm of the participant with the center of the cuff one inch above the center of the antecubital area. The systolic pressure, diastolic pressure, and heart rate were measured using the Hypertensive Diagnostic Cardiovascular Pulsewave machine and recorded on the worksheet. The blood pressure cuff was removed and the participant free to leave the Behavioral Health Lab. The research assistant or the DNP student obtained the BMI from the NHI calculator (NIH,2012) and recorded the data on the worksheet. The research assistant entered the data in the SPSS. I reviewed every 10th record for accuracy of data entry.

Protections

The records were protected at all times and kept under lock and key in the DNP student's office. No personal or identifying information was recorded on the data collection form to assure the anonymity and confidentiality of the research data. The data will be reported in aggregated form. The paper data will be kept locked and secured until shredded in seven years. All student records were protected by a code assigned by the author. Electronic data is stored with the assigned code and cannot be traced to an individual participant.

The project design was submitted to the VSU (IRB No. 1516-44) Institutional Review Board (IRB) committee to assure ethical protection of participants. The Walden University IRB (05-20-16-0363465) approved the study based on the VSU approval. The participants in this project are protected by the Family Educational Rights and Privacy Act (FERPA) and Health Insurance Portability and Accountability Act of 1996 (HIPAA) for this project. No identifiable information will be recorded or reported and the medical

portion of the questionnaire at this school is protected by FERPA (U.S. Department of Health and Human Services & U.S. Department of Education, 2008).

Analysis and Synthesis

The data was analyzed using descriptive statistics to describe and summarize data (Polit, 2010). The SPSS (version 21.0) was used for analyzing the data. Using descriptive statistics, data was reported by frequencies, ranges, averages, and percentages. The data was also communicated in a narrative statement or a table. The results of this project will be presented to the stakeholders at the SHC and the university. Reporting the findings of the assessment to the stakeholders may provide support and education for developing and implementing a health education program that could promote life style changes in the 18- to 24-year old AA college-age student. Change in current behavior may aid in the reduction or prevention of HTN and CVD in later life (Pender et al., 2006).

Evidence for the study was collected by the DNP or research assistant using the same instrument. The students were requested to complete the consent form first. After responding to the questionnaire, they were weighed and height was obtained using an electronic scale for measuring. The students then went to a comfortable area to have their systolic and diastolic blood pressure measured. This device also had the ability to obtain the heart rate of the participant which was also recorded. Outliers for any of the variables were considered as an extreme value. The extreme values were removed from the data set and the data re-run. The SPSS software has the capability to help with the outliers and was used (Polit, 2010). The confidentiality of the records was maintained throughout data

collection and analysis process. Extreme values in the data set will be discussed in the results as outliers with an explanation of how the data was handled.

Summary

In section 3 I reviewed and described the sources of evidence for this project. The step-by-step description of the collection and analysis of the project was examined for the potential need of a health education program through the SHC to promote strategies to reduce or prevent the incidence of HTN and CVD among AAs. This assessment project at the university is the first step to identifying the percentage of AA college-age students 18- to 24-years old with risk factors and behaviors indicating the potential for pre-HTN/HTN. This data may be used to make recommendations for a health education program with strategies the students may use to stop or slow the progression of HTN and CVD in later life.

In this section the procedure for gaining access to the data was described and the ethical protection was explained. The population and sample were identified as were the procedures for data collection and analysis.

Section 4 will report the findings and results of the data collected and analyzed in Section 3. Recommendations will be made based on the findings or results of the data analysis that will potentially address the gap-in-practice for the project. The strengths and limitations of the project will also be discussed.

Section 4: Findings and Recommendations

Introduction

At the local level, the problem was the lack of definitive data on the risk factors for AA college students with pre-HTN/HTN at the target university. The gap in practice is that HTN in AA young adult is diagnosed, treated, and controlled at a lower rate than older AA adults and Caucasians (Watkins, 2013; Park, 2009). AAs with uncontrolled blood pressure are at higher risk of developing chronic HTN and CVD. The practice-focused question was as follows: What is the prevalence rate of risk factors in AA college-age students who exhibit risk factors for pre-HTN/HTN? The purpose of this project was to identify risk factors for HTN in AA college-age students. HTN may result from behavioral risk factors (lifestyle) that can be changed through education, such as smoking, poor nutritional intake, or physical inactivity; HTN can also result from nonmodifiable risk factors such as family history, race, and gender.

In this project, there were nine sources of evidence: the personal and family history of modifiable and nonmodifiable risk factors and behaviors, the participants' perceptions of modifiable risk factors, behaviors they engaged in, and their height, weight, BMI, and blood pressure. The evidence was obtained from the convenience sample of volunteers. All participants completed the data tracking form. Then their weight and height were measured on the SECA weight scale, and their blood pressure and heart rate were measured on the Hypertensive Diagnostic Cardiovascular Pulsewave machine. The data were analyzed using SPSS to describe and summarize the data.

Findings and Implications

Of the 126 volunteers, 11 did not meet criteria for demographic reasons. Data on the remaining 115 participants were used for analysis, which revealed that the participating students were at various stages of the undergraduate program. Forty-two percent of the students were freshmen. (See Table 1). The mean age of the participating students was 20.19 with a standard deviation (SD) 3.22 and a range of 18- to 24-years old.

Table 1

Student Demographics (n = 11)

Demographics	Frequency	Percent
Classifications		
Freshmen	48	41.7
Sophomores	11	9.6
Juniors	29	25.2
Seniors	22	19.1
Gender		
Female	62	53.9
Male	49	42.6

More than half of the family members were reported to have diabetes and almost three quarters had high blood pressure. Stroke was reported in 25% of the family members and 18% had heart disease. Among the students who participated, high blood pressure was most prevalent at just over 5% and diabetes has just under a 5% prevalence. Table 2 reveals the risks factors with the highest prevalence rate in family and personal history.

Table 2.

History of Nonmodifiable Risk Factors (n = 115)

	Family History		Personal History	
	Frequency	Percent	Frequency	Percent
Diabetes				
History	60	52.2	5	4.3
No History	51	44.3	106	92.2
Heart Disease				
History	18	15.7	2	1.7
No History	93	80.9	109	94.8
Stroke				
History	25	21.7	1	.9
No History	86	74.8	110	95.7
Psychiatric				
History	8	7.0	1	.9
No History	103	89.6	110	95.7
High Blood pressure				
History	71	61.7	6	5.4
No History	40	34.8	105	91.3
Substance Abuse				
History	5	4.3	2	1.7
No History	106	92.2	109	94.8

The modifiable risk behaviors that influence HTN in this project are smoking, nutrition, physical inactivity, and high blood pressure readings. Less than 10% of the students reported they smoked. Twice as many family members were reported to be smoking by the students. (See Table 3).

Every student who smokes did not account for the number of cigarettes smoked. The eight students that responded to the number of cigarettes smoked per day indicated that that two smoked two cigarettes, one smoked three, one smoked five cigarettes, one did not smoke every day, and one had recently quit. The number of cigarettes the family

members smoked per day as captured by the students included one who smoked 20 cigarettes per day, two who smoked 10 cigarettes, two smoked seven, two smoked four, five smoked three, one smoked two, one reported smoking up to 40 cigarettes per day. Two were unsure of the number of cigarettes smoked.

Table 3

Modifiable Risk Factor: Smoking (n = 115)

	Frequency	Percent
Students who smoke		
Smoke	11	9.6
Don't smoke	98	85.2
Family History of Smoking		
Smoke	21	18.3
Don't smoke	90	75.7

Nutritional intake and physical activity were answered by the students as they perceived themselves. More than half of the students perceived that they participate in physical activity daily. However, 41% of the students reported that they do not engage in 30 minutes of physical activity daily. About 24% only get 30 minutes of physical activity once a week. Eighty percent of the students indicated their nutritional intake was poor to fair, leaving only 20% of the participants who perceive their nutritional intake was good. See Table 4.

Participants were asked if they thought their blood pressure was high, normal, or low today. Eighty-one percent of the students thought the blood pressure was normal, 11% thought the blood pressure was low, and 3.5% thought it was high. The findings indicated 46% had a normal blood pressure today and approximately 50% had a high blood pressure.

Table 4

Students' Perceptions of Personal Modifiable Behaviors (n = 115)

	Frequency	Percent
Blood pressure		
Low	13	11.3
Normal	93	80.9
High	4	3.5
Physical Activity		
Daily	64	55.7
Weekly	27	23.5
Three Times a Week	20	17.4
Never	0	
Nutritional Intake		
Poor	11	9.6
Fair	77	67.0
Good	23	20.0

The height and weight were measured and recorded and the BMI calculated as a proxy to the nutritional health status. The BMI is an estimate for measure of obesity. The data analysis revealed that about one fourth of the population is overweight 27(24.3%) and one-third is obese 38 (34.2%). See Table 5. The mean BMI was 28.23 with a SD of 7.66 and a range of 17.7 to 48.2. The mean score and SD for the overweight and obese were 27.43 and 1.58 and 36.75 and 6.22 respectively.

Table 5

Body Mass Index (n = 115)

	Frequency	Percent	Mean	Std. Deviation	Range
Underweight	5	4.5	17.940	.3286	17.7-18.3
Normal	41	36.9	22.110	1.7283	18.6-24.9
Overweight	27	24.3	27.433	1.5843	25.2-29.9
Obese	38	34.2	36.747	6.2225	30.0-48.2

This assessment revealed that less than half of the students had a normal systolic pressure, about 45% had pre-HTN and 5.2% had HTN by the systolic blood pressure reading. Nearly 90% of the students met the criteria for normotensive levels using the diastolic blood pressure reading. Pre-HTN was noted in 8 students with a diastolic blood pressure reading between 80 mm/Hg and 89 mm/Hg and no students presented with a diastolic blood pressure reading equivalent to HTN or ≥ 90 mm/Hg. See Table 6. The mean systolic blood pressure for students with pre-HTN was 127.13 with a SD of 5.84. The range in the pre-HTN sample was 120-138 mmHg. The students with HTN had a mean systolic blood pressure of 147.67 with a SD of 5.24. The range was 142-154 mmHg.

Table 6

Students with pre-HTN/HTN (n = 115)

	Frequency	Percent	Mean	SD	Range
Systolic Blood pressure					
Below 120	53	46.1	108.34	7.11	93-118
120-139	52	45.2	127.13	5.84	120-138
140 and Above	6	5.2	147.67	5.24	142-154
Diastolic Blood pressure					
Below 79	103	89.6	66.78	7.16	46-79
80-89	8	7.0	83.63	2.26	81-88
90 and above	-----	-----			

Discussion of Unanticipated Limitations

Unanticipated limitations included five participants with missing pieces of data. The questionnaires were left in and the data run with the missing data. The SPSS run the data using a different number but based the findings on 115 student participants.

Implications of the Findings

Pre-HTN, HTN, and CVD are health problems that affect people of all ages, genders, and ethnic groups. However, the morbidity and mortality rate is higher among AAs than any other ethnic group (Net Wellness Consumer Health Information, 2015; Winham & Jones, 2011). AA young adults tend to develop pre-HTN/HTN at a young age but do not receive early diagnosis and treatment unless there is another chronic disease present (Johnson et al., 2014).

The findings of a higher number of metabolic syndrome disorders (diabetes) and CVD (high blood pressure, heart disease, and stroke) in the family history than in the college-age student is representative of diagnosing HTN and other chronic diseases as age increases. A family history of CVD is a nonmodifiable risk factor. When a first-degree blood relative has CVD before the age of 55 (male relative) or 65 (female relative), the risk increases (World Heart Federation, 2016). High blood pressure in young adults left untreated leads to HTN and CVD in later life. Young adults are generally not aware of having high blood pressure until they report to the health care provider for other reasons. High blood pressure in the family history was the most frequently reported nonmodifiable risk factor, being reported in 62% of the family members. Untreated high blood pressure leads to HTN and other CVDs. HTN is higher in AAs than any other ethnic group and increases with age. More than 80% of the students perceived that their blood pressure was normal while 44.3% had a systolic blood pressure reading at or above the pre-HTN level.

Two thirds of the participants recognized that their nutritional intake was only fair. This was reflected in the findings for the BMI and the student weights that were measured. College students tend to be influenced by the environment and choose food with poor nutritional value (Silliman, Rodas-Fortier, and Neyman, 2004). Some college students away from home adopt unhealthy physical activity patterns and nutritional choices (Fennell, 1997; Munoz et. al., 2009); which could be due, in part, to the new-found freedom of being away from parents. However, some young people have poor nutritional intake and physical inactivity before they enter college (CDC, 2014). Poor nutritional intake and a high BMI are modifiable factors that influence the blood pressure. Thirty-four percent of the students in this study had a BMI consistent with obesity. Obesity is linked to HTN and is a preventable cause of mortality.

Physical activity combined with a nutritious diet is recommended to maintain a normal BMI. Practicing these behaviors will positively impact blood pressure and aid in maintaining a normotensive level. Less than one fourth of the students engaged in 30 minutes of physical activity three times a week, which is less than the recommended 150 minutes of moderate exercise a week (AHA, 2014). The combination of modifiable behavioral risks the students engage in and nonmodifiable factors that are inherited or acquired expose the young adult to developing pre-HTN/HTN.

Almost 10% of the students engaged in smoking, a preventable cause of CVD and deaths. Smoking is a behavioral risk factor that cause about 10% of all CVD (World Heart Federation, 2016). HTN, a major risk factor for CVD, results from blood pressures readings representative of pre-HTN which left untreated expands to HTN and CVD with

increasing age. Forty-five percent of the students in this study had a systolic blood pressure reading indicative of pre-HTN and 5% had a systolic blood pressure reading consistent with HTN. Blood pressures are identified as systolic blood pressure or diastolic blood pressure because an elevated systolic blood pressure called isolated systolic blood pressure can cause as much harm as a high blood pressure in which both numbers are elevated per the National Heart, Lung, and Blood Institute, (2015).

Implications for Positive Social Change

In review of Pender's HPM the implication for positive change is based on the theoretical statements significant to this project. Two theoretical propositions can influence health behavior: (a) Prior behavior and inherited and acquired characteristics influence beliefs, affect, and enactment of health promoting behaviors and (b) Situational influences in the external environment can increase or decrease commitment to or participation in health-promoting behavior (Pender, 2011).

Positive social change can be effective when the college student becomes involved in the prevention of high blood pressure at an early age. The AA college student should start early to be aware of engagement in physical activity, the status of nutritional intake, the level of obesity, and the knowing of the blood pressure reading. This assessment identified that the blood pressure readings in more than 44% of the students were pre-HTN or HTN; yet, 80.9% of the same population thought they had a normal blood pressure. More than one half of the students indicated they engaged in physical exercise daily, 23.5% engaged in weekly exercise and 17.4% engaged three times a week. Students were aware of their eating habits with 76.6% disclosing poor or fair nutritional

intake, realizing that their nutritional intake is lacking in value. This is supported by the 61.7% of students who are overweight and obese. The findings of this study provided information of the need to improve cardiovascular health and quality of life through early detection, prevention, and treatment of risks factors in AAs young adults.

The focus of the assessment was on identifying risk factors exhibited by the student population on campus. Students have individual characteristics, values, and beliefs they bring to college based upon personal experiences and environmental influences (McEwen & Willis, 2011). Using the findings from the assessment, a health education program based on the modifiable risks factors identified in this study can be developed and directed towards the broad community of students on this campus. The information can be shared with the stakeholders, like institutions, and to the larger community of AA young adults who have undiagnosed, untreated, blood pressure readings indicative of pre-HTN and HTN.

Recommendations

The purpose of this project was to identify risk factors for HTN in AA college-age students. Analysis of the data revealed the students have modifiable risks and behaviors that predispose them to HTN. There were also nonmodifiable risks that predispose young adults to HTN but cannot be changed such as family history and 43% of the population being male. Conducting this assessment provided information that supports the recommendation for the SHC to develop an educational program that focuses on changing modifiable behaviors by eating healthy foods, increasing physical activity, smoking cessation, and learning skills to make and maintain behavior changes. The

educational program should consider all risks factors that can be altered. Educational programs that can be effective includes involving the stakeholders in working closely with the students to accept smoking cessation programs, build up a program at the gym to involve students in exercise programs, to work with the nutritionist to bring more fresh fruits and vegetables to the dining facility and that students might eat them. Healthy food choices may be integrated in the meal plans. High blood pressure, metabolic syndromes, cardiovascular diseases, and behavioral health determinants should be monitored and controlled to prevent or delay the progression to HTN and CVD. The SHC may consider monitoring the metabolic syndromes and referring the students to their primary care provider or a list of physicians who partner with the university. Delaying the progression of nonmodifiable factors can be aided by changing the modifiable behaviors.

Strengths and Limitations of the Project

The strengths of this assessment of HTN in AA college-age students include modifiable and nonmodifiable variables were assessed to identify the presence of each variable as a risk factor. Also, the variables of height and weight were measured and used to obtain the BMI instead of asking the students to self-report.

Limitations are restrictions, weaknesses, or problems that may decrease the generalizability of the findings (Burns & Grove, 2009). The weaknesses may be theoretical, conceptual, and/or operational. The limitations in this assessment project include all data being collected from the students which relied on the student to know the family history and make an accurate report. The students were asked to recall family history they may not be aware of or may not know. The questionnaire was self-disclosure

and dependent on the student to report accurate information. Using a convenience sample and one setting is also a limitation. Participants in a convenience sample are volunteers motivated for reasons that may not be understood. Volunteer participants may not be representative of the overall population (Terry, 2012).

Recommendations for future projects include collecting data from the family members as well as the students for accuracy and thoroughness of the family history. As the smoking history is explored, all forms of smoking material should be included in a clear manner. A study of students at a college or university with a more ethnically diverse student population should be done to determine what if any are the differences in the risk factors based on urban or rural dwellers, socioeconomic status, as well as age, gender, and race. A replication of this study with community dwelling AA young adults 18- to 24-years old not enrolled in college would be a future project to see if there is a difference in the groups. Another study might solicit a larger group with greater diversity to determine if geographical area has impact upon the results such as a university in a metropolitan area.

Section 5: Dissemination Plan

Introduction

This section will discuss the development of the dissemination plan for the findings from this project. The findings will be shared with all stakeholders at this facility before being disseminated in a broader manner. I will analyze my growth as a scholar during this journey to becoming DNP. Lastly, I will briefly summarize the findings of this project.

Dissemination Plan

The major reason for dissemination of findings is to transmit useful knowledge to appropriate target audiences. Dissemination of this assessment project is important to share with those who have an interest in the subject matter. This information is vital to those who might be unaware of the health care disparity of AA young adults with HTN and CVD as compared to other ethnic groups and races. The stakeholders of this project at this institution are the clinical and administrative staff in the SHC, nutritionist, and health and exercise staff. To reach the stakeholders, the students, the academic community, and other professionals in like settings is important in disseminating the information (Zaccagini & White, 2011).

There was concern that a great number of students were presenting to the SHC with elevated blood pressures. The blood pressures were not being treated by the SHC and recommendations to see a primary care physician was not being follow-up. Definitive data regarding pre-HTN/HTN and the predominate risks on this campus was

lacking. Early awareness of high blood pressure was recognized but treatment was not being instituted. Dissemination of the findings to the local stakeholders will provide information of risk factors exhibited at this facility. The factors include modifiable behavioral risks of smoking, poor nutritional intake, physical inactivity, and obesity.

The project will be presented to the stakeholders and academic community using a power point presentation. The findings will be presented to the staff in the SHC at a monthly meeting. The SHC staff will receive recommendations for a health educational program that focuses on improving nutritional intake, increasing physical activity, and instilling long term lifestyle changes. Findings will also be presented to the students, nutritionist and exercise staff along with other stakeholders at the research forum conducted at the university on a regular basis as a Friday lunchtime activity. The DNP student will offer to present the findings to the psychology classes that encouraged students to participate. Psychology student organizations are other venues that may be used to disseminate the findings from the project. A poster presentation of the study will be submitted to health-related conferences and workshops. An article on this project will be submitted to a peer review journal for publication such as the Journal of American College Health, the Journal of the Association of Black Nursing Faculty, or other medical or health care journals.

Analysis of Self

The Doctorate of Nursing Practice calls for a transformational change in education for professional nurses who will practice at the most advanced level of nursing (AACN, 2006). The DNP is a practice-focused doctoral program designed to prepare

experts who will focus heavily on practice that is innovative and evidence-based, and reflect the application of credible research findings (AACN, 2006). As a practitioner, scholar, and project manager, I see myself committed to using a scholarly approach to advance the discipline of nursing while applying current research to ensure safe quality care delivery and outcomes for the individual, family, community, system, and global population. The role of the DNP extends to leadership positions, health education of professionals, and delivery of evidence-based, patient-centered care through the interdisciplinary team. The project on “Conducting an Assessment of Hypertension in AA college-age students” has connection to the DNP Essential VII on clinical prevention and population health to improve the health of the nation, improve the life of the United States population, and reduce or prevent the early morbidity and mortality of AA young adults caused by modifiable risks and behaviors.

The challenges and setbacks along this journey mimicked those of life. As I continued my journey to obtain the goal of DNP, the challenges enhanced my stamina and gave me the endurance necessary to complete this goal. The process has been long but the insights gained along the way heightened my desire to strive for the prize.

Summary

In summary, HTN is seen in AA college-age students. The students engaged in modifiable behaviors that lead to HTN including smoking, fair nutritional intake, physical inactivity, overweight, and obesity. Most students considered their blood pressure was in the normal limits when indeed 44% were pre-hypertensive or hypertensive. Blood pressure readings above 120/80 mm Hg leads to HTN and is a

modifiable factor that can be treated and controlled. Due to the findings from the project, AA young adult college-age students on the campus of this HBCU will benefit from an education program that promotes a reduction in or prevention of HTN and CVD in later life.

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Appendix A: Data Tracking Form

Year in College: Senior _____ Junior _____ Sophomore _____ Freshman _____

Demographics:

Age: _____

Gender (check one) Male: _____ Female: _____

Race: African American (AA): _____ Caucasian: _____

Hispanic: _____ Other: _____

Personal History:

Current or past health conditions (check all that apply):

Diabetes: _____

Heart disease: _____

High blood pressure: _____

Stroke: _____

Psychiatric Disorders: _____

Substance abuse _____

Smoker: yes _____ no _____ If yes, how many cigarettes per day do you smoke? _____

Other: _____

Medical diagnosis (Conditions for which you receive doctor's treatments):

List any medication you take for above conditions or medical diagnosis:

Family History:

(Check any that apply to parent, grandparent, or sibling)

Diabetes: _____

Heart disease: _____

High blood pressure: _____

Stroke: _____

Psychiatric Disorders: _____

Substance abuse _____

Smoker: yes _____ no _____ If yes, how many cigarettes per day do they smoke? _____

Other: _____

Physical Exam:

Height (inches): _____

Weight (pounds/ounces): _____

Blood pressure reading today: _____

BMI (Body Mass Index): _____

1. Do you think your blood pressure today is:

Normal _____ Low _____ High _____

Physical Activity:**2. Do you engage in 30 minutes of physical exercise:**

Daily _____ Weekly _____ Three times a week _____ Never _____

Nutritional Intake:**3. In your opinion, is your nutritional intake:**

Good _____ Fair _____ Poor _____

Appendix B: Worksheet

Participant # _____

Date: _____

Height (inches) _____

Weight (lbs.) _____

BMI _____

Heart Rate _____

Systolic Blood pressure _____

Diastolic Blood pressure _____