Southern Adventist University
Knowledge Exchange

DNP Research Projects | School of Nursing

2020

Reducing Hypertension through Faith Community Nursing

Michelle White
Southern Adventist University

Follow this and additional works at: https://knowledge.e.southern.edu/dnp

 Part of the Cardiovascular Diseases Commons, Family Practice Nursing Commons, and the Public Health and Community Nursing Commons

Recommended Citation

White, Michelle, "Reducing Hypertension through Faith Community Nursing" (2020). *DNP Research Projects*. 27.
https://knowledge.e.southern.edu/dnp/27

This Dissertation is brought to you for free and open access by the School of Nursing at Knowledge Exchange. It has been accepted for inclusion in DNP Research Projects by an authorized administrator of Knowledge Exchange. For more information, please contact jspears@southern.edu.

Reducing Hypertension through Faith Community Nursing

Michelle White

June 24, 2020

Chapters 1-5 for DNP Project

A Paper Presented to Meet Partial Requirements

For NRSG 815

Scholarly Project Evaluation

Southern Adventist University

School of Nursing

Dedication

This scholarly project is dedicated to my father-in-law, Tom, who was like a father to me and passed away too early. He always encouraged me to continue my education because my ceiling would be my children's floor. To my loving husband, Christopher, who was always there providing support and assistance. To my mentor, Brenda, who inspired me to believe the impossible could become possible.

Abstract

Hypertension affects approximately 31.1% of adults (1.39 million) worldwide. It continues to be a significant risk factor for cardiovascular disease and strokes, the leading causes of death in the United States (Mills, Stefanescu, & He, 2020). Hypertension is expected to increase due to the aging population and unhealthy lifestyle choices of the American people (American Heart Association [AHA], 2018a). Therefore, effective strategies are required to manage hypertension in order to decrease stroke and cardiovascular events that can save the lives of many Americans. National programs such as *Healthy People 2020* are working to achieve blood pressure control within the United States population, but overall blood pressure measurements continue to be above normal ranges (Office of Disease Prevention and Health Promotion [ODPHP], 2019). The purpose of this pilot project was to determine if participation in a faith-based health education on hypertension management would improve health behaviors and blood pressure measurements to assist in combating this problem. In the four-week faith-based health intervention, there were no significant differences found in the H-SCALE subscale total scores that were measured before and after the intervention. Slight improvements/declines were discovered in various individual questions in the diet and weight management subscales, but not enough to make a significant impact on the H-SCALE subscale total scores. Systolic and diastolic blood pressure measurements were slightly reduced in four out of six participants, but no significant differences were found. However, this faith-based health education provided a safe and trusting environment where relationships were developed and participants shared their struggles in managing their health. Significant differences in health behaviors and blood pressure measurements may become evident in future studies implemented over a longer period of time with larger sample sizes, but further research is needed.

Table of Contents

List of Tables

List of Figures

Chapter 1

Background and Significance of the Project

Hypertension affects approximately 31.1% of adults (1.39 million) worldwide. It continues to be a significant risk factor for cardiovascular diseases and strokes, the leading causes of death in the United States (Mills, Stefanescu, & He, 2020). Hypertension is often referred to as high blood pressure, considered a "silent killer" because many of those who have the condition do not experience any signs and symptoms (Centers for Disease Control and Prevention [CDC], 2020). Unfortunately, by the time an individual is diagnosed with hypertension, harmful effects such as blood vessel, heart, and kidney disease may have already occurred. Approximately 500,000 deaths in 2017 were caused by or closely associated with having hypertension in the United States (CDC, 2020). Hypertension is expected to increase due to the aging population and unhealthy lifestyle choices of the American people (American Heart Association [AHA], 2018a). Therefore, effective strategies are required to manage hypertension in order to decrease stroke and cardiovascular events that can save the lives of many Americans.

Early identification of elevated blood pressure and hypertension is the recommended approach of the updated Clinical Practice Guidelines from the American College of Cardiology/AHA Task Force (Whelton et al., 2017). Patients identified as having hypertension should be screened for modifiable cardiovascular risk factors such as smoking, diabetes, high cholesterol, obesity, inactivity, increased stress, and sleep apnea. Blood tests, a urinalysis, and an electrocardiogram are the minimal diagnostic tests needed to assess for end organ damage. End organ damage occurs when sustained, uncontrolled hypertension has caused injury to the body's major organs such as the heart, kidneys, brain, and eyes. Blood tests should include a fasting blood glucose, complete blood count, fasting lipids, basic metabolic panel, and a thyroid

stimulating hormone (Whelton et al., 2017). This comprehensive workup will provide valuable information needed to manage hypertension and to identify any additional comorbidities.

Lower blood pressure measurements are associated with decreased cardiovascular risks (Mills, Stefanescu, & He, 2020). Elevated blood pressure in adults is now defined as a systolic blood pressure ≥ 120 mm Hg and/or a diastolic blood pressure ≥ 80 mm Hg; whereas a systolic blood pressure between 130 - 139 mm Hg and/or a diastolic blood pressure between 80 - 89 mm Hg is now considered stage one hypertension. Those with a systolic blood pressure measurement ≥ 140 mm Hg or a diastolic blood pressure measurement ≥ 90 mm Hg are diagnosed with stage two hypertension. These changes facilitate a more aggressive approach in the management of elevated blood pressure and hypertension to prevent future comorbidities such as heart disease and strokes (Shoulders & Powell, 2019).

With the new definition of blood pressure categories, the prevalence of hypertension in the United States increased from 32% to 45.4% (Mills, Stefanescu, & He, 2020). Approximately 108 million Americans now have hypertension, with only 50% being sufficiently managed (AHA, 2018a; CDC, 2020). However, many people with hypertension are not aware they have the condition due to the lack of signs and symptoms it produces, even those whose blood pressure is dangerously elevated (CDC, 2020). Hypertension that is controlled and properly managed reduces mortality and morbidity rates (Shoulders & Powell, 2019). Even just a ten percent decrease in a systolic blood pressure measurement can result in decreased risks of coronary artery disease, strokes, and heart failure (Reboussin et al., 2018).

Because hypertension is widely prevalent in the United States, the annual cost of treating high blood pressure is about $131 billion dollars (Kirkland et al., 2018). Direct costs include medication management, laboratory testing, healthcare provider visits, and hospitalizations

related to blood pressure problems. Indirect costs are reflected by productivity losses where an individual experiences early morbidity or mortality from a hypertension related condition (Mills, Stefanescu, & He, 2020). Furthermore, people who have hypertension may spend up to $2,000 more per year in medical expenses compared to those without hypertension. With the anticipated increase in the prevalence of hypertension, healthcare costs are expected to increase exponentially by the year 2030. Intensified efforts to prevent and manage high blood pressure are crucial in slowing these escalating healthcare expenditures (Kirkland et al., 2018).

The federal government developed *Healthy People 2020 (HP2020)* to improve the health of all Americans. Its national health objectives identify the health improvement priorities of the nation to decrease preventable threats that can lead to early morbidity and mortality. Having hypertension under control continues to be an objective of *HP2020*. The *HP2020* goal for controlled hypertension was set at 61.2%, but currently only 47.8% of Americans have their blood pressure under control (Office of Disease Prevention and Health Promotion [ODPHP], 2019). While there have been improvements in the management of hypertension, it remains far from the targeted goal. With the leading causes of death in the nation being heart disease and stroke, hypertension must be addressed. Interventions are needed at the national, state, and community levels to improve blood pressure control in those with hypertension.

The AHA developed a program called Check.Change.*Control*. It assists individuals in the community with online blood pressure self-monitoring and tracking. Local mentors are available to provide encouragement and advice on blood pressure management. Another program by the AHA is Target: BP that encourages providers and healthcare systems to work with patients in obtaining optimal blood pressure control. Algorithms and tools are available to treat and educate patients (AHA, 2018b). The CDC supports a Well-Integrated Screening and

Evaluation for WOMan Across the Nation (WISEWOMAN) program that aids women who have little or no insurance. WISEWOMAN is found in 19 states and two tribal organizations, and assists women 40-64 years of age in decreasing their stroke and cardiovascular risks through lifestyle changes (CDC, 2017).

While multiple national programs are working to achieve blood pressure control within the American population, overall blood pressure rates continue to be above normal parameters (ODHP, 2016). The need for a local community educational intervention is recognized. A combination of national, community, and healthcare system strategies can impact more people in providing awareness and education to reduce hypertension.

The community health needs assessment for Walker County, Georgia, conducted by Catholic Health Initiatives Memorial Hospital (as in County Health Rankings, 2014) found Georgia's heart disease death rates at 178.7 per 100,000 people to exceed the national rate at 169.8 per 100,000 people. Stroke death rates were also above the expected national rates at 41.4 per 100,000 people as compared to the 36.2 per 100,000 people. Walker County, located in northwest Georgia, received a health quality ranking of 89th out of the 159 counties in Georgia (County Health Rankings, 2019). This county's heart disease and stroke death rates were well above state and national levels in the same year. Heart disease death rates were 303.6 per 100,000 people, and stroke death rates were 55.3 per 100,000 people in Walker County (Table 1.1) (Catholic Health Initiatives Memorial Hospital, 2016). This rural area is comprised of approximately 69,410 people who are predominantly white (93%) with a median annual income of $43,581 per year (United States Census Bureau, 2018). The increased heart disease and stroke mortality rates in this county validate the need for concentrated efforts to prevent and effectively manage hypertension.

Table 1. 1

National, Georgia, and Walker County Mortality Rates

Death Rates per 100,00	National	Georgia	Walker County
Heart Disease	169.8	178.7	303.6
Strokes	36.2	41.4	55.3

Faith Community Nursing (FCN) interventions have been found useful in preventing disease and promoting health within faith-based organizations (White, 2018). Its unique community setting provides a familiar location, a trusting environment, and a supportive network where individuals can feel comfortable exploring interventions to improve health behaviors (Bangurah, Vardaman, & Cleveland, 2017). Vulnerable populations such as the elderly or those with little or no insurance existing within faith congregations can benefit from such health education interventions. Thus, FCN can assist individuals in improving health where traditional facilities may have difficulty influencing.

FCN is a community-based intervention that can be used to implement *HP2020* objectives. A holistic approach incorporating the body, soul, and spirit can assist individuals in gaining knowledge and changing lifestyle behaviors to improve health, so chronic conditions such as hypertension are effectively managed. Health teaching combined with purposeful integration of scripture, prayer, and worship can have a positive, long-lasting impact on individuals. This inspiration for health and wellness can spread to families and even local communities due to the interconnectedness of the faith organization with the surrounding area (Pappas-Rogich & King, 2014). Therefore, FCN is a unique community-based intervention that can assist in meeting the nation's healthcare challenges. Through health promotion and education, it encourages the faith community to become active participants in pursuing a healthy body, soul, and spirit through a relationship with God.

Problem Statement/Purpose

Local churches in northwest Georgia serve as lifelines for their communities. Many people attend to receive spiritual and emotional encouragement, but may also receive counseling, financial, and physical assistance. The population in this area has an increased prevalence of hypertension that can lead to higher cardiovascular and stroke risks.

The goal of this DNP Scholarly Project is to provide a foundation for future health education programs that can be implemented within a local faith community to improve health and wellness. The dangers of uncontrolled blood pressure and modifiable risk factors will be identified and thoroughly explained. Evidence-based strategies for managing elevated blood pressure and hypertension will be presented in a culturally sensitive manner.

PICO Question

Among members of a faith community with self-reported hypertension or elevated blood pressure, does participation in a health education intervention have an effect on changing health behaviors and decreasing blood pressure measurements? It is hypothesized that individuals within a faith community who have hypertension or elevated blood pressure and participate in a health education intervention will develop increased knowledge in managing their condition. They will understand the risks of developing negative health outcomes such as cardiovascular diseases and strokes and strive to improve key lifestyle behaviors. These health behaviors include medication compliance, consuming a healthy diet, physical activity, weight management, limiting alcohol, and refraining from smoking. It is anticipated that an improvement in these identified health behaviors will lead to decreased blood pressure measurements that will result in reduced cardiovascular and stroke risks.

Theoretical Framework

This scholarly project will be framed by the Health Belief Model (HBM) and Creation Health philosophy of health and wellness. Perceived susceptibility, perceived severity, perceived benefits, and perceived barriers are the main concepts of the HBM. The HBM demonstrates an individual is more motivated to achieve lifestyle changes if they understand their risk for developing a particular disease (perceived susceptibility). They also need to believe that the outcomes of the disease would be detrimental (perceived severity). In addition, the individual would need to recognize the positive end result of the lifestyle change (perceived benefits) far outweighs any obstacles they may encounter (perceived barriers) (Jones et al., 2015). The HBM's concepts can be used to provide awareness regarding the susceptibility and severity of developing additional illnesses such as cardiovascular diseases and strokes from uncontrolled high blood pressure. Lifestyle changes that include a healthy diet and increased physical activity can assist in decreasing hypertension. Perceived benefits will be identified such as improved health and wellness. Individual perceived barriers such as lower income for healthy food and lack of time to exercise will be explored along with strategies to overcome them.

Creation Health is a faith-based wellness program that assists people in improving health and wellness. The program's eight principles of choice, rest, environment, activity, trust, interpersonal relationships, outlook, and nutrition provide a holistic approach in caring for the body, soul, and spirit (Creation Health, n.d.). These evidence-based components will be integrated to improve blood pressure in those who have hypertension (Creation Health, n.d.).

The HBM and Creation Health provide the perfect blend needed for this DNP Scholarly Project (Figure 1.1). The risks and consequences of hypertension and evidence-based strategies to reduce blood pressure will be presented, so participants are motivated to develop preventive

health behaviors. Intentionally caring for body, soul, and spirit through Creation Health's eight principles can enable a person to experience a transformed life of improved health and wellness through the power of God.

CREATION HEALTH + HEALTH BELIEF MODEL

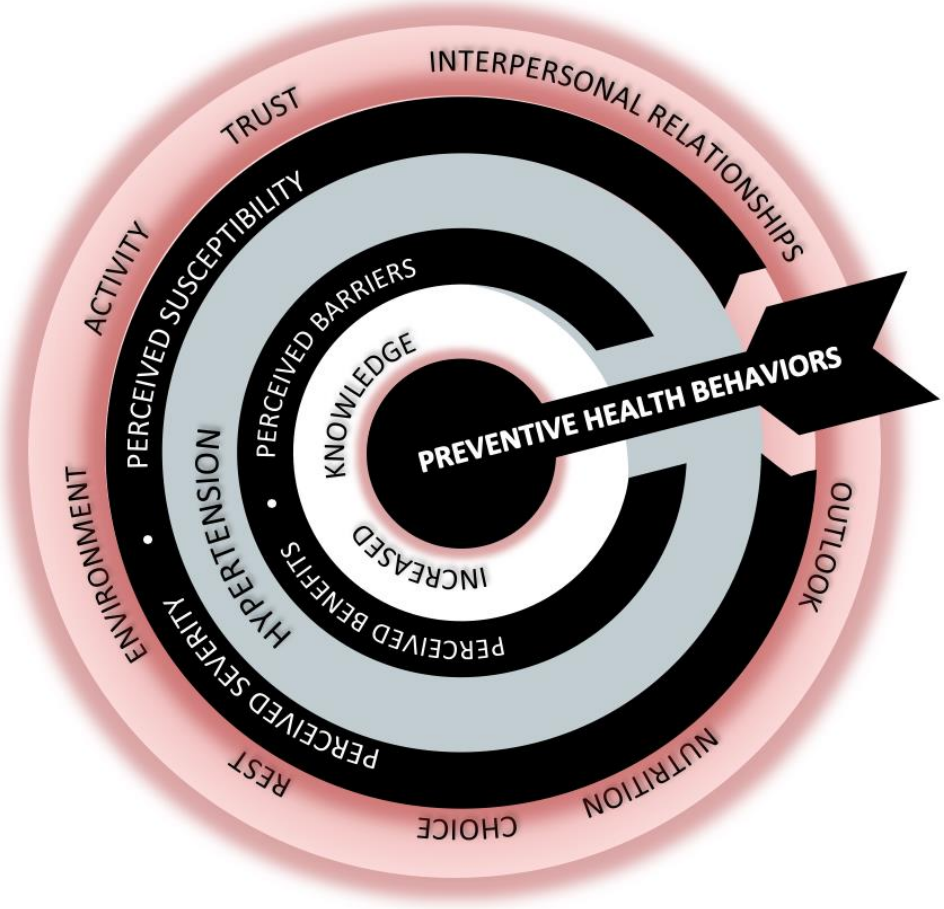


Figure 1.1. Key concepts from Creation Health and the Health Belief Model was combined to form the theoretical framework for this scholarly project (Creation Health, n.d.; Jones et al., 2015).

Chapter 2

Review of Literature

To achieve further understanding of the influence FCN has on individual health behaviors within a faith community, current evidence was appraised. An extensive search for literature was conducted using CINAHL, MEDLINE, and PubMeD databases. The following keywords such as faith community nursing, parish nursing, faith-based organizations, community-based, high blood pressure, hypertension, improving high blood pressure, blood pressure management, health promotion, health education, and church were used. The chosen articles demonstrated how FCN can be an effective approach to improve health outcomes within a congregation, and how hypertension can be decreased among members through health education. Studies that included therapeutic lifestyle changes such as a healthy diet, decreasing sodium, sleep, increasing physical activity, and stress reduction to reduce high blood pressure were also included.

Impact of Faith Community Nursing

A qualitative study was conducted to evaluate and understand health promotion activities provided in church communities to address health disparities (Ayton, Manderson, Smith, & Carey, 2015). Thirty Christian churches in Victoria, Australia, from multiple denominations such as Anglican, Baptist, Catholic, Church of Christ, and Uniting were evaluated to see how faith-based health promotion services were incorporated. Three themes evolved between the churches: traditional, new modern, and emerging. Traditional methods of health promotion activities included providing health screenings and promotion for their parishioners. For example, a large Catholic church employed a parish nurse to provide health promotion, education, screenings, visiting the sick, and attending doctor appointments with parishioners as

needed. The new modern method of health promotion programs included not only their members, but also local community members. A Baptist church partnered with community nurses from a local hospital to provide education and disease screening to mother's groups and youth groups. The emerging method of health promotion activities was seen in churches that did not meet in a typical church building, but in areas of the community such as cafes and pubs. Emerging churches activities collaborated with government agencies, schools, and health services to assist in providing community meals, housing, and health education. One church's group of outreach workers purposely lived in disadvantaged areas so they could be positive role models by providing meals, places to stay when needed, and gatherings to promote health. While faith community nursing/parish nursing is a new concept in Australia, churches in the state of Victoria have been found to play various roles in faith-based health promotion (Ayton, Manderson, Smith, & Carey, 2015).

Faith-based health promotion interventions have been found to increase knowledge and improve lifestyle behaviors within faith communities. Turn the Beat Around (TBA) is a socio-culturally tailored faith-based stroke prevention program that was implemented in nine Alabama African American Churches (N = 201) using trained community health workers. TBA consisted of six educational sessions informing participants on cardiovascular disease, stroke, hypertension, healthy nutrition, physical activity, and smoking cessation. Lifestyle behavior changes were adopted by 35.3% of participants, and self-reported improvements of health from good to better improved from 70.4% to 80.5% (p = .0042). Knowledge scores on stroke risk factors and healthy lifestyle strategies significantly increased (p < .001) from a mean of 32.8 (sd = 8.7) to a mean of 36.8 (sd = 7.4) (Williams et al., 2016).

A faith-based health promotion program sought to increase health literacy and health behaviors. This Health Smart Behavior Program utilized African Methodist Episcopal churches with 321 participants (Tucker et al., 2019). The intervention group (N = 179) received an individual coaching session at the beginning of the study to set personal goals. Participants then attended six weekly group sessions on healthy nutrition, decreasing intake of sugary drinks, adequate sleep, stress management, and physical activity. Health literacy on reading nutrition labels was significantly increased ($F(1,157) = 30.89$, $p < .001$, $n_2 = 16$) (Tucker et al., 2019). Overall Health-Smart behavior changes were improved in both the intervention ($F(1, 179) = 26.47$, $p < .001$, $n_2 = 0.13$) and the wait-list control group (N = 149) ($F(1, 179) = 5.33$, $p = .022$, $n_2 = 0.03$), but the intervention group's scores more than doubled the wait-list control group (Tucker et al., 2019).

Medication compliance was increased by 30% ($z = -2.117$, $p = .034$) in a study conducted in an African American church. Participants (N = 10) who had hypertension for at least six months attended eight health education sessions on managing their blood pressure through healthy lifestyle behaviors. Topics included healthy nutrition, physical activity, and medication compliance. Each session was enriched by incorporating Bible scriptures, prayer, and journaling (Harvin, Winter, Hoover, & Lewis, 2020).

Another faith-based community intervention utilized a church setting in a nurse-led diet and exercise intervention for blood pressure control (Bangurah, Vardaman, & Cleveland, 2017). Study participants were predominantly African American (N = 16) aged 55 years and older with hypertension or taking hypertension medications. The intervention lasted for four weeks, where participants received health teaching on decreasing salt consumption, reading food labels, and increasing physical activity. Blood pressure measurements were taken along with pre and post-

test surveys regarding physical activity and salt consumption. A decreased intake of salty and fast food was demonstrated (X_2 = 8.500, df = 3, p < 0.05 and X_2 = 9.905, df = 2, p < .05 respectively) along with significant increases in sports/recreational activity (X_2 = 15.400, df = 1, p < .05) and walking pace (X_2 = 12.121, df = 2, p < 0.5) (Bangurah, Vardaman, & Cleveland, 2017).

Pastoral experiences and opinions were positive of the learning and developing individual exercise skills (L.A.D.I.E.S.) intervention to improve physical activity among African American females (N = 418) in 31 churches (Story, Gross, Harvey, & Whitt-Glover, 2017). Over 22 months, the group of churches were divided into faith-based groups, nonfaith-based groups who attended classes, and a self-guided control group that received informational reading materials only. Upon completion of these educational offerings, the pastors of the involved churches were interviewed to better understand their perceptions of the program. The most common outcome as described by the pastors was an increased awareness and consciousness about health. Nine of the 11 pastors who were interviewed reported an improved health awareness in their church participants. Furthermore, 10 pastors stated that healthier lifestyle behaviors had been birthed in participants where some ladies are running 5ks or are even beginning to improve their diet. All pastors reported that the intervention provided an opportunity to build community within their churches, while six reported increased fellowship among the women (Story et al., 2017). Physical activity was also increased with an internet-delivered intervention over a period of eight weeks in an African American church. Each week participants (N=20) were directed to view free websites that included health information on physical activity. They also received encouraging messages to increase their physical activity via texts each week. Participants increased the mean number of days walking by one day (4 to 5 days), and the number of hours

sitting was decreased by one hour (7.2 hours to 6.2 hours). However, the results were not statistically significant (Washington, Weed, & Vardaman, 2015).

Health belief changes were evaluated among church members in two African American churches in Tennessee and South Carolina, and one church in Kentucky ($N = 61$) who participated in a twelve week Biomedical/Obesity Reduction Trial on diet, exercise, and mindfulness (Martinez et al., 2016). Participant's diets were drastically changed to fruits, vegetables, whole grains, beans, and seafood. Physical activity was increased to 30 minutes per day, five times a week. One participant expressed, "My eating habits were changed because of the BMOR study… I think overall it was an excellent program as far as awareness… participating in the program made a difference" (Martinez et al., 2016).

Weight loss was achieved in a faith-based lifestyle intervention to prevent diabetes among African-Americans. A cluster-randomized community trial incorporated 20 African American churches ($N = 604$) where one group was randomized to participate in the Fit Body and Soul program, and another group received health education over a period of twelve months in their home churches. The Fit Body and Soul program emphasized areas such as calorie reduction, decreased fat consumption, physical activity, goal setting, and managing cravings. The health education group learned about heart disease, cancer, strokes, mental health, and physical activity. After 12 months, those in the Fit Body and Soul program had a greater weight loss than the health education group (19% vs. 8%, $p < 0.001$) and decreased fasting blood sugars (12.38 mg/dL vs. 4.44 mg/dL decrease, $p = .021$) (Sattin et al., 2016).

Decreased Blood Pressure

Many studies regarding FCN use variables such as decreased blood pressure to measure the efficacy of a health education intervention. Blood pressure measurements were significantly

reduced utilizing the TBA program in Montgomery County (45.3% vs 25%, $p < .05$) and Dallas County churches (49.1% vs 27.3%, $p < .05$) (Williams et al., 2016). Blood pressure measurements of participants ($N = 42$) (82%) were also improved (95% CI) when faith community nurses collaborated with a western Maryland local health department to participate in the Million Hearts program to reduce cardiovascular and stroke risks (Cooper & Zimmerman, 2017). The average systolic blood pressure of 140 mm Hg was reduced to 130 mm Hg, and the average diastolic blood pressure decreased from 82 mm Hg to 76 mm Hg over a period of three months. Participants received digital blood pressure monitors and were instructed on home use. They also received three lifestyle coaching sessions from faith community nurses on medication adherence, healthy activity, healthy weight, healthy eating, managing stress, and smoking abstinence (Cooper & Zimmerman, 2017). In another faith-based study, all of the participants' ($N = 16$) blood pressure measurements were reduced below 140/90 (Bangurah, Vardaman, & Cleveland, 2017). Participants met as a group three times over a one-month period where they received health education and counseling on the risks of uncontrolled hypertension, diet, decreasing salt intake, physical activity, and reading food labels. Even though half of the participants' blood pressures were above 140/90 pre-intervention, the results were not found to be significant (Bangurah, Vardaman, & Cleveland, 2017).

Motivational interviewing combined with teaching on therapeutic lifestyle changes was found more effective in decreasing blood pressure than general health education (Shoenthaler et al., 2018). Participants ($N = 267$) included a mixture of African American, Caribbean, and African descent with hypertension in 32 New York churches. The intervention group received eleven educational sessions discussing therapeutic lifestyle changes such as healthy eating, physical activity, meal planning, medication management, and stress reduction. Three individual

motivational interviewing sessions after group sessions were also included by trained lay members of the church. The control group received only one educational session on hypertension control, and the other ten sessions covered various topics such as fire safety and substance abuse. After six months, systolic blood pressure measurements were lower in the intervention group (-16.53 mm Hg; 95% CI, -25.24 to -7.83) than in the control group (-10.75 mm Hg; 95% CI, -14.25 to -7.24), demonstrating -5.79 mm Hg difference ($p = 0.029$) between the two groups (Shoenthaler et al., 2018).

Therapeutic Lifestyle Changes

The Dietary Approach to Stop Hypertension (DASH) diet has been found an effective nonpharmacological intervention in blood pressure control by controlling salt intake. It emphasizes increased fruit and vegetable consumption along with moderate levels of low-fat dairy products, whole grains, poultry, fish, and nuts. High-fat foods that include red meat, sugary drinks, salty foods, and sweets are discouraged. Significant improvements in both systolic and diastolic blood pressure were found where the DASH diet was implemented (Siervo, 2015). Blood pressure measurements were reduced after only one week of initiating the DASH utilizing 412 participants (Jurascheck et al., 2017). The DASH diet, combined with walking 15-20 minutes per day for five days, was successful in decreasing blood pressures in 40 participants who had type two diabetes (Paula et al., 2015).

The DASH-Sodium trial found the combination of the DASH diet with a 1,150 mg sodium restriction per day to be more effective in decreasing systolic blood pressure than higher levels of sodium consumption. Participants ($N = 412$) were separated into three groups who consumed the DASH diet with different levels of sodium (1,150mg, 2,300 mg, or 3,450 mg) over a period of four weeks. While all the groups had reduced systolic blood pressure measurements

from 3 mm Hg – 10 mm Hg, the group with the lowest sodium consumption had decreased systolic measurements from 5 mm Hg – 20 mm Hg ($p < 0.001$) (Jurascheck, Miller, Weaver, & Appel, 2017).

Natural adjuvants such as flaxseed, cocoa, fiber, and omega three fatty acids were also found to assist in the reduction of hypertension. Moderate blood pressure improvements were seen with the intake of potassium, magnesium, vitamin C, and coenzyme Q10. Weight loss, aerobic activity, and stress reduction techniques significantly reduced blood pressure measurements in individuals. In addition, a nasal continuous positive airway pressure (nCPAP) was found efficacious in decreasing hypertension in those who have sleep apnea due to the stress response that occurs with the condition (Caliguri & Pierce, 2017).

Gaps and Limitations

After completing a search for articles regarding FCN and its role in the management of hypertension, it was found that current research was minimal. Most of the articles found addressed reducing hypertension in faith community settings, but mainly took place in African American churches. Even though African Americans are at an increased risk of developing hypertension, other races are also substantially affected by this condition. Population sizes were often small, and the strengths of studies are low. Furthermore, population samples in many studies consisted of mostly women. Additional research in diverse cultural faith community settings with an equal mixture of men and women is needed.

Chapter 3

Methodology

This DNP Scholarly Project sought to discover the effect a health education intervention within a faith community would have on health behaviors and blood pressure measurements. A pilot study utilizing a quasi-experimental prospective design with pre and post measures was implemented in a church located in northwest Georgia. The intervention was designed to combine faith and health teaching to provide evidence-based strategies on managing hypertension while emphasizing wholeness of the body, soul, and spirit.

Intervention

The faith-based health education intervention consisted of four sessions that were held once a week and lasted for 90 minutes each session (Appendix A). Evidence-based strategies were guided by AHA's (2017) brochure *Understanding and Controlling Your High Blood Pressure* and the *Thirty Days to Natural Blood Pressure Control: The No Pressure Solution* book (DeRose, Steinke, & Li, 2016). Information on natural adjuvants such as flaxseed, fiber, and omega three fatty acids were used from the book and supported by evidence found in the literature review. Scripture, prayer, worship, and encouragement with a focus on health improvement were incorporated into each session. Time was allotted in each session for participants to discuss the challenges and successes they may be experiencing to foster relationships and support within the group. Blood pressures were measured pre/post-intervention and recorded on each participant for analysis. The first week included participants completing a consent form (Appendix B), an enrollment form (Appendix C), and a Hypertension Self-Care Activity Level (H-SCALE) survey (Appendix D). Participants were given the AHA's (2017) brochure *Understanding and Controlling Your High Blood Pressure* (Appendix E) and a

wristband with the imprinted scripture "I can do all things through Christ who strengthens me" (Philippians 4:13, New International Version) (Appendix F). Education on the health dangers of prolonged uncontrolled hypertension, an overview of the modifiable risk factors for management, and the definitions of elevated blood pressure and hypertension was provided. Participants also received instruction on blood pressure self-monitoring. The importance of medication adherence and following prescribed treatments by their provider was briefly discussed. Discussion regarding the participants' "Why" in decreasing blood pressure and setting of personal goals was completed. The second session included healthy nutrition such as the DASH diet, Mediterranean diet, Plant-based diet, decreasing sodium intake, and optimal hydration. DASH diet food and healthy food samples were provided to participants. The third week consisted of increasing physical activity, the benefits of weight loss, natural adjuvants, and abstaining from alcohol/smoking. The fourth session covered topics on rest, sleep, and stress management through prayer, gratitude, trust, and worship. Principles from Creation Health such as choice, nutrition, activity, and trust were underlying themes in each session that brought depth to the DNP Scholarly Project.

Setting

The site for the implementation of the DNP Scholarly Project occurred in a faith community situated in a northwest Georgia rural setting. The church is part of the Church of God denomination, which is Pentecostal Christian and has over seven million members worldwide. The average age of adult congregates ranges from 18 – 80 years old. It is expected that 33.1% of the adult population would have hypertension (CDC, 2017). This was an ideal location for the hypertension education intervention due to its familiar environment where members attend weekly for worship services, bible studies, and meetings. The pastors of the

church have been the senior leaders for 20 years. They have a passion for their congregation to live in the fullness of God by knowing their identity in Him. This health education intervention will incorporate their vision and provide intentional, holistic wellness interventions where the congregation can learn to live in God's fullness through a healthy body, soul, and spirit.

Sample

Sample participants of the DNP Scholarly Project consisted of adults aged 18 years and older who self-reported elevated blood pressure, hypertension, or were taking blood pressure medication for the condition. During prescreening for enrollment, elevated blood pressure or hypertension was identified in many individuals who had their blood pressure measured. Individuals who were not 18 years of age or older, pregnant, or already enrolled in a chronic disease program were excluded from the project. The project recruited voluntary participants from within the faith community. Participants had an opportunity to receive an Airfryer or Instant Pot (participant's choice) with a cookbook at the end of the study through a random drawing.

Tools

The Hypertension Self-Care Activity Level Effects (H-SCALE) survey was used to measure participants' self-care behaviors in managing hypertension before and after the health education intervention. Participants answered questions in the survey regarding medication adherence, diet, physical activity, smoking, weight management, and alcohol. All H-SCALE subscales yielded an internal consistency (α = .77 - .88) except for the diet subscale (α = .67) (Warren-Findlow, Basalik, Dulin, Tapp, & Kuhn, 2013; Warren-Findlow, Reeve, & Racine, 2016). The author granted permission to use the validated H-SCALE survey with the revised DASH-Q diet subscale (Appendix G) for this DNP Scholarly Project.

Demographic information consisting of age, race/ethnicity, gender, and education was collected from participants on the enrollment form. Questions regarding the history of their blood pressure, medications taken for high blood pressure, and if they are under the care of a primary health provider were also included. The forms containing demographic data and blood pressure history were kept confidential in a locked box by the DNP student.

Blood pressure measurements were completed pre and post-intervention with a validated aneroid sphygmomanometer (Welch Allyn DS44) by a trained Emergency Medical Technician and the DNP student. The appropriate cuff size was used on participants, and prior to measurement, participants sat relaxed for at least five minutes. A table also supported their arm and their legs were uncrossed.

Advertisement of the Project

Advertisement of the health education intervention occurred at the church one month prior to the implementation of the DNP Scholarly Project. Flyers (Appendix H) were passed out prior to services each week and announcements were made from the pulpit. Participants were enrolled two weeks before the educational sessions through blood pressure screenings after the weekly worship services.

Protection of Human Subjects

Before implementing the DNP Scholarly Project, an Institution Review Board approval (Appendix I) was obtained from Southern Adventist University. In addition, permission from the local church's senior pastor was acquired (Appendix J). Subjects voluntarily participated in the study and signed an informed consent before implementation. Risks of the DNP project were negligible because participants were encouraged to continue prescribed therapies ordered by their providers. All data was collected in a manner where identifying information was

unattainable and kept confidential. Thus, the study did not reveal identifying information and preserved the rights of each participant.

Analysis

Pre and post-intervention data from the blood pressure measurements were evaluated using a paired-samples t-test, while the individual questions in the H-SCALE survey were analyzed using a Wilcoxon signed-rank test. Total subscale scores from the H-SCALE survey were then analyzed by a paired-samples t-test. Data collected from the H-SCALE survey was also scored according to the author's instructions (Appendix K) to determine the participant's adherence or non-adherence in self-care activities to manage hypertension. It was expected that participants would improve their health behaviors throughout the study that would lead to reduced blood pressure measurements. These tests assisted in identifying any differences before and after the health education intervention, and to measure the intervention's effectiveness in promoting healthy lifestyle changes and decreasing blood pressure measurements.

Chapter 4

Analysis of Results

This project sought to determine if participation in a faith-based health education intervention would have a positive impact on participant's health behaviors. Health behaviors assessed in this study included items such as taking prescribed medication as ordered, eating a high-quality diet such as a DASH diet, exercising daily, adequately managing weight, limiting alcohol, and refraining from smoking. It was also hypothesized that individuals who participate in a faith-based health education intervention would improve their health behaviors that would lead to decreased blood pressure measurements.

Sample/Population

The project was conducted in a faith community located in northwest Georgia. It began with seven voluntary participants comprised of six females and one male. All participants were Caucasian, with ages ranging 46 - 70 years old. Only 71% were established with a primary care provider. The number of participants who were diagnosed with hypertension, and taking blood pressure medication daily was 29%. However, all participants had either elevated blood pressure (14%), stage one hypertension (43%), or stage two hypertension (43%). One female participant who was diagnosed with stage two hypertension and taking blood pressure medication left the project prior to completion, so the analysis will only include the six remaining participants.

Participants attended four sessions once a week for approximately 90 minutes to learn strategies such as healthy nutrition and physical exercise to assist in decreasing and managing their blood pressure. Worship, a bible devotion, group discussion, and fellowship were included in each session. On the first and last sessions of the health education intervention, participant's

blood pressures were measured in a secluded area of the fellowship hall. Participants also completed an H-SCALE survey with questions regarding health behaviors during these times.

Study Outcomes/Measurements

Individual H-SCALE survey questions were analyzed using the Wilcoxon signed-rank test. Total scores from the pre and post-intervention data of the diet, physical activity, and weight management subscales were analyzed by a paired-samples t-test. The H-SCALE survey data was also calculated according to the author's instructions to determine if participants were adherent or non-adherent with their self-care activities regarding hypertension management. Participant's health behaviors were assessed by the H-SCALE survey that included various questions arranged into six subscales: medication compliance, diet, physical activity, weight management, smoking, and alcohol intake. Medication, smoking, and alcohol subscales were not analyzed due to a lack of usefulness for this study. The Cronbach's alpha test was used to determine the reliability of the H-SCALE survey because the survey contained Likert scale questions. It was found to have a strong reliability in the pre and post-intervention data variables, along with separate diet, physical activity, and weight management subscales (Table 4.1).

Table 4. 1

Hypertension Self-Care Activity Level Effects Survey Cronbach's Alpha Scores

	Pre-intervention	**Post-intervention**
All Data	.924	.939
HSCALE: Diet	.722	.823
H-SCALE: Physical Activity	.784	.791
H-SCALE: Weight Management	.963	.958

Medication Compliance Subscale

The medication compliance subscale was comprised of three questions asking participants if they took their prescribed blood pressure medication daily, at the same time each day, and the correct number of blood pressure pills. Only one participant reported taking blood pressure medication and the correct number of blood pressure pills, but did not take them the same time every day. Therefore, this subscale was not analyzed.

Diet Subscale

Eleven questions in the dash diet subscale assessed participant's nutritional quality and adherence to the DASH diet. These questions concentrated on their intake of fruits, vegetables, whole grains, and alternate forms of protein, instead of solely focusing on their salt and red meat consumption. The assumption of normality was not satisfied with all the questions within the diet subscale, so a Wilcoxon signed-rank test was used to analyze pre and post-intervention data of individual items. Participants increased their intake of beans, peas, and lentils from a pre-intervention mean of 2 times each week (*sd* = .894) to a post-intervention mean of 3 times each week (*sd* = .894) (Table 4.2), and a significant difference was found (Z = -2.121, p = .017) (Table 4.2). However, participants decreased their consumption of eggs from a mean of 4.33 times per week (*sd* = 1.966) to a mean of 3.33 times per week (*sd* = 2.338) (Table 4.2). A significant difference was found between pre-intervention consumption of eggs and post-intervention consumption of eggs (Z = -1.890, p = .0295) (Table 4.2).

A decrease also occurred in participant's intake of pickles, olives, or other vegetables in brine from a mean of 1.5 times per week (*sd* = .548) to a mean of .67 times per week (*sd* = .816) (Table 4.2), whereas a significant difference was found (Z = -1.890, p = .0295) (Table 4.2). Apples, bananas, oranges, melons, and raisins consumption was reduced from a mean of 3.33

times per week (*sd* = 2.160) to a mean of 3.83 times per week (*sd* = 1.966) (Table 4.2), with a significant difference found (Z = -1.667, p = .048) (Table 4.2).

A paired-samples t-test was employed to analyze pre and post-intervention diet subscale total scores. The assumption of normality was satisfied. Participant's pre-intervention diet subscale total scores mean improved from 31.5 (*sd* = 11.81) to the post-intervention diet total scores mean was 32 (*sd* = 11.64) (Table 4.3). However, there was no significant difference found from the pre-intervention diet subscale total scores to the post-intervention diet subscale total scores ($t(5)$ = -.303, p = .387) (Table 4.3).

Table 4. 2

Pre & Post-Intervention Diet

How many of the past 7 days did you:	**Mean**	**Median**	**Mode**	**Standard Deviation**	**Z**	**Asymptomatic Significance**
Eat nuts or peanut butter?						
Pre:	2.83	2.5	2	2.317	.000	.5
Post:	2.83	3	3	1.835		
Eat beans, peas, or lentils?						
Pre:	2	2	1	.894	-2.121	.017*
Post:	3	3	2	.894		
Eat eggs?						
Pre:	4.33	5	5	1.966	-1.890	.0295*
Post:	3.33	3.5	2	2.338		
Eat pickles, olives, or other vegetables in brine?						
Pre:	1.5	1.5	1	.548	-1.890	.0295*
Post:	.67	.5	0	.816		
Eat 5 or more servings of fruits and vegetables?						
Pre:	2.5	1.5	0	2.881	-.647	.259
Post:	3.33	3	2	1.966		
Eat more than 1 serving of fruit?						
Pre:	2.33	1.5	1	2.160	-.365	.358
Post:	2.67	2.5	1	1.633		
Eat more than 1 serving of vegetables?						
Pre:	4.17	4.5	2	1.941	-1.134	.129
Post:	4.67	4.5	3	1.633		
Drink milk (in a glass, with cereal, or in coffee, tea, or cocoa)?						
Pre:	1.5	0	0	2.811	-.535	.297
Post:	2	2	0	2.191		
Eat broccoli, collard greens, spinach, potatoes, squash, or sweet potatoes?					-.577	.282
Pre:	3.17	3	2	1.169		
Post:	3.33	3.5	4	.816		
Eat apples, bananas, oranges, melon, or raisins?						
Pre:	3.33	3.5	0	2.160	-1.667	.048*
Post:	2.33	2	1	1.966		
Eat whole grain breads, cereals, grits, oatmeal, or brown rice?						
Pre:	3.83	4	0	2.639	-.378	.353
Post:	3.83	3.5	1	2.37		

**significant value p < .0*

Table 4. 3

Pre & Post-Intervention Diet Subscale Outcome

	Mean	**Standard Deviation**	***t***	***Df***	**Significance (1-tailed)**
H-SCALE Diet					
Pre:	31.5	11.81	-.303	5	.387
Post:	32	11.64			

Physical Activity Subscale

The physical activity subscale consisted of four questions inquiring about the participant's physical activity. Participants answered questions regarding the past seven days in how often they engaged in thirty minutes of physical activity, if they participated in a specific activity, performed weightlifting or strength training, and if they heavy lifted for their job or home on a repeated basis. Normal distribution was not found in the individual questions of the physical activity subscale, so a Wilcoxon signed-rank test was completed. Participant's physical activity actually decreased post-intervention (Table 4.4), but no significant differences were found in the individual pre and post-intervention physical activity questions (Table 4.4).

A paired-samples t-test analyzed the pre and post-intervention physical activity subscale total scores with the assumption of normality satisfied. Participant's pre-intervention physical activity subscale total scores mean was 8 times per week (sd = 6.812), and the post-intervention physical activity total scores mean was 7.17 times per week (sd = 5.845) (Table 4.4). There was no significant difference found between the pre-intervention and post-intervention physical activity subscale total scores ($t(5) = .479$, $p = .326$) (Table 4.5).

Table 4. 4

Pre & Post-Intervention Physical Activity

How many of the past 7 days did you:	**Mean**	**Median**	**Mode**	**Standard Deviation**	**Z**	**Asymptomatic Significance**
Do at least 30 minutes of physical activity?						
Pre:	2.83	3.5	0	2.317	-.108	.457
Post:	2.67	3.5	4	1.751		
Do a specific exercise activity other than what you do around the house or as part of your work?						
Pre:	3	4	0	2.366	-1.289	.099
Post:	1.67	1	0	1.862		
Engage in weightlifting/strength training?						
Pre:	.67	0	0	1.633	-1.000	.159
Post:	1	0	0	1.673		
Do repeated heavy lifting or pushing/pulling of heavy items for job, around house, or in the garden?						
Pre:	1.5	0	0	2.345	-1.414	.079
Post:	1.83	1	0	2.137		

Table 4. 5

Pre & Post-Intervention Physical Activity Subscale Outcomes

	Mean	**Standard Deviation**	***t***	***Df***	**Significance (1-tailed)**
H-SCALE: Physical Activity					
Pre:	8	6.812	.479	5	.326
Post:	7.7	5.845			

Weight Management Subscale

Ten questions asked participants how well they managed their weight during the last thirty days. Information as to how careful they were on what they ate, drank, their meal portion sizes, times they ate out at restaurants, if they modified recipes, and read food labels while shopping was requested. Participants answered these questions with 5-point Likert scale answers from strongly disagree to strongly agree. The assumption of normality was not satisfied with all the questions within the diet subscale, so a Wilcoxon signed-rank test was used to evaluate pre and post-intervention data of individual questions. Participants increased reading food labels while shopping from a pre-intervention mean of 3 (sd = 1.265) to a post-intervention mean of

3.67 (*sd* = 1.506) (Table 4.6), and a significant difference was found (Z = -2.000, p = .023) (Table 4.6). The consumption of sugary sodas and sweet tea was increased from a pre-intervention mean of 3.17 (*sd* = 1.835) to a post-intervention mean of 2.67 (*sd* = 1.633) (Table 4.6), with a significant difference found (Z = -1.732, p = .042) (Table 4.6).

A paired-samples t-test analyzed the pre and post-intervention weight management subscale total scores with the assumption of normality satisfied. Participant's pre-intervention weight management subscale total scores mean was 31.33 (*sd* = 13.604), and the post-intervention diet total scores mean was 33.167 (*sd* = 12.703) (Table 4.7). There was no significant difference found from the pre-intervention weight management subscale total scores to the post-intervention weight management subscale total scores ($t(5)$ = -1.01, p = .18) (Table 4.7).

Table 4. 6

Pre & Post-Intervention Weight Management

In order to lose weight or maintain weight…..	**Mean**	**Median**	**Mode**	**Standard Deviation**	**Z**	**Asymptomatic Significance**
I am careful about what I eat.						
Pre:	3	3.5	4	1.265	-1.633	.051
Post:	3.67	4	4	1.506		
I read food labels when I grocery shop.						
Pre:	3	3.5	4	1.265	-2.000	.023*
Post:	3.67	4	4	1.506		
I exercise in order to lose/maintain weight.						
Pre:	3.33	4	4	1.211	-1.342	.09
Post:	2.5	2.5	1	1.643		
I have cut out drinking sugary sodas and sweet tea.						
Pre:	3.17	3.5	1	1.835	-1.732	.042*
Post:	2.67	2.5	1	1.633		
I eat smaller portion or eat fewer portions.						
Pre:	3.17	3.5	1	1.835	-1.342	.09
Post:	3.67	4	5	1.633		
I have stopped buying/bringing unhealthy foods into my home.						
Pre:	2.67	2.5	1	1.633	-1.242	.107
Post:	3.33	3.5	3	1.366		
I have cut out/limit some foods that I like but that are not good for me.					-.447	.328
Pre:	3.33	4	1	1.835		
Post:	3.67	4	4	1.366		
I eat at restaurants or fast foods places less often.						
Pre:	3	3	3	1.414	-.577	.282
Post:	3.17	3.5	4	1.169		
I substitute healthier foods for things that I used to eat.						
Pre:	3.67	4	4	1.506	-1.000	.159
Post:	3.5	4	4	1.378		
I have modified my recipes when I cook.						
Pre:	3	3.5	1	1.673	-1.414	.079
Post:	3.33	3.5	5	1.633		

**significant value p < .05*

Table 4. 7

Pre & Post-Intervention Weight Management Subscale Outcome

	Mean	**Standard Deviation**	***T***	***Df***	**Significance (1-tailed)**
H-SCALE: Physical Activity					
Pre:	31.33	13.604	-1.01	5	.18
Post:	31.167	12.703			

Smoking/Alcohol Subscales

Participants also answered five questions regarding their smoking habits, exposure to second-hand smoke, and the amount of alcohol they consumed. All participants in the sample denied smoking cigarettes or being exposed to second-hand smoke, and only one participant consumed a small amount of alcohol, so analysis was not necessary.

Adherence/Non-adherence

Results from the pre and post H-SCALE survey demonstrated no improvement in medication, diet, physical activity, or weight management subscales (Table 4.8). Only one participant of the remaining six participants took blood pressure medication daily, but did not report taking it at the same time. Adherence scores to the diet remained unchanged, but physical activity components actually decreased post-intervention (17%), where one participant reported a lower amount of physical activity performed. While weight management adherence scores stayed consistent before and after the intervention, one participant improved in adherence, and one participant decreased in adherence. All participants in the sample were adherent in smoking and alcohol consumption.

Table 4. 8

Pre & Post-Intervention Classification of Participants

	Pre	Post
Medication adherent	0%	0%
Medication non-adherent	17%	17%
No medications prescribed	83%	83%
Diet adherent	0%	0%
Diet medium quality	67%	67%
Diet low quality	33%	33%
Physical activity adherent	67%	50%
Physical activity non-adherent	33%	50%
Weight management adherent	33%	33%
Weight management non-adherent	67%	67%
Smoking adherent	100%	100%
Smoking non-adherent	0%	0%
Alcohol adherent	100%	100%
Alcohol non-adherent	0%	0%

Blood Pressure Measurements

To test the hypothesis that blood pressure measurements would be reduced after participation in a faith-based health education intervention, a paired-samples t-test was performed. Prior to analysis, normality of distribution was assessed and not satisfied. The pre-intervention systolic blood pressure data did not have a normal distribution but was quite close to normality via the Shapiro-Wilk test (p = .043). Thus, the paired-samples t-test was still utilized due to the strength of the test. Fifty-seven percent of participants showed a decrease in their systolic blood pressure measurements, with one participant dropping ten points from 160 to 150 mm Hg. The participant's systolic blood pressure mean was reduced from 138 mm Hg (sd = 13.02) to 133 mm Hg (sd = 10.64) (Table 4.9). However, no significant difference found from the pre-intervention systolic blood pressure measurements to the post-intervention systolic blood pressure measurements ($t(5) = 1.387$, p = .112) (Table 4.9).

Diastolic blood pressure measurements revealed a slight decrease from a mean of 80.33 mm Hg (sd = 6.38) to a mean of 78.33 mm Hg (sd = 11.83) (Table 4.9), results demonstrated no

significant difference from the pre-intervention diastolic blood pressure measurements to the post-intervention blood pressure measurements ($t(5) = .294$, $p = .39$) (Table 4.9).

Table 4. 9

Pre & Post-Intervention Blood Pressure Measurements

	Minimum	**Maximum**	**Mean**	**Standard Deviation**	***t***	***Df***	**Significance (1-tailed)**
Systolic blood pressure							
Pre	128	160	138	13.023	1.387	5	.112
Post	120	150	133	10.64			
Diastolic blood pressure							
Pre	70	90	80.33	6.38	.294	5	.39
Post	60	90	78.33	11.83			

Chapter 5

Discussion

Hypertension that is not adequately managed can lead to early morbidity and mortality (Mills, Stefanescu, & He 2020). With the rates of controlled hypertension well below *HP2020* goals, additional interventions are needed. The purpose of this study was to determine if participation in a faith-based health education on hypertension management would improve health behaviors and blood pressure measurements to assist in combating this problem. In this pilot project of a four-week faith-based health intervention, there were no significant differences found in the H-SCALE subscale total scores that were measured before and after the intervention.

Diet Subscale

Four individual questions in the diet subscale showed significant differences, but not enough to impact subscale total scores. Small improvements were seen where participants increased their weekly consumption of beans, peas, and lentils and decreased their weekly intake of salty items such as pickles, olives, and vegetables in brine. This may be from the extensive content on healthy nutrition such as the DASH diet, low-fat meat, alternative proteins, decreasing salt, and increasing fruits and vegetables that was provided during the health education intervention. However, a decline was discovered in the weekly consumption of eggs and fruit such as apples, bananas, and melons. Discussion occurred during the healthy nutrition segment about high cholesterol and increased cardiovascular risks. Participants may have felt that decreasing egg consumption would be helpful to assist in decreasing their cholesterol levels. The lack of improvement in overall diet subscale total scores may be due to the short amount of

time the pilot project was conducted. Four weeks may not have provided sufficient time for participants to integrate diet changes into their daily routine.

Physical Activity Subscale

Individual questions in the physical activity subscale showed no significant differences, and one participant reported a decrease in physical activity. It is unknown to the researcher why there were not significant changes, other than the length of the study. The H-SCALE survey only evaluated participant's physical activity over the prior seven days and may not reflect their physical activity history for the entire month. Yet, it was anticipated physical activity would improve on a weekly basis. Participants also did not know the researcher prior to the study and may have felt more comfortable answering questions post-intervention resulting in a self-report bias.

Weight Management Subscale

Participants demonstrated small improvements in reading food labels while shopping. Discussion on reading food labels and the sodium content of canned and prepackaged foods occurred during the health education intervention. Participants freely shared their struggles while shopping after the session and encouragement was provided. The increased awareness of the sodium content in food items may have led to this change. However, participants showed an increase in drinking sugary sodas and teas. It is unknown to the researcher why there was a decline in this question; whereas participants may have felt more comfortable answering survey questions post-intervention.

Blood Pressure Measurements

Systolic and diastolic blood pressure measurements were slightly reduced in four out of six participants, but no significant differences were found. One participant's systolic blood

pressure decreased from 160 mm Hg to 150 mm Hg. This is clinically significant because research has found that even a decrease of 10% in blood pressure measurements can result in lowered cardiovascular disease complications in the future (Reboussin et al., 2018).

Hypertension is a common condition that is prevalent in most community settings, and many people may be unaware they even have the condition. During the screening, this pilot project provided awareness to those who did not know their blood pressure was out of range. Due to this identification, two individuals decided to participate in the study. The importance of controlling elevated blood pressure/hypertension, and strategies to manage this condition was provided. Participants learned their susceptibility and severity of developing additional health conditions such as cardiovascular disease and strokes from uncontrolled hypertension, and therapeutic lifestyle strategies to improve hypertension. However, the amount of time it takes for an individual to perceive the benefits and make actual lifestyle changes is unknown. Furthermore, without implementing a combination of lifestyle changes such as improved diet, decreased salt intake, improved physical activity, and weight control, it would be difficult to reduce blood pressure measurements without using blood pressure medication. It may also be difficult to lose enough weight within a month to impact blood pressure measurements.

Interpersonal Relationships

During the project, it was interesting how participants stayed longer than the scheduled 90 minutes to discuss their health. One participant commented they did not have enough time with their primary care provider to ask all of their questions regarding hypertension management, and this health education intervention provided an opportunity to get them answered. The researcher did not know many of the participants before starting the project since the church had two services on Sundays. This project provided an opportunity for congregants to meet and

develop relationships that were not already established. It was also observed the increased amount of people who were unaware they had high blood pressure along with not having a primary care provider. While only seven participants initially showed up for the classes, many other people in the congregation received blood pressure screenings two weeks before the study. Those whose blood pressure measurements were elevated or in the hypertensive range were identified, and encouraged to attend the class and seek medical care. Improvements in health behaviors and blood pressure measurements may not have been evident in as little as four weeks, but this setting provided an avenue that can be utilized to educate individuals on health promotion. The "sense of community" and the developed relationships provided a safe and trusting environment where participants shared their struggles in managing their health.

It was anticipated that the faith-based health education would demonstrate statistically significant differences in health behaviors after the health education intervention. Four out of six participants' systolic blood pressure measurements decreased, but there was no statistically significant improvement. Yet, one participant's systolic blood pressure was reduced by ten points mm Hg. Participant's increased knowledge of the risks of uncontrolled blood pressure and how to manage the condition was not tested. There was some improvement in this area, but health behaviors were not significantly different at the end of four weeks.

Limitations

The small sample size was a significant limitation of this study. This could be why the results were not significantly different. The researcher was unaware of the additional classes that were scheduled in the church during the same time of this pilot study that may have attracted many potential participants. One class utilized a dining gathering to increase fellowship within

the congregation while they visited various local restaurants. In addition, a new ministry school was launched during this time that was quite time-consuming for many congregants.

Time was another limiting factor in this study. If it was conducted over multiple months, self-care behaviors and blood pressure measurements might have shown significantly different results. The H-SCALE survey only measured self-care behaviors, but a tool to measure increased knowledge should have been utilized. After class, participants verbalized information that was learned.

A self-report bias could have occurred when participants completed the pre and post-intervention survey on health behaviors. The researcher did not know most of the participants prior to the pilot project. They may have felt uncomfortable honestly answering some of the H-SCALE survey questions pre and post-intervention, especially in a faith community setting.

Implications for Further Projects

Increased knowledge about the risks of uncontrolled hypertension and strategies to manage the condition is much needed in Walker County, GA. In order to make a greater impact within the faith community, the design for this project can be improved by adjusting the method for a longer follow-up. Participants would attend an initial training and receive motivational interviewing over a period of three to six months, and then follow-up for blood pressure measurements. The sample size would be increased along with the inclusion of more males in the study. Motivational interviewing would be included where participants would receive counseling on an individual basis. This would allow for a longer time to track participants and to determine if improved health behaviors can truly assist in reducing hypertension. A mixed study, including a qualitative component, could be useful in gaining participants' viewpoints.

This pilot project could be adopted by the faith community's denomination and implemented within multiple churches across the United States. Approximately one year ago their website stated they met the needs of the body, soul, and spirit, but offered programs mainly assisting the soul and spirit. Health education interventions like this project can be used to positively impact the body within this faith denomination to improve health outcomes of their congregants.

Implications for Practice

Contact time between patients and providers is often limited to approximately fifteen to twenty minutes in primary care. This does not allow for extensive education and multiple patient questions regarding the risks and management of hypertension. Faith communities provide a setting where health promotion activities can be explored along with impacting an increased number of individuals. Nurse practitioners/nurses can partner with faith communities to provide health education without the clinical time constraints. Practical strategies in managing hypertension can be provided, and questions from the congregants can be answered and explained. In addition, blood pressure measurements would be monitored, and guidance offered to assist with reducing hypertension. This setting can be another avenue for nurse practitioners/nurses to make a positive health impact within the community.

Conclusion

This pilot project aimed to improve hypertension management in individuals within a faith community that would lead to reduced stroke and cardiovascular risks. It was hypothesized if individuals participated in a health education intervention, they would improve their health behaviors. In addition, improved health behaviors would lead to reduced blood pressure measurements and the control of hypertension. While this project did not find a statistically

significant difference in blood pressure measurements and health behaviors, it provided an atmosphere where strategies to assist in managing hypertension can be learned. This demonstrates that providing health promotion education within a faith community setting could make a positive impact and improve the health of individuals. However, further research is needed.

References

American Heart Association. (2017). *Understanding and Controlling Your High Blood Pressure.* Dallas, TX: StayWell Company, LLC.

American Heart Association. (2018a, January 31). More than 100 million Americans have high blood pressure, AHA says. *American Heart Association News*. Retrieved from https://www.heart.org/en/news/2018/05/01/more-than-100-million-americans-have-high-blood-pressure-aha-says

American Heart Association. (2018b). Two programs can help reverse blood pressure. Retrieved from www.heart.org/en/affiliates/two-programs-can-help-reverse-high-blood-pressure

Ayton, D., Manderson, L., Smith, B. J., Carey, G. (2016). Health promotion in local churches in Victoria: An exploratory study. *Health and Social Care in the Community, 24(*6), 728-738. doi:10.1111/hsc.12258

Bangurah, S. S., Vardaman, S. A., & Cleveland, K. K. (2017). Hypertension in the faith community: A four-week, nurse led, diet/exercise intervention. *Journal of Christian Nursing, 34*(4), 225-231. doi:10.1097/CNJ.0000000000000420

Caligiuri, S. P. B., & Pierce, G. N. (2017). A review of the relative efficacy of dietary, nutritional supplements, lifestyle, and drug therapies in the management of hypertension. *Critical Reviews in Food & Science Nutrition, 57*(16), 3508-3527. doi:10.1080/10408398.2016.1142420

Catholic Health Initiatives Memorial Hospital. (2016). *Community health needs assessment: Hamilton County, Tennessee, Catoosa and Walker Counties, Georgia.* Retrieved from Catholic Health Initiatives https://www.memorial.org/content/dam/chi-memorial/

website/documents/about-us/community-benefit/2016%20CHNA%20Community%20Report.pdf

Centers for Disease Control and Prevention. (2017). CDC addresses high blood pressure. Retrieved from https://www.cdc.gov/bloodpressure/cdc_addresses.htm

Centers for Disease Control and Prevention. (2020). High blood pressure. Retrieved from https://www.cdc.gov/bloodpressure/facts.htm

Cooper, J., & Zimmerman, W. (2017). The effect of a faith community nurse network and public health collaboration on hypertension prevention and control. *Public Health Nursing 34*(5), 444-453. doi:10.1111/phn.12325

County Health Rankings. (2014). Georgia 2014. Retrieved from https://www.countyhealthrankings.org/app/georgia/2014/rankings/outcomes/overall

County Health Rankings. (2019). Georgia 2019: Walker. Retrieved from http://www.countyhealthrankings.org/app/georgia/2019/rankings/walker/county/outcomes/overall/snapshot

Creation Health. (n.d.). CREATION Health. Retrieved from https://creationhealth.com/CREATION-Health

DeRose, D., Steinke, G., Li, T. (2016). *Thirty Days to Natural Blood Pressure Control: The No Pressure Solution.* Foresthill, CA: Compasshealth Consulting, Inc.

Jones, C. L., Jensen, J. D., Scherr, C. L., Brown, N. R., Christy, K., & Weaver, J. (2015). The Health Belief Model in an explanatory framework in communication and research: Exploring parallel, serial, and moderated mediation. *Health Communication, (30)*6, 566-576. doi:10.1080/10410236.2013.873363

Juraschek, S. P., Miller III, E. R., Weaver, C. M., Appel, L. J. (2017). Effects of sodium reduction and the DASH diet in relation to baseline blood pressure. *Journal of the American College of Cardiology, 70*(23), 2841-2848. doi:10.1016/j.jacc.2017.10.011

Juraschek, S. P., Woodward, M., Sacks, F. M., Carey, V. J., Miller III, E. R., Appel, L. J. (2017). Time course of change in blood pressure from sodium reduction and the DASH diet. *Hypertension, 70*(5), 923-929. doi:10.1161/HYPERTENSIONAHA.117.10017

Kirkland, E. B., Heincelman, M., Bishu, K. G., Schumann, S. O., Schreiner, A., Axon, R. N., … Moran, W. P. (2018). Trends in healthcare expenditures among US adults with hypertension: National estimates, 2003-2014. *Journal of the American Heart Association, 7*(11), 1-9. doi:10.1161/JAHA.118.008731

Harvin, L. A., Winter, D. M., Hoover, E. L., & Lewis, L. M. (2020) A faith-based intervention to improve hypertension management among African Americans. *Journal of Christian Nursing, 37*(1), 38-45. doi:10.1097/0000000000000676

Martinez, D., Turner, M., Pratt-Chapman, M., Kashima, K., Hargreaves, M., Dignan, M., & Hebert, J. (2016). The effect of changes in health beliefs among African-Americans and rural White church congregates enrolled in an obesity intervention: A qualitative evaluation. *Journal of Community Health, 41*(3), 518-525. doi:10.1007/s10900-015-0125-y

Mills, K. T, Stefanescu, A., He, J. (2020) The global epidemiology of hypertension. *Nature Reviews Nephrology, 16*(4), 223-237. doi:10.1038/s41581-019-0244-2

Office of Disease Prevention and Health Promotion. (2016). Preventing and controlling hypertension for improved population health: Healthy people 2020 for heart disease and stroke objectives. Retrieved from https://health.gov/news/blog/2016/02/preventing-and-

controlling-hypertension-for-improved-population-health-healthy-people-2020-heart-disease-and-stroke-objectives/

Office of Disease Prevention and Health Promotion. (2019). Heart disease and stroke. *Healthy People 2020*. Retrieved from http://www.healthypeople.gov

Pappas-Rogich, M., & King, M. (2014). Faith community nursing: Supporting Healthy People 2020. *Journal of Christian Nursing, 31*(4), 228-234. doi:10.1097/CJN.0000000000000104

Paula, T. P., Viana, L. V., Neto, A. T. Z., Leitao, C. B., Gross, J. L., & Azevedo, M. J. (2015). Effects of the DASH diet and walking on blood pressure in patients with type 2 diabetes and uncontrolled hypertension: A randomized controlled trial. *Journal of Clinical Hypertension, 17*(11), 895-901. doi:10.1111/jch.12597

Reboussin, D. M., Allen, N. B., Griswold, M. E., Guallar, E., Hong, Y., Lackland, D. T.,…Miller III, E. P. R. (2018). Systematic review for the 2017 ACC/AHA/AAPA/ABC/ ACPM/AGS/APhA/ASH/ASPC/NMA/PCNA guideline for the prevention, detection, evaluation, and management of high blood pressure in adults: A report of the American College of Cardiology/American Heart Association Task Force on clinical practice guidelines. *Circulation, 138*(17), e595-e616. doi:10.1161/CIR.0000000000000601

Sattin, R. W., Williams, L. B., Dias, J., Garvin, J. T., Marion, L., Joshua, T. V.,...Venkat Narayan, K. M. (2015). Community trial of a faith-based lifestyle intervention to prevent diabetes among African-Americans. *Journal of Community Health, 41*(1), 87-96. doi:10.1007/s10900-015-0071-8

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 & Outcomes, 11*(10), e004691. doi:10.1161/CIRCOUTCOME.118.004691

Shoulders, B., & Powell, L. (2019). Reaching for goal: Incorporating the latest hypertension guidelines into practice. *The Journal for Nurse Practitioners, 15*(1), 102-108. doi:10.1016/j.nurpra.2018.09.011

Siervo, M., Lara, J., Chowdhury, S., Ashor, A., Oggioni, C., & Mathers, J. C. (2015). Effects of the dietary approach to stop hypertension (DASH) diet on cardiovascular risk factors: A systematic review and meta-analysis. *British Journal of Education, 113*(1), 1-15. doi:10.1017/S0007114514003341

Story, C. R., Gross, T. T., Harvey, I. S., & Whitt-Glover, M. C. (2017). Pastoral perceptions of the learning and developing individual exercise skills (L.A.D.I.E.S.) intervention: A qualitative study. *Health Education Research, 32*(1), 81-95. doi:10.1093/her/cyw054

Tucker, C. M., Kang, S., Ukonu, N. A., Linn, G. S., DiSangro, C. S., Arthur, T. M., & Ralston, P. A. (2019). A culturally sensitive church-based health-smart intervention for increasing health literacy and health-promoting behaviors among Black adult churchgoers. *Journal of Health Care for the Poor and Underserved, 30*(1), 80-101. doi:10.1353/hpu.2019.0009

U. S. Census Bureau. (2018). Quick facts: Walker County, Georgia. Retrieved from https://www.census.gov/quickfacts/fact/table/walkercountygeorgia/PST045218

Warren-Findlow, J., Basalik, D. W., Dulin, M., Tapp, H., & Kuhn, L. (2013). Preliminary validation of the hypertension self-care activity level effects (H-SCALE) and clinical blood pressure among patients with hypertension. *Journal of Clinical Hypertension, 15*(9), 637-643. doi:10.111/jch.12157

Warren-Findlow, J., Reeve, C. L., & Racine, E. F. (2017). Psychometric validation of a brief self-report measure of diet quality: The DASH-Q. *Journal of Nutrition Education and Behavior, 49*(2), 92-99. doi:10.1016/j.neb.2016.09.004

Washington, E., Weed, L. D., & Vardaman, S. A. (2015). Using the internet to increase physical activity in a faith community. *Journal of Christian Nursing, 32*(3), 168-173. doi:10.1097/CNJ.0000000000000180

Whelton, P.K., Carey, R. M., Aronow, W. S., Casey, D. E., Collins, K. J., Dennison Himmelfarb, C.,…Williamson, J. B. (2017). ACC/AHA/AAPA/ABC/ACPM/AGS/APhA/ASH/ASPC/ NMA/PCNA guideline for the prevention, detection, evaluation, and management of high blood pressure in adults: A report of the American Cardiology/American Heart Association Task Force on Clinical Practice Guidelines. *Circulation, 138*(17). e484-e594. doi:10.1161/CIR. 0000000000000596

White, H. L. (2018). Promoting self-management of hypertension in the African-American church. *The Journal of National Black Nurses Association, 29*(1), 6-12. Retrieved from nbna.org

Williams, L. B., Franklin, B., Evans, M. B., Jackson, C., Hill, A., & Minor. M. (2016). Turn the beat around: A stroke prevention program for African-American churches. *Public Health Nursing, 33*(1), 11-20. doi: 10.1111/phn.12234

Appendix A: Format of Sessions

Session 1

- Worship
- Devotional
- Risks of hypertension
- Knowing your numbers
- Medication Adherence
- Smart Goals
- Discussion
- Prayer

Session 2

- Worship/Prayer
- Food Sampling
- Devotion
- DASH, Mediterranean, and Plant-Based diets
- Shake the Salt Habit/Reading Food Labels
- Hydration
- Discussion
- Prayer

Session 3

- Worship
- Devotional
- Physical Activity
- Natural Supplements
- Weight Management
- Alcohol/Smoking
- Discussion
- Prayer

Session 4

- Worship
- Devotional
- Rest/Sleep
- Stress Management
- Gratitude
- Discussion
- Prayer

Appendix B: Consent Form

Consent Form

I understand that I am being asked to participate in a research study to be conducted at Covenant Life Worship Center. This research study will evaluate: The participation in a faith-based health education program on improving lifestyle behaviors and elevated or high blood pressure. It will consist of four-week teaching sessions focusing on strategies that can be used to manage elevated or high blood pressure. The sessions will be held once a week over a period of one month and last approximately ninety minutes.

I realize the knowledge gained from the study may help me or other people who have elevated or high blood pressure in the future.

If I agree to participate in the study, I will complete a survey and have my blood pressure checked at the beginning and end of the study. All identifying information and study data will be kept confidential. Every effort will be made to keep information shared in group sessions private. However, the information may be used in nursing publication or presentation without any identifying information. I understand that I will not be compensated for participating in the study.

The known risks associated with the study are minimal. This program does not replace the treatment plan established by my health care provider. I realize I am encouraged to continue with that treatment plan for the management of my blood pressure.

I realize I may not participate in the study if I am under 18 years of age or if I am pregnant.

I realize that my participation in this study is entirely voluntary, and I may withdraw from the study at any time. I may leave any questions unanswered on the Demographic and Enrollment Form if I choose. My attendance is encouraged in all of the sessions, but not required.

I understand if I sustain injuries from my participation in the research project, I will not be compensated by Covenant Life Worship Center.

If I need to, I can contact Dr. Frances Johnson, Southern Adventist University, School of Nursing, any time during the study.

The study has been explained to me. I have read and understand this consent form, all of my questions have been answered, and I agree to participate. I understand that I will be given a copy of this signed consent form.

_____ _____

Signature of Participant Date

_____ _____

Signature of Investigator Date

Appendix C: Enrollment Form

Enrollment Form

Initials _____ Assigned Number _____

Age _____Race_____

Gender _____

How many years have you had high blood pressure? _____

Do you have a primary care provider? _____

Do you take medication for your blood pressure?_____

If yes, please list medications: _____

_____

Appendix D: Hypertension Self-Care Activity Level (H-SCALE) Survey

H-SCALE (Hypertension Self-Care Activity Level Effects) November 20, 2016

The following questions ask about your hypertension (high blood pressure) self-care activities during the past 7 days. For each question, circle the number of days that you performed that activity.	
Medication Usage ***How many of the past 7 days did you:***	**Number of Days**
1. Take your blood pressure pills?	0 1 2 3 4 5 6 7 ☐ I have not been prescribed blood pressure pills.
2. Take your blood pressure pills at the same time everyday?	0 1 2 3 4 5 6 7 ☐ I have not been prescribed blood pressure pills.
3. Take the recommended number of blood pressure pills?	0 1 2 3 4 5 6 7 ☐ I have not been prescribed blood pressure pills.
Diet ***How many of the past 7 days did you:***	**Number of Days**
4. Eat nuts or peanut butter?	0 1 2 3 4 5 6 7 ☐ I am allergic to nuts.
5. Eat beans, peas, or lentils?	0 1 2 3 4 5 6 7
6. Eat eggs?	0 1 2 3 4 5 6 7
7. Eat pickles, olives, or other vegetables in brine?	0 1 2 3 4 5 6 7
8. Eat five or more servings of fruits and vegetables?	0 1 2 3 4 5 6 7
9. Eat more than one serving of fruit (fresh, frozen, canned or fruit juice)?	0 1 2 3 4 5 6 7
10. Eat more than one serving of vegetables?	0 1 2 3 4 5 6 7

© 2011 Jan Warren-Findlow - Used with permission of the author J. Warren-Findlow

H-SCALE (Hypertension Self-Care Activity Level Effects) November 20, 2016

Diet ***How many of the past 7 days did you:***	**Number of Days**							
11. Drink milk (in a glass, with cereal, or in coffee, tea or cocoa)?	0	1	2	3	4	5	6	7
12. Eat broccoli, collard greens, spinach, potatoes, squash or sweet potatoes?	0	1	2	3	4	5	6	7
13. Eat apples, bananas, oranges, melon or raisins?	0	1	2	3	4	5	6	7
14. Eat whole grain breads, cereals, grits, oatmeal or brown rice?	0	1	2	3	4	5	6	7
Physical Activity ***How many of the past 7 days did you:***	**Number of Days**							
15. Do at least 30 minutes total of physical activity?	0	1	2	3	4	5	6	7
16. Do a specific exercise activity (such as swimming, walking, or biking) other than what you do around the house or as part of your work?	0	1	2	3	4	5	6	7
17. Engage in weight lifting or strength training (other than what you do around the house or as part of your work)?	0	1	2	3	4	5	6	7
18. Do any repeated heavy lifting or pushing/pulling of heavy items either for your job or around the house or garden?	0	1	2	3	4	5	6	7
Smoking ***How many of the past 7 days did you:***	**Number of Days**							
19. Smoke a cigarette, e-cigarette, vape, cigar or hookah, even just one puff?	0	1	2	3	4	5	6	7
20. Stay in a room or ride in an enclosed vehicle while someone was smoking?	0	1	2	3	4	5	6	7

2

© 2011 Jan Warren-Findlow - Used with permission of the author J. Warren-Findlow

The following questions ask about your efforts to manage your weight during the last 30 days. If you were sick during the past month, please think back to the previous month that you were not sick. Circle the one answer that best describes what you do to lose weight or maintain your weight.

Weight management ***In order to lose weight or maintain my weight…***	**Strongly Disagree**	**Disagree**	**Not Sure**	**Agree**	**Strongly Agree**
21. I am careful about what I eat.	1	2	3	4	5
22. I read food labels when I grocery shop.	1	2	3	4	5
23. I exercise in order to lose or maintain weight.	1	2	3	4	5
24. I have cut out drinking sugary sodas and sweet tea.	1	2	3	4	5
25. I eat smaller portions or eat fewer portions.	1	2	3	4	5
26. I have stopped buying or bringing unhealthy foods into my home.	1	2	3	4	5
27. I have cut out or limit some foods that I like but that are not good for me.	1	2	3	4	5
28. I eat at restaurants or fast food places less often.	1	2	3	4	5
29. I substitute healthier foods for things that I used to eat.	1	2	3	4	5
30. I have modified my recipes when I cook.	1	2	3	4	5

The next three questions are about alcohol consumption. A drink of alcohol is defined as:

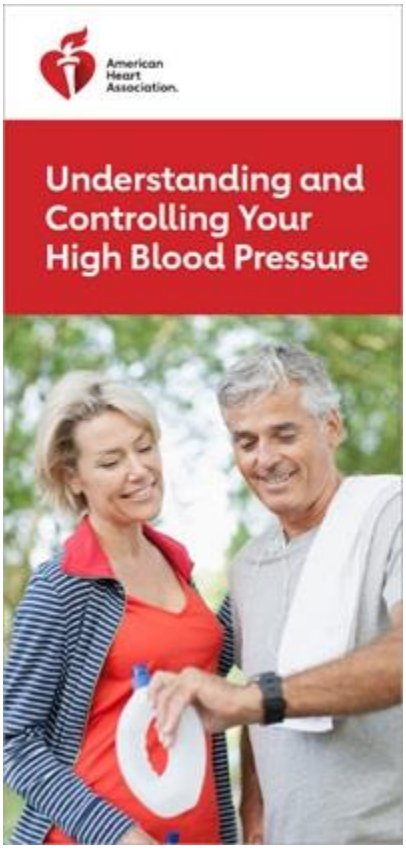
© 2011 Jan Warren-Findlow - Used with permission of the author J. Warren-Findlow

One, 12 oz. can or bottle of beer; ***One, 4 ounce glass of wine;*** ***One, 12 oz. can or bottle of wine cooler;*** ***One mixed drink or cocktail;*** ***Or 1 shot of hard liquor.***	
31. On average, how many days per week do you drink alcohol?	0 1 2 3 4 5 6 7
32. On a typical day that you drink alcohol, how many drinks do you have?	0 write in # _____
33. What is the largest number of drinks that you've had on any given day within the last month?	0 write in # _____

Thank you for your time. Your participation is very important to us.

© 2011 Jan Warren-Findlow - Used with permission of the author J. Warren-Findlow

Appendix E: American Heart Association's Brochure:
Understanding and Controlling Your High Blood Pressure



Appendix F: Wristband

Appendix G: Permission from Author to use H-SCALE Survey

Re: Permission to use H-SCALE tool in Research Study

Jan Warren-Findlow <jwarren1@uncc.edu>

Tue 7/2/2019 11:06 AM

Inbox

To: Michelle White <mwhite@southern.edu>;

6 attachments (1 MB)

H-SCALE scoring instructions 10-6-2018.pdf; H-SCALE SAQ 03-08-2019.doc; JWF Reeve Racine DASH-Q 2016.pdf; JWF Dulin Tapp 2013 FINAL.pdf; Warren-Findlow Krinner et al 2019 WJNR.pdf; Warren-Findlow & Seymour 2011 JNMA.pdf;

Hi Michelle,

I am excited to hear about your interest in using the H-SCALE. I'm happy to chat about it's development at any time. You have my permission to use the scale in your research.

The self-administered form of the H-SCALE is attached as a word document along with the scoring instructions. NOTE: This version is slightly different than what was published in the original JNMA article. Please read the attached scoring instructions carefully so that you understand how to score the scales and their limitations.

If you are planning on collecting the H-SCALE data in an online survey such as with a software tool like Qualtrics or Survey Monkey, that is permitted. However, permission does not include embedding the survey questions and the scoring into any kind of mobile app or mHealth application that you may be developing without my prior permission in writing. The H-SCALE is my intellectual property and is copyrighted. The H-SCALE is not available for commercial use.

The *Journal of the National Medical Association* article (Warren-Findlow & Seymour) best describes the original development of the H-SCALE. The *Journal of Clinical Hypertension* article describes the original subscales and their correlations with blood pressure. The article published in the *Journal of Nutrition Education and Behavior* describes the revised diet scale (the DASH-Q) and its validation. The most recent publication (2019) in the *Western Journal of Nursing Research* presents the current subscales and their correlations with blood pressure as well as adherence to the subscales and their association with control of blood pressure. Please cite the appropriate publication (with the correct spelling of my name "Warren-Findlow"). I understand that in some areas of the world this is not common practice to reference other works, but this is a condition of your being able to use the H-SCALE. Please indicate that you have the researcher's permission to use the scale.

Keep me informed of how your work progresses. I am always interested in hearing what others are doing in relation to hypertension self-care and blood pressure.

Please confirm that you understand and agree to the above restrictions in an email response. Let me know if you have any questions.

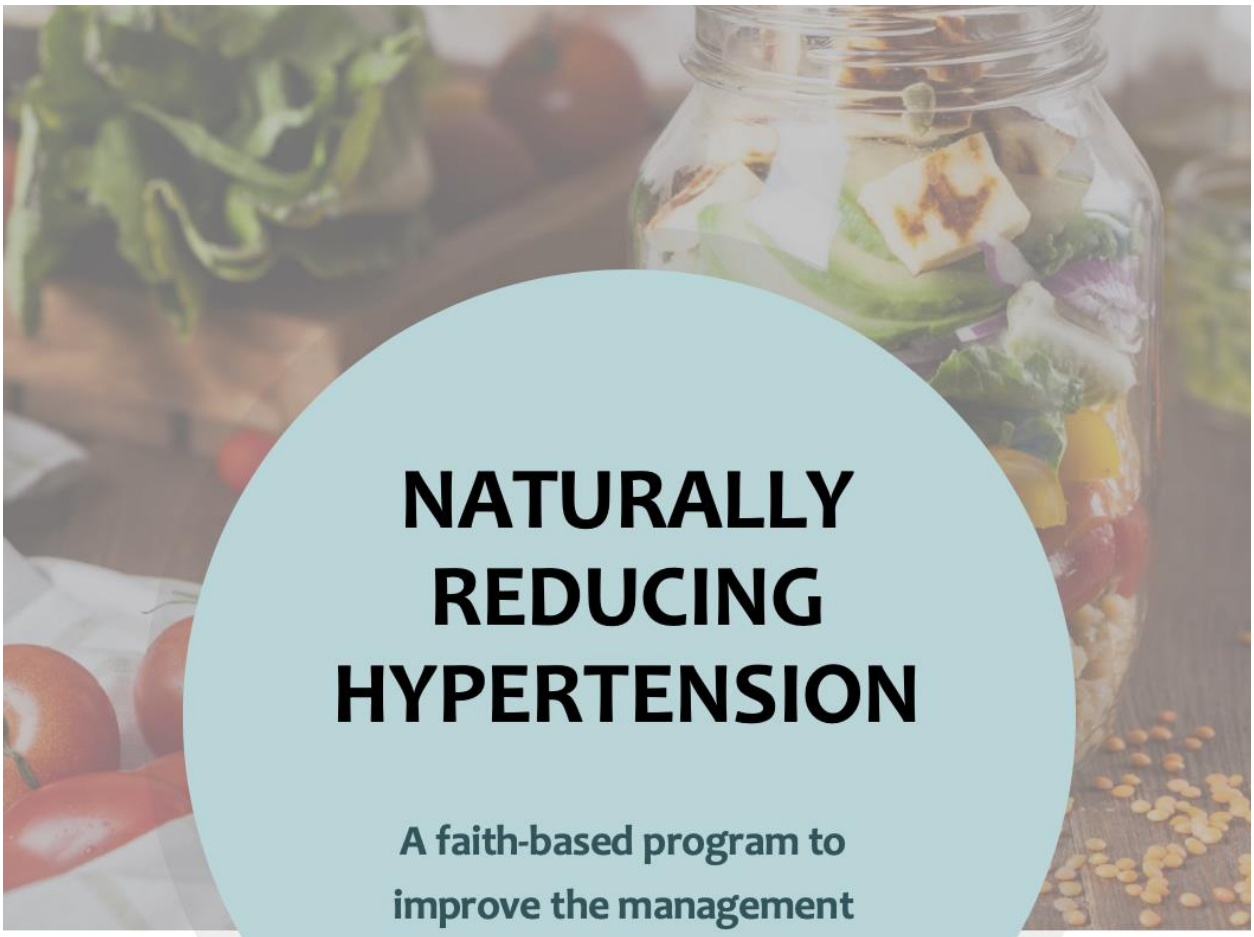
Sincerely, Jan Warren-Findlow

"Advance health equity and well-being in an urbanizing world"

publichealth.uncc.edu

Jan Warren-Findlow, PhDI Associate Professor
Pronouns: she/her/herself
MPH Program Director
UNC Charlotte I Dept. of Public Health Sciences

Appendix H: Advertisement of Health Education Intervention



Appendix I: Institutional Review Board Approval/Application

IRB Approval - 2019-2020-011-Michelle White

irb

Fri 9/20/2019 1:45 PM

To: Michelle White <mwhite@southern.edu>;

Cc: Frances Johnson <francesj@southern.edu>;

SOUTHERN ADVENTIST UNIVERSITY
Power for Mind & Soul

IRB
Institutional Review Board

September 20, 2019

Principal Investigator: Michelle White
Research Project: Reducing Hypertension Through Faith Community Nursing
IRB Tracking Number: 2019-2020-011

Dear Michelle,

The Institutional Review Board has examined your research study proposal, ***Reducing Hypertension Through Faith Community Nursing,*** with supporting documents at the IRB committee level. It is a delight to inform you your research has been approved as full review**.** We wish you the very best as you move forward with this study and look forward to reading your findings when your study is completed.

As you move forward with your study, if there is a need to make minor changes to this research, before making those changes please notify us by completing and submitting a FORM B (Certification of Modification, Annual Review, Research Termination, or Research Completion). Please submit all applications to irb@southern.edu. If substantial changes are planned, you, as the principal investigator, should submit a new IRB FORM A application.

Many blessing to you as you move forward. Please let us know if there is anything additional, we can do to assist you with this research study.

Always in his service,

Cynthia M. Gettys, PhD
Director, Center for Teaching Excellence and Biblical Foundations of Faith and Learning
Chair, Institutional Review Board
Southern Adventist University
office. 423.236.2285
cell. 423.227.2352
address. PO Box 370. Collegedale. TN 37315

SOUTHERN ADVENTIST UNIVERSITY

"I will instruct you and teach you in the way you should go; I will counsel and watch over you." Psalm 32:8

SOUTHERN ADVENTIST UNIVERSITY — INSTITUTIONAL REVIEW BOARD

FORM A
Not required for a literature review/academic exercise.
RESEARCH APPROVAL

Research Request: _____Exempt_____Expedited __X__Full Review _____Other (Animal/Plant)

This box is for SAU – IRB Office Use Only

IRB Tracking #_____

Date Received _____ _____Exempt _____Expedite _____Full Review _____Other (Animal/Plant)

1) IRB Board Approver _____ Name _____ Title _____ Date

2) IRB Board Approver _____ Name _____ Title _____ Date

Date Approval Sent_____

Title of Research Project: Reducing Hypertension Through Faith Community Nursing

Principal Investigator: Michelle White	E-mail Address: mwhite@southern.edu Phone #: 423-463-6558
Co-Investigator:	E-mail Address: Phone #
Co-Investigator:	E-mail Address: Phone #:
Co-Investigator	E-mail Address: Phone #:
Department: School of Nursing	Faculty Supervisor: Dr. Frances Johnson
Starting Date: Estimated date – October 2019	Estimated Completion Date: May 2020
Cooperating Institutions: Is this research being done with any institutions, individuals or organizations not affiliated with SAU? If yes, please provide the names and contact information of authorized officials below.	
Name of Institution: Covenant Life Worship Center	Address: 7001 Lafayette Road Chickamauga, GA 30707
Contact Name: Darlene Chant, Lead Pastor	Phone #: 706-375-5206
Contact E-mail: dchant@covenantlifeworship.com	
External Funding Agency: N/A	Identification # (if applicable)
Grant Submission Deadline (if any)	

SOUTHERN ADVENTIST UNIVERSITY — INSTITUTIONAL REVIEW BOARD

Please attach all of the following items, making sure the entire application is completely filled out (where applicable) before submitting the application:

- Any research instruments (tests, surveys, questionnaires, protocols, or any form else used to collect data)
- All informed consent documents
- Permission from applicable authorities (principals of schools, teachers of classrooms, etc.) to conduct your research at their facilities on their School Letterhead.
- Students need signatures from their faculty advisor.

All student applications must be signed by the faculty advisor then scanned and submitted electronically, or submitted directly by the faculty advisor. All applications should be submitted by email to irb@southern.edu.

Please be aware you cannot begin your research until it has been officially approved by the IRB.

Type of Research- Check all areas that apply

____ Dissertation/Thesis

____ Funded Faculty Research

____ General Faculty Research

____ Applying for ARC Funding

__X__ Student Research

____ Other: Animal/Plant

Background and Rationale for the Study: (This section should present the context of the work by explaining the relation of the proposed research to previous investigations in the field. Include citations for relevant research.)

Hypertension is a dangerous health condition that affects numerous people worldwide. The number of Americans with the condition exceeds 100 million, and only half have it sufficiently managed (American Heart Association [AHA], 2018a; Centers for Disease and Control [CDC], 2019). Hypertension, often referred to as high blood pressure, is considered a "silent killer" because many people who have the disease do not experience any signs or symptoms (CDC, 2019). High blood pressure can be devasting on the body if it is not adequately controlled, leading to additional problems such as blood vessel, heart, and kidney disease. Unfortunately, these harmful effects may have already occurred by the time people are diagnosed. Hypertension is also significant contributor to the development of strokes and cardiovascular disease, which are the nation's leading causes of death. A staggering 1,000 deaths each day are related to high blood pressure, even though it is preventable and modifiable (CDC, 2014). The amount of those diagnosed with hypertension is expected to increase due to the aging population and unhealthy lifestyle choices of the American people (AHA, 2018a). Therefore, effective strategies are needed in preventing and controlling hypertension to decrease stroke and cardiovascular risks and improve health outcomes.

Faith Community Nursing (FCN) is a community-based intervention that can be used to implement *Healthy People 2020* objectives. A holistic approach incorporating the body, soul, and spirit can assist individuals in gaining knowledge and changing lifestyle behaviors to improve health, so conditions such as hypertension are effectively managed. Health teaching combined with purposeful integration of scripture, prayer, and worship can have a positive, long-lasting impact on individuals. This inspiration for health and wellness has the ability to spread to families and even local communities due to the interconnectedness of the faith organization within the surrounding area (Pappas-Rogich & King, 2014). Therefore, FCN is a unique community-based intervention that can assist in meeting the nation's healthcare challenges. Through health promotion and education, it encourages the faith community to become active participants in pursuing a healthy body, soul, and spirit through a relationship with God.

American Heart Association. (2018a, January 31). More than 100 million Americans have high blood pressure, AHA says. *American Heart Association News*. Retrieved from https://www.heart.org/en/news/2018/05/01/more-than-100-million-americans-have-high-blood-pressure-aha-says

Centers for Disease Control and Prevention (2014). Blood pressure make control your goal infographic. Retrieved from https://www.cdc.gov/bloodpressure/infographic.htm

Centers for Disease Control and Prevention (2019). High blood pressure. Retrieved from https://www.cdc.gov/bloodpressure/index.htm

Pappas-Rogich, M., & King, M. (2014). Faith community nursing: Supporting Healthy People 2020. *Journal of Christian Nursing, 31*(4), 228-234. doi:10.1097/CJN.0000000000000104

Purpose/Objectives of the Research: (Briefly state, in non-technical language, the purpose of the research and the problem to be investigated. When possible, state specific hypotheses to be tested or specific research questions to be answered. For pilot or exploratory studies, discuss the way in which the information obtained will be used in future studies so that the long-term benefits can be assessed.)

This DNP Scholarly Project seeks to discover if in people within a faith community who have hypertension or elevated blood pressure, what effect does participation in a health education intervention have on the self-care behaviors and blood pressure measurements? It is hypothesized that improved healthy self-care behaviors will lead to reduced hypertension in participants.

The goal of this DNP Scholarly Project is to provide a foundation for future health education programs that can be implemented within a local faith community to improve health and wellness. Dangers of uncontrolled blood pressure and the modifiable risk factors will be identified. Evidence-based strategies will be presented in a culturally sensitive manner that can be used for managing hypertension.

SOUTHERN ADVENTIST UNIVERSITY — INSTITUTIONAL REVIEW BOARD

Methods and/or Procedures: (Briefly discuss, in non-technical language, the research methods which directly involve use of human subjects. Discuss how the methods employed will allow the investigator to address his/her hypotheses and/or research question(s).

A pre/post-intervention using a quasi-experimental prospective design will be utilized within a church located in northwest Georgia. The combination of faith and health teaching on reducing hypertension will be provided while emphasizing wholeness of the body, soul, and spirit. The hypertension education intervention will consist of four weekly sessions provided over one month, and last approximately one and a half hours each. Education content will be guided by AHA's (2017) brochure *Understanding and Controlling Your High Blood Pressure* and the *Thirty Days to Natural Blood Pressure Control: The No Pressure Solution* book (DeRose, Steinke, & Li, 2016). Information on natural adjuvants will be used from the book. It is supported by evidence found in a systematic review on lifestyle behaviors, natural supplements, and antihypertensive medications in decreasing blood pressure. Flaxseed, cocoa, fiber, and omega three fatty acids were found to have the most reductions. However, moderate improvements were also seen in potassium, magnesium, vitamin C, and coenzyme Q10 with mixed results. This health education intervention will not sell natural supplements, but will present information on how natural adjuvants may assist in reducing blood pressure. (See Appendix 1 for Format of Sessions).

Caligiuri, S. P. B., & Pierce, G. N. (2017). A review of the relative efficacy of dietary, nutritional supplements, lifestyle, and drug therapies in the management of hypertension. *Critical Reviews in Food & Science Nutrition, 57*(16), 3508-3527. doi:10.1080/10408398.2016.1142420

- An Enrollment Form and Consent Form will be completed at the beginning of Session One (See Appendix 2).
- A Hypertension Self-Care Activity Level Effects (H-SCALE) survey will be completed at the beginning of Session One and at the end of Session Four (See Appendix 3).
  - Subscales of the H-SCALE survey yielded an internal consistency (α = .77 - .88).
  - Permission has been granted from the author to use the H-SCALE survey (See Appendix 3).
- Blood pressure measurements will be completed at the beginning of Session One and Session Four.
  - A validated aneroid sphygmomanometer (Welch Allyn DS44) will be used by trained nursing volunteers/students.
  - Training on accurate blood pressure measurement for nursing volunteers/students will be provided by AHA's (2018) *The Importance of Measuring Blood Pressure Accurately; Enduring Webinar*.
  - An appropriate cuff size will be used on all participants. Prior to blood pressure measurement, participants will be required to sit relaxed for at least five minutes with back supported. Their arm will be supported by a table and their legs will be uncrossed.

Demographic data, pre/post-intervention self-care behaviors, and blood pressure measurements will be analyzed in SSPS. A paired T-Test will be used to measure pre/post-intervention self-care behaviors items

#1-20, 31-33 and a Wilcoxon signed-rank test will be used for items #21-30. Blood pressure measurements will also be measured by a paired T-test. These tests will assist in identifying differences before and after the health education intervention, and measure its effectiveness in promoting healthy self-care behaviors and decreasing blood pressure measurements.

Description of Research Sample: If human subjects are involved, please check all that apply:

____ Minors (**if minors are involved please attach a Childs Assent Form**)
____ Prison Inmates
____ Mentally Impaired
____ Physically Disabled
____ Institutionalized Residents
____ Anyone unable to make informed decisions about participation
____ Vulnerable or at-risk groups, e.g. poverty, pregnant women, substance abuse population
__X__ Health Care Data Information - be **sure to attach any necessary HIPAA forms if this line is checked** (See Appendix 4)
____ Other: Animals or plants will be used
____ Other: please describe

Approximate Number of Subjects: ____30___

Participant Recruitment:
Describe how participant recruitment will be performed. Include how potential participants are introduced to the study (Please check all that apply)

SAU Directory:	Postings, Flyers **X (See Appendix 5)**	Radio, TV
E-Mail Solicitation	How Were Addresses Obtained	
Web-based Solicitation	Indicate Site	Indicate Site
Participant Pool	What Pool	
Other, Please Specify		
Attach Any Recruiting Materials You Plan to Use and the Text of E-mail or Web-based Solicitations You Will Use		

- The sample of the DNP Scholarly Project will consist of adults within a faith community aged 18 years and older who self-report elevated blood pressure, hypertension, or are taking medication for the condition. Advertisement of the health education intervention will occur one month before implementing the DNP Scholarly Project. This will transpire through flyers (See Appendix 4) passed out prior to service and announcements from the pulpit. Flyers will also be sent to surrounding local community churches.

Content Sensitivity:
Does your research address culturally or morally sensitive issues? ____Yes __X__ No If yes, please describe.

Privacy and Confidentiality:
Efforts will be made to keep personal information confidential. We cannot guarantee absolute confidentiality. Personal information may be disclosed if required by law. Identities will be help in confidence in reports in which the study may be published and databases in which results may be stored.

Will personal identifiers be collected? __X__ Yes ____ No
Will identifiers be translated to a code? __X__ Yes ____ No
Will recordings be made (audio, video) ____ Yes __X__ No If yes, please describe.

Is Funding being sought to support this research? ___No_____

Circle to indicate if the funding is: Internal or External Funding? Is there a funding risk? ____N/A_____

Who will keep the financial records? __N/A_____

Who will have access to data (survey, questionnaires, recordings, interview records, etc.)? Please list below.

- The Primary Researcher (DNP student) will be the only one to have access to the Consent Form, Enrollment Form, H-SCALE Surveys, and Blood Pressure Measurement data. They will be stored in a locked box.

Participant Compensation and Costs
Are participants to be compensated for the study? ____ Yes __X__ No
If yes, what is the amount, type and source of funds:
Amount $_____ Type: _____ Source _____

Will participants who are students be offered class credit? ____ Yes ____ No ____ NA
Are other inducements planned to recruit participants? ____ Yes ____ No If yes, please describe
Are there any costs to participants? ____ Yes ____ No If yes, please explain _____

- The project will recruit voluntary participants. Participants in the study will have an opportunity to receive an Airfryer or Instapot with a cook book, and a chance to win one of four $20 Visa gift cards via random raffles. The Airfryer or Instapot with a cookbook will be given to a participant at the end of the study, and one $20 Visa gift card will be given to a participant each week.

Other: Animals/Plants

Are the animals/plants being studied on the endangered list? ____No_____

Are Scientific Collection Permits required, i.e. Tennessee Wildlife Resources Agency? __N/A_____

Have the animal(s) utilized in this study already been used in a previous study (non-naïve animals)? __N/A____

Will the animal(s) used in this study be used in a future study? ___N/A_____

Where will the animals be housed? ___N/A_____

Will the rodents (if applicable) be housed in wire bottom cages? __N/A_____

Will plants be used for instructional purposes as part of teaching a course? __No_____

Are there any risks involved with this study? ___X__Yes _____No

Are there any potential damage or adverse consequences to researcher, participants, or environment? These might include physical, psychological, social, or spiritual risks whether as part of the protocol or a remote possibility. Please indicate all that apply.

____ **Physical Risk:** May include pain injury, and impairment of a sense such as touch or sight. These risks may be brief or extended, temporary or permanent, occur during participation in the research or arise after.

__X__ **Psychological Risk:** Can include anxiety, sadness, regret and emotional distress, among others. Psychological risks exist in many different types of research in addition to behavioral studies.

- Participants may feel anxiety, sadness, regret or emotional distress if they are unable to follow suggested strategies that can be implemented to reduce hypertension.

__X__ **Social Risk:** Can exist whenever there is the possibility that participating in research or the revelation of data collected by investigators in the course of the research, if disclosed to individuals or entities outside of the research, could negatively impact others' perceptions of the participant. Social risks can range from jeopardizing the individual's reputation and social standing, to placing the individual at-risk of political or social reprisals.

- A participant's reputation could be at risk if others outside the research study discovered their health behavior history such as smoking or drinking.

____ **Legal Risk:** Include the exposure of activities of a research subject "that could reasonable place the subjects at risk of criminal or civil liability".

__X__ **Economic Risk:** May exist if knowledge of one's participation in research, for example, could make it difficult for a research participant to retain a job or find a job, or if insurance premiums increase or loss of insurance is a result of the disclosure of research data.

- Participants would be required to spend gas money to attend the weekly health education intervention at the church for one month.

__X__ **Spiritual Risk:** May exist if knowledge of one's spiritual beliefs or lack of, could be exposed which in turn could invoke an economic, social and or psychological risk.

- Participants may feel guilty if they are unable to follow the suggested strategies to improve health and reduce blood pressure.

Risks: In your opinion, do benefits outweigh risks? **__X__ Yes** **____ No**

Results:

The results will be disseminated as:

_____Classwork only ___X___Student conference ___X___ Professional conference
_____Published article _____Other If other, please specify: _____

Signatures: If submitted by a faculty member, electronic (typed) signatures are acceptable. If submitted by a student, please print out completed form, obtain the faculty advisor's signature, scan completed form, and submit it via e-mail. Only Word documents or PDF files are acceptable submissions.

_____ _____

Principal Investigator (PI) or Student **Date**

_____ _____

Faculty Advisor (for student applications) **Date**

All student applications must be signed by the faculty advisor then scanned and submitted electronically, or submitted directly by the faculty advisor. All applications should be submitted by email to: irb@southern.edu

Additional Special Requirements or Attachments to the Application

Approvals from other IRBs

Cooperative research projects involve research that involves more than one institution. In these instances, federal law holds each institution responsible for safeguarding the rights and welfare of human subjects and for complying with federal policy; therefore, SAU IRB applications must be made even if there is another institution conducting a review of the same research project. When a study is being carried out at a non-USA site, and approval from other institutional review boards at the foreign site must be sought. The IRB recommends that a copy of each IRB approval be submitted.

Questionnaires/Other Instruments

Any questionnaires, tests, survey instruments or data collections sheets which are not standard and well known must be submitted as part of the application. Structured interview questions and outlines for unstructured interviews also must be included.

Advertisements/Notices/Recruitment Flyers

The text of any advertisement, video display, notice, sign, brochure or flyer used to recruit subjects either should be included as an attachment.

APPLICATION FOR IRB WAIVER OF HIPPA PRIVACY AUTHORIZATION

A. Data collection points (*check at least one*):

__ Data collection form has been uploaded in the eIRB application (required for retrospective chart reviews)
_X_ Minimum amount of data necessary to determine inclusion/exclusion criteria as defined in the protocol
_X_ I plan to collect or access the following data:

- Initials, Age, Gender, Education, Race/Ethnicity, Pregnancy Status, High Blood Pressure History, Health Provider Status, and High Blood Pressure Medications. Initials will be translated to a number.

B. Describe the source(s) of the information (e.g., EPR, records from previous study, pathology archive) that you want to access:

- Information will be provided by participants.

C. Describe the plan to destroy the participant identifiers at the earliest opportunity consistent with the conduct of research, unless retention is required for reasons of health, research, or law. Please explain if the participant identifiers will be stored or retained and the length of time they will be stored or retained:

- Participant information will be stored in a locked box with only the Primary Researcher (DNP Student) having access. All participant identifiers will be destroyed at the earliest opportunity, once data has been analyzed and the research study evaluated, that is consistent with the conduct of research.

D. Explain why the research could not practicably be conducted without the waiver:

- Minimal patient identifiers that are transferred to code will be collected. Health records will not be requested or provider to other parties.

E. Explain why the research could not practicably be conducted without access to and use of the identifiers (PHI):

- Identifiers are needed so data can be kept organized and accurately analyzed.

F. In applying for waiver of the HIPAA authorization requirement, you are assuring the IRB that the identifiers you request will not be used for any other purpose or disclosed to any other person or entity (apart from research team members listed in this application), except as

required by law, for authorized oversight of the research study, or for use in future IRB-approved research.

Research Project Title: Reducing Hypertension through Faith Community Nursing
Principal Investigator: Michelle White
Department/School: Southern Adventist University/School of Nursing

HIPAA IRB Form 4
(7/14 Revision)

APPLICATION FOR IRB WAIVER OF HIPAA PRIVACY AUTHORIZATION

To grant a waiver of the HIPAA Privacy Authorization requirement, the IRB must determine that your project involves no more than minimal risk to the privacy of individual participants and meets all of the criteria listed in the Privacy Rule.

- ***Submit this form if you will access identifiable records (e.g., medical, research, billing records) without written authorization***
  - ***To abstract identifiable information for research,***
  - ***To create a limited data set, or***
  - ***To de-identify data for use in research (unless the data sources are limited to your own patients or research subjects). Data are identifiable unless fully de-identified according to the HIPAA standard (see page 3) and you can't re-identify the data subjects.***
- ***Do not** submit this form if you will access or receive de-identified data only, and will have no ability to re-identify data subjects.*
- ***Do not** submit this form if you are receiving or sending (but not creating) a limited data set (use the Hopkins data use agreement instead).*

PLEASE NOTE: If the IRB approves this application, approval does not include permission to contact individuals whose records are reviewed. You may not use any information in the requested records to recruit subjects without separate IRB approval of the recruitment plan described in the eIRB application. Except as permitted in an IRB-approved recruitment plan, PHI may not be presented, published, or otherwise disclosed to third parties under an approved HIPAA waiver.

IRB Application Number (if available): _____
Research Project Title: _____
_____

Principal Investigator: _____
Department/School: _____

A. Data collection points (*check at least one*):

__ Data collection form has been uploaded in the eIRB application (required for retrospective chart reviews)
__ Minimum amount of data necessary to determine inclusion/exclusion criteria as defined in the protocol
__ I plan to collect or access the following data: _____

HIPAA IRB Form 4
(07/2014 Revision)

B. Describe the source(s) of the information (e.g., EPR, records from previous study, pathology archive) that you want to access:

C. Describe the plan to destroy the participant identifiers at the earliest opportunity consistent with the conduct of research, unless retention is required for reasons of health, research, or law. Please explain if the participant identifiers will be stored or retained and the length of time they will be stored or retained:

D. Explain why the research could not practicably be conducted without the waiver:

E. Explain why the research could not practicably be conducted without access to and use of the identifiers (PHI):

F. In applying for waiver of the HIPAA authorization requirement, you are assuring the IRB that the identifiers you request will not be used for any other purpose or disclosed to any other person or entity (apart from research team members listed in this application), except as required by law, for authorized oversight of the research study, or for use in future IRB-approved research.

AGREEMENT:

By electronically submitting this form, you agree that you and your research team will comply with Johns Hopkins HIPAA policies and the use and disclosure restrictions described above. *Specifically, you acknowledge and agree that you may share PHI obtained under a HIPAA waiver only with IRB-approved members of your study team, and you assume responsibility for all uses and disclosures of the PHI by members of your study team.*

HIPAA IRB Form 4
(07/2014 Revision)

This application form does not replace the requirement to submit an application for Human Subjects Research to the JHM IRBs for an individual research project.

Definitions of HIPAA Terms

De-identified Data: To "de-identify" data under the Privacy Rule safe harbor, you must ensure the following:

(1) Each of the data elements listed below is removed from the data; **AND**

(2) You do not know that any recipient of the data could re-identify a data subject, using the information alone or in combination with other publicly-available information.

Data elements that must be removed:

- Names
- Geographic subdivisions smaller than a state (including street, city county, precinct), except first three digits of the zip code if, according to current Bureau of Census data:
  - (1) The geographic unit formed by combining all ZIP codes with the same three initial digits contains more than 20,000 people, and
  - (2) The initial three digits of ZIP code for all such geographic units containing 20,000 or fewer people are changed to 000.
- All elements of dates (except year) for dates directly related to an individual, and all ages over 89 and elements of date (including year) indicative of such age, except that ages and elements may be aggregated into a single category of age 90 or older.
- Telephone numbers;
- Fax numbers;
- E-mail addresses;
- Social security numbers;
- Medical record numbers;
- Health plan beneficiary numbers;
- Account numbers;
- Certificate/license numbers;
- Vehicle identifiers and serial numbers, including license plate numbers;
- Device identifiers and serial numbers;
- Web Universal Resource Locators (URLs);
- Internet protocol address numbers;
- Biometric identifiers, including voice and finger prints;
- Full face photographic images and any comparable images;

HIPAA IRB Form 4
(07/2014 Revision)

- Any other unique, identifying number characteristic, or code, except for a unique code that meets the following criteria:

  (1) Is not derived from any other code (e.g., MRN or SSN) and is not used for any other purpose; and

  (2) Persons using the data for research have no access to the code key and the key is held by a source that is not part of the research team. An investigator (or her study team members) may not create the code for de-identified data that she will use in her own research.

Appendix J: Consent from Covenant Life Worship Center

Covenant LIFE

August 1, 2019

Mrs. Michelle White

Southern Adventist University

Dear Mrs. White,

I am delighted to support your project. We acknowledge the importance of addressing health and wellness. We are excited about your exploration of the role of Faith Based organizations in health care maintenance. We are willing to assist you with this project, with the understanding that all information provided from our members will be used for the project and confidentiality of our members will be maintained according to HIPPA regulations and guidelines. We are able to provide a place for the conduction of education sessions and blood pressure screening.

It is my prayer that assisting you with this project will shed light on the health care needs us to better understand how we can help our members achieve health and wellness. I look forward to discussing further details with you soon.

In His Name,

Darlene Chant

Darlene D. Chant
Lead Pastor

7001 Lafayette Road Chickamauga, Georgia 30707 | covenantlifeworship.com

Appendix K: Author's Instructions on Scoring H-SCALE Survey

Notes on using the H-SCALE – June 28, 2018

As of June 2014, two studies have been conducted and published examining the validity and reliability of all 6 subscales of the H-SCALE (Warren-Findlow & Seymour, 2011; Warren-Findlow, et al., 2013). Researchers using the H-SCALE should be advised that the full scale has currently only been administered in English to Americans in the Southern United States. Both of these samples were predominantly Black/African Americans. We strongly encourage you to conduct reliability statistics at a minimum with your study sample.

The most recent study using the full H-SCALE assessed the concurrent validity of the H-SCALE subscales against clinical blood pressures in a primary care setting (Warren-Findlow et al., 2013). That sample included both Blacks and Whites. This study also tested the H-SCALE in a self-administered questionnaire format. In the original study (Warren-Findlow & Seymour, 2011), participants were interviewed face-to-face. We are providing you with the self-administered format of the H-SCALE.

More recently, we have translated the H-SCALE into Spanish using a rigorous forward and backward translation process. Pilot data from 124 Hispanic, primary care patients has been collected; findings are published in *Ethnicity and Health*. Please contact me if you are interested in using the Spanish H-SCALE.

Updates to the H-SCALE regarding the diet subscale

Prior to 1/1/15, the diet subscale contained 12 items. This subscale had poor internal consistency based on Cronbach's alphas and better adherence was positively associated with higher blood pressure (Warren-Findlow, Dulin, et al., 2013); the exact opposite of what we hypothesized. In 2013-2014, we conducted a two-phase study to better understand issues with the diet subscale, make necessary revisions to items, and to conduct further psychometric tests.

© 2011 Jan Warren-Findlow

The new subscale, which we term "DASH-Q" for DASH-Quality contains 11 items which are solely focused on respondents' frequency of food consumption (Warren-Findlow, Reeve & Racine, *epub* 2016 – *Journal of Nutrition Education & Behavior*). The foods specified are less about high sodium foods and are more based on the nutritional balance outlined in the DASH diet: emphasis on eating fruits and vegetables; consuming alternate forms of protein as opposed to meat-based protein; and increasing consumption of foods with potassium, fiber and whole grains. The attached measure includes the DASH-Q with associated scoring instructions.

The DASH-Q is a more robust self-report measure of diet quality than the previous diet scale embedded in the H-SCALE. Further, because it focuses on specific foods and food sources, it is also easier to translate. We urge H-SCALE users to field this new measure in place of the previous one in all future studies.

Using the H-SCALE

Please reference the relevant articles for the scale and/or subscale in any published articles, presentations or theses/dissertations when using the H-SCALE or the DASH-Q. You must also include a statement indicating that you have the permission of the scale developer (Dr. Jan Warren-Findlow) to use this scale. The primary description of the scale and its development is in the *Journal of the National Medical Association* by Warren-Findlow and Seymour (2011). Correlations between subscale scores and systolic and diastolic blood pressure are reported in the *Journal of Clinical Hypertension*. The DASH-Q is available in the *Journal of Nutrition Education & Behavior*. Individuals using the self-efficacy to manage hypertension measures should cite the *Journal of Community Health* article.

Follow H-SCALE Research and Development

© 2011 Jan Warren-Findlow

We would love to be informed of your results! Please let us know about your prevalence rates, reliability statistics for your sample, additional analyses or validity tests, and any problems you encounter with using the scale (jwarren1@uncc.edu). You can learn more about current projects using the H-SCALE on ResearchGate (www.researchgate.net), just search on "Warren-Findlow." Thank you for your interest in our research.

Scoring the H-SCALE

The H-SCALE contains items related to six, hypertension self-care activities recommended by the JNC7: taking medication, following a low-salt diet, engaging in physical activity, avoiding tobacco smoke, using strategies to maintain or lose weight, and reducing alcohol consumption. Each of these subscales is scored and then cutpoints are applied to determine the individual's adherence to the activity.

Medication (3 items) – To calculate medication adherence, add the responses for items 1-3 (range 0-21). Participants who score a 21 are considered adherent. Other measures of medication adherence use 80% adherence as the cutpoint as opposed to 100%. **Note:** some respondents may not have been prescribed anti-hypertensive medications.

DASH-Q (11 items; items 4-14) – These items assess intake of healthy foods associated with the nutritional composition of the DASH diet. Item #7 ("Eat pickles, olives, or other vegetables in brine?") should be reverse coded. Responses for all items are then summed. The range should be 0 to 77. Scores of 32 and below are considered low diet quality; scores between 33 and 51 are medium diet quality; and scores of 52 or greater should be considered adherent. For researchers outside the US, these items will need additional effort to determine the culturally relevant foods. We recommend allowing for 1-2 missing items per respondent. For samples with missing items that exceed 10%, researchers may opt to lower the cut points by 1 point.

© 2011 Jan Warren-Findlow

Physical Activity (2 items; 15 and 16) – Responses are summed (range 0-14). Participants who score an 8 or better are considered adherent to physical activity recommendations; all others are non-adherent. This designation was chosen to ensure that participants have to report some combination of both physical activity and exercise in order to be considered adherent. There are 2 additional items related to isometric or strength training; these are currently being piloted. No scoring instructions are currently available but these items should reflect the US Surgeon General's recommendations to do strength training at least 2 days a week.

Smoking (2 items; 19 and 20) – Responses are summed (range 0 to 14). Respondents who score zero would be considered adherent.

Weight Management (10 items; 21-30) – These ten items assess activities undertaken to manage weight through dietary practices such as reducing portion size and making food substitutions as well as exercising to lose weight. Items assessed agreement with weight management activities during the past 30 days. Response categories range from strongly disagree (1) to strongly agree (5). Sum the responses to calculate the score with a range from 10-50. Participants who reported that they agreed or strongly agreed with all 10 items (score $\geq$ 40) are considered to be adherent to good weight management practices.

Alcohol (3 items; 31-33) - Alcohol intake is assessed using an existing measure, the 3-item, National Institute on Alcohol Abuse and Alcoholism (NIAAA) Quantity and Frequency Questionnaire. Originally, adherence was deemed to be alcohol abstinent. The scale was validated using Southern African Americans who were very religious and had a correspondingly high prevalence of alcohol abstinence. Participants who reported not drinking any alcohol in the last 7 days (item #31), or who indicated that they usually did not drink at all, were considered adherent. *Currently, we recommend using one of two methods. For a continuous variable,*

© 2011 Jan Warren-Findlow

multiply item #31 by item #32 which would indicate the total number of alcoholic drinks consumed per week (range from zero to unknown; Warren-Findlow et al., 2013. This form is useful if you are interested in doing a dose-response analysis of alcohol consumption or trying to determine the prevalence of binge drinking. To determine adherence in the form of a dichotomous variable, we recommend scoring men and women differently. According to JNC7 guidelines, adherence to moderate alcohol consumption among men is considered ≤ 2 drinks/day for men (scores of 14 or less) and ≤ 1 drink/day for women (scores of 7 or less). Categorize the continuous form of the variable into adherent/non-adherent based on the above gender guidelines (14 or less is adherent for men and 7 or less is adherent for women). Our most recent research indicates that these adherence cutpoints are significantly correlated with systolic and diastolic blood pressure.

References

Warren-Findlow, J. & Seymour, R. B. (2011). Prevalence rates of hypertension self-care activities among African Americans. *Journal of the National Medical Association, 103*(6): 503-512.

Warren-Findlow, J., Seymour, R. B., & Shenk, D. (2011). Intergenerational transmission of chronic illness self-care: Results from the Caring for Hypertension in African American Families Study. *The Gerontologist, 51*(1): 64-75.

Warren-Findlow, J., Seymour, R. B., & Huber, L. R. (2012). The association between self-efficacy and hypertension self-care activities among African American adults. *Journal of Community Health*, *37*(1): 15-25. doi:10.1007/s10900-011-9410-6

Warren-Findlow, J., Basalik, D. W., Dulin, M., Tapp, H., & Kuhn, L. (2013). Preliminary Validation of the Hypertension Self-Care Activity Level Effects (H-SCALE) and Clinical Blood Pressure Among Patients with Hypertension. *Journal of Clinical Hypertension, 15*(9): 637-643.

Hutchison, J. A., **Warren-Findlow, J**., Dulin, M., Tapp, H., & Kuhn, L. (2014). The association between health literacy and diet adherence among primary care patients with hypertension. *Journal of Health Disparities Research and Practice*.

Warren-Findlow, J., C. L. Reeve, & Racine, E. F. (*epub, Nov. 4, 2016*). Psychometric validation of a brief self-report measure of diet quality: the DASH-Q. *Journal of Nutrition Education and Behavior*. DOI:10.1016/j.jneb.2016.09.004

© 2011 Jan Warren-Findlow

Appendix L: Scholarly Project End of Program Student Learning Objectives Synthesis

The DNP project *Reducing Hypertension through Faith Community Nursing* integrated both DNP clinical scholarship and evidence-based practice. The DNP student analyzed and evaluated scientific knowledge regarding the management of hypertension. The best evidence, the DNP student's clinical expertise, and the population's preferences and values were incorporated in developing this DNP project. Current evidence-based practice strategies from the American Heart Association was translated and applied when creating a health education intervention on managing hypertension. Topics such as healthy nutrition, physical activity, weight management, and stress reduction to improve health behaviors and reduce blood pressure measurements were included. Relevant scripture and worship provided a culturally appropriate, holistic approach in delivering patient-centered care. Thus, the DNP student sought to generate new knowledge on the use of Faith Community Nursing and how it can provide health promotion and improve health outcomes through the management of hypertension.

Creating a research question is critical in discovering the best evidence for an identified problem. A searchable PICO question to find relevant literature regarding the problem should include a population (P), intervention (I), comparison (C), and outcome (O). It was recognized that hypertension is a prevalent problem worldwide that can lead to heart disease and strokes. Heart disease and strokes are the nation's leading causes of death (Mills, Stefanescu, & He 2020). Walker County, Georgia, was found to have the highest heart disease and stroke deaths per 100,000 people that exceed state and national levels (Catholic Health Initiatives Memorial Hospital, 2016). Therefore, interventions are needed on the national, state, and community levels to decrease these rates. Those individuals within a faith community who had hypertension or elevated blood pressure were identified as the population. A health education intervention on

the management of hypertension was developed and implemented as a community level strategy in a church located in Walker County, Georgia. However, there was no comparison specified in this DNP scholarly project, as this was a quasi-experimental prospective design. Improved health behaviors and decreased blood pressure measurements were the outcomes identified in this DNP project. Therefore, this DNP scholarly project identified the essential elements of the PICO question, so evidence could be obtained to reduce hypertension through faith community nursing.

After defining the components of the PICO question, a focused clinical question can be finalized. This DNP scholarly project's clinical question was: Among members of a faith community with self-reported hypertension or elevated blood pressure, does participation in a health education intervention have an effect on changing health behaviors and decreasing blood pressure measurements? The DNP student wanted to discover if participation in the health education intervention would lead to improved health behaviors such as healthy eating, physical activity, and weight management within individuals of a faith community who had hypertension or elevated blood pressure. The student also hypothesized that improvements in health behaviors would then lead to reduced blood pressure measurements.

Critical appraisal of current literature to determine the best evidence for practice was essential in developing the DNP scholarly project. The DNP student evaluated multiple research studies to ascertain if they were valid and reliable. The level of evidence, along with the quality, was determined for each research study. The studies were also analyzed for significant results, and if they were clinically relevant and applicable to the chosen population. Current research on faith community nursing was found to be limited. Research promoting health in faith community settings has predominately taken place in African American churches. In addition,

population samples were often small, included mostly women, and the strength of the studies was low.

Current evidence-based practice strategies to reduce hypertension were gathered during the research process using health information systems. New guidelines established in 2017 on blood pressure measurements and their management were incorporated into the health education curriculum. Strategies to improve diet, decrease salt intake, increase physical activity, manage weight, improve sleep, and reduce stress were also included. Information technology was employed to develop the health education intervention PowerPoints.

The scholarly research project provided health education information that was safe, evidence-based, and would provide the least harm to participants. The health education intervention was designed to be conducted once a week for ninety minutes and would last for one month. The DNP student hoped this time period would allow for the health education intervention to positively impact participant's blood pressure measurements and health behaviors. The health education teaching sessions would be provided in group sessions, ensuring that all participants would receive the same treatment. Incorporating worship and scripture into the DNP scholarly project education sessions would provide culturally-sensitive, patient-centered care needed for this population group within a faith community setting. These components of this DNP project enabled the student to acquire IRB approval to implement the scholarly project within a faith community.

The DNP student functioned as the practice specialist to implement and evaluate the DNP scholarly project in a local faith community. Collaboration with a trained volunteer nursing student occurred during the blood pressure screenings to advertise the scholarly research project. Many prospective participants had their blood pressure taken and were encouraged to attend the

class. The DNP student used validated aneroid sphygmomanometers (Welch Allyn D244) to measure blood pressure measurements. A trained EMT volunteer helped measure pre/post-intervention blood pressure measurements of the scholarly research project participants. In addition, the Hypertension Self-Care Activity Level Effects (H-SCALE) tool with the revised DASH-Q diet subscale was used to measure participants' health behaviors in managing hypertension before and after participation in the health education intervention. Medication adherence, diet, physical activity, smoking, weight management, and alcohol behaviors were assessed. All data that was collected was maintained in a secured box. SPSS data analysis software was utilized to evaluate the data and to determine if the results were significant.

Evaluation of the DNP project did not find significant differences in the pre and post-intervention data from the H-SCALE survey total subscale scores (diet, physical activity, and weight management). In addition, significant differences in blood pressure measurements were not found using a paired-samples t-test. However, a Wilcoxon signed-rank test found significant differences in individual questions such as an increased weekly intake of beans, peas, or lentils and eggs. Participants decreased their weekly consumption of pickles, olives, and vegetables in brine, but also reduced their weekly intake of fruit such as apples, bananas, melons, or raisins. A significant difference was found in the weight management subscale questions such as an increase reading food labels while shopping, but there was also an increase in the consumption of sugary drinks. Therefore, small benefits and declines were seen in individual questions, but did not impact total subscale scores of the H-SCALE survey. This could be due to the limited time the study was conducted and the small sample size. If the study was conducted over a longer period of time with a larger sample size, significant differences and improvements in health behaviors and blood pressure measurements may become evident.

The findings of the scholarly research project will be presented to DNP faculty and students. Strategies that can be implemented to reduce hypertension and improve health behaviors within a faith community will be provided along with significant findings. The DNP student also foresees opportunities within her church leadership and denomination to present the scholarly research project and other health promotion activities within a broader faith community. Faith community nursing is a community level strategy that can be utilized to improve health outcomes within faith-based populations.