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# Bridging the Gap: Improving Hypertension in African American Women and Preventing Cardiovascular Disease

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# BRIDGING THE GAP: IMPROVING HYPERTENSION IN AFRICAN AMERICAN WOMEN AND PREVENTING CARDIOVASCULAR DISEASE

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An evidence-based practice project presented in partial fulfillment of the requirements for the Degree Doctor of Nursing Practice.

## Dedication

This project is dedicated to my mother Phyllis Booker Judd who underwent a CABG back in 2007 secondary to chronic diseases. It is my passion to provide education to women of color regarding preventable chronic diseases such as hypertension, hyperlipidemia, and diabetes.

**Acknowledgements**

First and foremost, I want to thank the almighty GOD for his unfailing love and continuous blessings during this journey. I want to thank everyone who supported me and provided mentorship throughout this academic journey. Thank you both Drs. Joan Creed and Rhonda Johnson for your guidance, patience, mentorship, and continued encouragement. A special thanks to my husband Temele and our three children Quentin, Braylen, and Kennedy for their love, patience, and support. To my mother, along with other family members who provided ongoing prayers and words of encouragement, thank you.

**Abstract**

**Problem Statement:** There is a disproportionate number of African American women (AAW) diagnosed with hypertension (HTN) with modifiable health and behavior risk factors that contribute to cardiovascular disease (CVD). **Purpose:** The purpose of this DNP project was aimed at evaluating if a 12-week educational program using Life Simple 7 guidelines from the American Heart Association (AHA) within a primary care facility for adults diagnosed with hypertension and who are overweight would reduce blood pressure, body mass index, and increase knowledge regarding hypertension. **Methods:** A pretest and posttest intervention design was utilized to determine the outcomes of this study. The setting for this project was in a primary care facility in North Carolina The participants were between the ages of 20-75 with a diagnosis of HTN. Inclusion criteria included being overweight or obese (BMI>25) African American, on oral antihypertensive medications and a current patient of the facility. **Results:** Seven women started the wellness program with one discontinuing due to work obligations. The average weight loss was 1.9 pounds (0.8%). The average reduction in systolic blood pressure was 128.9 and diastolic blood pressure was 78.7. The Hypertension Knowledge Test was assessed at baseline and post intervention. The average score at baseline was 9.17 and post intervention was 10.33 with a difference of 1.17 (p=<.1). There was not a significant change between pre and posttest scores as both scores were similar. **Conclusion:** This project highlights that adopting a healthy lifestyle approach encompassing multiple health-related domains can decrease heart-related risk factors in AAW. Educational wellness programs to include LS7 are compelling in reducing the misconceptions among AAW affected by disease and lead to a more positive outcome.

*Keywords:* African American women, hypertension, blood pressure, body mass index

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# Bridging the Gap: Improving Hypertension in African American Women and Preventing Cardiovascular Disease

African American women (AAW) are considered to have the most substantial risks of developing cardiovascular disease (CVD) than any other ethnic group (Ebong & Breathett, 2020). In previous years, CVD was once considered a “man’s disease” but is now an immense cause of concern among women, especially African Americans (AA) (Woodward, 2019). Women of color are the highest proportion of individuals with uncontrolled hypertension (HTN), which if left untreated, can result in strokes, coronary and peripheral artery disease, and heart failure (Carnethon et al., 2017). It is estimated that 47.3% of these women are affected by CVD (Ebong & Breathett, 2020).

## Background

Despite the efforts to improve the gap and advance health disparities globally, CVD remains prevalent among AAW. While CVD is the leading cause of morbidity, mortality, and escalating healthcare costs within the United States, it was reported that 49% of AAW 20 years of age or older are affected by CVD, and only one in four of those women are cognizant of being at risk (Varani et al., 2020, Robinson et al., 2018). Statistics reveal that CVD was accountable for 17.8 million deaths in 2017 globally; however, it is to blame for over 50,000 deaths annually in the AA population (Virani et al., 2020; Mozaffarian et al., 2015). Kathruia-Prakash et al. (2019) report that since 1997, morbidity rates caused by CVD have increased by 1.3%. This significant increase includes the undue burden of an estimated cost of $351.3 billion in indirect costs and $213.8 billion in direct expenses among Americans in the United States between 2014 and 2015 to manage CVD (Virani et al., 2020).

Fifty percent of AAW have HTN and are at heightened risk for developing CVD (Jones et al., 2018). The US Department of Health and Human Services Office of Minority Health reported that in 2018, AAW over the age of 18, are 60% more likely to develop HTN compared to non-Hispanic white women (The US Department of Health and Human Services Office of Minority

Health, {DHHS OMH}, 2021). While one in three Americans are diagnosed with HTN, 46.1% of those diagnosed are AAW (Braun et al., 2016). HTN is deemed the silent killer with 49% of AAW failing to recognize signs and symptoms, asymptomatic, present with atypical symptoms, or lack insufficient knowledge about CVD (Robinson et al., 2018).

Evidence shows that women do not seek care until it is too late, and their symptoms have worsened (Hsu & Wong, 2017). There is also a personal sense of disengagement among women who believe they are not in jeopardy of developing heart disease. Specific modifiable health and behavior risk factors such as obesity, blood pressure control, physical inactivity, smoking, and poor diet are contributing factors for developing CVD. Both uncontrolled HTN and obesity are modifiable risk factors that involve promoting lifestyle changes to help prevent CVD. AAW have insufficient knowledge and are less aware that lifestyle and behavior choices increase CVD risks.

The American Heart Association (AHA) initiated Life's Simple 7 guidelines (LS7) and My Life Check (MLC). These resources define an individuals' ideal cardiovascular (CV) level of health. These guidelines were based on seven modifiable behavioral risk factors that include: smoking, physical activity, body mass index (BMI), diet, blood pressure, cholesterol level, and blood glucose (Murphy et al., 2015; Hsu & Wong, 2017; Egan et al., 2020; Elgazzer et al., 2020). Each LS7 guideline characterizes the levels of CV levels of health; ideal, intermediate, and poor (Egan et al., 2020). There is an associated risk of developing HTN and other complications with lower ideal CV health among AA's (Booth et al., 2017; Murphy et al., 2015; Egan et al., 2020).

## Problem Statement

There is a disproportionate number of AAW diagnosed with HTN with modifiable health and behavior risk factors that contribute to CVD. AAW suffering from HTN are more likely to follow an unhealthy diet, be overweight or obese, lack physical activity, have elevated triglyceride and cholesterol levels, smoke, and be prediabetic or diabetic (Hsu & Wong, 2017;

Elgazzar et al., 2020). Despite public awareness announcements and targeted education, one of the most critical challenges for health care providers (HCPs) and public health experts is determining why AAW continue to have uncontrolled HTN (Hsu & Wong, 2017). The AHA launched The Red Dress and Go Red for Women campaign to promote heart health prevention, instructing the public and HCP's on preventing CVD among women. These campaigns significantly increased preventative measures to reduce disparities by providing valuable resources among minority and disadvantaged women (Hsu & Wong, 2017).

In AAW diagnosed with HTN, 47.3% are uncontrolled compared to 43.2% of Caucasian women (Jones et al., 2017). According to The Eighth Joint National Committee (JNC 8), HTN is defined as a systolic blood pressure (SBP) reading of $\geq 140$ mmHg and diastolic blood pressure (DBP) reading of ≥90 mmHg. HTN is a known chronic disease that requires lifestyle modifications that are lifelong coupled with medication adherence (Jones et al., 2017).

With improved access to healthcare, women of color still experience the burden of unequal treatment of chronic health conditions. Access to healthcare is precious and expensive in America, and without sustainable income, AAW are left behind to manage chronic health conditions on their own (Egan et al., 2020). Seventy-five percent of patients at Angier Pediatrics and Adult Medical Center, PLLC., are lower-income, less educated, are uninsured, or have Medicare and Medicaid (K. Ugochukwu, personal communication, January 10, 2022). Less than fifty percent of the patient population has commercial insurance (K. Ugochukwu, personal communication, January 10, 2022). Staff noticed an increased number of AAW diagnosed with HTN that were uncontrolled, overweight, and had a knowledge deficit about their overall health and disease process.

Innovative strategies using wellness interventions that encourage lifestyle behavior modifications in AAW are necessary due to considerable obesity rates and physical inactivity of this population in the United States (Jenkins et al., 2017). Studies support the idea of increasing awareness and educating AAW to prevent CVD and associated risk factors (Hsu & Wong, 2017;

Murohy et al., 2015; Elgazzar et al., 2020; Jones et al., 2017; Marseille et al., 2021; Tucker et al., 2017). This evidence-based project focused on increasing knowledge and raising awareness among the AAW population to prevent heart disease. The acronym PICOT stands for (P) problem, (I) intervention, (C) compare, (O) outcome, and (T) time. The PICOT clinical question that guided this project was, (P) AAW diagnosed with HTN, did participating in a bi-monthly wellness program (C) using Life's Simple 7 (O) decrease blood pressure and body mass index over a (T) three-month time frame?

## Review of Literature

An extensive literature review was conducted using the Cumulative Index of Nursing and Allied Health Literature (CINAHL), PubMed-Medline, Google Scholar, and ProQuest. A total of 23 articles were selected and included in the evidence table (see Appendix K). The articles are listed in alphabetical order. One of the most critical oppositions for HCP's and experts are determining why AAW remain disproportionally affected by CVD. Existing literature suggested vital risk factors associated with heart disease such as overweight and obesity, smoking, an unhealthy diet, physical inactivity, uncontrolled blood pressure, diabetes and/or prediabetes, and excessive alcohol intake places black women at a higher risk for developing CVD and a lower prevalence of "ideal" CV ( Elfazzar et al., 2020; Hsu & Wong, 2017; Brewer et al., 2017; Brewer et al., 2019; Booth et al., 2017; Murphy et al., 2015; Mheid et al., 2016; Tucker et al., 2017).

Studies reported that heart disease is the leading cause of death among AAW and are considered to have a lower life expectancy than other ethnic groups (Jenkins et al., 2017; Braun et al., 2016; Carnethon et al., 2017; Ebong & Breathett, 2020; Hsu & Wong, 2017; Elgazzar et al., 2020; Jones et al., 2017). AAW are more likely to live sedentary lifestyles, engage in poor dietary habits, be obese, and be considered diabetic or prediabetic than women of other ethnic backgrounds (Hsu & Wong, 2017; Braun et al., 2016; Jenkins et al., 2017; Ebong & Breathett, 2020; Brewer et al., 2017). Literature suggested that AAW are usually treated for HTN at an

earlier age and are likely to undergo complications associated with uncontrolled HTN (Jones et al., 2017; Elgazzar et al., 2020; Booth et al., 2017). According to Braun et al. (2016), hypertension is grossly responsible for the excessive morbidity and mortality rates among AAW.

Despite the AHA striving to increase awareness regarding health promotion among AAW, research still suggests a lack of education and self-management, misconceptions, and indifferent perceptions towards CVD (Hsu & Wong, 2017; Brewer et al., 2017; Marseille et al., 2021; Murphy et al., 2015; Jones et al., 2017). Studies were conducted using the AHA's LS7 and My Life Check as a foundation to promote and improve overall CV health (Murphy et al., 2015; Hsu & Wong, 2017Elgazzar et al., 2020). It was found that AAW participating in educational groups within the community experienced an overall improvement in their BMI (Brewer et al., 2017; Elgazzar et al., 2020; Mheid et al., 2016) reduction in blood pressure (Mheid et al., 2016; Brewer et al., 2017; Brewer et al., 2019; Murphy et al., 2015) an increase in the My Life Check Score, (Murphy et al., 2015; Brewer et al., 2017; Mheid et al., 2016; Egan et al., 2020), decrease in blood glucose (Murphy et al., 2015; Mheid et al., 2016) and an overall increase in knowledge (Murphy et al., 2015; Brewer et al., 2017; Jones et al., 2017; Tucker et al., 2017). Additional studies showed significant improvement in dietary changes and increasing physical activity by utilizing LS7 guidelines (Tucker et al., 2017; Brewer et al., 2019).

## Theoretical Framework

The Health Belief Model (HBM) was incorporated into this DNP project to help AAW modify their lifestyle to reduce both their HTN and improve their CVD risk profile. The HBM was initially developed in the early 1950's by psychologists Hochbaum, Rosenstock, Kegeles, and Leventhal while working in the US Public Health to mitigate why individuals participating in educational programs to prevent potential barriers to learned behaviors stalled (Cao et al., 2014). This model was revised in the 1980's to include self-efficacy. By individuals changing their current pattern of behaviors or way of thinking to achieve a goal changed the HBM in how those affected prevented or further complicated illnesses associated with CVD. The 1980

version of the HBM is a psychosocial framework that examines crucial assumptions and principles to encompass an individual's perceived benefits, susceptibility, severity, and hindrances to predict behavior changes (Hepbum et al., 2021). Personal and situational influences on attitudes related to individual beliefs and associated health conditions play a significant role. Attitudes towards lifestyle changes such as physical activity, dietary habits, and smoking preferences were often recommended to prevent certain illnesses. It is up to the individual to make those changes based on their personal beliefs.

Utilizing the HBM, the overall goal was to achieve health promotion and disease prevention (Boskey, 2020). In an experimental field study, Hoseini et al. (2014) investigated the effects of using education based on the HBM on physical activity and HTN. Researchers found that since modifiable habits form over time, an individual's beliefs and attitudes help shape negative consequences, therefore, increasing one's risk for diseases (Hoseini et al., 2014).

The Social Cognitive Theory (SCT) was a primary theory that could guide this evidence-based practice project. The SCT suggests that an individual's behavior is shaped by certain behavioral, environmental, social, cognitive, or personal factors (Bandura, 2004). Although the SCT could potentially relate to this evidence-based practice project, the HBM was the better choice because when individuals begin to understand the overall disease process, they start to improve their behaviors (Boskey, 2020). Using the HBM, the overall goal was to create positive reinforcement and hope that the patient will modify their behavior, improve knowledge, and reduce their barriers.

## Project Purpose, Objective(s), Expected Outcomes

It is a known fact that AA's have higher blood pressure readings that appear earlier in childhood and commonly prevail throughout their adult lifespan (Booth III et al., 2017). Despite treatment, AAW are more likely to die from associated complications of uncontrolled HTN (Jones et al., 2017). For AAW, unwillingness to modify lifestyle behaviors contribute to uncontrolled HTN and increase their risks for developing complications and CVD (Jones et al.,

2017). Additionally, AAW have the highest incidence of co-morbidities such as obesity, diabetes, stroke, coronary artery disease, and heart failure (Ebong & Breathette, 2020).

The purpose of this evidenced-based practice project was to determine if implementing a bi-monthly educational wellness program using LS7 from the AHA would (1) improve knowledge regarding HTN and (2) decrease blood pressure and BMI in AAW. HTN is a vital causative and potent influence for developing CVD (Jones et al., 2018). According to Carnethon et al. (2017), 47.9% of AA's as opposed to 56% of non-Hispanic whites do not achieve controlled HTN. In AAW diagnosed with HTN, 47.3% compared to 43.2% white women are not controlled (Jones et al., 2017).

This project focused on promoting healthy behaviors and encouraging positive reinforcements to decrease blood pressure and BMI. It is a known fact that AA's have higher blood pressure readings that appear earlier in childhood and commonly prevails throughout their adult lifespan (Booth et al., 2017). Despite treatment, AAW are more likely to die from associated complications of uncontrolled HTN (Jones et al., 2017).

The expected outcomes of this DNP project focused on increasing HTN knowledge regarding complications, medication treatment, diet, and modifying lifestyle behaviors to decrease blood pressure and BMI by monitoring weight and blood pressure for three months. Utilizing the MLC within this project, allowed the participants to set and improve their overall health goals based on their scores. This project contributed to increasing awareness and potentially translating a lower rate of unhealthy AAW.

## Project Design

The project used a pretest-posttest design intervention to measure the participants increase in overall knowledge. Intellectus Statistics was used to analyze the demographic data of the participants. The University of South Carolina's Institutional Review Board exempted this project based on their guidelines (see Appendix J). They did not require oversight; they did approve the application. All participants were required to be AAW, over the age of 20 and

younger than 75, English speaking and a current patient of the facility. The project took place over three months with participants meeting in-person, in a group setting, bi-weekly for a wellness program utilizing LS7 guidelines and MLC from the AHA as the foundation. Permission to use LS7 or MLC from the AHA was not necessary as both are on an internet domain intended for public usage. The DNP student facilitated all educational sessions.

**Project Site**

In 2008, Angier Pediatrics and Adult Medical Center, PLLC, opened as a family practice in North Carolina. It is a private physician-owned practice that offers a variety of services for nonemergent care, primary care, management of chronic medical conditions, and motor vehicle accident cases. The ages of the patients seen range from newborn-96 years old. Services within the clinic are provided by three providers, a physician and two parttime nurse practitioners, two medical assistants (who function as the laboratory technicians), an office manager, three front desk receptionists, one billing representative, one referral clerk, and two remote patient monitoring specialists (RPM). This facility serves approximately 8,000 patients yearly with an average of 35-40 patients per day.

The general population is diverse, with African American and Hispanic presence. Individuals attending this facility are on fixed incomes, 50% of patients have Medicare or Medicaid, 35% have commercial insurance, and 15% are self-pay.

**Project Type**

This DNP project was an evidence-based practice project. An evidence-based practice model shows a structured yet extensive and patient-directed approach to healthcare. Utilizing an evidence-based practice project brings change for improved quality and overall wellbeing.

**Feasibility**

To determine the feasibility of this project, qualitative metrics were used for attendance rates of the wellness program and program evaluation. The goal was to have 50% attendance

at each session by each participant and 50% attendance rates for all participants. All participants were expected to complete the program evaluation form (Appendix I).

**Population**

AAW between the ages of 20 and 75 with a known diagnosis of HTN and current patients of Angier Pediatrics & Adult Medical Center were selected for the program. Inclusion criteria included a diagnosis of overweight (BMI >25) or obesity (BMI >30), prediabetic or diabetic. Exclusion criteria included individuals under the age of 20 or older than 75 years of age, pregnant, engages in regular physical activity, and individuals with a known complication of hypertension including congestive heart failure (CHF), myocardial infarction (MI), CVD, stroke, or chronic kidney disease (CKD). The goal was to have 15 to 25 AAW based on the inclusion criteria and currently on oral antihypertensive medications to participate in the intervention and attend the bi-monthly sessions. However, due to COVID 19, the office placed restrictions to the number of in-person participants inside the office.

## Implementation Plan/Procedures

This evidence-based practice project took place over a three-month time frame. The providers and office staff identified AAW between the ages of 20-75 with an active diagnosis of HTN at risk for developing CVD to participate in the bi-monthly wellness program. An educational wellness program was developed based on LS7 to improve HTN knowledge and decrease blood pressure and BMI among AAW. The program included the initial and post intervention screenings, a one-hour teaching sessions bi-monthly, and a LS7 health guide. Participants were recruited from Angier Pediatrics and Adult Medical Center, PLLC located in Fuquay-Varina, North Carolina. All potential candidates received a letter of invitation describing the details of the program, inclusion criteria, confidentiality, and the right to withdraw from the study (see Appendix A). A telephone number and email address were provided for individuals with questions or concerns about participating. Individuals who met the inclusion criteria met with the DNP student, staff, and the remote monitoring specialist (RPM). During this time, the

participants completed the MLC evaluation questionnaire (see Appendix B) online to determine their initial CV health score.

Participants with an MLC score of seven or lower were provided a detailed description of the wellness program, study expectations, potential risks associated, and the DNP student's contact information for questions or concerns (see Appendix A). Individuals that wanted to participate signed the consent form (see Appendix C). The DNP student was available to answer participant questions. Participants were informed that no monetary or gift payments will be made for completing the program. In January 2022, a one day in-person orientation was scheduled with the office staff to provide education on the overall goal of the program, review educational handouts for each session, initial and post assessments, and tools used for data collection. Participants met in-person twice monthly for three months for a total of seven sessions each lasting one hour.

In the final session, participants repeated the Hypertension Knowledge Test (HKT) and post intervention measurements for blood pressure and weight (see Appendices F & E). When participants missed an in-person session, accommodations to speak individually by phone or virtually was attempted without success.

**Project Method/Model**

According to Murphy et al. (2015), advancing and executing interventions that coincide with a conceptual framework within a target population is essential to producing an effective outcome. The model selected was the HBM. This model focuses on disease prevention and health promotion. Uncontrolled HTN among AAW is thought to be contributed by socioeconomic factors such as structural racism, income, educational background, or limited access to healthier food choices (Egan et al., 2020). Personal health beliefs and inadequate support further promote impediments of attaining ideal blood pressure control (Spikes et al., 2019).

The HBM is used often to evaluate behavioral changes and improve self-efficacy and care among individuals (Spikes et al., 2019). For the model to improve certain behaviors,

individuals must show perceived susceptibility and recognize that uncontrolled HTN has potential adverse complications. By modifying certain lifestyle behaviors, they will begin to experience perceived benefits (Khorsandi et al., 2017). Cues to action such as support systems pushing to manage their behavioral choices will lead to controlled HTN (Khorsandi et al., 2017). According to Khorsandi et al. (2017), education that focuses on the HBM to facilitate change among individuals increased overall perceived benefits and decreased potential barriers.

**Implementation Steps**

The wellness program was estimated to start January 10, 2022. In the initial session, all participants read, and signed the consent form, and had all questions answered. Participants received a folder with their initials and chart number such as DW11201. Each file contained the signed consent form, demographic data sheet, blood pressure/weight log, pre- and posttest questionnaires, and intervention evaluation form.

**Step 1:** Participants had their blood pressure and weight checked and logged. The participants self-reported their height. The demographic data sheet was collected along with completing a pretest questionnaire known as The HKT from Check Your High Blood Pressure Prevention IQ Survey (see Appendix F). During this time, education was provided based on the LS7 guidelines, a blood pressure reading, and weight measured in pounds was also obtained and recorded on a log (see Appendices D & F). All participants received a copy of the LS7 guidelines (see Appendix D). After each session, participants were encouraged to ask questions.

Session one discussed how to effectively manage blood pressure. Participants were shown how to correctly check and monitor their blood pressure at home, educated on understanding the different blood pressure categories, what is considered normal, and current medication treatments. Session two focused on hyperlipidemia and cholesterol. During this session, education focused on what cholesterol was, the difference between “good” and “bad” cholesterol, and current medication treatment. The third session was reducing blood glucose

levels for those individuals prediabetic or diabetic. The participants were informed on managing diabetes, what being a diabetic means, and knowing their numbers. Being physically active was the fourth session. All participants were encouraged to participate in physical activity outside of the wellness program and self-report their progress.

Sessions five, six, and seven discussed healthier eating, weight loss, and smoking cessation. The focus on these sessions were to encourage the participants to change and incorporate the recommended dietary guidelines which may improve their overall health. In addition, portion control, limiting foods high in sugar, saturated fats, and sodium were covered to promote weight loss. For those participants who smoked, resources on smoking cessation were discussed and information provided on where to seek help.

**Step 2:** Immediately following the final session, all participants repeated the HKT, and post intervention measurements for both blood pressure and weight. Repeating the HTK was completed to evaluate whether the participants' improved their overall knowledge and had a decrease in the BMI and blood pressure. The overarching goal was to improve their CV health. Repeating the MLC was not completed during this project as anticipated due to time constraints and COVID 19 outbreak among staff members.

## Measures and Data Plan

The AHA uses LS7 and MLC tools to help raise awareness of CVD and assist with developing healthier lifestyle changes (Murphy et al., 2015). The MLC was assessed at baseline to determine their overall CV health score. The score ranges from 0 to 10 based on physical activity, smoking status, healthy weight, eating habits, current blood pressure, cholesterol, and blood glucose levels (Murphy, 2015). The independent and dependent variables identified for this project included the HKT, systolic and diastolic blood pressure reading, weight, BMI, and MLC score.

The HKT was assessed at baseline and post intervention to determine if there was an increase in knowledge. This test consisted of 12 true or false questions related to causes,

symptoms, and controlling HTN. It was developed by the National Heart, Lung, and Blood Institute and has been used in several studies that involved AA participants (Jones et al., 2017; Han et al., 2011; Cabral et al., 2018). This test assesses knowledge regarding signs and symptoms of HTN, behavior changes, risk factors, and complications. Systolic and diastolic blood pressure readings and weight were assessed at baseline during each wellness session and post intervention. This was used to determine if the expected outcome of decreasing the blood pressure and BMI among this high-risk population was met. The HTK is a valid and reliable instrument used to assess the overall knowledge of HTN improvement.

Weight was assessed in pounds by using a digital scale at the clinic. The weight was collected at baseline, during each session, and post intervention to see overall progress. Participants monitored their blood pressure readings at home by choice. Participants self-reported their height, and their baseline weight was used to calculate the BMI for the project. Blood pressure was assessed at baseline, bi-monthly, and post intervention using a Dinamap digital blood pressure machine provided by the office. Blood pressure was documented using both systolic and diastolic readings. Other health indicators such as A1C and cholesterol level for completion of the MLC, was obtained by assessing the laboratory data in Prognocis, the electronic medical record (EMR).

**Validity and Reliability**

The HKT has been shown to be valid and reliable. In fact, studies have used the HKT to assess for knowledge deficit and determine if an educational program has increased their overall knowledge (Jones et al., 2017; Han et al., 2011; Cabral et al., 2018). The test is simple and on a reading level that is easily understood with a score of 3.5 on The Flesh-Kincaid reading level (Jones et al., 2017). This knowledge assessment test has an acceptable Cronbach’s alpha = 0.70 (Han et al., 2011). The higher an individual scored on the test equates to better understanding of high blood pressure.

**Data Monitoring Plan**

The DNP student worked with the office manager and the RPM specialist in identifying AAW within the specified age range and the diagnosis of essential HTN. The RPM specialist is responsible for monitoring patients' blood pressure, weight, and blood glucose levels daily. The International Classification Code-10 (ICD-10) codes for associated risk factors of CVD included overweight (E66.3), obesity (E66.9), and morbid obesity (E66.01) were also included. The RPM specialist and the physician also hand-picked individuals that met the inclusion criteria from Community of Care of North Carolina and the One Hundred Plus Program (100+). They believed these individuals could benefit from participating in the program. The One Hundred Plus Program is a program offered to Medicare patients from the facility with uncontrolled HTN and diabetes. Patients enrolled in these programs monitored blood pressure and blood glucose levels at home three days per week. The DNP student has limited access to Community of Care of North Carolina. Prognosis was used to gather data regarding race/ethnicity, age, gender, current diagnosis codes, medication lists, blood pressure, and BMI.

**Data Collection**

Data was collected for a total of 12 weeks. The initial questionnaires were completed in the first session and took 20 minutes to complete. The questionnaires included a demographic form inquiring about age, educational levels, income, employment, marital status, and current medications. The second part of the questionnaire was the HKT. Participants self-reported their height to determine their BMI. Blood pressure and weight were taken at baseline, bi-monthly and immediately post intervention. These measurements were taken by trained and certified staff within the facility. This data was stored in Intellectus Statistics and Microsoft Excel data file and recorded on a written log (see Appendix E).

The office manager kept the data in a locked file cabinet at the facility. HKTs that were not completed were excluded from the project. A comparison analysis was conducted to determine if the pre-post interventions were significant in improving HTN knowledge among this population.

**Data Analysis Plan**

All data collected was stored in Microsoft Excel, Intellectus Statistics and stored on an encrypted flash drive for additional backup. Paired sample t-tests were used to assess if the participants had an overall increase in knowledge and reduction in blood pressure and BMI. Descriptive statistics were used to describe the demographic data of this specific population and reflected in a table format. Intellectus Statistics software program analyzed data from baseline and post-intervention to determine if there was a significant improvement overall. According to Patridge & Bardyn (2018), researchers use REDCap to collect and store data securely. REDCap was considered to use for data storage, however, seemed difficult to manage and was not used to store data for this project.

Limitations of the project included low participation rates, COVID-19 pandemic, little or no access to technological data platforms or knowledge of use, (teams, zoom, etc.), and unwilling stakeholder involvement. Many stakeholders are resistant to suggestions that concern money, time, and additional staff resources. They also fear loss of interest among the participants. Success of the project included highly motivated women who shared a common focus to increase their overall wellbeing, free of bias, and excellent communication between office staff, DNP student, and participants.

Strengths from this DNP project included positive feedback from the participants especially if the outcomes were obtained and goals were reached. Motivated participants, staff, and cooperation are other strengths associated with this project. Weaknesses included limited and overwhelmed staff to help with collecting data and low participation.

**Timeline**

The timeline for this evidence-based practice project represented the deadlines and projected dates of completion to include DNP proposal defense, data collection and analysis, and final proposal defense (see figure 1). Participant recruitment began in February 2022, with the first educational session starting on March 11, 2022. The recruiting process took about two

and half weeks. Due to a delay in getting started, the timeline was adjusted to reflect these changes.

**Figure 1**

*Timeline*

| Date | Process |
|---|---|
| September 2, 2021 | Committee Mentor Meeting |
| September 14, 2021 | Continued Review of Project Progress with Committee Chair |
| November 12, 2021 | Project Proposal Defense |
| January 10, 2022-April 10, 2022 | Data Collection |
| March 11, 2022-May 13, 2022 | Implement Intervention |
| April 15, 2022-June 15, 2022 | Complete Data Collection |
| July 21, 2022 | Final Project Defense |

*Note:* Timeline of final DNP project dates.

## Budget

When implementing the overall budget for this DNP project, the associated costs were minimal. The DNP student provided funding for this scholarly project (see figure 2). Data was initially collected from existing programs currently used in the facility and free to use. Basic equipment such as the digital scale and automated blood pressure machine were provided at no extra cost. Educational packets were provided to each participant and consisted of the HKT for pre/post-test requirements, a blood pressure and weight log, LS7 guidelines, demographic, and consent forms. Educational packets were printed in black and white, while the LS7 guidelines were printed in color. Black and white copies cost $.15 per page and color copies costs $.57 per page. Price was adjusted to reflect the appropriate number of packets for each participant.

Day-to-day operational costs remained the same as staff volunteered their time to participate in the project at no additional costs. The wellness program was conducted during normal business hours. Participants were compensated for participating in this project with a "thank you" bag provided by the office manager. Each bag included a water bottle, free educational printouts, and booklets about AAW and managing hypertension, and a blank medication wallet card. This was a small token of appreciation provided by the office.

**Figure 2**

*Project Expenses*

| Budget Item | Budgeted Price | Total Cost |
|---|---|---|
| **Equipment (blood pressure machine and digital scale)** | **No charge, will use facility equipment** | **No charge, used facility equipment** |
| **Printed black and white copies** | **$40.00** | **$10.50 (additional copies made for office manager & preceptor)** |
| **Printed color copies** | **$125.00** | **$35.91 (additional copies made for office manager & preceptor)** |
| **Folders** | **$20.75** | **$4.50** |
| **Software purchase (Intellectus Statistics)** | **$149.00** | **$75.00** |
| **Staff Time** | **$18/hour** | **$36** |
| **Refreshments for participants & office staff** | **$100.00** | **$250.00** |

| | | |
|---|---|---|
| **Supplies (ink pens & note pads)** | **$20.00** | **$12.00** |
| **Total Cost** | **$454.75** | **$423.91** |

*Note. The summary of spending directly reflected the planning, implementation, and final evaluation of this evidence-based practice project.*

## Human Protection of Subjects

For implementing the DNP project, human subjects' protection and privacy reviews were completed using CITI training modules to address ethical concerns. All participants were protected by the Health Insurance Portability and Accountability Act of 1996 (HIPPA) which protects the subjects' personal health information. Additionally, the DNP student and facility staff followed the *Standards of Care* for primary care practice. Informed consent was obtained by the student and signed by the participants of Angier Pediatrics and Adult Medical Center, PLLC. The participants' confidentiality, safety, and privacy were guaranteed. The files of those participating in the project were kept in a locked filing cabinet at the practice accessible only by authorized users. The data was stored by the office manager in a locked office. All EMRs containing identifiable patient information were password protected to prevent access by unauthorized users.

All data collected for this project did not include any potential participant identifying information. Participants' personal information had specific identifiers for names and demographic characteristics such as letters and numbers. The DNP project started after approval was given and consent obtained. There were no potential risks to patients participating in this project. All participants were informed to continue any current treatments prescribed by their HCP, as this program did not replace their current medical treatment.

## Results

According to Hsu & Wong (2017), CVD is the number one cause of death among African Americans and 64% of women usually have no previous symptoms of heart disease. Therefore, the AHA set a 2020 goal designed to reduce the mortality rate by 20% caused by heart disease and improve overall heart health among everyone (Murphy et al., 2015). This DNP evidence-based practice project, a pretest posttest design was completed to evaluate an increase in knowledge among AAW between the ages of 20-75, at a primary care facility. This chapter will review the findings from this evidence-based practice project.

## Key Findings

A summary of the participant demographics is presented in Table 1 and Figure 3. A total of 12 participants were recruited to participate; six women completed the program (n=6, 50%). One participant missed five sessions due to work conflicts and the remaining women quit prior to attending the first session. Participants were either married (n=3, 50%) or single (n=3, 50%). When it came to income, three categories were equally distributed with a frequency of two each: 20,000-30,000, 31,000-40,000, and 51,000-60,000 (n=2, 33.33). Majority of the participants were employed fulltime (n=4, 66.67%). There were three participants who were college graduates and three with >high school (HS) education, each with an observed frequency of three (50%). Most participants were in the 50-59 age range (n=3, 50%).

**Table 1**

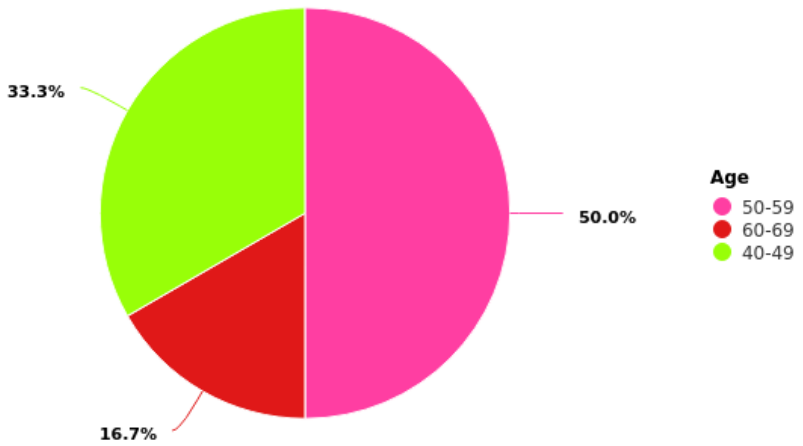
Demographic Data

| Variable | *N* | *%* |
|---|---|---|
| **Marital Status** | | |
| Married | 3 | 50.00 |
| Single | 3 | 50.00 |
| **Income** | | |
| 31,000-40,000 | 2 | 33.33 |
| 20,000-30,000 | 2 | 33.33 |
| 51,000-60,000 | 2 | 33.33 |
| **Employment Status** | | |

| | | |
|---|---|---|
| Self-employed | 1 | 16.67 |
| Full-Time | 4 | 66.67 |
| Disabled | 1 | 16.67 |
| **Educational level** | | |
| College Graduate | 3 | 50.00 |
| >HS | 3 | 50.00 |
| **Age** | | |
| 50-59 | 3 | 50.00 |
| 60-69 | 1 | 16.67 |
| 40-49 | 2 | 33.33 |

*Note.* Due to rounding errors, percentages may not equal 100%.

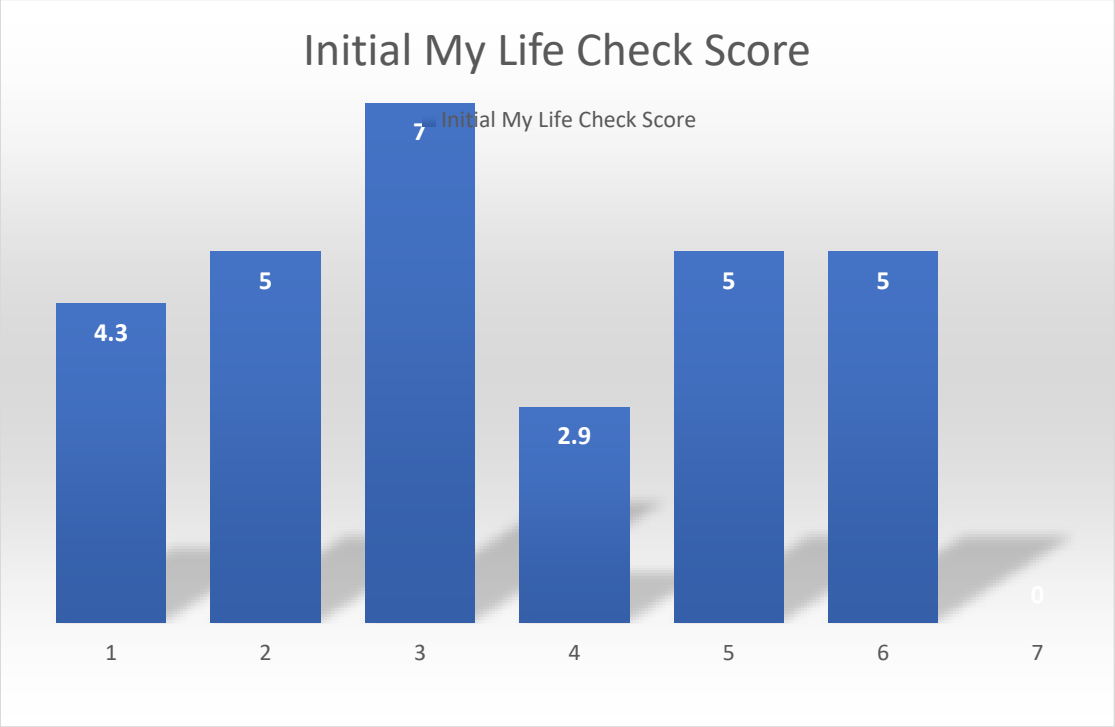
**Figure 3: Participant's Age Breakdown**




MLC was assessed at baseline to determine enrollment into the program. Participants were required to have a score of seven or less to participate. The MLC scores ranged from 2.9-7.0 among the women, with an average MLC score of 4.87. Table 2 shows the scores from each participant. Time was not permitted during the last session to complete repeating the MLC questionnaire to determine improvement. The office times needed to be adjusted due to limited staff because of COVID-19 among staff members.

**Table 2**

*My Life Check Initial Scores*




*Note. Initial MLC survey results. Participant 7 did not complete the MLC survey.*

There were two intended outcomes that were measured. The first outcome was to increase the overall knowledge of hypertension among AAW. The second outcome was for the participants to experience a decrease in blood pressure and BMI. The outcome was measured comparing both pretest and posttest scores of the HKT and bi-weekly blood pressure checks and weigh-ins.

**Outcome one**. An increase in HTN knowledge was assessed using the HKT from Check Your High Blood Pressure Prevention IQ Survey to determine the effectiveness of the project regarding the participants overall increase in knowledge (see Appendix F). The topics covered were consistent with the in-person education provided including development, potential causes, family history, and management of HTN. All answers selected were in true or false format. The survey was easy to read and comprehend by the participants. The score was analyzed by

comparing the means, by adding the scores from both pre- and post-intervention scores and comparing the two and calculated by adding the responses to the correct number of questions. The higher the score indicated an increase in knowledge of HTN (Jones et al., 2018). At baseline, the average score was 9.17 and posttest was 10.33. There was a difference of 1.17. A paired sample t-test was conducted to determine if there was a significant improvement of the participant's knowledge. Based on the results, the paired t-test indicated there was not a significant difference between the pre- and posttest knowledge scores, t(5)=1.94, p=<0.1 This shows that the knowledge test scores before and after the program were similar. Table 4 and Figure 3 summarize the participants scores.

**Table 3**

HTK Test Pre and Post Intervention Scores

| Participant ID | Pretest Score | Posttest Score | Overall Change |
|---|---|---|---|
| **1** | 9 | 9 | 0 |
| **2** | 9 | 10 | 1 |
| **3** | 10 | 10 | 0 |
| **4** | 9 | 10 | 1 |
| **5** | 8 | 12 | 4 |
| **6** | 10 | 11 | 1 |

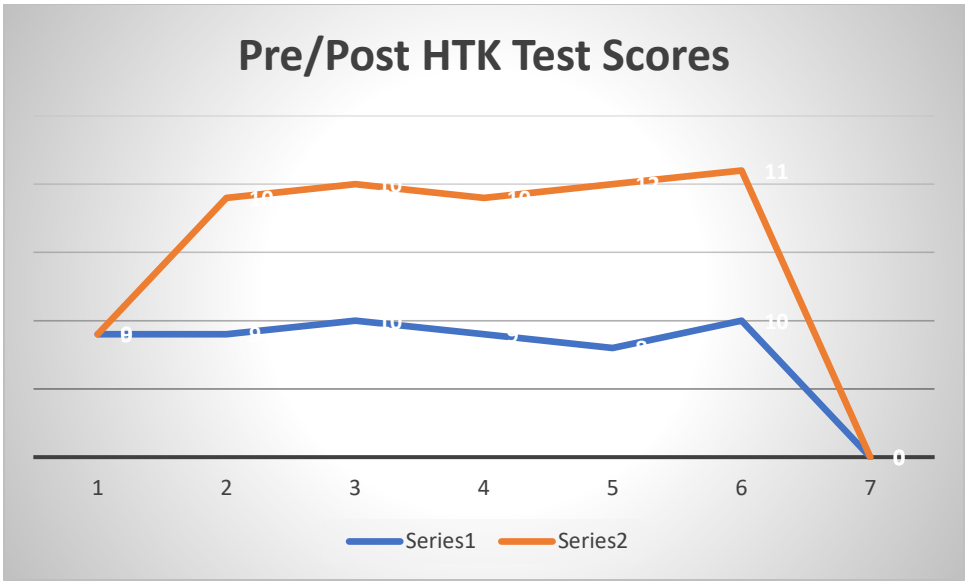
*Two-Tailed Paired Samples t-Test for the Difference Between PRETEST_CORRECT and POST_TEST_CORRECT*

| PRETEST_CORRECT | | POST_TEST_CORRECT | | | | |
|---|---|---|---|---|---|---|
| *M* | *SD* | *M* | *SD* | *t* | *p* | *D* |
| 9.17 | 0.75 | 10.33 | 1.03 | -1.94 | .110 | 0.79 |

*Note.* N = 6. Degrees of Freedom for the *t*-statistic = 5. *d* represents Cohen's *d.*

**Figure 4**

Pre/Post Test Scores in Graph




**Outcome two**. The second outcome was for participants to experience a decrease in blood pressure and BMI. Blood pressure (systolic & diastolic), weight, and BMI were monitored at each of the seven educational sessions. Tables 4 through 6 displays a comparative means analysis over the seven sessions of blood pressure, weight, and BMI. a summary of the weekly averages for each week. On average, there was a slight decrease in systolic blood pressure (SBP) between weeks one & two. Week three showed a slight increase in the average SBP but afterwards, continued to decline through week seven which represents a significant improvement. There were three weeks in which the diastolic blood pressure (DBP) had an average slightly above 80. The remaining four weeks ranged from 72-78. The decrease is related to the participants improving their lifestyle choices, continuing their current medication treatment, and self-monitoring. Table 7 displays the average blood pressure, weight, and BMI mean results among all participants over the seven sessions.

**Table 4**

*Weeks 1-7 blood pressure comparative mean analysis*

| | Week 1 BP | | Week 2 BP | | Week 3 BP | |
|---|---|---|---|---|---|---|
| **ID** | **SBP 1** | **DBP1** | **SBP2** | **DBP2** | **SBP3** | **DBP3** |
| **1** | 142 | 96 | * | * | 143 | 88 |
| **2** | 111 | 78 | 120 | 77 | 128 | 83 |
| **3** | 143 | 96 | 134 | 84 | 123 | 78 |
| **4** | 140 | 80 | 139 | 83 | 135 | 89 |
| **5** | 130 | 77 | 130 | 73 | 130 | 75 |
| **6** | 120 | 75 | 126 | 75 | 139 | 77 |
| **BP MEAN SCORES** | **131** | **83.67 (84)** | **129.8 (130)** | **78.4** | **133** | **81.6 (82)** |

*Note: * reflects missing data*

| | Week 4 BP | | Week 5 BP | | Week 6 BP | | Week 7 BP | |
|---|---|---|---|---|---|---|---|---|
| **ID** | **SBP 4** | **DBP4** | **SBP5** | **DBP5** | **SBP6** | **DBP6** | **SBP7** | **DBP7** |
| **1** | * | * | * | * | * | * | * | * |
| **2** | 107 | 66 | 104 | 65 | 126 | 79 | 95 | 62 |
| **3** | 145 | 85 | 163 | 104 | 129 | 85 | 134 | 79 |
| **4** | 132 | 85 | 133 | 90 | 140 | 84 | 129 | 82 |
| **5** | 132 | 75 | 124 | 70 | 122 | 74 | 124 | 66 |
| **6** | 137 | 66 | 126 | 76 | 120 | 70 | 119 | 72 |
| **BP MEAN SCORES** | **130.6 (131)** | **75.4 (75)** | **130** | **81** | **127.4** | **78.4** | **120.2** | **72.2** |

*Note: * reflects missing data*

**Table 5**

Weight by weekly sessions comparative means analysis

| ID | WEEK 1 | WEEK 2 | WEEK 3 | WEEK 4 | WEEK 5 | WEEK 6 | WEEK 7 | % Change |
|---|---|---|---|---|---|---|---|---|
| **1** | 278.6 | * | 280 | * | * | * | * | -1% |
| **2** | 280.4 | 280.6 | 275.6 | 275.2 | 277.8 | 277.6 | 275.6 | 1.7% |
| **3** | 268 | 267.4 | 267.4 | 263.8 | 264 | 266.2 | 263.6 | 1.6% |
| **4** | 232.2 | 233.7 | 237.2 | 234.4 | 231.4 | 233 | 230 | 0.9% |
| **5** | 208 | 208 | 208 | 208.8 | 208.8 | 208.6 | 206.8 | 0.6% |
| **6** | 177.4 | 175 | 175 | 175 | 177.4 | 174 | 177 | 0.2% |
| **Weight Mean Scores** | **240.77** | **232.94** | **240.53** | **231.44** | **231.88** | **231.88** | **230.6** | **1.1%** |

*Note: * reflects missing data*

**Table 6**

BMI by weekly sessions comparative means analysis

| ID | WEEK 1 | WEEK 2 | WEEK 3 | WEEK 4 | WEEK 5 | WEEK 6 | WEEK 7 | % Change |
|---|---|---|---|---|---|---|---|---|
| **1** | 43.6 | * | 43.8 | * | * | * | * | -0% |
| **2** | 41.40 | 41.43 | 40.69 | 40.64 | 40.02 | 40.99 | 40.69 | 1.7% |
| **3** | 50.63 | 50.52 | 50.52 | 49.84 | 49.88 | 50.29 | 49.80 | 1.6% |
| **4** | 42.47 | 42.74 | 43.38 | 42.87 | 42.32 | 42.61 | 42.06 | 0.9% |
| **5** | 36.84 | 36.84 | 36.84 | 36.98 | 36.98 | 36.96 | 36.63 | 0.6% |
| **6** | 27.78 | 27.41 | 27.41 | 27.41 | 27.78 | 27.25 | 27.72 | 0.2% |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| **BMI Mean Scores** | **40.45** | **39.79** | **40.44** | **39.55** | **39.60** | **39.62** | **39.38** | **1%** |

*Note: * reflects missing data*

**Table 7**

*Average Blood Pressure, Weight, and BMI*

| Means (Averages) | | | | |
|---|---|---|---|---|
| | SBP | DBP | WEIGHT | BMI |
| Week 1 | 131 | 83.67 | 240.77 | 40.45 |
| Week 2 | 129.8 | 78.4 | 232.94 | 39.79 |
| Week 3 | 133 | 81.67 | 240.53 | 40.44 |
| Week 4 | 130.6 | 75.4 | 231.44 | 39.55 |
| Week 5 | 130 | 81 | 231.88 | 39.60 |
| Week 6 | 127.4 | 78.4 | 231.88 | 39.62 |
| Week 7 | 120.2 | 72.2 | 230.6 | 39.38 |

To determine the feasibility of the project, attendance was tracked and recorded throughout the project. An evaluation survey was administered following the last session of the program. The overall goal was to have 50% attendance at each session by participants. There were six participants at every meeting (50%; n=4). The program evaluation survey showed that the participants felt that the program was beneficial in progressing towards their personal health goals. They would recommend others to participate in educational programs that support AAW and their overall health.

**Strengths and Limitations**

The strengths and limitations of this DNP project are based within the organization where the project was completed. Having the support of major stakeholders and staff increased the success of this project. This educational program was beneficial to staff members as well as the participants. Although there were ten women who were excluded from the project due to

their health history or age, they wanted to receive the information. Another major strength of this project was that the education targeted AAW who have unmistakable cardiac risk factors and societal influences that played a major part in accepting behavioral changes.

There were several obstacles that created challenges throughout this project. COVID-19 was the most significant limitation. This project was initially delayed due to multiple staff members contracting COVID-19 and out of work. Individuals were also restricted from sitting inside the building and operating hours changed. The project was limited to a small sample size, low participation rates, and the unwillingness to participate. Missing data limited the analyses of blood pressures and BMI. During the initial session, the DNP student did not go into depth to assess the participants physical activity status or complete a comprehensive assessment of their diet. Although, the project was met with limitations, the support of the stakeholders and staff made a difference along with the continued support of the six women who enjoyed the program.

**Intervention Variations**

During this project, drastic staff changes were made, and the office had a breakout of COVID-19 which delayed the start of the project. Also, the data was to be kept by the office manager in a locked file cabinet, however, due to staff changes, data was not stored in a locked file cabinet at the facility but stored on a password protected laptop kept with the student. REDCap was not used to store data, as all data was placed in an excel spreadsheet and Intellectus Statistics. The MLC was not repeated during the final session as it was difficult to get all items completed due to a time constraint within the office. Due to COVID-19 each participate answered pre-screening questions prior to coming into the building and had their temperature checked. If any participant answered “yes” to any of the questions, the participant was not allowed in and would be contacted virtually to join using facetime or google duo platforms. The DNP student stayed in frequent communication with the participants regarding any changes during the project.

## Discussions

### Future Direction of Evidence-Based Projects

Considerations for future evidence-based projects should continue to focus on the AA communities and be more pro-active with providing education that focuses on improving lifestyle modifications. Since it is a known fact that AA individuals are diagnosed with hypertension at an earlier age than other ethnic groups, HCPs should focus on improving cardiovascular knowledge in participants starting younger than 20 years of age (Jones et al., 2017). Future studies to target community-based interventions that direct health awareness on improving morbidity and mortality among people of color can potentially lead to prevention of heart disease. There is a need for evidence-based practice projects for continuity of care that is safe, effective, and supported by research. By empowering cardiovascular knowledge to improve areas of care and improve patient outcomes is a gamechanger for both the individual and the healthcare system.

### Association Between Interventions and Outcomes

The results of this evidence-based practice project supported the need for continued education targeting AAW. This project explored whether utilizing LS7 guidelines in an educational program for 12 weeks would increase overall knowledge regarding hypertension and decrease blood pressure and BMI. Despite the participants scoring similar between both pre- and posttest scores, the results did reveal a slight increase in knowledge. One participant increased her posttest scores by four points (50%), which was a significant improvement. Three participants (n=3) increased their score by one point.

Furthermore, results from the project showed a decrease in both systolic (6%) and diastolic (10.4%) blood pressure readings. Overall, there was a weight loss average of 1.1% and a reduction of BMI by 1% over the three months. Although, there was not a significant weight and BMI reduction among the participants, this educational program discussed how to choose healthier food choices and increase physical activity. By continuing to implement what

was learned into their daily routine, women will be more compelled to promote a more positive outcome.

**Comparison of Results with Other Publications**

In comparing the results of this evidence-based practice project to findings in similar research studies, the increase in HTN knowledge scores and reduction in blood pressure and BMI were not as significant. In a study completed by Marseille at al. (2021), there was not a significant difference between the baseline and post intervention test scores p=.09 but showed a reduction in blood pressure. Studies suggest that although there was not a significant improvement in blood pressure and BMI, promoting cardiovascular health education among AAW could yield positive results in reducing health disparities (Mheid et al., 2016; Booth III et al., 2017; Tucker et al., 2017).

The participant's blood pressure decreased with this program by 6% systolic (p=.581) and diastolic by 10.4% (p=.217). These results were similar to a six-month nurse practitioner driven educational program by Murphy et al. (2015) that reported a decrease in SBP by 12% and DBP by 8%. Results from Marseille et al. (2021) noted a significant reduction overall in blood pressure from baseline to post intervention p<.01.

**Impact of Project**

The impact of this project on HTN knowledge adds that education revolving around lifestyle modifications tailored to target specific individuals can encourage positive behavioral changes. With this project being implemented in a primary care facility, it increased the awareness of the participants to become more involved in their plan of care, increase the desire for self-monitoring of blood pressure at home, and the staff that participated in the program continued and created a weight loss challenge. All six participants who would not normally engage in physical activity improved that aspect of the LS7 guidelines and began to walk as tolerated.

The overall goal as advanced practice providers is to remain committed to those in underserved populations and be consistent with the primary Standards of Care. Nurse practitioners (NPs) are prepared to translate current evidence-based care into everyday practice. It is important that all providers engage their patients in their plan of care to strengthen their cardiovascular knowledge and focus on improving health behaviors.

### Anticipated Outcomes

HTN is a chronic health condition that is preventable. It is a serious risk factor for other CVD's such as stroke, heart attack, kidney disease, and heart failure. Anticipated outcomes of the evidence-based project were to have a larger sample size and ample time to fully engage with the participants. It was also anticipated that younger AAW within the facility would have participated in the program.

## Conclusion

Uncontrolled HTN will continue to be a major burden within AA communities unless drastic changes are implemented. Providing continuous education both verbally and written, assessing perceived barriers to facilitate change, and education on the potential dangers of uncontrolled HTN can improve health promotion and disease prevention. During this 12-week time frame, it was discussed why 46% of AAW suffer from hypertension. The women discussed several causes relating back to how social determinants of health such as income, educational level, and lack of access play a key role in why they have HTN. Eating healthy can be costly which can limit individuals of certain ethnic groups to adopt healthier behaviors.

Educational programs focused on improving HTN and CVD can increase patient knowledge, improve self-care, promote disease prevention, and improve overall health outcomes. The potential for positive behaviors among the AAW that participated in this project further highlights the necessary role that NPs have in preventing potential complications of CVD. By providing counseling regarding lifestyle modifications with each follow-up visit in the

facility, may promote change, and CV knowledge. CV education is the key and the foundation to achieving improved outcomes among women of color.

## References

Bandura, A. (2004). Health promotion by social cognitive means. *Health Education & Behavior*, *31*(2); 143-164. https://doi.org/10.1177/1090198104263660

Brewer, L. C., Balls-Berry, J. E., Dean, P., Lackore, K., Jenkins, S., & Hayes, S. N. (2017). Fostering African American Improvement in Total Health (FAITH): An application of the American Heart Association's Life's Simple 7 among midwestern African Americans *Journal of Racial Ethnic Health Disparities*, *4*, 269-281. https://doi.org/10.1007/s40615-016-0226-z

Brewer, L. C., Hayes, S. N., Jenkins, S. M., Lackore, K. A., Breitkopft, C. R., Copper, L. A., & Patten, C. A. (2019). Improving cardiovascular health among African Americans through mobile health: The FAITH app pilot study. *Journal of General Internal Medicine*, *34*, 13761378. https://doi.org/10.101007/s11606-019-04936-5

Booth III, J. N., Abdalla, M., Tanner, R. M., Diaz, K. M., Bromfield, S. G., Tajeu, G., Correa, A., Sims, M., Ogedegbe, G., Bress, A. P., Spruill, T. M., Shimbo, D., & Muntner, P. (2017). Cardiovascular health and incident hypertension in African Americans: The Jackson Heart Study. *Hypertension*, *70*(2), 285-292. https://doi.org/10.1161/HYPERTENSIONAHA.117.09278

Boskey, E. (2020, October 13). The health belief model. *Behavioral Psychology*. https://verywellmind.com/health-belief-model-3132721

Braun, L. T., Wilbur, J., Buchholz, S. W., Schoeny, M. E., Miller, A. M., Fogg, L., Volgman, A. S., & McDevitt, J. (2016). Cardiovascular risk in midlife African American women participating in a lifestyle physical activity program. *Journal of Cardiovascular Nursing*, *31*(4), 304-312. https://doi.org/10.1097/JCN.0000000000000266

Cao, Z., Chen, Y., & Wang, Sm. (2014). Health belief model-based evaluation of school health education programme for injury prevention among high school students in the community context. *BMC Public Health*, 14(26). https://doi.org/10.1186/1471-2458-14-26

Carnethon, M. R., Howard, G., Anderson, C. A., Bertoni, A. G., Mujahid, M. S., Palaniappan, L., Taylor, H. A., Willis, M., & Yancy, C. W. (2017). Cardiovascular health in African Americans: A scientific statement from the American Heart Association. *Circulation*, *136*(21), 393-423. https://doi.org/10.1161/CIR.0000000000000534

Ebong, I., & Breathett, K. (2020). The cardiovascular disease epidemic in African American women: Recognizing and tackling a persistent problem. *Journal of Women's Health*, *29*(7), 891-893. https://doi.org/10.1089/jwh.2019.8125

Egan, B. M., Sutherland, S. E., Jones, D. W., Ferdinand, K. C., Hong, Y., & Sanchez, E. (2020). Sociodemographic determinants of life's simple 7: Implications for achieving cardiovascular health and health equity goals. *Ethnicity & Disease*, *30*(4), 637-650. https://doi.org/10.18865/ed.30.4.637

Elgazzar, R., Nolan, T. S., Joseph, J. J., Aboagye-Mensah, E. B., Azap, R. A., Gray, D. M. (2020). Community-engaged and community-based participatory research to promote American Heart Association Life's Simple 7 among African American adults: A systematic review. *POLS ONE*, *15*(9). https://doi.org/10.1371/journal.pone.0238374

Han, H., Chan, K., Song, H., Lee, J., & Kim, M .TY. (2011). Development and evaluation of a hypertension knowledge test for Korean hypertensive patients. *Journal of Clinical Hypertension*, 13(10, 750-757. https://doi.org/10.1111/j/1751-7176.2011.00497.x

Hepburn, M., Bautista, C., & Feinn, R. (2021). Health promotion behaviors among urban black women. *Western Journal of Nursing Research*, *43*(11), 1001-1009. https://doi.org/10.1177/0193945920988785

Hsu, A. R., & Wong, N. D. (2017). Cardiovascular health awareness and promotion in women: AHA's Life's Simple 7 and Go Red for Women. *Current Cardiovascular Risk Reports*, *11*(13). https://doi.org/10.1007/s12170-017-0538-5

Indra, V. (2018). A Review on Models of Evidence-Based Practice. *Asian Journal of Nursing Education and Research*, *8*(4), 549-552.

https://doi.org/10.5958/2349-2996.2018.00115.5

Intellectus Statistics [Online computer software]. (2022). Intellectus Statistics. https://analyze.intellectusstatistics.com/

Marseille, B. R., Commodore-Mensah, Y., Davidson, P. M., Baker, D., D'Aoust, R., & Baptist, D. L. (2021). Improving hypertension knowledge, medication adherence, and blood pressure control: A feasibility study. *Journal of Clinical Nursing, 30* (19/20), 2960-2967. https://doi.org/10.1111/jocn.12803

Mheid, I. A., Kelli, H. M., Ko, Y., Hammadah, M., Ahmed, H., Hayek, S., Vaccarino, V., Ziegler T. R., Gibson, G., Lampi, M., Alexander, W., Brigham, K., Martin, G. S., & Guyyumi, A. A. (2016). Effects of a health-partner intervention on cardiovascular risk. *Journal of American Heart Association*, *5*, e004217. https://doi.org/10.1161/JAHA.116.004217

Mozaffarian, D., Benjamin, E. J., Go, A. S., Arnett, D. K., Blaha, M. J., Cushman, M., Ferranti, S., Despres, J., Fullerton, H. J., Howard, V., Huffman, M. D., Judd, S. E., Kissela, B. M., Lackland, D. T., Lichtman, J. H., Lisabeth, L. D., Lui, S., Mackey, R. H., Matchar, D. B.,..& Turner, M., B. (2015). Executive summary: Heart disease and stroke statistics-2015 update: A report from the American Heart Association. *Circulation*, *131*(4), 434-441. https://doi.org/10.1161/CIR.0000000000000157

Murphy, M. P., Coke, L., Staffileno, B. A., Robinson, J. D., & Tillotson, R., (2015). Improving cardiovascular health of underserved populations in the community with life's simple 7. *Journal of the American Association of Nurse Practitioners*, *27*(11), 615-623. https://doi.org/10.1002/2327-6924-12231

Patridge, E. F., & Bardyn, T. P. (2018). Research electronic data capture (REDCap). *Journal of Medical Library Association*, *106*(1), 142-144. https://doi.org/10.5195/jmla.2018.319

Robinson, N., Miller, A., Wilbur, J., & Fogg, L. (2018). Subjective versus objective estimated cardiovascular disease risk and adherence to physical activity in African American

women. *Journal of Cardiovascular Nursing*, *33*(2), 111-117. https://doi.org/10.1097/JCN.0000000000000437

Schoenthaler, A. M., Lancaster, K. J., Chaplin, W., Butler, M., Forsyth, J., & Ogedegbe, G. (2018). Cluster randomized clinical trial of FAITH (Faith-Based Approaches in the Treatment of Hypertension) in blacks. *Circulation: Cardiovascular Quality and outcomes*, *11*(10), https://doi.org/10.1161/CIRCOUTCOMES.118.004691

Spikes, T., Higgins, M., Clark, P., Quyyumi, A., Reilly, C., Pemu, P., & Dunbar, S. (2019). The effect of health beliefs, depressive symptoms, and social support on medication adherence in African Americans with hypertension. *The Journal of Cardiovascular Nursing*, *34(*1), 44-51. https://doi.org/10.197/JCN.0000000000000519

The Department of Health and Human Services Office of Minority Health (2021, February). Policy and data. https://minorityhealth.hhs.gov/omh/browse.aspx?lvl=4&lvid-19

Tucker, C. M., Wippold, G. M., Williams, J. L., Arthur, T. M., Desmond, F. F., & Robinson, K. C. (2017). A CBPR study to test the impact of a church-based health empowerment program on health behaviors and health outcomes of black adult churchgoers. *Journal of Racial and Ethnic Health Disparities*, *4*, 70-78. https://doi.org/10.1007/s40615-015-0203-y

Virani, S. S., Alonso, A., Benjamin, E. J., Bittencourt, M. S., Callaway, C. W., Carson, A. P., Chamberlain, A. M., Chang, A. R., Cheng, S., Delling, F. N., Djousse, L., Elkind, M. S., Ferguson, J. F., Fornage, M., Khan, S. S., Kissela, B. M., Knutson, K. L., Kwan, T. W., Lackland, D. T., Lewis, T. T.,…Tsao, C. W. (2020) Heart disease and stroke statistics-2020 update: A report from the American Heart Association. *Circulation*, *141*(9), 139-596. https://doi.org/10.1161/CIR.0000000000000757

Woodward, M. (2019). Cardiovascular disease and the female disadvantage. *International Journal of Environmental Research and Public Health*, *16*(7), p. 1165. https://doi.org/10.3390/ijerph16071165

## Appendix A

## Participant's Letter of Invite

Dear Participant,

My name is LaToshia Williams, and I am a Family Nurse Practitioner currently pursuing a doctoral degree from the University of South Carolina. The purpose of the evidence-based practice project is to determine if implementing a bi-monthly educational wellness program using Life's Simple 7 guidelines from the American Heart Association would improve overall hypertension knowledge and decrease blood pressure and body mass index among African American women.

For you to participate in the project, you must be African American, ages 20-75, not currently pregnant, have a body mass index 25 or higher, and on oral antihypertensive medications.

To implement this project, I am requesting that you volunteer your time to attend seven sessions bi-weekly over the next three months. Each session will last approximately one hour. You will have your blood pressure and weight taken at each session. The program is free to attend and does not pose any risks. I will ask that each participant complete a Hypertension Knowledge Test before and after the wellness program. This test will be completely confidential and untraceable back to any participant. All data will be stored and locked in file cabinet and office.

Your participation in the evidence-based practice project is completely voluntary. If you decide to no longer participate, you will not be penalized. This is a unique opportunity to learn about the signs and symptoms, risk factors, and complications associated with hypertension and how lifestyle modifications can reduce those risks. If you have any questions or concerns, I can be reached at 984-201-9669 and email latoshia@email.sc.edu.

Thank you for your time and consideration,

LaToshia D. Williams

## Appendix B

## My Life Check Questionnaire

How would you rate your heart health out of 10? 1 2 3 4 5 6 7 8 9 10 I do not know

**General Information**:

Age_____ Body Composition_____
Ethnicity_____ Height_____
Zip code_____ Weight_____

**Physical Activity**

# of minutes_____ Moderate (walking/gardening)

# of minutes_____ Vigorous (running/swimming)

**Smoking Status:**

**Vegetable Intake**

How many cups of vegetables do you eat in an average day _____

**Whole Grains**

How many servings of whole grains do you eat in an average day_____

**Fruit**

How many servings of fruit do you eat in an average day_____

**Sugar Intake**

How many 12oz beverages with added sugar to you drink each week-_____

**Fish Intake**

How many servings of fish do you eat in an average week_____

**Sodium Intake**

How much sodium do you consume in a day_____

**Your blood pressure:**

Systolic_____ Diastolic_____
Cholesterol_____

**Your blood sugar**

Fasting_____ A1C_____ I am not sure_____

## Appendix C

## Consent Form

I am LaToshia Williams, and I am a Family Nurse Practitioner currently pursuing a doctoral degree from the University of South Carolina. In conjunction with my committee faculty members, Dr. Creed and Dr. Johnson, I am currently doing a project to determine if implementing a bi-monthly educational wellness program using Life's Simple 7 guidelines from the American Heart Association would improve overall hypertension knowledge and decrease blood pressure and body mass index among African American women.

I am seeking the assistance of African American women who has a diagnosis of hypertension to participate in a three-month project focusing on using Life's Simple 7 guidelines by the American Heart Association to provide education regarding high blood pressure. There will be a total of seven sessions that will last one hour. Sessions will take place bi-weekly at Angier Pediatrics and Adult Medical Center, PLLC. There will be a short questionnaire to complete at the initial session. Your attendance is appreciated.

There are no risks for participating in this program. You are advised that participating in this program does not replace your current medical treatment.

For you to participate in the project, you must be African American, ages 20-75, not currently pregnant, have a body mass index 25 or higher, and on oral antihypertensive medications.

There are no monetary gifts that will be provided for participating in this study. You will have your blood pressure and weight taken at each session. The program is free to attend and does not pose any risks. I will ask that each participant complete a Hypertension Knowledge Test before and after the wellness program. This test will be completely confidential and untraceable back to any participant. All data will be stored and locked in file cabinet and office.

Your participation in the evidence-based practice project is completely voluntary. If you decide to no longer participate, you will not be penalized. This is a unique opportunity to learn about the signs and symptoms risk factors, and complications associated with hypertension and how lifestyle modifications can reduce those risks. If you have any questions or concerns, I can be reached at 984-201-9669 and email latoshia@email.sc.edu.

Thank you for your time and consideration,

DNP Student

Signature_____Date_____

## Appendix D

## Life's Simple 7 Guidelines

| Sessions | Topic |
|---|---|
| **Session 1** | **Managing Blood Pressure**<br>Orientation to the program, blood pressure/weight measurement, completion of HKT, and complete demographic data form |
| **Session 2** | **Control Cholesterol**<br>Blood pressure/weight measurement |
| **Session 3** | **Reducing Blood Sugar Level**<br>Blood pressure/weight measurement |
| **Session 4** | **Get Active**<br>Blood pressure/weight measurement |
| **Session 5** | **Eating Better**<br>Blood pressure/weight measurement |
| **Session 6** | **Losing Weight**<br>Blood pressure/weight measurement |
| **Session 7** | **Smoking Cessation**<br>Program wrap up, blood pressure/weight measurement, completion of HKT, and program evaluation |

*American Heart Association (AHA) Life's Simple 7 Guidelines 2021*

## Appendix E

## Blood Pressure/Weight Log

| Date | Participant ID | Blood Pressure | Weight | Body Mass Index |
|---|---|---|---|---|
| | | | | |
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## Appendix F

## Hypertensive Knowledge Test

**Hypertension Knowledge Characteristics**

| | | |
|---|---|---|
| 1. | There is nothing you can do to prevent HBP. | False |
| 2. | If your mother or father has HBP, you'll get it. | False |
| 3. | Young adults don't get HBP. | False |
| 4. | HBP has no symptoms. | True |
| 5. | Stress causes HBP. | False |
| 6. | HBP is not life threatening. | False |
| 7. | BP is high when it is over 140/90 mmHg. | True |
| 8. | If you are overweight, you are 2 to 6 times more likely to develop HBP. | True |
| 9. | You have to vigorously exercise every day to improve your BP and health. | False |

| | | |
|---|---|---|
| 10. | Americans eat 2 to 3 times more salt and sodium than they need. | True |
| 11. | Drinking alcohol lowers BP. | False |
| 12. | HBP has no cure. | True |

*Note:* BP – blood pressure, HBP – high blood pressure, HTN – hypertension, n/a – not applicable

## Appendix G

## Demographic Data Log

**Age:** 20-29 30-39 40-49 50-59 60-69 70-75

**Marital Status:** Married Separated Divorced Widow Widower

**Employment Status:** Home maker Full-Time Part-Time Self-Employed
Retired Disabled Not Employed

**Educational Level:** High School Diploma GED >than High School
College Graduate Graduate Education

**Income:** 20,000-30,000 31,000-40,000 41,000-50,000 51,000-60,000
61,000-70,000 71,000-more

**Current Medication List (include name, dosage, how often taken)**

_____

_____

_____

_____

_____

_____

## Appendix H

## Approval Letter

Angier Pediatrics and Adult Medical Center, PLLC
441 Lakestone Commons Avenue
Fuquay Varina, NC 27525
(919) 577-0481
angierpediatrics@aol.com

October 15, 2021

From: Angier Pediatrics & Adult Medical Center, PLLC

To: The University of South Carolina College of Nursing

To Whom It May Concern:

Dr. Kingsley Ugochukwu, owner of Angier Pediatrics and Adult Medical Center, PLLC gives its approval for University of South Carolina student, LaToshia D. Williams to conduct her DNP evidence-base practice project at our clinic, which includes the following:

- Using the electronic health record system, Prognosis to perform a clinical data assessment
- Implement a wellness program to increase hypertension knowledge and decrease blood pressure and body mass index among African American women

Sincerely,

*Patricia Owens*

Patricia Owens/Office Manager on behalf of Kingsley Ugochukwu MD

## Appendix I

## Participant Evaluation Form

**Date_____-**

**ID number_____**

Instructions: Please indicate your level of agreement with the statements below.

1. The objectives of the sessions were clearly defined.

   **Strongly Agree Agree Neutral Disagree Strongly Disagree**

2. The topics were specific to me.

   **Strongly Agree Agree Neutral Disagree Strongly Disagree**

3. Interaction was encouraged.

   **Strongly Agree Agree Neutral Disagree Strongly Disagree**

4. The student was knowledgeable.

   **Strongly Agree Agree Neutral Disagree Strongly Disagree**

5. I would recommend this program to others.

   **Strongly Agree Agree Neutral Disagree Strongly Disagree**

## Appendix J

## USC IRB Declaration of Not Research Letter

UNIVERSITY OF SOUTH CAROLINA

**OFFICE OF RESEARCH COMPLIANCE**

**INSTITUTIONAL REVIEW BOARD FOR HUMAN RESEARCH**
**DECLARATION of NOT RESEARCH**

LaToshia Williams
1601 Greene St
Columbia, SC 29208

Re: **Pro00117477**

Dear Mrs. LaToshia Williams:

This is to certify that research study entitled ***Bridging the Gap: Improving Hypertension in African American Women and Preventing Cardiovascular Disease*** was reviewed on **2/4/2022** by the Office of Research Compliance which is an administrative office that supports the University of South Carolina Institutional Review Board (USC IRB). The Office of Research Compliance, on behalf of the Institutional Review Board, has determined that the referenced research study is not subject to the Protection of Human Subject Regulations in accordance with the Code of Federal Regulations 45 CFR 46 et. seq.

No further oversight by the USC IRB is required. However, the investigator should inform the Office of Research Compliance prior to making any substantive changes in the research methods, as this may alter the status of the project and require another review.

If you have questions, contact Lisa M. Johnson at lisaj@mailbox.sc.edu or (803) 777-6670.

Sincerely,

Lisa M. Johnson
ORC Assistant Director and IRB Manager

## Appendix K

## Evidence Table

In (P) African American women diagnosed with hypertension, does participation in a (I) bi-monthly wellness class (O) decrease blood pressure and body mass index using Life's Simple 7 over a (T) three-month time frame?

| Brief Reference, Type of study, Quality rating | Methods | Threats to Validity/ Reliability | Study Findings | Conclusions |
|---|---|---|---|---|
| **Article**:<br><br>Brewer et al., 2017<br><br>**Evidence Level**: II<br><br>**Quality**: A high quality study, consistent, generalized results | **Design:** Pilot Study<br>**Sample:** 37 Adults, 70% women, n18 years of age and older<br>**Setting:** 3 AA Churches in Rochester, Minnesota<br>**Framework:** LS7<br>**Measures**: (1) Blood pressure, (2) BMI, (3) physical activity, (4) blood glucose, (5) cholesterol level, (6) smoking status, (7) diet.<br>**Analysis Plan:** Descriptive statistics used for continuous variables and frequencies. Paired t-tests used to compare average knowledge scores at baseline, immediate post-program, and 3 months post intervention. All statistical analyses performed using SAS version.<br>**Procedure:** 16-week educational intervention that used LS7 as a focus to increase heart health knowledge and decrease the risk factors associated with CVD. The study included cookbooks, | **Conclusion Validity:** Reasonable. There is a positive relationship between LS7 metrics and cardiovascular disease knowledge. Credible conclusion, limitations included small sample size.<br>**Internal Validity:** No basis present<br>**External Validity:** N/A<br>**Construct Validity:** Measured what was stated<br>**Reliability:** Study reliable. All but one participant completed the study.<br><br>**Precision:** There was a statistically improvement in cardiovascular health knowledge $p<0.02$. Statistical significance set at $p<0.05$ | The study showed improvements. In the overall cardiovascular health in participants. Those meeting ideal or intermediate LS7 increased from 70% to 82% within 3 months.<br><br>The overall cardiovascular health knowledge increased from 48% at baseline to 57% post intervention. | The study demonstrated a feasible study that promoted cardiovascular health education among participants within a community setting. Participants were engaged and has the potential to change behaviors to reduce their risk of CVD.<br><br>The study did suggest that future interventions should focus on psychosocial influences. |

| Brief Reference, Type of study, Quality rating | Methods | Threats to Validity/ Reliability | Study Findings | Conclusions |
|---|---|---|---|---|
| | lectures, daily prayers, and physical activity. | | | |

| Brief Reference, Type of study, Quality rating | Methods | Threats to Validity/ Reliability | Study Findings | Conclusions |
|---|---|---|---|---|
| **Article:**<br><br>Brewer et al., 2019<br><br>**Evidence Level**: II<br><br>Quality: B, overall good study | **Design:** Pilot Study<br><br>**Sample:** 50 AA adults, 70% female<br><br>**Setting:** 5 Minnesota churches<br><br>**Measures:** (1) Blood pressure, (2) BMI, (3) diet, (4) physical activity, (5) weight, (6) smoking, (7) glucose<br><br>**Analysis:** Wilcoxon/McNemar tests were used to rank and compare paired outcomes for continuous variables. All analyses were performed using SAS version 9.3.<br><br>**Procedure:** 10-week program using the Fostering African American Improvement in Total Health (FAITH) application. Used for educational modules. | **Conclusion Validity**: Small sample size, no control group and short duration.<br><br>**Internal Validity:** No bias present.<br><br>**External Validity:** Study was in line with and contributed significantly to the research knowledge.<br><br>**Construct Validity:** Study measured what was stated.<br><br>**Reliability:** Reliable study and findings<br><br>**Precision:** Improvement in some CV health factors blood pressure p<.001, diet p<.001, and physical activity .04. | Pretest/post test data showed an improvement in outcomes associated with reducing CVD. At 28 weeks, the study showed an improvement in the LS7 composite score and moved towards ideal CV health (p=.05), and an improvement in blood pressure, diet, and physical activity. | Despite being brief, it focused on promoting CV health among AAs at risk for developing CVD. This intervention was designed to close gaps and engage AA patients outside of the office setting.<br><br>This particular study relied on individuals to use an app for educational models consisting of videos that discussed health self-monitoring and social networking. |

| | | | | |
|---|---|---|---|---|
| **Article:**<br><br>Booth III et al., 2017<br><br>**Evidence Level: II**<br><br>**Quality:** B good study, reasonable, consistent results | **Design:** Prospective Cohort Study<br>**Sample:** 5,306 AA's aged 20 years or older<br>**Setting:** Jackson, Mississippi, Madison and Rankin counties<br>**Framework:**<br>**Measures:** (1) Blood pressure, (2) BMI, (3) diet, (4) smoking status, (5) physical activity, (6) cholesterol, (7) fasting glucose.<br>**Analysis Plan:**<br>**Procedure:** In-home interview and clinical examination conducted by trained research staff. A 24-hour urine or spot urine test completed for the albumin and creatinine to calculate eGFR to determine if kidney disease was present. Blood pressure and blood samples collected for glucose and cholesterol levels after fasting overnight for 8 hours. | **Conclusion Validity:** Reasonable, rather small sample size for the type of study.<br>**Internal Validity:** No biases<br>**External Validity**: N/A<br>**Construct Validity:** Measures were self-reported and objective measures were not available.<br>**Reliability:** Reliable<br>**Precision:** 95% confidence interval for incident hypertension | The study showed participants for individual components and incident hypertension with ideal LS7 components of 18% for BMI, 23.1% for physical activity, 0.6% diet, 85% for smoking status, 45/2% for blood. Pressure, 51/6% cholesterol, and 87.3%n for fasting blood glucose.<br><br>Participants with a more ideal LS7 components had lower mean systolic blood pressure and diastolic blood pressure at baseline. | The overall results of the study suggest that improving poor and intermediate CV health can help lower the risks of developing hypertension.<br><br>This study proves that LS7 is a practical approach to reducing and preventing HTN among AAs. |

| | | | | |
|---|---|---|---|---|
| **Article:**<br><br>Elgazzar et al., 2020<br><br>**Evidence Level:** III<br><br>**Quality: B** good, reasonable | **Design:** Systematic Review<br><br>**Sample:** 54 studies with 27 being RCT<br><br>**Setting:** All studies were completed in the community<br><br>**Framework**: N/A<br><br>**Measures:** (1) Blood pressure, (2) BMI, (3) diet, (4) physical activity, (5) smoking status, (6) glucose, (7) cholesterol<br><br>**Analysis Plan**: N/A<br><br>**Procedure:** All articles were screened based on the inclusion and exclusion criteria. | **Conclusion Validity:** Reliable, limitations included reviews completed in 3 databases where other relevant studies could have been included but missed.<br><br>**Internal Validity:** Lack of power to detect defects<br><br>**External Validity: N/A**<br><br>**Construct Validity: N/A**<br><br>**Reliability:** Reasonable, reliable due to systematic review<br><br>**Precision:** N/A | Out of the 54 articles included, 27 studies discussed physical activity, 13 for BMI, 10 for blood pressure, 4 studies with smoking all showed statistically significant increases post-intervention. 6 studies evaluated changes in cholesterol but only 3 noted to be statistically significant. | This study resulting in a majority of the studies showing a statically significant improvement in all variables being measured.<br><br>The study also showed that faith-based interventions that are community based has the highest attendance rates among AA participants. However, many also suggested that there was a lack of trust among this population with their health care providers. |

| | | | | |
|---|---|---|---|---|
| **Article:**<br><br>Han et al., 2011<br><br>**Evidence Level:** II<br><br>**Quality:** A, consistent, generalized | **Design:** Randomized Control Trial<br><br>**Sample:** 885 Korean Americans<br><br>**Setting:** Baltimore-Washington metro area<br><br>**Framework:** N/A<br><br>**Measures:** (1) blood pressure, (2) hypertension knowledge, and (3) medication adherence.<br><br>**Analysis Plan:** Item correlation (.15) and Cronbach $\alpha$ ($>$ .70)used. A multi-log 2-pararmeter and 3-parameter logistic models were also used.<br><br>**Procedure:** Two groups (440/445) of Korean Americans completed the knowledge test at baseline and along with additional data was collected at baseline to include demographic data, blood pressure, medication list, and weight. Blood pressure readings were taken three times. All data collected was compared between the groups. | **Conclusion Validity:** Data only collected at baseline for both groups.<br><br>**Internal Validity:** No bias among participants noted.<br><br>**External Validity:** Able to be applied to smaller studies and should receive similar outcomes.<br><br>**Construct Validity:** Testing was to determine the relationship between high blood pressure knowledge and blood pressure control.<br><br>**Reliability:** Reliable study.<br><br>**Precision:** Statistically significant p=.001 | This study concluded that individuals with controlled blood pressure readings had higher knowledge test scores (p=.012) over those that were uncontrolled. | The Hypertension Knowledge Test is considered valid and reliable to assess general hypertension knowledge. It is written on a 4$^{th}$ grade educational level, easily understood, and self-administered. This test can also detect individuals without blood pressure control. |

| | | | | |
|---|---|---|---|---|
| **Article:**<br><br>Jones et al., 2017<br><br>**Evidence Level:** II<br><br>**Quality:** B, overall good | **Design:** Descriptive, cross-sectional study<br><br>**Sample:** 151 AAW<br><br>**Setting:** Midwestern regional church conference<br><br>**Framework:** N/A<br><br>**Measures:** (1) Hypertension knowledge<br><br>**Analysis Plan:** SPSS version 24 was used to analyze the data. Descriptive statistics were used to summarize the data. Pearson correlations explored the relationship between systolic blood pressure scores and hypertension knowledge scores. Independent sample t-tests compared hypertension knowledge scores for women with controlled blood pressure to those uncontrolled.<br><br>**Procedure:** Participants attending a church conference were invited to complete a questionnaire to assess hypertension knowledge, Check Your High Blood Pressure IQ Survey and have their blood pressure taken. | **Conclusion Validity:** Reasonable sample size.<br><br>**Internal Validity:** All participants were highly educated.<br><br>**External Validity:** Study took place at a church regional conference where the participants share a cultural norm.<br><br>**Construct Validity:** The study measured knowledge deficit among AAW.<br><br>**Reliability:** Reliable study and tools used.<br><br>**Precision:** p=.52 as women both normotensive and those with elevated blood pressure answered the questions the same. | Out of 151 participants 62% were diagnosed with hypertension. The average blood pressure among the participants was 136/82. 14% had an. Elevated reading greater than 160mmHg. 97% answered at least 7 of the 12 questions correctly. The average score was 73% that suggested women were somewhat knowledgeable about their condition. Three statements to which the majority of participants answered incorrectly. | There are several misconceptions regarding hypertension in AAW. The goal was to improve self-management among this group.<br><br>The results prove that there are opportunities in which advanced practice nurses can improve knowledge by identifying a deficit is present and facilitate changed based on evidence-based practice to tailor the needs of their population. |

| | | | | |
|---|---|---|---|---|
| **Article:**<br><br>Marseille, B. R. et al., 2021<br><br>**Evidence Level:** I<br><br>**Quality:** B, good study | **Design:** Pretest Posttest Feasibility Study<br><br>**Sample:** 47 residents that identified as Haitian or of Haitian descent diagnosed with hypertension<br><br>**Setting:** Northeast region of US at a primary care facility<br><br>**Framework:** Theory of Culture Care and Transcultural Nursing<br><br>**Measures:** (1). Blood pressure, (2) medication adherence, (3) hypertension knowledge<br><br>**Analysis Plan:** Descriptive statistics used for sociodemographic and clinical characteristics. Paired sample t-tests used to examine pre- and post- intervention results to compare the knowledge and adherence scores and blood pressures at baseline and follow up.<br><br>**Procedure:** Participants will take the Hill-Bone Compliance to High Blood Pressure Therapy Scale and the Hypertension Knowledge Test at baseline. Each participant will have a 45-minute session receiving education regarding the definition of hypertension, complications, risk factors, and treatment/management of | **Construction Validity:** small sample size, non-randomized, and no comparison group.<br><br>**Internal Validity:** No bias noted.<br><br>**External Validity:** Short time frame for study, due to no comparison group, unable to control variables that may influence positive results.<br><br>**Construct Validity:** Study still showed promising results.<br><br>**Reliability:** Very reliable study.<br><br>**Precision:** There was a significant reduction in blood pressure and medication adherence in the pre- and post-intervention periods $p<.01$. | A total of 44 participants completed the study. There was a mean age of 61.95 and 59% were women. Only 42 participants completed the Hypertension Knowledge Test but there not a significant difference between baseline and post intervention test scores $p=.09$.<br><br>However, the Hill-Bone test showed significant improved behaviors among participants $p<.01$, sodium reduction $p<.05$ and keep follow up appointments $p<.01$.<br><br>Blood pressure also showed a significant reduction overall from baseline to post-intervention $p<.01$. | This study was relevant to tailoring education to meet the specific needs of the targeted population. Once the intervention was tailored, participants were better able to adapt based on evidence-based practice methods for educating blacks regarding medications, blood pressure, and management. |

| | | | | |
|---|---|---|---|---|
| **Article:** | hypertension. A baseline blood pressure will be recorded. A 6-week follow up appointment will be made, and the participants will repeat the test along with their blood pressure recorded. | **Construction Validity:** Reliable no limitations found. | | The overall health partner significantly improved overall cardiometabolic health |

| | | | | |
|---|---|---|---|---|
| Mheid et al., 2016<br><br>**Evidence Level:** II<br><br>**Quality:** B good overall study | **Design:** RCT<br>**Sample:** 711 employees<br>**Setting:** Emory University (Atlanta, GA)<br>Framework:<br>**Measures**: (1) blood pressure, (2) weight, (3) diet (4) glucose (5) blood lipid panel, (6) physical activity, (7) smoking status<br>**Analysis Plan:** Chi-square testes were used without t- tests for categorical variables. Missing data assumed to be missing at random.<br>**Procedure:** Subjects recruited randomly and studied for 2 years. Participants completed a comprehensive evaluation at baseline, 6 months, 1- and- 2-year post intervention. Blood samples were collected for a complete metabolic panel and lipid profile. All participants created questionnaires regarding dietary and physical activity. | **Internal Validity:** No bias noted<br><br>**External Validity:** N/A<br><br>**Construct Validity:** Study measured what was stated.<br><br>**Reliability:** Reliable<br><br>**Precision:** No significant differences found. | This study showed a reduced systolic blood pressure, cholesterol, BMI, and smoking status at 6 months, 1 year, and 2-year post intervention. Changes were. Most significant in those with higher risks at baseline.<br><br>There was an improvement in the lipid profile, promoted healthier eating, and exercise routine. | that was evident at 6 months, 1 year and 2 years post intervention.<br><br>There was an overall improvement in CV risk factors. |

| | | | | |
|---|---|---|---|---|
| **Article:**<br><br>Murphy et al., 2015<br><br>**Evidence Level**: II<br><br>**Quality:** A high quality test, consistent and generalized | **Design: Unknown**<br><br>**Sample:** 28 participants<br><br>**Setting:** 2 inner-city community siters servicing AA older adults and homeless women, underserved communities<br><br>**Measures:** (1) Blood pressure, (2) cholesterol, (3) glucose, (4) cholesterol, (5) BMI<br><br>**Analysis Plan:** Pretest-post test<br><br>**Procedure**: Initial baseline measurements were taken from all participants. Then, each participant would meet monthly for coaching sessions lasting 30-40 minutes for 6 months. | **Construction Validity:** Reliable, limitations consisted of small sample size of only 28 participants<br><br>**Internal Validity**: No biases<br><br>**External Validity:** N/A<br><br>**Construct Validity:** N/A<br><br>**Reliability:** Reliable study<br><br>**Precision:** significance of $p<.05$ | 3 older adults did not complete the program due to scheduling conflicts. There was a significant increase in the My Life Check score of 8.5 and at baseline 6.2. There was a 12% and 8% decrease in blood pressure in systolic and diastolic blood pressure, and 41% in blood glucose. | Due to being in underserved communities, some individuals lacked the income needed to eat healthier. Study was NP driven and focused on providing care within an underserved population. The MLC was consistent and easy to facilitate. The coaching sessions showed an overall improvement in the health factors. |

| **Brief Reference, Type of study, Quality rating** | **Methods** | **Threats to Validity/ Reliability** | Study Findings | Conclusions |
|---|---|---|---|---|
| **Article:**<br><br>Tucker et al., 2017<br><br>**Evidence Level:** II<br><br>**Quality:** A high quality study, consistent, generalized results | **Design:** Randomized Control Trial<br><br>**Sample:** 70 overweight/obese AA participants. 81.4% AAW<br><br>**Setting:** 2 participating churches from the Bronx, NY<br><br>Framework: N/A<br><br>**Measures:** (1) Blood pressure, (2) BMI, (3) physical activity, and (4) diet.<br><br>**Analysis Plan:** Two-way ANOVA was used to analyze the data.<br><br>**Procedure:** 6-week program designed to promote healthy behaviors. First setting was used to set goals followed by 4 weekly sessions meeting 90 minutes. Sessions included coaching, family health empowerment, health-smart behavior guide, individual and group exercise. | **Conclusion Validity:** Exposed the relationship between culturally centered health interventions and improved health promotional activities.<br><br>**Internal Validity:** Small sample size from the churches, findings not generalized due to the restricted use of only two churches. There was possible sharing of information between of the intervention and those of the control group as they were both in the same locality.<br><br>**External Validity:** Relied on self-reported data to determine engagement levels in the health-smart behaviors under consideration particularly healthy eating and active lifestyle. Increases the risk of participants reporting exaggerated engagement levels to achieve an enhanced standing with the researchers and their peers. | The intervention group compared to the control group demonstrated a significant increase in the level of healthy eating.<br><br>A comparison showed that overweight/obese black adults have a worse prognosis than their non-overweight/obese counterparts. | The study demonstrated a feasible study that promoted cardiovascular health education among participants within a community. The study was also conclusive and an effective intervention using faith-based programs to empower the black communities can bear positive results in reducing health disparities. |

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| | | **Construct Validity:** Measured what was stated.<br><br>**Reliability:** Study reliable.<br><br>**Precision:** No significant change in BMI or blood pressure however, there was a significant increase in the level of physical activity($p<.001$) and healthy eating ($p=0.001$). | | |