Prevention and Management of Hypertension among African-Americans Adult in a Church Based Education Program

Prevention and Management of Hypertension among African-Americans Adult in a Church Based Education Program

By

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Dedication

I dedicate this doctor of nursing degree to God Almighty, and to my Parents Late Mr. Chineme Dick & late Mrs. Keziah Dick, my husband Kelechi Richard and my two children Kelechi Jr and Chizara Richard.

Acknowledgement

First and foremost, I would like to thank the supreme power the God Almighty for his grace upon my life. Without his grace this project could not become a reality. Next to him are my parents, whom I am greatly indebted for their love, prayers, caring, sacrifices and guiding me on the right path of life. May their soul continue to rest in peace, and to my siblings, I say thank you

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Abstract

Background: African Americans are twice as likely to suffer from hypertension as compared to whites at any age. Seventy-five percent of African Americans develop hypertension as compared to 40% white women and 55% white males. Physical exercise, a healthy diet and integrating family support should be part of a cultural-specific intervention prevention strategy for hypertension.

Purpose: This project implemented a church-based culturally tailored education program to enhance African-Americans adult's knowledge and awareness on prevention and management of hypertension.

Methods: Classes were held at the church function hall after screening of the participants to determine eligibility Pre and post questionnaires were administered to obtain the participants' baseline knowledge and the effect of the educational program post intervention. Hypertension prevention and lifestyle modifications were presented.

Results: Seven African American adults with the diagnoses of hypertension were enrolled initially in the project and six participants completed the culturally tailored education program. The result revealed a 100% increase in knowledge and 33% increase in adherence to prescribed medications in those completing the program.

Conclusion: The culturally tailored education program consisting of teaching on lifestyle modifications. This small church-based project demonstrated effectiveness in increasing the knowledge and awareness on the prevention and management of hypertension among African American adults.

Keywords: *Hypertension, African-American, prevention, management, lifestyle modification, culturally tailored program*

Prevention and Management of Hypertension among African-Americans Adults

Introduction

Hypertension is a major public health concern, with about 74 million of Americans affected and over one billion people globally, contributing to morbidity, mortality as well as direct and indirect health cost to health care system (Center for Disease Control [CDC], 2012). The risk factors for hypertension increase as one ages and African Americans not only have a higher disease prevalence, but they also tend to develop it earlier. African Americans are one and a half times more likely to develop hypertension compared to their white counterparts (CDC, 2012). This population is at risk for hypertension and needs education about the disease, its effects, and lifestyle modifications before problems begin.

Physical inactivity and poor dietary are some of the reasons contributing to the observed variations between African Americans and Caucasians (Dall et al., 2010). Their lack of participation in traditional risk reduction programs indicates a need for accessible health promotion and disease prevention programs that take into consideration the social and cultural perspective of African Americans (Barnes & Kimbro, 2012).

Background

Hypertension also known as high blood pressure is a major health disease that affects many Americans, however many people with hypertension remain undiagnosed or are not adequately treated. An estimated 20% of Americans who have hypertension are not aware they have the disease (American Heart Association [AHA], 2016). This disease if not controlled, increases the risk of cardiovascular disease and may damage organs such as the brain, kidney, and eyes. It can also lead to erectile dysfunction in men. The

prevalence of hypertension among African Americans is the highest in the United States (U.S) and 40% of African Americans adults have hypertension (AHA, 2016). According to AHA (2016), hypertension shortens the life expectancy by 5% if left untreated and inappropriately managed. It is estimated that hypertension costs the health care system approximately 48.6 billion dollars annually for both direct and indirect care (CDC, 2016).

Hypertension is defined as systolic pressure greater than 130mmHg (millimeters of mercury), and diastolic pressure over 80mmHg on two separate office visits. Normal blood pressure is 120/80 mm Hg (AHA, 2016). Blood pressure is the pressure of blood on the walls of the arteries. There are two forces produced as the blood passes through the arteries, Systolic and Diastolic. Systolic is the pressure created as the heart pumps blood through the arteries and diastolic is the pressure at rest.

There are two types of hypertension - essential and secondary hypertension (AHA, 2016). Essential hypertension is the most common type and accounts for ninety to ninety-five percent of cases. Essential hypertension is a multi-factorial disease, affected by diet, sedentary lifestyle, weight, age, and race. Secondary hypertension is less common and has an identifiable cause such as kidney disease, disorder of the adrenal glands, thyroid and parathyroid disorder, sleep apnea, preeclampsia, drugs, coarctation of a aorta (AHA, 2016).

Problem statement

There is a need to improve outcomes for African Americans with regard to high blood pressure, taking into account cultural and lifestyle factors on hypertension. A culturally competent intervention program implemented through a community church

with a majority African Americans congregation could be used to help change outcomes for hypertension among African Americans adults between 35 years and 65 years of age.

Organizational Gap Analysis of Project Site

The site for project was in a black dominated church located in Canton, Massachusetts. The population included African Americans adults through middle age (35 to 65 years old) known to have hypertension due to their lifestyle. The lack of knowledge of the influence of lifestyle can contribute to the problems facing African Americans with hypertension in making changes to control and manage their diseases. The DASH diet, which limits salt intake and promotes a heart-healthy diet, has been associated with lower risk for hypertension (CDC, 2012).

Review of the Literature

A complete search of literature was conducted through PubMed, Cumulative Index of Nursing and Allied Health Literature (CINHAL), Medline, Science direct, Google Scholar. Internet searches were conducted on CDC, AHA, and American Society of Hypertension website. The keywords used were *hypertension, prevention, management, middle age, African-American adults, diet, exercise, lifestyle modification, barriers, literacy, racial disparity, health promotion behaviors, culturally tailored educational program and beliefs.* Only current references were included from peer-reviewed journals. Meta-analysis and systematic reviews were excluded. Using these criteria, ten articles were selected for the review on the management of hypertension among African Americans adults

Dietary Habits of African American

The prevalence of hypertension among African Americans is disproportionate to their population within United States (Pool et. al. 2018). Data indicates that African Americans suffer a higher susceptibility to hypertension than any other racial group. There are many factors that could lead to this, however Ferdinand et al. (2017) and Cheung et al. (2017) found that some of the most probable factors are culturally centered.

Peters et al., (2006) studied the African Americans culture through a cohort with an aim of determining the influence of culture on hypertension outcomes. Some of the significant findings included that the average African Americans consumes a diet that is not considered balanced or healthy, with a preference of food with excess sugars and fats. The African Americans are also likely to season food highly. This population takes pride in this diet, since it is what has been passed down from generation to the next. Wenner et al., (2018) found that African Americans are sensitive to high sodium in the food; it follows that the seasoning as a cultural practice can contribute to the vulnerability to hypertension.

Healthy eating habits and lifestyles are highly correlated with the family's income or wealth (Chetty et al., 2016). The net African Americans household income is lower than any other racial group in the U.S (Mode et al., 2016). Given these circumstances low-income earners are more likely to only afford fast food. The average African Americans cannot afford to shop for healthy food options at natural food stores, which then suggests that the cultural propensity has gravitated towards unhealthy food as a consequence of the inability to afford better food options.

This creates a situation where both the children and parents are forced to consume fast food and the children grow up accustomed to fast food as the go-to meals. One of the ways that the poor diet choices are a cultural issue is within communal language. Eating healthy food is often associated with acting "white" (Peters et al., 2006), which is a term that is used against African Americans who defies cultural norms with food or language. Acting white can lead to social isolation, as was found by Johnson and McGowan (2017). The idea that African Americans food should be prepared a certain way has taken root within communities to such an extent that it is part of the cultural identity.

Barriers to Prevention of Hypertension

The role of culture-economic factors in hypertension is seen within the everyday lives of an African-American who often have to work several job due to low incomes (Peters et al., 2006). Considering that many families in the racial group are single-parented, the burden of raising the family often falls to just the mother. With limited time to spend preparing meals at home, many of these families end up eating fast food. This further impacts the diet choices that the children are likely to make as adults, regardless of their future economic situations (Peters et al., 2006).

Another cultural attribute of interest is mistrust for doctors and institutions in general. To understand this one may need to reacquaint oneself with the African Americans history in the U.S (Lee et al, 2018). This ethnic group has been mistreated and enslaved in the U.S for a long time. Despite the progress made after the civil rights movement, there are still many areas and examples where institutions have discriminated against African Americans. This population by experience tend to mistrust hospitals and

healthcare workers which could lead to significantly higher hypertension cases among them (Lee et al. (2018).

When studying culture factors and high blood pressure, Peters et al., (2006) found a reference to the Tuskegee experiments where doctor intentionally infected African-American men with syphilis and refused to treat them so as to study what syphilis does to the human body. Such instances created a general communal mistrust for doctors especially since many tend to be white males. Given the relationship between white males and minorities in the U.S, it is understandable that there is a cultural mistrust for healthcare professionals among this ethnic group (Peters et al., 2006). Given the social and economic realities medical schools are often out of reach for African Americans and has resulted in lower number of doctors and specialist (Peters et al., 2006).

The lower number of medical providers of color means that African Americans do not get to interact with people who look like them in hospital settings. This further reinforces the cultural belief that hospitals are generally the "white people way of life". The failure of healthcare to connect with their culture not only leads to missed diagnosis of hypertension when it is early and manageable, but also creates poor compliance to medicine that is prescribed for hypertensive patients (Peters et al., 2006).

Stress can cause a spike in blood pressure and stressors may be either temporary or sustained. When Peters et al., (2006) interviewed participants for a study on the average African Americans lifestyle they found that the lives of the average respondent were stressful. Some of the stressors that the average African Americans face include economic pressure, discrimination in everyday living, police brutality, and insecurity in the areas where this population live. The average African American young man is more

likely to get assaulted by police officers compared to the average white American, and is more likely to get arrested and imprisoned than a comparable man from any other race (Staggers-Hakim, 2016).

The prison population in the U.S is 37% African Americans, despite them only making up 12.6% of the total population. Social pressures have led to a stressful existence for the average African American. Those not affected by the stressors directly are affected indirectly because of the strong family ties within the culture. When a father is incarcerated, for example the children will not only be stressed without a fathers figure at home, but also have a significantly lower family income which could limit a family's access to healthy food (Staggers-Hakim, 2016)

Physical exercise has been proven to reduce hypertension (Larsen & Matchkov, 2016). The neighborhoods where many African Americans live are not suitable for outdoor activities, as these communities tend to be over-crowded and unsafe. This leads to a culture where people who would otherwise exercise remain indoors for fear of getting harmed.

The role of generational stress is another cultural aspect that could be relevant. Boardman et al., (2018) studied stress and suggested that African Americans have internalized stress to such a high decree that could be passed down genetically. The many years of living in fear and caution might have caused genetic predisposition towards getting elevated stress responses, thereby elevated blood pressures.

When one considers the civil rights movement, it becomes apparent that one of the ways to mobilize this population towards any cause would be to start at churches since the church culture is very dominant among many African Americans, particularly

older ones (Boardman et al., 2018). Communal interventions at the church are effective since those who attend church are likely to be more receptive of a message on health than those who do not attend. Churches form a community of people who have mutual trust that can be leveraged for better outcomes for hypertension (Boardman et al., 2018).

The church is a cultural component in the African-American community. Some of the most significant progress by the community started at churches, since they are safe spaces within which the community congregates. Considering the natural association of the church with progress and positive outcomes, it is rational that studies on hypertension found the church a suitable setting for intervention.

Schoenthaler et al., (2018) studied the role of the church as a lifestyle intervention center. The randomized quantitative study involved 373 participants and findings suggested that the church is a viable community-health intervention center. The study also found that faith-based approaches to treating hypertension produced better outcomes than health education alone. This means that the church when used as a faith-based intervention center against hypertension for the African-American community could lead to better systolic blood pressure outcomes than a health education center.

The church also provides an opportunity for community health outreach programs. One such program is the 'Give God a Hand' program disused by Ferdinand, Nedunchezhian, and Ferdinand (2020). The program focused on educating church-going African-Americans in New Orleans through educative sermons delivered by five pastors. The idea was to create awareness on the role of lifestyle in reducing cardiovascular health issues, including hypertension.

Such programs not only helped with the community health education, but could also help improving hypertension medication compliance among African-Americans. Compliance with hypertension medication is one of the most significant factors affecting mortality to people with CVD and hypertension issues among the African-American community (Odo, 2019). Considering this, it is rational that outreach programs in faith centers that can frame compliance within the religious context would be a welcome addition to the efforts against hypertension in the African-American community.

Barriers to Medications Adherence

Findings from a study conducted by Pettey et al. (2016) revealed that there are knowledge gaps on hypertension resulting in certain people being misinformed. For instance, some individuals believe that high blood pressure is a form of punishment from God and that prayer is sufficient to manage the condition, while others insist on using home remedies such as taking pickle juice, vinegar, garlic, etc. The researchers also noted that most respondents were not aware that hypertension could result in severe health complications such as heart attack and stroke (Pettey et al. 2016). These respondents were not cognizant of the time and cost implications that could result from the condition worsening. Ignorance and misinformation have also contributed to a low perceived susceptibility to the medical condition among African Americans, thereby preventing those predisposed and those affected from strictly adhering to hypertensive medication.

Bazargan et al., (2017) attribute the low adherence to hypertension treatment to multiple prescriptions. According to the study findings, elderly African American population consists of individuals who take multiple drugs for comorbidities. As a result, some occasionally forget to take their medications, while others routinely skip on purpose.

These are attributed to the increased complexity of managing multiple prescriptions, associated out-of-pocket costs for such treatment regiments, and logistical barriers to acquire the prescription. However, it is noteworthy that multiple prescriptions do not affect younger population (35-45 years old), since they are less likely to have multiple coexisting diseases, and have comparatively higher literacy levels.

Several studies have proven that hypertensive medication costs affect medication adherence (Ferdinand et al., 2017; Rimando, 2015). For instance, a participant in the latter study claimed to have recently missed follow-up clinic appointments, as they could not afford the $30 consultation fee. Both studies concur that some patients might opt to regulate their medication by taking them only when they experience high blood pressure symptoms. Additionally, fear of incurring additional expenses during hospitalization causes most patients to forfeit proper treatment.

In summary limiting factors to adherence to hypertension medication among African Americans include: ignorance and misinformation regarding the medical condition, negative cultural perceptions of medicine and the fact that some individuals take multiple prescriptions. Insufficient funds to seek proper medication is also a challenge

Summary of Literature Review

Prevention and self-management of hypertension incorporates making healthy diets choices, physical activity, stress reduction, low sodium intake, and adherence to anti-hypertensive medications. The literature review shows that lifestyle modifications and increase knowledge on management of hypertension have yielded favorable outcome among African Americans (Lumpkins et al., 2013). Faith-based organization (FBO) has

proven to be engaged on health promotion program and that these promotion interventions significantly impact the African Americans health behaviors (Lumpkins et al., 2013).

The community church has a large congregation and supportive system with health ministries, volunteers, and communication channels keeping up regular contact (Kwon et al., 2017). According to Chaves (2019), about 28% of FBO provide culturally tailored organized health-focused program such as health education classes and cooking classes. Studies that examined individual behavioral change found that change is highly successful and effectual on community and group level (Evan, & Hudson, 2014; Gore, Williams, & Sanderson, 2012).

Theoretical Framework

This project utilized a knowledge-action process framework. This is a model proposed by the Ottawa model of research use, which conceptualizes outputs as being consequences of knowledge creation and action (Field et al., 2014). The initial point of interest is the creation of knowledge where the target population would be informed on matters, in this case the prevention of hypertension. The second point of interest is creating actions that result in the lowering of hypertension among adult African Americans within the population.

Should these actions succeed by producing favorable outcomes, the use of a church as a point of knowledge and action to prevent hypertension is an intervention that can be generalized and translated into the larger population. The process is centered on the creation of tailored knowledge, then guided by a process that defines the action cycle (Appendix A).

Hypertension is a manageable chronic disease that requires an acquisition of knowledge. This project started by identifying the participants' level of knowledge and barriers to adherence to the prescribed medications, by utilization of pre-test questionnaires. The participants were educated on how to modify their lifestyle behavior such as healthy food choices, Physical exercise, and no cigarette smoking.

The action cycle required the participants to be iterative, which includes daily implementation of the new acquired knowledge to cause change in behavior. The participants' behaviors were evaluated by the application of posttest questionnaire at the end of the session to evaluate the effect of the education program. Knowledge acquired during the education program increased the participants' ability to control and self manage their disease.

The prevalence of hypertension among African Americans adult and their lack of participation in risk reduction programs, underscore the need for approachable health promotion and disease prevention programs with the consideration of this population cultural viewpoint. The project's main goal was to address the knowledge deficit that exists in the African American community and the need to prevent and manage hypertension in a church setting.

Project Site and Population

This project was conducted in a church in Canton Massachusetts. About ninety-five percent of the congregations are African Americans. The pastors and the committee leaders are well respected and tend to have an outstanding relationship with members based on mutual trust.

The church focuses on relevant teaching, heartfelt worship, honest friendships, constant prayer, and compassionate care for others. According to Sullivan, Pankey & Chamgne (2011), Faith bases Organization (FBO) typically provides supportive environment and awareness that encourage members to make healthy choices, engage on preventive screening and management of their diseases. The pandemic made the church leaders less involved in this project due to the COVID-19 restrictions. It was very difficult recruiting participants.

Methods

The recruitment of the participants was conducted at the church. The DNP student distributed flyers (Appendix L) to the African American members by placing the flyers on members' cars for two consecutive Sundays, and also, posted a flyer at the church entrance. The pastor of the church announced the project and date of commencement to the congregation during the second service and encouraged those who were interested to call the number on the flyer to avoid socializing due to the COVID-19 pandemic.

Members who freely volunteered to participate were screened to determine eligibility (Appendix D). Participants who met the eligibility criteria were asked to take the consent form home in order to give them an ample time to read and sign the consent form. The Pre-Knowledge questionnaire (Appendix E) was then distributed on the participant's knowledge, beliefs, and attitudes related to the prevention and management of hypertension. The hypertension prevention and management intervention included education on lifestyle modification (Appendix B); physical activities, nutrition, stress management, and coping mechanism (Appendix H).

The educational intervention project was implemented once a week for a total of six weeks. The DNP student met with the participants (n=3) for the group section, and also met one on one with participants (n=3) on their scheduled time. The one on one group were very cautious of the COVID-19 pandemic and preferred to have one on one meeting.

The church restricted the number of members that attended church services. As a result of this restrictions and fear of exposure to COVID-19, the members coming to church every Sunday were less than twenty-five percent of the congregation. The participants who responded to the flyers verbalized their concerns on COVID-19 and were assured that the DNP student would adhere to the COVID-19 precautionary measures. Three participants agreed to attend the education program sections and three requested for one on one meeting.

The educational sections were carried out using pictorial pamphlets, teaching materials, blood pressure log and take-home activities including goal setting and a self-care activity log (Appendix M). Culturally tailored nutrition education also focused on how to substitute diets rich in carbohydrates to low carbohydrate diets, high-fat diets to low-fat diets, and the portion sizes consumed per meal. The participants were educated on the benefits of adherence to the DASH diet and maintaining a healthy weight. The DASH diet, which is heavy on fruits and vegetables, was proposed as a healthy diet. Due to the COVID-19 pandemic, each section of the program lasted for 60 minutes and participants were encouraged to call the DNP students with any questions.

Since the number of participants was relatively small, the PowerPoint presentation was converted to handout format and distributed it the participants. The

educational curriculum was based on DASH diet and recommendations from America Heart Association (AHA). The participants were educated on lifestyle modification that are effective in controlling hypertension and informed of the complications of uncontrolled hypertension. The participants were encouraged to choose healthy food over unhealthy food and advised to take their prescribed medications. Ten-dollar visa gift card was given to each participant that participated in the education program

Measurement Instruments

Pretest and posttest knowledge questionnaires (Appendix E) were used to assess the participants' knowledge of hypertension (Appendix F). The following outcomes were measured at baseline and six weeks after the educational interventions: self-care activities inventory, rating of personal goal achievement, and blood pressure monitoring were offered.

The pretest questionnaire measured the level of their knowledge on prevention and management of hypertension and other education program they had participated in the past and if yes. The blood pressure questionnaire was administered to evaluate their understanding on what were considered normal blood pressure readings. The daily activity log provided information on activities they performed on a daily basis to prevent and manage hypertension. Barriers on adherence to antihypertensive medications, in order to gather data about the barriers to adhering to the prescribed medications were also discussed.

The participants were given an opportunity to call the DNP student with any questions at any time. When the educational section was completed, the post-test questionnaire (Appendix F) was distributed to assess participants' knowledge levels.

Self-reported outcomes on blood pressure and dietary changes showed that the intervention was a success (Moule et al., 2016).

Ethical Considerations

The implementation of the DNP project started after obtaining approval by the University of Massachusetts Internal Review Board (IRB). A letter of support for the project site and IRB Faculty sponsor letter (Appendix N) were obtained. All participants were given consent forms (Appendix C) to sign, which included information pertaining to the process, the purpose, risks and benefits of participating. The Health Insurance and Portability and Accountability Act (HIPPA) policies were followed to protect participants' personal and health information.

All participants' data collected were de-identified and numbers were assigned a code number for identification purposes. All participants were informed that at any point during this project, they feel unsafe to participate due to the COVID-19; they were free to share their concerns and could leave at anytime. The implementation of this project started in February of 2021 after getting the approval from the IRB to commence and plan for COVID-19 to ensure that the DNP student and project site adhere to precautionary measures in accordance to the state rules and regulations.

Results

Seven participants initially responded to flyers and were willing to participate with one of the seven dropping out when the educational sessions commenced. The six remaining participants consisted of English speaking African American adults over the age of 35 who met the inclusion criteria. Three participants agreed to participate in a

group section at the function hall, with the remaining three participant seen one on one at their chosen time. Table 1. outlines the characteristics of participants.

Table 1

Participants' Demographic characteristics

Participant	**Age**	**Gender/ Ethnicity**	**Date HTN diagnosed**	**Previous HTN education program**
1	45	Male AA	2015	No
2	54	Female AA	2018	No
3	60	Female AA	2015	No
4	35	Female AA	2018	No
5	64	Female AA	2019	No
6	50	Male AA	2020	No

The participants included three female and two male African American adults with ages between 35 and 64 years old that had been diagnosed with hypertension. The number of years the participants had hypertension varied with two participants has had hypertension for six years, another two participants for four years, one participant for two years and the remaining one participant for one year. The year the participants were initially diagnosed with hypertension ranged from 2015 to 2020. None of the participants had attended an education program because of time restrictions.

All the participants had blood pressure machine at home and were encouraged to take their blood pressure at home daily and record the readings on the blood pressure log provided to them. Table 2. Presents pre and post blood pressure readings.

Table 2

Participants' pre and post blood pressure readings

	Pre-Intervention		**Post Intervention**		**Intervention Difference**	
Participant	*Average SBP*	*Average DBP*	*Average SBP*	*Average DBP*	SBP	DBP
1	140	85.6	129.6	75.2	-10.4	-10.4
2	139.4	80.6	128.4	81.2	-11	0.6
3	129	77.6	119.6	75	-9.4	-2.6
4	135.4	80.2	128.2	76.2	-7.2	-4
5	128.8	78.4	124.2	76.6	-4.6	-1.8
6	137.4	78.6	123.8	72.6	-13.6	-6

Two participants who were unable to check their blood pressure at home before coming to church utilized the DNP blood pressure machine independently during the entire sections. The highest reported average systolic and diastolic blood pressure readings pre intervention was 140 and 85.6 and the lowest average was 129 and 77.6. While the highest average post intervention systolic and diastolic blood pressure readings was 129.6 and 81.2. The difference was between 4.6 to 13.6 for systolic blood pressure and 0.6 to 10.4 for diastolic blood pressure.

Table 3

Differences in BP readings before and after intervention

		Systolic BP	*Diastolic BP*
	Number of Readings	Intervention Difference	Intervention Difference
Participant Blood Pressure	30	-9.37	-4.03

One participant requested to go home with all the questionnaires for this project, as she wasn't sure if she would make it to the rest of the sections due to fear of exposure to the COVID-19. Eventually, the individual attended the final section. Another participants from the group section did not show up. The one on one groups were all in attendance for their scheduled meetings. The final six completed the full project. Tables 4 and 5 below represent the participants' weekly attendance.

Table 4

Participant attendance at weekly sections (X means attendance, - means absent)

Participant Number	**Section 1**	**Section 2**	**Section 3**	**Section 4**	**Section 5**	**Section 6**
P1	X	X	X	X	X	X
P3	X	-	-	-		X
P3	X	X	X	X	X	X

Table 5

Participant attendance for one on one group

Participants Number	**One on one**	**One on one**	**One on one**	**One on one**	**One on one**	**One on one**
P1	X	X	X	X	X	X
P2	X	X	X	X	X	X
P3	X	X	X	X	X	X

The participants in the group section were encouraged to share any personal strategies they had applied to achieve their personal goals connected to controlling their hypertension. Two participants reported that they avoided salty and processed food, and always read food labels before eating or buying any food items. Another participant revealed regular use of garlic and green tea three times a day after diagnosis of hypertension, and stated it had been effective.

Adherence to Medications Questionnaire

The participants' responses on the adherence to medications questionnaires were calculated to get the total percentage on Microsoft excel. Five participants (83%) reported being actively engaged with their primary care physician at least every three months. One participant was newly diagnosed and had not secured a health care provider due to the pandemic. The table below illustrates the participants' adherence to medication.

Table 6:

Participants' medication adherence response

Questions	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5	Participant 6	% of total

I am engaged with my primary care provider and I trust my doctor and agree to my therapy plan together with him	Yes	Yes	No	Yes	Yes	Yes	83%
I fully understand what my doctor, nurse or the people at my pharmacy have explained to me so far	Yes	Yes	No	Yes	Yes	Yes	83%
I can mention the names of my medications and their scope without hesitation	Yes	Yes	No	No	No	Yes	50%
My medications help me only if I take them absolutely regularly as recommended	Yes	Yes	No	No	No	Yes	50%
Medicines are all poisonous. You should avoid taking medicines at all if possible	No	No	No	Yes	Yes	No	33%
I feel basically healthy. Therefore I am unsure whether I really have to take my medications daily	No	No	No	Yes	Yes	No	33%
I take my medications every day automatically	Yes	Yes	No	No	No	Yes	50%
I feel that co-payments for medicines are a great burden	Yes	Yes	Yes	Yes	Yes	No	83%
I really would need help on everyday basis (and particularly related to my treatment with medicines) but I do not get any help	Yes	Yes	Yes	Yes	Yes	No	83%
I am really frightened of the side effects of my medicines	No	No	No	Yes	Yes	No	33%
In case I would notice side effects I have talked would talk to my provider	Yes	Yes	Yes	Yes	Yes	No	83%
Participate Sum	8	8	3	8	8	5	

Three participants (50%) indicated adherence to their prescribed medications, but were not following healthy diets recommendations. Two (33%) out the three remaining participants admitted not taking medications as prescribed and they believed medications are poisonous. These two participants also indicated that their diets are mainly junk food.

The newly diagnosed participant reported being strict with healthy diet and exercise as the only option since there had been no established provider. Fifty-one percent of the participants adhered to their prescribed medications and were knowledgeable about what medication they take. Another 33% were non-compliant with their medications pre intervention, and 17% were not on any medications. Post intervention 83% participants adhered to their prescribed medications with 17% still reporting not being on antihypertensive medication.

This small sample demonstrated a 33% increase in the number of participants adhering to their prescribed medications after the education program. Eighty three percent of participants were not adherent to DASH recommendations, with only 17% reporting complete adherence to DASH diet pre intervention. Post intervention score showed 50% of participants adhered to DASH diet.

Most (83%) of the participants were not engaged in any form of exercise pre intervention while post intervention score revealed 50% adherent, which is an increase in adherence to exercise. All of the participants were classified as being adherent to tobacco smoking and alcohol consumption recommendations.

Discussion

This project revealed a lack of awareness and knowledge among several of the African American participants on how to prevent and manage hypertension. This could be related to the lack of education initiatives available in the community. This culturally tailored educational intervention proved to be effective in knowledge enhancement and awareness on hypertension as a silent killer and on how to prevent and manage this disease. According to AHA (2016), hypertension shortens the life expectancy by 5% if left untreated and inappropriately managed and it is estimated that hypertension cost the health care system approximately 48.6 billion dollars annually for both direct and indirect care (CDC, 2016).

The participants were educated on the complications of uncontrolled hypertension and were encouraged to maintain healthy lifestyle behavior such as strict adherence to DASH diet, stress management and physical exercise. Prior to the culturally tailored education intervention, 83% of the participants were not aware that 30 minutes or more of physical exercise could reduce the chances of developing hypertension and its complications. They were advised to set time aside for physical exercise and take control of their body.

Medication adherence and daily blood pressure monitoring were strongly encouraged; they were also advised to take their medications even when they feel well. The DNP student reinforced that antihypertensive medications are not poisonous, though they may have some side effects, which should be reported to their providers if they are not tolerable.

The participants were provided blood pressure log to record their daily blood pressure readings and share the readings with their primary care provider. The increased knowledge acquired during this educational intervention helped the participants (N=6) to modify their lifestyle behaviors and planned to adhere to the DASH diet for long term, which will yield desirable outcome. The project sample was relatively small, yet the outcomes were consistent with previous study regarding the benefits and sustainability of Faith-based culturally tailored educational intervention.

At the end of the sections, the participants expressed their satisfaction about the educational intervention. They loved the teaching material such as the handout and the blood pressure log. The participants felt empowered and believed that their personal beliefs and perception about hypertension had changed. They felt that the educational intervention would have been more interactive if not because of COVID-19 pandemic.

Implication and recommendation

This project demonstrates an increase in knowledge and perception about management and prevention of hypertension among the African American adults**.** In order to create a culture of healthy lifestyle behavior, Interventions to manage and prevent hypertension should start at the early stage of life. Culturally tailored education programs for the management and prevention of hypertension have been proven to decrease prevalence and incidence of hypertension among African American adults. Review of literature shows that lifestyle modifications and increase knowledge on management of hypertension have yielded favorable outcome among African Americans (Lumpkins et al., 2013).

Future faith-based intervention should involve interventions that incorporate the leaders of the church and healthcare professionals who are the members of the church. The church is a cultural component in the African-American community. Researchers in healthcare have found that the use of a church as an intervention point in healthcare is among the safest and most effective in any community (Lumpkins et al., 2013). Some of the most significant progress by the community started at churches, mainly because they are safe spaces within which the community congregates. Considering the natural association of the church with progress and positive outcomes, it is rational that studies on hypertension found the church a suitable setting for intervention.

Future faith-based culturally education intervention should be conducted for a period of one year or more to achieve a long life healthy lifestyle for the African American population. To increase the effort in combating hypertension among African American adults, there should be more resources allotted to the faith-based organizations, to create more educational initiatives related to increasing awareness, and knowledge about prevention and management of hypertension and other chronic diseases. The resources could help to fund gym or any king of physical exercise program within the Faith-based organization and conduct a needs assessment of their members health education needs.

Cost-Benefit Analysis Budget

The cost of this project was lower than the initial estimated cost, partly because of the COVID-19 pandemic. The plan to provide healthy food, snacks and beverages did not happen thereby reducing the total cost. The cost accrued from this project was mainly on personal protective equipment, hand sanitizer, transportation, printing of the

questionnaire forms, stationary materials, and the ten dollar gift card that was given to the participants. The total cost was approximately $600.00 and was disbursed by the DNP student. The Church paid the expense for the use of the project site's water, antimicrobial soap and electricity.

Limitations

The most notable limitation was the COVID-19 pandemic. Less than 25% of the church congregation attended church services, which made participants recruitment very difficult and decelerated. The leader of the church informed the DNP student that distribution of the flyers to the members after church services would not be allowed to avoid socialization. The DNP student was not allowed to paste the project study flyer on the door entrance. In order to create awareness about the project, the DNP student decided to attached flyers on the members' car. About twelve people responded but only seven were eligible.

Another limitation was the number of the participants was relatively small. The inclusion criteria of recruiting only participants with diagnosis of hypertension limited the number of participant and future programs should include all interested members.

Conclusion

Hypertension is a disease that disproportionally affects the African American population and many are not adequately treated. Most African American adults that have hypertension are not aware they have the disease (CDC, 2016). The prevalence of hypertension among African Americans is the highest in the United States (U.S) with 40% of African Americans adults have hypertension (American Heart Association [AHA], 2016).

Religion attracts people who can learn, and the implementation of this quality improvement project focused on a racial group that benefited from engagement with the most teachable members. This project once again demonstrated the dependability of a culturally tailored education program for the management and prevention of hypertension in a faith-based organization. The church when used as a faith-based intervention center for hypertension for the African-American community could lead to better blood pressure outcomes.

References

American Heart Association (2016). High Blood Pressure and African Americans. https://www.heart.org/en/health-topics/high-blood-pressure

American Heart Association (2020). What about African Americans and high blood pressure. AHA. https://www.heart.org/-/media/data-import/downloadables/2/8/a/pe-abh-what-about-african-americans-and-high-blood-pressure-ucm_300463.pdf?la=en

Bazargan, M., Smith, J., Yazdanshenas, H., Movassaghi, M., Martins, D., & Orum, G. (2017). Non-adherence to medication regimens among older African-American adults. *BMC geriatrics*, *17*(1), 163.

Boardman, J. D., Wedow, R., Goode, J. A., Domingue, B. W., & Harris, K. M. (2018). A social explanation for observed differences in genetic associations for years of completed education among black and white adults: The role of discrimination. In *annual meeting of the Population Association of America, Denver, CO*.

Centers for Disease Control and Prevention [CDC]. (2012). Physical activity and good nutrition: Essential elements to prevent chronic diseases and obesity. http://cdc.gov/nccdphp/publications/aag/dnpa.htm

Centers for Disease Control and Prevention. (2016). High blood pressure fact sheet. https://www.cdc.gov/dhdsp/data_statistics/fact_sheets/fs_bloodpressure.htm.

Chaves, M. (2019). National Congregations Study, Cumulative Dataset Version 2. Doi.17605/OSF.10/84QS9

Chetty, R., Stepner, M., Abraham, S., Lin, S., Scuderi, B., Turner, N., ... & Cutler, D. (2016). The association between income and life expectancy in the United States, 2001-2014. *Jama*, *315*(16), 1750-1766.

Cheung, E. L., Bell, C. S., Samuel, J. P., Poffenbarger, T., Redwine, K. M., & Samuels, J. A. (2017). Race and obesity in adolescent hypertension. *Pediatrics*, *139*(5), e20161433.

Dall TM, Zhang Y, Chen YJ, Quick WW, Yang WG, & Fogli J. (2010). The economic burden of diabetes. *Health Affairs , 29(*2):297

Evans, K. K., & Hudson, S. V. (2014). Engaging the Community to Improve Nutrition and Physical Activity among House of Worship. *Preventing Chronic Disease*, 2014: 11:130270. Doi.org/10.5888/pcd11.130270.

Ferdinand, D. P., Nedunchezhian, S., & Ferdinand, K. C. (2020). Hypertension in African Americans: Advances in community outreach and public health approaches. *Progress in Cardiovascular Diseases*, *63*(1), 40-45.

Ferdinand, K. C., Yadav, K., Nasser, S. A., Clayton□Jeter, H. D., Lewin, J., Cryer, D. R., & Senatore, F. F. (2017). Disparities in hypertension and cardiovascular disease in blacks: the critical role of medication adherence. *The Journal of Clinical Hypertension*, *19*(10), 1015-1024.

Ferdinand, K. C., Senatore, F. F., Clayton-Jeter, H., Cryer, D. R., Lewin, J. C., Nasser, S. A., ... & Califf, R. M. (2017). Improving medication adherence in cardiometabolic disease: practical and regulatory implications. *Journal of the American College of Cardiology*, *69*(4), 437-451.

Field, B., Booth, A., IIott, I., & Gerrish, K. (2014). Using the Knowledge to Action Framework in Practice: a citation analysis and systematic review. I*mplementation Sci* 9, 172(2014). https://doi.org/10.1186/s13012-014-0172-2

Gore, T. N., Williams, A., & Sanderson, B. (2012). Recipe for health: Impacting Diabetes in African Americans through Faith-Based Education. *Journal of Christian Nursing,* 29(1), 49-53.

Johnson, J. M., & McGowan, B. L. (2017). Untold Stories: The Gendered Experiences of High Achieving African American Male Alumni of Historically Black Colleges and Universities. *Journal of African American Males in Education*, *8*(1).

Kwon, S. C., Patel, S., Choy, C., Zanowiak, J., Ridout, M. C., Yi, S. I., Wyatt, L. Taher, M. D., Garcia-Dia, M. J., Kim, S. S., Denholm, T. K., Kavathe, R., & Islan, N. S. (2017). Implementing Health Promotion Activities using Community Engaged Approaches in Asian American Faith Based Organizations. *Translational Behavioral Medicine.* https://doi.org/10.1007/s13142-017-0506-o

Lackland, D. T. (2014). Racial differences in hypertension: Implications for high blood pressure management. *American Journal of Medical Science, 348*(2), 135-138.

Larsen, M. K., & Matchkov, V. V. (2016). Hypertension and physical exercise: The role of oxidative stress. *Medicina*, *52*(1), 19-27.

Lee, M. J., Reddy, K., Chowdhury, J., Kumar, N., Clark, P. A., Ndao, P., ... & Song, S. (2018). Overcoming the legacy of mistrust: African Americans' mistrust of medical profession.

Lumpkins, C. Y., Greiner, K. A., Daley, C. M., Mabachi, nN. M., & Neuhaus, K. (2013). Promoting Healthy Behavior from the Pulpit: Clergy share their perspective on

effective health communication in the African American church. *Journal of Religion & Health*: PMD: 21965057 doi 10.1007/s10943-dl-9533-1PMC.D;PMC3540142

Mayo Clinic (2020). DASH diet: Healthy eating to lower your blood pressure. https://www.mayoclinic.org/healthy-lifestyle/nutrition-and-healthy-eating/in-depth/dash-diet/art-20048456

Mode, N. A., Evans, M. K., & Zonderman, A. B. (2016). Race, neighborhood economic status, income inequality and mortality. *PloS one*, *11*(5).

Moule, P., Aveyard, H., & Goodman, M. (2016). *Nursing research: An introduction*. Sage.

Odo, A. M. (2019). *Evaluating the Impact of Medication Adherence in the Management of Hypertension in African American Adults* (Doctoral dissertation, Brandman University).

Peters, R. M., Aroian, K. J., & Flack, J. M. (2006). African American culture and hypertension prevention. *Western Journal of Nursing Research*, *28*(7), 831-854.

Pettey, C. M., McSweeney, J. C., Stewart, K. E., Cleves, M. A., Price, E. T., Heo, S., & Souder, E. (2016). African Americans' perceptions of adherence to medications and lifestyle changes prescribed to treat hypertension. *SAGE open*, *6*(1), 2158244015623595.

Pool, L., Tajeu, G., Muntner, P., Kiefe, C., & Allen, N. B. (2018). Mediating Factors in Racial Differences in Persistent Control of Hypertension: The Coronary Artery Risk Development in Young Adults (CARDIA) Study. *Circulation*, *138*(Suppl_1), A16061-A16061.

Rimando, M. (2015). Perceived barriers to and facilitators of hypertension management among underserved African American older adults. *Ethnicity & disease*, *25*(3), 329.

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: Main Trial Results. *Circulation: Cardiovascular Quality and Outcomes*, *11*(10), e004691.

Staggers-Hakim, R. (2016). The nation's unprotected children and the ghost of Mike Brown, or the impact of national police killings on the health and social development of African American boys. *Journal of Human Behavior in the Social Environment*, *26*(3-4), 390-399.

Sullivan, D., Pankey, S., & Champagne, C. (2011). HEALS: A faith-based hypertension control and prevention program for African American Churches: Training of Church Leaders as Program Interventionists. https://doi.org/10.4061/2011/820101

Wenner, M. M., Paul, E. P., Robinson, A. T., Rose, W. C., & Farquhar, W. B. (2018). Acute NaCl loading reveals a higher blood pressure for a given serum sodium level in African American compared to Caucasian adults. *Frontiers in physiology*, *9*, 1354.

Appendix A

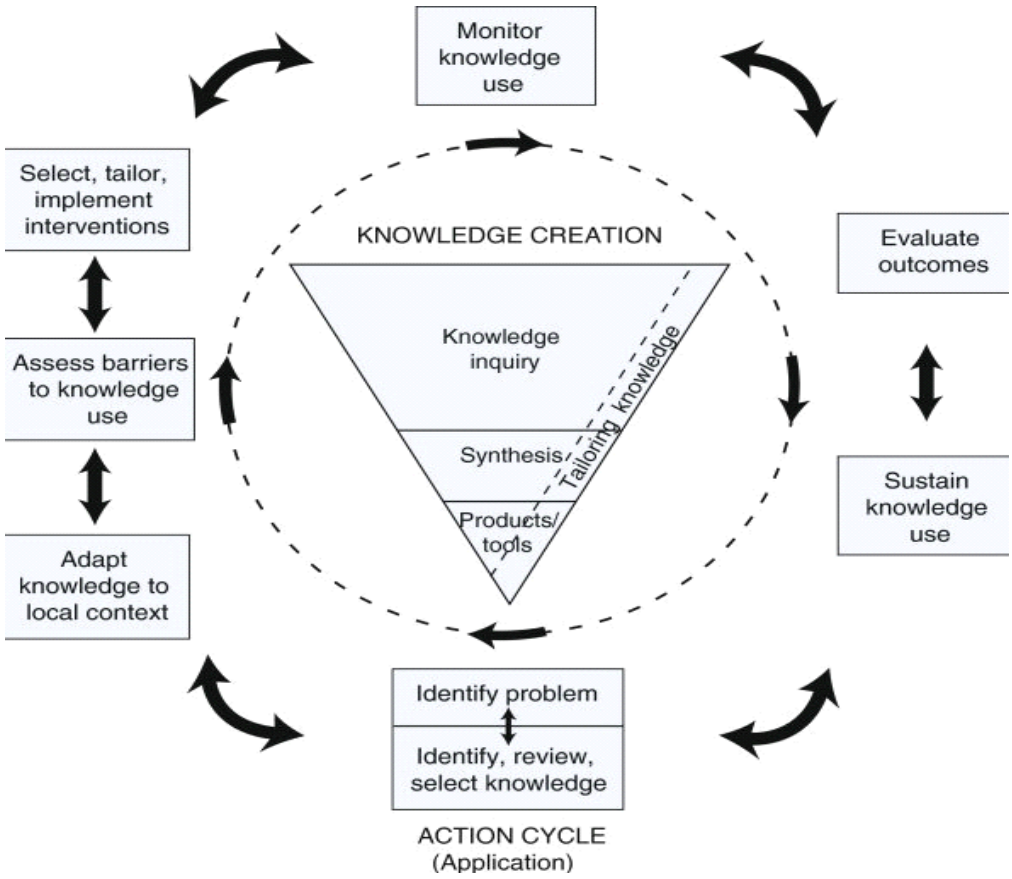


Figure 1: The Knowledge-Action Process Model. Retrieved from (2020). Retrieved 7 March 2020, from https://www.researchgate.net/figure/The-knowledge-to-action-process-framework-11-Reprinted-from-Straus-SE-Tetroe-J_fig1_260608540

Appendix B

Lifestyle modification

Modifications	Recommendation	Approximate SBP reduction range
Adopt DASH eating plan	Consume a diet rich in fruits, vegetables, and low-fat dairy products with a reduced content of saturated and total fat	8-14mmHg
Dietary sodium reduction	Reduce dietary sodium intake to no more than 100mmol per day (2.4g sodium or 6g sodium chloride).	2-8mmHg
Physical activity	Engage in regular aerobic physical activity such as brisk walking (at least 30min per day, 3-4 days in a week)	4-9mmHg
Weight reduction	Maintain normal body weight (body mass index 18.5-24.9kg/m2	5-20mmHg
Moderation of alcohol consumption	Limit alcohol consumption to no more than 2 drinks (1oz or 30mls ethanol, e.g., 24 oz. beer, 10 oz. wine) per day.	2-4mmHg

Resources: Relevant Publications, Organizations, Toolset and Online Resources to Help Review Activities.

Appendix C

Consent Form for Participation in a Research Study
University of Massachusetts Amherst

Researcher(s): Victoria Nwokeji, DNP student, University of Massachusetts, Amherst

Study Title: Prevention and Management of hypertension among African Americans: utilizing a Culturally Tailored Educational Program for Knowledge enhancement.

- **WHAT IS THIS FORM?**

This form is called a Consent Form. It will give you information about the study so you can make an informed decision about participation in this research".
This consent form will help to understand why the study is being conducted and why you are choosing to participate in this study. This consent form also provides information on what you need to do in order to participate and any known or unknown risk and inconveniences that you may encounter while participating in this study. " We encourage you to take some time to think this over and ask questions now and at any other time. If you decide to participate, you will be asked to sign this form and you will be given a copy for your records.

•

- **WHAT ARE SOME OF THE IMPORTANT ASPECTS OF THIS RESEARCH STUDY THAT I SHOULD BE AWARE OF?**

* The goal of obtaining consent form is to provide sufficient information to you in a language, which is easily understood, so that you can make the voluntary decision to participate in this study.

* If you choose to participate, you will be asked to complete pre and post knowledge questionnaires (the questionnaires will provide information on the level of your knowledge on the disease prior to the study and after the study), self-care activity log, and medications adherence questionnaire (this questionnaire will explain any barrier that prevents you from taking your medications as prescribed).

* This study will increase your knowledge and create awareness on how to prevent and manage hypertension through the culturally tailored educational sessions. This study will take 8 weeks to be completed.

* There are no anticipated risks to participating in this study, other than potentially revealing personal information about your health to others in discussions. All participants will be asked to keep personal information discussed in class private. Any participant

- **WHY ARE WE DOING THIS RESEARCH STUDY?**

The purpose of this study is to help African America adults with hypertension to have a better understanding on the disease process and increase their knowledge on prevention and management of hypertension, using a culturally tailored education program.

- **WHO CAN PARTICIPATE IN THIS RESEARCH STUDY?**

For you to be eligible to participate you must be an African American age 35 to 65 years with a diagnosis hypertension and willing to participate. You should be able to read, understand and speak English language. Participant should also be free from cognitive impairment and able to make informed decision.

- **WHERE WILL THIS RESEARCH STUDY TAKE PLACE AND HOW MANY PEOPLE WILL PARTICIPATE?**

This project will take place at Fountain of Grace Church Canton MA. It will be held weekly in the church hall for a total of 8 sessions and each session will last about ninety minutes. The expectation is to enroll about 10 to 15 participants.

- **WHAT WILL I BE ASKED TO DO AND HOW MUCH TIME WILL IT TAKE?**

If you agree to take part in this study, you will be asked to sign at the bottom of the consent form, complete an eligibility questionnaire, and pre knowledge questionnaire which include demographic information. You will also be asked to record your baseline blood pressure reading on a BP log and also record your daily self-care activity on an activity logs. If you are on any blood pressure medications, you will be asked to complete an adherence barriers questionnaire. You may skip question you feel uncomfortable answering. You are not required to write your date of birth or any other personal identification data on the questionnaires. The DNP student will assigned each participant an identification number. You will be asked to complete post knowledge questionnaire after the six group sessions. The posttest knowledge questionnaire will also have some open-ended questions that will require short answers. These answers will be used to elicit participant's view of the educational sessions. You may skip any questions you feel uncomfortable answering.

- **WILL BEING IN THIS RESEARCH STUDY HELP ME IN ANY WAY?**

You may not directly benefit from this research; however, we hope that your participation in the study may increased your knowledge regarding self-management of their diseases, most especially they will learn how to substitute some of the traditional African American diets that are high in carbohydrates for diets low in carbohydrates. Techniques used during the educational sessions will reinforce self-care and accountability for participants' disease management

- **WHAT ARE MY RISKS OF BEING IN THIS RESEARCH STUDY**?

We believe there are no known risks associated with this study project; however, a possible inconvenience may be the time it takes to complete the project. During the interactive class session, standing and moving around for about 60 minutes maybe involved. The risk of breach of confidentiality related to your participating (other participant will be aware of your participation in this study) and your health problems that may have been shared during the class section always exists.

- **HOW WILL MY PERSONAL INFORMATION BE PROTECTED?**

Your privacy and confidentiality is important to us. The following procedures will be used to protect the confidentiality of your study records. Participants will be assigned an identification numbers and the numbers will be listed on your questionnaire materials. No participants' identifiable data such as name or date of birth will be obtained. Participant materials will be stored in a locked box and only the DNP student will have access to the locked box. At the conclusion of this study, the researchers may publish their findings. Information will be presented in summary format and you will not be identified in any publications or presentations. Individual's privacy will be protected (for example, by conducting study procedures in a private location, only allowing authorized research personnel to meet with research participants. Signed consent documents will be stored securely and separately from the research data.

In the event that you are deemed to be a risk or danger to self and others, confidentiality may not be guaranteed

- **WHAT IF THERE IS AN UNEXPECTED FINDING ON TESTS CONDUCTED ON MY BIOSPECIMENS**

  For this study, there will be no collection of any Biospecimens, such as blood, saliva, tissue, hair, urine, feces, breast milk, sperm, nails, etc.
  However, Participants that present with high BP reading will be counseled to contact their healthcare providers for medication assessment, and if dangerously high referred to the emergency department. The blood pressure activity log and

the self care activities log will be returned to the Participants at the end of the educational program.

- **WILL MY INFORMATION (BIOSPECIMENS OR PRIVATE INFORMATION) BE USED FOR RESEARCH IN THE FUTURE?**

Your information will not be used or distributed for future research studies even if identifiers are removed.

- **WILL I BE GIVEN ANY MONEY OR OTHER COMPENSATION FOR BEING IN THIS RESEARCH STUDY?**

Ten-dollar visa gift card will be given at the final group session to each participant that participated in the educational sessions. This is not a compensation for your participation in this study.

- **WHO CAN I TALK TO IF I HAVE QUESTIONS?**

I will be happy to answer any questions you have about this study. If you have further questions about this project, you may contact the organizer (Victoria Nwokeji). If you have any questions concerning your rights as a participant, you may contact the University of Massachusetts Amherst Human Research Protection Office (HRPO) at (413) 545-3428 or humansubjects@ora.umass.edu

- **WHAT HAPPENS IF I SAY YES, BUT I CHANGE MY MIND LATER?**

You do not have to be in this study if you do not want to. If you agree to be in the study, but later change your mind, you may drop out at any time. There are no penalties or consequences of any kind if you decide that you do not want to participate.

- **WHAT IF I AM INJURED?**

The University of Massachusetts does not have a program for compensating subjects for injury or complications related to human subjects research, but the study personnel will assist you in getting treatment.

- **SUBJECT STATEMENT OF VOLUNTARY CONSENT**

When signing this form I am agreeing to voluntarily enter this study. I have had a chance to read this consent form, and it was explained to me in a language that I use and understand. I have had the opportunity to ask questions and have received satisfactory answers. I have been informed that I can withdraw at any time. A copy of this signed Informed Consent Form has been given to me.

_____	_____	_____
Participant Signature:	Print Name:	Date:

By signing below I indicate that the participant has read and, to the best of my knowledge, understands the details contained in this document and has been given a copy.

_____	_____	_____
Signature of Person Obtaining Consent	Print Name:	Date:

Appendix D

Eligibility Screening Questionnaire

Thank you for coming in/ speaking with me today. Before you officially enroll in this research study, I will be asking you to complete a screening questionnaire. It should take you no more than ten minutes to complete. If you are determined ineligible to participate, your completed questionnaire will be destroyed. If you are determined eligible to participate, the completed questionnaire will become part of the study materials, and we will protect your information as confidential and safeguard it from unauthorized disclosure. Only research personnel will have access to the information contained in your screening questionnaire. If the screening questionnaire indicates that you are eligible to participate, we will proceed to obtaining your written informed consent for participation in the study. Do you have any questions?"

Are you at least 35 years old?	Yes/No
Are you African American?	Yes/No
Do you speak English?	Yes/No
Can you read and understand English?	Yes/No
Have you been diagnose with hypertension?	Yes/No
Date of hypertension diagnoses (if not applicable write N/A)	
Have you participated in a hypertension education program in the past?	Yes/No
Did it suit your learning needs?	Yes/No
If no, explain the type of program you have attended	

Appendix E

Pre-Knowledge Questionnaire

Age:

Gender:

Ethnicity:

Language:

Date of hypertension diagnoses:

Have you participated in a hypertension education program in the past? Yes/No

Did it suit your learning needs?

If no, explain the type of program you have attended

A. A person is considered to have hypertension if either their systolic blood pressure is 140 or higher or their diastolic is 90 or higher on two separate occasions. **True False**
B. Most people can tell when their blood pressure is high because they feel bad. **True False**
C. People with hypertension do not need to take medicine if they exercise regularly. **True False**
D. Most people with hypertension need more than one kind of blood pressure medicine to control their blood pressure. **True False**
E. Most of the salt Americans eat is added with a salt shaker. **True False**
F. There are about as many calories in 12 ounces of regular orange juice as there are in 12 ounces of regular cola. **True False**

A*ppendix F*

Post- Knowledge Questionnaire

1. Blood pressure below 140/90 is considered normal: **True or False**

2. Eating less salt can lower blood pressure: **True or False**

3. Lifestyle changes can prevent high blood pressure: **True or False**

4. Preventing hypertension and its complications is mainly an issue of Individual responsibility: **True or False**

5. Knowing your numbers is the first step to lowering your chances of Hypertension and cardiovascular disease: **True or False**

Appendix G

Barriers to Medications Adherence Questionnaire

Participant # _____

You will not be required to list medications you are taking. This activity will help in identifying any adherence barrier you may have.

Please circle the number that relates to your level of understanding with the statements, 1 means strongly disagree and 5 means strongly agree

Items	**Strongly Disagree**	**Somewhat Agree**	**Neither Agree nor Disagree**	**Somewhat Agree**	**Strongly Agree**
	1	**2**	**3**	**4**	**5**
I fully understand what my doctor, nurse or the people at my pharmacy have explained to me so far	**1**	**2**	**3**	**4**	**5**
I can mention the names of my medications and their scope without hesitation	**1**	**2**	**3**	**4**	**5**
I trust my doctor and agree to my therapy plan together with him	**1**	**2**	**3**	**4**	**5**
My medications help me only if I take them absolutely regularly as recommended	**1**	**2**	**3**	**4**	**5**
Medicines are all poisonous. You should avoid taking medicines at all if possible	**1**	**2**	**3**	**4**	**5**
I feel basically healthy. Therefore I am unsure whether I really have to take my medications daily	**1**	**2**	**3**	**4**	**5**
I take my medications every day automatically at a fixed time or on fixed occasions	**1**	**2**	**3**	**4**	**5**
I feel that co-payments for medicines are a great burden	**1**	**2**	**3**	**4**	**5**
I frequently forgot things on an everyday basis	**1**	**2**	**3**	**4**	**5**
Generally I often feel bad, and sometimes I feel discouraged and depressed	**1**	**2**	**3**	**4**	**5**

I frequently have problems taking my medications or it is difficult for me to keep me on the accompanying conditions of the medication intake	**1**	**2**	**3**	**4**	**5**
I have to overcome obstacles to my healthcare	**1**	**2**	**3**	**4**	**5**
I really would need help on an everyday basis (and particularly related to my treatment with medicines) but I not get any help	**1**	**2**	**3**	**4**	**5**
I am really frightened of the side effects of my medicines	**1**	**2**	**3**	**4**	**5**
In case I already noticed or in case I would notice side effects related to my medicines: I have talked or would talk to my doctor about them as soon as possible	**1**	**2**	**3**	**4**	**5**
In case I already noticed or in case I would notice side effects related to my medicines: I have stopped/would stop my medications or took/would take less of them	**1**	**2**	**3**	**4**	**5**

Appendix H

Cost Analysis

COST OF MATERIALS

Printing of flyers for recruitment……. $65.00

Educational materials……..……$ 200.00

Personal protective equipment……..$200.00

Hand sanitizer…….$50.00

Gift ……$60.00

TOTAL COST OF MATERIALS=$575.00

Appendix I

Dietary Approaches to Stop Hypertension (DASH): Healthy Eating to Lower Blood Pressure

Slide 1: Title Slide

Dietary Approaches to Stop Hypertension (DASH): Healthy Eating to Lower Blood Pressure

Slide 2: Combating High Blood Pressure

Ways to combat high blood pressure include not smoking, avoiding second hand smoke, maintaining a healthy weight, eating a diet low in saturated and trans fat that is high in fruits, vegetables, whole grains and low fat dairy (Heart, 2020). Other ways include reducing sodium consumption, levels of 1000 mg a day reduction can help significantly (Heart, 2020). Eating foods rich in potassium and limit alcohol to no more than one drink a day (women) or two drinks a day for men (Heart, 2020). Physical activity is also helpful with dynamic or aerobic resistance three times a week (Heart, 2020). Medication may also be necessary.

Slide 3: What is DASH

DASH stands for "Dietary Approaches to Stop Hypertension." According to the Mayo Clinic (2020), "The DASH diet emphasizes the right portion sizes, variety of foods and nutrients." The DASH diet plan was developed to lower blood pressure without medication in research that was sponsored by the National Institutes of Health (Mayo, 2020). The DASH program encourages sodium reduction and foods that are rich in potassium, calcium and magnesium (Mayo, 2020).

Slide 4: DASH Efficacy

Research indicates that the DASH diet can lower blood pressure by a few points in just a few weeks (Mayo, 2014). Over time, the top number of one's blood pressure can drop by 8 to 14 points (Mayo, 2014). Beyond just lowering blood pressure, it can also help to prevent osteoporosis, cancer, heart disease, stroke and diabetes (Mayo, 2014). It can also positively impact joint and other elements through weight loss that inevitably comes from using DASH (Mayo, 2014).

Slide 5: DASH Diet and Sodium

The standard DASH diet allows for 2,300 mgs of sodium to be consumed a day (Mayo, 2014). There are modifications to DASH, like lower sodium DASH, that caps the sodium consumption at1500 mgs a day (Mayo, 2014). These recommendations are consistent with the Dietary Guidelines for Americans. The American Heart Association puts 1,500

mg a day as the upper limit for adults (Mayo, 2014). The target sodium level for the respective DASH program should be tailored for the individual in question.

Slide 6: Target Population

The target population for the study is African Americans ages 35 to 65 years. There is a known racial disparity in regards to hypertension and hypertension related outcomes that has been recognized for decades. Blood pressure levels are concisely higher for African Americans combined with an earlier onset of hypertension. Higher blood pressure levels are associated with higher rates of stroke, end stage renal disease and congestive heart failure (Lackland, 2014).

Slide 7: Target Population Continued

The risk for hypertension and 30 year mortality among white men was 23.8% and 45.2% among black men. Among white women, it is 18.3% and among black women it is 39.5% (Lackland, 2014). This is a statistically significant phenomenon. The American Heart Association (2020) stated that there are many theories regarding higher blood pressure among African Americans. These include higher rates of obesity and diabetes and there may even be a gene that makes African Americans more salt sensitive (Heart, 2020).

Slide 8: DASH What to Eat (Grains)

For a proper DASH diet, grains should be consumed in 6 to 8 servings daily (Mayo, 2020). One serving includes 1 slice of whole wheat bread, one ounce dry cereal, 1/2 cup of cooked cereal, rice or pasta (Mayo, 2020). The grains to focus on include whole grains, as they have more fiber and nutrients than refined or processed grains (Mayo, 2020). Additionally, grains are naturally low in fat and they should be kept that way by avoiding butter, cream and cheese sauces (Mayo, 2020).

Slide 9: DASH What to Eat (Vegetables)

Proper DASH diets include 4 to 5 servings of vegetables daily. These include tomatoes, carrots, broccoli, sweat potatoes and greens (Mayo, 2020). These vegetables should offer a wide variety of fiber, vitamins, potassium and magnesium (Mayo, 2020). One serving includes 1 cup of raw leafy greens or 1/2 cup of cut up raw or cooked vegetables (Mayo, 2020). Both fresh and frozen vegetables are good choices. To increase the number of serving, creativity may be necessary like considering vegetables as more than a side dish, or cutting meat in half and double vegetables or making them in a stir fry or dish (Mayo, 2020).

Appendix J

American Heart Association.

My Blood Pressure Log

Name: _____

My Blood Pressure Goal: _____ mm Hg

Instructions:

- Measure your blood pressure twice a day—morning and late afternoon—at about the same times every day.
- For best results, sit comfortably with both feet on the floor for at least two minutes before taking a measurement.
- When you measure your blood pressure, rest your arm on a table so the blood pressure cuff is at about the same height as your heart.
- Record your blood pressure on this sheet and show it to your doctor at every visit.
- You can also use AHA's Check, Change, Control.® Tracker (ccctracker.com/aha), a free online tool to help you track and monitor your blood pressure. Just find the campaign code on the map for your state and sign up.

DATE	AM	PM

DATE	AM	PM

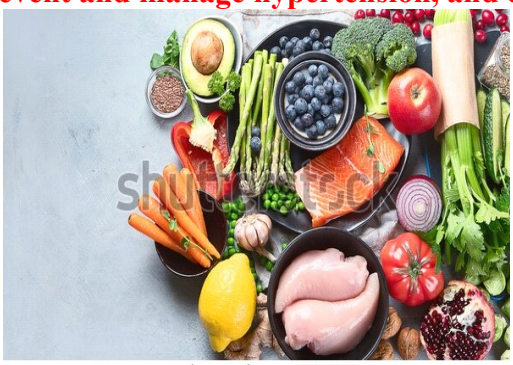
Appendix K

Timeline (estimated-6 months)

Task	January	February	March	April	May
Recruitment of eligible participants	X	X			
Intervention; Evaluation		X	X		
Post-test and Analysis of outcomes			x	?	
Results presented to local providers					?

Appendix L

HYPERTENSION
The silent killer
Take Control!
Learn how to prevent and manage hypertension, and eat healthy foods



- **Are you an African American age 35 years or older, living with hypertension? If your answer to these questions is yes, then this class is for you!**
- **There will be eight class sessions held weekly starting in November 2020; you will be required to attend at least four sessions.**
- **You will receive a Ten-dollar Stop and shop gift card for your participation**

Call for more information
Call 617-697-7303

Appendix M
Self Care Activities

SELF CARE ACTIVITIES	
Medication	
Weight management	
Physical activity	
Tobacco smoking	
Alcohol intake	
DASH diet	
Salt items	
Non-salt items	

Appendix N

UMassAmherst

Human Research Protection Office

Mass Venture Center
100 Venture Way, Suite 116
Hadley, MA 01035
Telephone: 413-545-3428

Date: November 12, 2020
To: Professor Pamela Aselton and Victoria Nwokeji, College of Nursing
From: Professor Lynnette Leidy Sievert, Chair, University of Massachusetts Amherst IRB

Protocol Title: ***Prevention and Management of hypertension among African-American Adult: utilizing a Culturally Tailored Education Program for knowledge enhancement***
Protocol ID: 2375
Review Type: Expedited – NEW
Category: 7
Approval Date: 11/12/2020
No Continuing Review Required

This study has been reviewed and approved by the University of Massachusetts Amherst IRB, Federal Wide Assurance # 00003909. Approval is granted with the understanding that investigator(s) are responsible for:

Consent forms - A copy of the approved consent form (with the IRB stamp) must be used for each participant (Please note: Online consent forms will not be stamped). Investigators must retain copies of signed consent forms for six (6) years after close of the grant, or three (3) years if unfunded.

Use only IRB-approved study materials (e.g., questionnaires, letters, advertisements, flyers, scripts, etc.) in your research.

Revisions - All changes to the study (e.g. protocol, recruitment materials, consent form, additional key personnel), must be submitted for approval in e-protocol before implementing the changes. New personnel must have completed CITI training.

Final Reports - Notify the IRB when your study is complete by submitting a Close Request Form in the electronic protocol system.

Serious Adverse Events and Unanticipated problems involving risks to participants or others - All such events must be reported in the electronic protocol system as soon as possible, but no later than five (5) working days.

Annual Check In - HRPO will conduct an annual check in to determine the study status.

Please contact the Human Research Protection Office if you have any further questions. Best wishes for a successful project.