IMPROVING KNOWLEDGE AND PERCEPTION OF CARDIOVASCULAR DISEASE AMONGST AFRICAN AMERICANS

by

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As members of the DNP Project Committee, we certify that we have read the DNP project prepared by Teal Renee Curry titled Improving Knowledge and Perception of Cardiovascular Disease Amongst African Americans and recommend that it be accepted as fulfilling the DNP project requirement for the Degree of Doctor of Nursing Practice.

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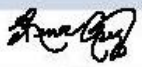
Final approval and acceptance of this DNP project is contingent upon the candidate's submission of the final copies of the DNP project to the Graduate College.

I hereby certify that I have read this DNP project prepared under my direction and recommend that it be accepted as fulfilling the DNP project requirement.



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I would first and foremost like to give honor to God, who has provided my strength and support throughout this program. God has been my way maker, my shield, and my comforter in some of my most difficult moments. His truth speaks, “For I know the plans I have for you. Plans to prosper you and plans to give you hope and a future” – Jeremiah 29:11. By trusting in his words with all my heart, and leaning not on my own understanding, all of my dreams were achieved. I am forever grateful.

I would also like to thank my committee chair Dr. S. Renee Gregg, and my project committee member Dr. Cynthia Elliot. I am thankful for their constant encouragement, patience, compassion and guidance throughout my time in this program.

DEDICATION

I would like to dedicate this DNP project to my future.

May the fruits of this labor flourish to a level of success beyond my wildest dreams.

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ABSTRACT

The purpose of this project was to evaluate and improve knowledge and perceptions of cardiovascular disease through culturally sensitive education. African Americans remain disproportionately affected by cardiovascular disease despite advancements in treatment and therapies for this disease over the last few decades. Though there is an abundance of literature highlighting the disadvantage that African Americans have, very little has been done to evaluate the effectiveness of taking a culturally tailored approach to education in order to improve knowledge and perception of CVD in this population. A descriptive, quantitative approach was used for this project. African American patients with or at risk for heart disease were recruited from the St. John's Well Child and Family Center in Los Angeles, California. These participants completed a 10-item pre-test survey to assess baseline knowledge and perception, and then was given a culturally tailored educational booklet on cardiovascular disease. A 12-item post-test survey was given after the booklet had been completed, and the results were compared to the pre-test survey to evaluate the effectiveness of the intervention. Data analysis of the multiple-choice questions resulted in a mean pre-test score of 46/100 or 46% and a mean post-test score of 76/100 or 76%, indicating increased knowledge of CVD. Data analysis of Likert scale questions assessing for confidence and intent to incorporate heart healthy lifestyle habits and self-perceived improvement in knowledge and perception of CVD following the program intervention revealed an average 66.5% improvement of perception. In conclusion, African American patients at St. John Well Child and Family Center in Los Angeles, California showed improved knowledge and perception of CVD after implementation of a culturally sensitive education booklet and thus could ultimately lower their risk for heart disease.

INTRODUCTION

Mortality related to cardiovascular disease (CVD) has significantly declined in the United States (U.S.) over the last several decades. This improvement in health outcomes are credited to breakthroughs in CVD research, pharmaceuticals, and technological advancements of revascularization therapies (Taylor, Henderson, Abbasi, & Clifford, 2018). Despite these advancements however, the African American population has not had the same cardiovascular health improvements as other ethnicities in the United States have had (Taylor, Henderson, Abbasi, & Clifford, 2018). Data from the Centers for Disease Control's (CDC) National Vital Statistics Surveillance System (NVSSS) reported in 2015 that CVD death rates were 21% higher amongst African Americans as compared to Caucasians (CDC, 2019; NVSSS, 2015). Varying differences in the African American community such as access to healthcare, traditional practices, cultural beliefs, lower levels of education, and socioeconomic restraints have been attributed to this gap (Taylor, Henderson, Abbasi, & Clifford, 2018). Due to sedentary lifestyle habits, poor diet choices, and the aging population, the prevalence of CVD in African Americans is projected to continue to increase (Havranek et al., 2015). Many interventions have been explored to help decrease the prevalence of CVD in the African American population. It has been found however, that very few have taken a culturally diversified approach to education and counseling, and even less have sought to gain understanding of knowledge and perceptions that African Americans have regarding CVD. The purpose of the project is to assess the knowledge and perceptions of CVD in the African American population when given culturally appropriate education and determine if this decrease their risk factors for CVD.

Background Knowledge

CVD is an interchangeable term for varying types heart disease, which includes topics such as heart failure, cardiac arrest, hypertension, peripheral artery disease, coronary artery disease, sudden cardiac death, and ischemic and hemorrhagic strokes (Mensah et al., 2018). Currently, the second largest minority group in the U.S. are African Americans who account for 13.3% of the U.S. population (Carnethon et al., 2017). African Americans are identifiable as black Americans of African descent or ancestry, who are citizens of the U.S. The history of African Americans reveals 250 years that were spent in slavery in the U.S. (Noonan, Velasco-Mondragon, & Wagner, 2016). This history of slavery has contributed to lingering oppression, racial discrimination, and economic disadvantages that all have negatively impacted their social detriments of health and well-being (Noonan, Velasco-Mondragon, & Wagner, 2016).

Prevalence

Social detriments of health for African Americans such as poverty, lower levels of education, and less access to resources and healthcare, has led to medical disadvantages for this population (Carnethon et al., 2017; Noonan, Velasco-Mondragon, & Wagner, 2016). The African American population is ranked the least healthy and poorest ethnic group in the U.S. (Carnethon et al., 2017; Noonan, Velasco-Mondragon, & Wagner, 2016). Consequently, they have an unequal burden for CVD, further widening the life expectancy disparities between them and other ethnic groups in the United States (Carnethon et al., 2017). Some 46% of African American, age 19 and older, have some form of CVD (Noonan, Velasco-Mondragon, & Wagner, 2016). In the period of 2007 to 2014, 42.4% of African American men and 44% of African American women ranked highest in the prevalence of hypertension (Noonan, Velasco-

Mondragon, & Wagner, 2016). During this period, African Americans also had the highest rates of obesity and diabetes, and a 1.5-times higher risk of death due heart disease (Noonan, Velasco-Mondragon, & Wagner, 2016). A statistical factsheet published by the American Heart Association (AHA) in 2015 reported that the overall death rate of CVD was 229.6 per 100,000; however, the individual death rate of CVD for African American men was 352.4, and for African American women, 248.6 (AHA, 2015).

Risk Factors

Risk factors for CVD includes elevated blood pressure and cholesterol levels, diabetes, smoking, sedentary lifestyle, and obesity (Noonan, Velasco-Mondragon, & Wagner, 2016). Studies examining risk factors of CVD in African Americans have identified other factors that may also account for a higher risk of development of CVD in African Americans including diet, lifestyle habits, lower levels of education, higher rates of poverty, lack of insurance, cultural beliefs and practices, less access to healthcare, and genetics such as the presence of the *APOL1* gene that has been associated with salt retention (Bajaj, Susztak, & Damraeur, 2018; Saab et. al, 2015). Many CVD risk factors are lifestyle modifiable such as smoking, obesity, and dietary practices (Saab et al., 2015). As effective CVD treatments and therapies exist, it is worth inquiring why African Americans continue to be disproportionately affected by this disease process.

Cultural Approach

Though a great deal of research has been done to evaluate the risks for CVD in the African American population group, less has been done to evaluate the knowledge and perceptions that African Americans themselves have regarding CVD. A research study

conducted by Dutta et al. (2018) concluded that the delivery of healthcare information and education by providers does not typically present in a way that is culturally aligned to the values and practices of African Americans and therefore is usually not well retained. In order to decrease CVD inequalities, there must be implementation of culturally aligned education that guides management, prevention strategies, and treatment plans cultivated for the African American community (Graham, 2015). This approach involves interventions that embodies the cultural values, beliefs, and experiences of African Americans in its design, delivery, and evaluation (Graham, 2015). A cultured-centered approach to education also involves the use of African American healthcare providers as other African Americans are typically more trusting of information that comes from those who look like them or providers who embrace cultural competency and understanding (Dutta et al., 2018). In addition, it also involves tangible information and visuals that are easy to understand along with culturally aligned communication (Dutta et al., 2018).

Local Problem

On a local level, the state of California shows evidence of CVD disparities in the African American community. Though African Americans make up only approximately 8.46% of the population in Los Angeles (LA) county, they have nearly a 50% higher rate of mortality related to CVD than do Caucasians (California Department of Public Health [CDPH], (2017); Los Angeles County of Public Health [LACDPH], (2018)). Heart disease deaths by race in Los Angeles County is 242.6 (per 100,000 people) for African Americans, 175.6 for Caucasians, and 101.8 for Asian/Specific Islanders (CDC, 2018). Heart disease remains the leading cause of

death by for African Americans in Los Angeles County, with hypertension death rates at an alarming 208.6 (per 100,000) as compared to Caucasians at 119.3 (LACDPH, 2018).

Los Angeles County is divided into eight service planning areas (SPAs) (Lam, Bazargan-Hejazi, Pan, & Teruya, 2018). SPA-6 contains the majority of African American communities within Los Angeles County which includes the cities of Athens, Compton, Crenshaw, Florence, Hyde Park, Lynnwood, Paramount, and Watts (Lam, Bazargan-Hejazi, Pan, & Teruya, 2018). SPA-6 is documented as a medically underserved area and has the higher incidence of obesity, diabetes, heart disease, and stroke deaths than any of the other SPA areas (Lam, Bazargan-Hejazi, Pan, & Teruya, 2018). SPA-6 also has the highest level of poverty, unemployment, uninsured individuals, adults with no high school diploma, and the lowest percentage of adults with college degrees (Lam, Bazargan-Hejazi, Pan, & Teruya, 2018). These factors contribute to the social detriments of health of African Americans in Los Angeles County.

In 2018, the LACDPH issued a call-to-action to address disease inequalities such as poverty and racism (LACDPH, 2018). The LACDPH supported culturally tailored approaches to improving awareness of CVD symptoms and treatment options (LACDPH, 2018). Los Angeles County verbally committed to addressing the health disparities for diseases such as CVD by proposing the implementation of culturally tailored approaches, offering provider training to reduce implicit healthcare bias such as discrediting patient complaints or illness because of the color of their skin, and re-examining policies to incorporate solutions to address barriers and access to healthcare (LADCPH, 2018). More specific examples of actions proposed to reduce healthcare disparities in Los Angeles County includes: 1) Providing financial incentives for plans that meet quality and disparity reduction targets, 2) Improving readability and understanding of

rights and access health coverage for Medi-Cal beneficiaries, 3) Improving access to healthier foods in low-income areas, and 4) Protection of the Affordable Care Act (ACA) for expanded healthcare access and affordability (Sanders, 2019). However, in investigating the resources proposed by Los Angeles County for African Americans with heart disease, tangible evidence backing these interventions are difficult to find. This may be due in part to the prematurity of the proposal (2018) or there may not be enough marketing or exposure for these resources to reach the target audience at this current time.

Intended Improvement

Project Purpose

The purpose of the project is to evaluate and improve knowledge and perceptions of cardiovascular disease for African Americans at St. John Well Child and Family Center through a culturally sensitive educational booklet. The literature supports that African Americans are more receptive to healthcare information when it comes from providers of the same ethnicity and the information takes into consideration relatable cultural and healthcare challenges (Nesbit & Palomarez, 2016). A study reported that African Americans, especially those in medically underserved areas, will not actively seek out health information on cardiovascular disease, further emphasizing the need for programs to be brought to this target audience (Der Aranian, Winham, Thompson, & Tisue, 2018).

Patient education in healthcare is generic and offers very little variability based upon ethnicity or culture; it is proven that African Americans are not fully benefitting from this broad type of education (Nesbit & Palomarez, 2016). Research has proven that African Americans are most receptive to education when it includes their culture and history, and reflects respect,

courtesy, and concern from the provider (Nesbit & Palomarez, 2016). Very little research has been done to examine the effectiveness of culturally appropriate material for African Americans.

A culturally tailored educational pamphlet produced by the National Heart Lung and Blood Institute (NHLBI) entitled *"On the Move to Better Heart Health for African Americans"* was developed by the NHLBI in 2008 and was designed for healthcare professionals to educate African Americans on CVD risk factors, management, and lifestyle modifications. This educational pamphlet is construed with images and content that are culturally appealing and relatable to African Americans. This booklet also presents the material in an easy-to-read format to account for literacy disadvantages in the African American population. This project presented education that will be retained and incorporated into healthy lifestyle habits and improve the knowledge and perception of heart disease in African Americans at St. John Well Child and Family Center

Project Question

Does implementation of culturally appropriate education for African American patients at St. John Well Child and Family Center improve their knowledge and perception of CVD disease?

Project Objectives

Patients were given the "*On the Move to Better Heart Health for African Americans*" booklet. This is a culturally appropriate educational booklet that was designed to educate African Americans on heart disease. The objectives from this project reflect the CVD information presented in the booklet. Objectives for this project are below.

Objective 1. Implement the CVD educational material at St. John's Well Child & Family Center for African American patients with or at risk of heart disease to improve their knowledge and perception of CVD.

Objective 2. Conduct a pre- and posttest survey questionnaire to assess for improvement in knowledge and perception following the program intervention at St. John's Well Child & Family Center

Objective 3. Evaluate the effectiveness of the project at St. John's Well Child & Family Center on improving healthy lifestyle habits.

Theoretical Framework

Social Cognitive Theory

To serve as a guiding light for this doctor of nursing practice (DNP) project, the social cognitive theory (SCT) framework was used. As introduced by Albert Bandura in the 1960s, the SCT is a widely accepted framework used to guide chronic health conditions such as that of CVD (Bandura, 2004). In alignment with this project, the SCT focuses on disease prevention through a core set of determinants and translating knowledge into effective health practices (Bandura, 2004). In his work, Bandura (2004) describes the core determinants of the SCT as the "…*knowledge* of health risks and benefits of different health practices, *perceived self-efficacy* that one can exercise control over one's health habits, *outcome expectations* about the expected costs and benefits for different health habits, the *health goals* people set for themselves and the concrete plans and strategies for realizing them, and the *perceived facilitators* and social and structural *impediments* to the changes they seek."

Knowledge of Health Risks and Benefits

As theorized by Bandura (2004), individuals must first possess the knowledge of health risks and benefits to create an ideal position for change. It is the lack of knowledge that directly interferes with a person's ability to adopt and maintain healthier lifestyle habits (Bandura, 2004). Bandura (2004) proposed that behavior and intent changes in a given circumstance if an individual first knows what to do and how to do it. There for it is critical for the success of this project to incorporate an intervention that educates and improves knowledge of CVD for African Americans.

Perceived Self-Efficiency

In addition to knowledge, personal self-efficacy also plays a role in influencing behavioral change, and it is self-efficacy that Bandura believes serves as the basic foundation of human motivation and action (Bandura, 2004). If any individual fail to believe that they can accomplish the desired results of their actions, they will have very little motivation or drive to persevere through the difficulties (Bandura, 2004). Self-efficiency was measured and analyzed in the both the pre- and post- test survey by asking the participants questions such as, "Do you feel that you can successfully change your lifestyle habits in order to lower your risk for heart disease if you were effectively counseled by a medical professional?" and "I will adopt healthier lifestyle habits such as following a heart healthy diet, participating in physical activity, and or/smoking cessation to help improve my heart health." Self-efficacy was evaluated for the likelihood of a participant to adopt and maintain a new lifestyle habit.

Outcome Expectations and Health Goals

The SCT framework also follows the notion that health behaviors are also affected by the outcomes at which people expect to gain based on their actions (Bandura, 2004). This is important to note as achievements in physical health occur at varying degrees and varying times and affects how one perceives their accomplishments in outcomes as compared to others. It is important therefore to set realistic and individualized outcomes and goals with the participants through ongoing guidance within the project. Social reaction, that is the approval or disapproval of health behaviors from one's interpersonal relationships, also effects outcomes (Bandura, 2004). How other members of the social class may perceive or react to an individual's health behavior may influence their ability to successfully adopt new lifestyle habits. Questions asked in this project include "Do you feel that others close to you motivate and encourage you to practice healthy lifestyle habits?" Social approval along with the confidence encourages others to practice healthier habits promote more positive outcome expectations. The practice of healthier habits also guides health goals. Those who set goals have a higher level of incentive for personal change with a higher likelihood for success.

Perceived Facilitators and Impediments

There will likely be factors that will either facilitate or imped upon change. As Bandura (2004) describes, many of these facilitators and impediments are environmental and/or socioeconomic. As described earlier, African Americans face many social detriments of health including poverty, lower level of education, and less access to healthcare (Noonan, Velasco-Mondragon, & Wagner, 2016). Understanding and acknowledging the social detriments of health for African Americans may help establish individualized action plans and social support to help

participants overcome barriers and maintain healthy lifestyle habits (White, Wojcicki, & McAuley, 2011).

Literature Synthesis

Evidence Search

To further investigate the correlation between CVD and African Americans, an extensive literature review was conducted (Appendix F). This consisted of examining systematic reviews, meta-analyses, and cohort studies and observational studies relevant to this topic. The literature search consisted of research studies derived from databases such as MEDLINE and Cumulative Index of Nursing and Allied Health Literature (CINHAL). Keywords and MeSH terms used in the search criteria were *"cardiovascular disease or heart disease or CVD," "African Americans or blacks or black Americans,"* "*intervention," "knowledge or awareness,"* and *"education."* The initial search based upon the above key terms resulted in 846 articles. Duplicates were removed, and filters were adjusted to include the following: recent articles published between the years 2015 and 2020, scholarly (peer reviewed) journals, and adults age 19+. After adjustments, there were 30 peer-reviewed articles that met the criteria of this literature search.

Articles involving individuals of African descent outside of American ancestry were excluded from the search results. Articles of special interest included those of which cultural considerations of African Americans were included in the research study. Thirty articles were screened, with 15 of which met eligibility or were closely aligned with the purpose of this project.

Content from clinical practice guidelines (CPGs) related to cardiovascular disease such as the *2017 Hypertension Clinical Practice guideline* and *2018 Cholesterol Clinical Practice*

Guideline was also reviewed for relevant data. The guidelines included recommendations topics in nine different areas: Diet, exercise/physical activity, risk assessment, obesity and weight loss, type 2 diabetes, blood cholesterol, hypertension, smoking cessation, and aspirin use.

Marked Disparities

Across the board, synthesis of the literature noted marked disparities and a disproportionate risk prevalence of CVD in African Americans as compared to other ethnicities (Carnethon et al., 2017; CDC, 2018; Der Ananian, Winham, Thompson, & Tisue, 2018; Dutta et al., 2018; Mensah, 2017; LACDPH, 2018). Der Ananian et al. (2018) reports that Africans Americans are at a threefold greater risk of developing CVD. In addition to African American's having a greater risk of developing CVD, it is also reported that: hypertension is acquired in African Americans at a younger age, they are less likely to have adequate blood pressure control, and are more likely to die at a younger age from CVD related issues as compared to non-Hispanic White Americans (Espejo et al., 2018; Gross et al., 2013; Jones, Rosemberg, & Wright, 2017). The Centers for Disease Control and Prevention (CDC) estimates that the mortality difference between African American men and Caucasian men related to CVD is 32%, and the mortality difference between African American women and Caucasian women related to CVD is 43% (Carnethon et al., 2017). In the article by Jones, Rosemberg, and Wright (2017), it was reported that half of African American women diagnosed with hypertension do not have an adequately controlled blood pressure (47.3%) as compared to European American women (43.2%). The marked disparities of African American's unanimously noted across this literature review highlights the urgency of improving knowledge and perceptions of CVD.

Misconceptions, Lack of Education, and Provider Mistrust

A review of the literature employs a common theme following misconceptions, lack of knowledge, and provider mistrust. For example, it was commonly reported that many African Americans falsely believe that CVD is not a chronic disease, but instead could be cured (Gross et al., 2013; Jones, Rosemberg, & Wright, 2018). In fact, African Americans tend to practice self-regulation of antihypertensive medications, only taking these medications when they were feeling symptomatic, or stopping these medications abruptly without consulting with their provider first (Gross et al., 2013; Jones, Rosemberg, & Wright, 2017). Studies also found that very few people were successfully able to define hypertension, heart attack, or stroke, nor were they able to identify the symptoms of these disorders (Der Ananian et al., 2018; Abbot & Slate, 2018). Decreased health literacy serves as a barrier to improving CVD and indicates a dire need for proper health education by primary care providers, or other healthcare professionals in order to improve knowledge and habits (Abbott & Slate, 2018).

Implicit provider bias and provider mistrust has also contributed to knowledge deficits of CVD (Der Ananian et al., 2018; Gross at al., 2013; Havranek et al., 2015; Jones, Rosemberg, & Wright, 2017). Der Ananian et al. (2018) reports that many African Americans in their study expressed feeling “stereotyped” by providers, and had difficulty connecting with a provider who was not of color. Gross et al. (2013) found that many African Americans believed that providers only prescribed blood pressure medications to “make money.” Another study investigated the possibility of provider bias and found that though no intentional bias was discovered, there was significant evidence of implicit provider bias towards African Americans likely influencing

medical treatment and poor clinical interactions and communication, which further contributes to healthcare disparities (Havranek et al., 2015).

Socioeconomic and Cultural Influence

Socioeconomic and cultural factors have been noted to have a significant influence between African Americans and CVD. Access to healthcare, environmental influences, racial discrimination, and poor heath behaviors are some examples of factors that have been attributed to the higher prevalence of heart disease in African Americans (Der Ananian et al., 2018). It is reported by Carnethon et al. (2017) that 26% of African Americans live in poverty, as compared to 15% of the overall population. This same study also reports that African Americans living in a disadvantage neighborhood have a 30% to 40% higher risk of heart disease (Carnethon et al., 2017). Some African Americans reported safety and violence concerns of their neighborhood as barriers to exercising outdoors, walking, or going to a fitness center (Gross et al.; Havranek et al., 2015). In addition to safety, the status of being uninsured, or inadequately insured, impacted the perception of African Americans that they could receive and maintain access to quality healthcare (Der Ananian et al., 2018).

Strengths of Evidence

There was an abundance of literature related to cardiovascular disease and African Americans. The literature identified barriers that are shown to contribute to the higher prevalence such as socioeconomic constraints, lower levels of education, less access to healthcare, implicit provider bias, and cultural constraints (Carnethon et al., 2017; Der Ananian et al., 2018; Gross et al.; 2015; Saab et al., 2015). Specific identification of these barriers is key in planning an appropriate intervention tool. The literature further supported the need for extensive education

and counseling and called for an investigation into better understanding the knowledge and perceptions that African Americans have regarding CVD, which is a primary objective of this project.

Weakness of Evidence

A major weakness of evidence found in the literature was the failure to agree on a specific tool or method that could be supported by evidence to evaluate knowledge and perceptions in African Americans. For example, many studies evaluated knowledge of CVD by either tests or surveys; however, none of these tests were standardized or accredited. Another weakness of evidence was that none of the studies contained an alternative intervention or control which makes it harder to determine how effective the intervention was related to the outcomes.

Gaps and Limitations

Though the literature agreed that African Americans are disproportionality affected by CVD, there are very few suggestions on a solution that takes into account cultural considerations such as traditional dietary practices like pork and fried foods with excessive salt and beliefs that medications are ways for providers to just make money. A couple of studies such as one conducted by Dutta et al. (2018) explored the incorporation of a culturally tailored educational approach; however, there is no widely accepted approach supported by the literature. Many articles addressing cultural considerations are unfortunately older than five years, emphasizing the need to bring renewed attention to this topic. It was also found that the majority of articles focused on African American in rural areas increasing the likelihood of cultural similarity and generalizability of study findings.

METHODS

Project Design

This quality improvement (QI) project intends to improve knowledge and perception of CVD in African American patients at St. John's Well Child and Family Center, Los Angeles, California, through participant engagement of a culturally relevant educational booklet. This project also assessed the readiness, intent, and confidence of participants to make healthier lifestyle decisions following the project intervention in order to improve heart health. A descriptive, quantitative approach was used to evaluate the effectiveness of this project intervention. This project used self-reported data utilizing a pre- and post-survey questionnaire.

In order to achieve the purpose of this QI project, the following three outcomes were measured. Upon completing the educational booklet, participants:

1. Participants will be able to describe CVD and identify specific cultural risk factors and recognize abnormal blood pressure values.
2. Participants will identify lifestyle modifications to lower risk for heart disease, including heart healthy food items and dietary recommendations.
3. Participants will express increased intent to incorporate healthier lifestyle habits in order to decrease risks for CVD and increased intent to speak with their healthcare professional about CVD prevention and treatment.

Model for Implementation

A QI project is a strategic method to implement processes or ideas that improve patient safety, efficiency, effectiveness, and timeliness (Institute for Healthcare Improvement [IHI], 2020). The Institute for Healthcare Improvement (IHI) developed the Model for Improvement

(MFI) to be used a component to guide QI, and to implement these ideas or new methods into practice if they prove to be beneficial (IHI, 2020). SEE FIGURE 1. The MFI is composed of two parts. The first part consists of three questions that address aims, measures, and changes: “What are we trying to accomplish?” “How will we know that a change is an improvement?” And “What change can we make that will result in improvement?” For the purposes of the project, the principal investigator (PI) aims to increase knowledge and perception of CVD in African American patients. The PI plans to measure this change in knowledge and perception through utilization of a pre- and posttest survey completed by the participants to assess improvement in survey responses following the project intervention. Finally, the change is utilization of a culturally relevant educational booklet on cardiovascular disease distributed amongst African American patients at a wellness clinic in Los Angeles, California.

Plan-Do-Study-Act (PDSA) Model

The second part of the MFI is the plan-do-study-act (PDSA) cycle which is four-step model used to test change in order to determine if an improvement has been made (IHI, 2020). There are several reasons why testing changes through use of the PDSA cycle is beneficial. Testing changes helps to increase confidence that the change will result in the desired improvement, to assess whether proposed change will fit well in the desired environment, to evaluate costs, social impact and any negative effects of the desired change, and to minimize any possible resistance to implementation (IHI, 2020). The PDSA cycle guided this QI project through the implementation of culturally relevant educational material on CVD for African American patients.

Plan. Planning the test and data collection is the first part of the PDSA cycle (IHI, 2020). This phase consists of a premediated outline of the way the QI project was initiated and executed in order to achieve the desired outcomes (IHI, 2020). During this phase, the PI consulted with the project committee chair and stakeholders within the clinic site on the intended plan and purpose of this project. In this phase, the PI also conducted an extensive search for culturally relevant educational material for use for African Americans that correspond with the topic of interest. This material came from credible sources and contained accurate information pertaining to the prevention, treatment, and management of CVD. The material was also available free for use and reproduction. The PI contacted the copyright owners of the material, the National Heart, Lung, and Blood Institute, and seek approval to use the educational material in this project. The PI also consulted with the clinical preceptor at St. John's wellness center regarding the project plan and must be granted permission to implement this project at the site. Once approval was granted from all required parties, the PI shared the found educational material with the committee chair and supervising preceptor in order to ensure accuracy and appropriateness of material. Once approved, the PI developed the recruitment flyer (Appendix C) and pre- and posttest survey that was be used for data collection (Appendix D).

Do. In the second phase of the PDSA cycle, the PI will begin to implement the action plan. The PI documented any problems that are observed, and begin the data analysis process (IHI, 2020). The PI implemented the project starting on October 9, 2020 to October 23, 2020 and collected all data by October 28, 2020. The disclosure statement and pre-survey was given to participants in the clinic once they agree to participate in this project. The participants completed the pretest survey in the clinic setting. The educational booklet and the posttest survey was given

to the participants in a secure manila envelope for them to complete at home. The package also contained a pre-stamped and pre-addressed envelope for the participants to return the post-test survey back to the clinic via mail service if they were unavailable to bring it back directly. Participants who wished to mail the survey back to the clinic must have done so by October 23, 2020, to ensure timely collection of data. Any challenges or unforeseen events was noted by the PI and adjusted accordingly to ensure optimal success and participants' compliance.

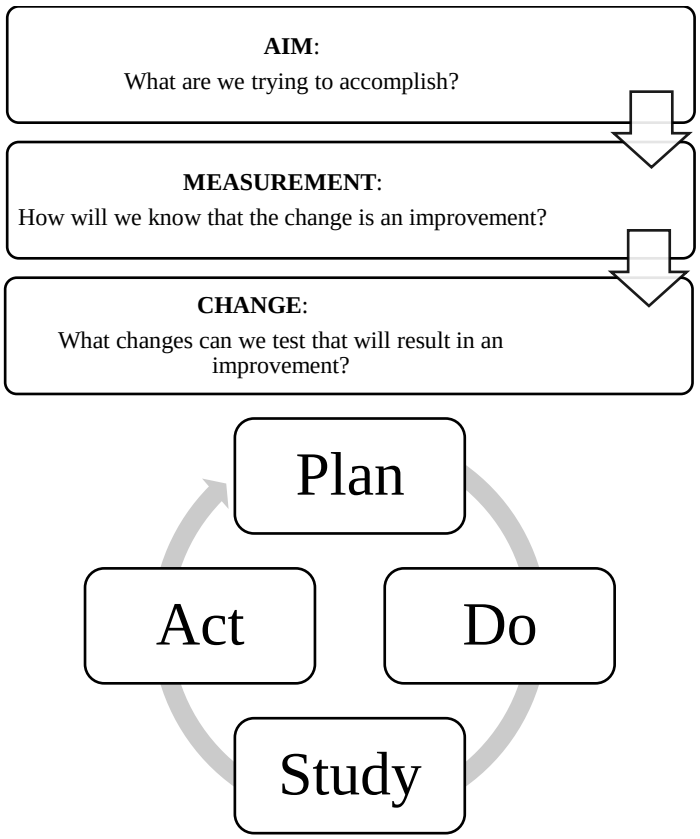
Study. In the third stage, the PI thoroughly analyzed the data and study results (IHI, 2020). The project predictions were compared to the data, and the PI concluded if project objectives and outcomes were met. In addition, the PI assessed for any impediments that may have contributed to any unmet outcomes or objectives. For the purposes of this project, it was predicted that implementation of a culturally appropriate educational material for African Americans entitled *"On the Move to Better Heart Health for African Americans",* would improve CVD knowledge and perception in this target population. Once all data was collected and analyzed, the information was shared with the project committee team for reflection and discussion. This information was also shared with key stakeholders at the implantation site such as the doctors and nurse practitioners providing care and CVD education to this population.

Act. The final stage of the PDSA cycle involves determining what modifications need be made based upon what was learned from the data (IHI, 2020). The data was used to confirm if the educational material was a benefit to the target population. The PI coordinated a plan for sustainability being that the predicted outcomes and goals were met, and desired results achieved. In the case that project goals were not met, PI would have collaborated with the team to evaluate and recommend changes that would have been needed to promote future success and

sustainability. The PI would have initiated a new PDSA cycle based upon these new changes (IHI, 2020).

Figure 1

The Model for Improvement



(Adapted from *Model for Improvement*, by the Institute for Healthcare Improvement, retrieved from http://www.ihi.org/resources/Pages/HowtoImprove/default.aspx, Copyright 2019)

Setting and Stakeholders

The setting of this QI project took place at St. John's Well Child and Family Center in Los Angeles, California. St. John's center is a community-based health clinic with a predominantly underserved and minority population. St. John's center provides care for patients across the entire lifespan and manages both acute and chronic illnesses, including CVD. Their

mission is to provide high quality care to all patients regardless of socioeconomic status, and to reduce healthcare disparities. The mission of this organization aligns with the intended purpose and goals of this project. Site approval was obtained before implementation of the project at this location (Appendix A).

Primary stakeholders are African American patients with or at risk for heart disease who participate in this project as they received the educational material and providing responses based upon the survey questions. Other stakeholders include doctors and nurse practitioners employed at the clinic. In order to ensure optimal success of this project, close collaboration and communication regarding this project and its purpose must be done with the other providers at the clinic. These providers were made aware of the implementation of this project, asked to refer patients for participation to the PI for further information. Their referral is essential to help recruit as many participants as possible further strengthening the statistical confidence and power of the data.

Planning the Intervention

An extensive search of online educational resources relevant to the teaching of cardiovascular disease for African Americans was conducted. The goal was to find educational material on CVD prevention, treatment, and management from a credible source that was specifically cultivated for the African American community. The material of choice that most closely aligned with the purpose and goals of this project was "*On the Move for Better Heart Health for African Americans*," which was developed by the National Heart Lung and Blood Institute (NHLBI) as an educational tool for providers or community health workers to specifically educate African Americans on Cardiovascular Disease (Appendix E) (2008). Though

this booklet was developed in 2008, there are no newer versions that have been published since its release; however, it still contains relevant and accurate data regarding CVD. This booklet also presents information in an easy-to-read format in order to accommodate for variations in literacy between readers. The PI personally contacted the NHLBI on June 4, 2020 for approval of use of their material for this project. Per representative of the NHLBI publication and resources materials department, all patient educational materials found online are cleared for use and reproduction.

The project implementation occurred October 9, 2020 through October 23, 2020. It was mandatory that the post-test survey be returned to the PI no later than October 28, 2020. This ensured that each participant had at minimum one week to complete the project intervention. The pre-test survey entitled "*Heart Health Pre-test Survey"* (Appendix D) included 10 questions that assess patient demographics, and a baseline evaluation of knowledge and perception of CVD. This survey was estimated to take no more than 15 minutes to complete. Once the pre-test was completed in clinic, patients were given the educational booklet along with the heart health posttest survey. The booklet was estimated to take approximately one hour to read. Participants were allowed to take the booklet home. The post-test survey entitled "*Heart Health Post-test Survey Questionnaire"* consisted of 12 questions to assess knowledge and perception following the intervention and was estimated to take approximately 15 minutes to complete. The posttest survey must have been returned the post-survey to the clinic by the above specified date either by mail or directly returned back to the clinic in a secure drop box in order to ensure timely collection of data. In order to assess perception and capture the SCT framework guiding this project, strategic questions that embody the components of the SCT framework were asked in

both the pre- and posttest survey. To assess knowledge, questions in the pre- and posttest survey were derived from content contained within the educational booklet.

Participants and Recruitment

The inclusion criteria for participation of this project included one or more of the following: those who self-identify as African American, are of age 18 years or older, have a diagnosis of some form of cardiovascular disease (i.e., hypertension, pre-hypertension, cardiomyopathy, congestive heart failure, cardiac arrest, & peripheral artery disease), have a major risk factor for heart disease (i.e., obesity, diabetes, smoker), or have with a family history of heart disease (i.e., mom, dad, or sibling). Therefore, all individuals who did not self-identify as African American, are younger than age 18, or do not have a major risk factor, qualifying diagnosis, or family history was be excluded from this project.

During a two-week period, African American patients at St. John's Well Child and Family Center with or at risk for CVD were screened for eligibility of participation in this project. At the start of each day, the principal investigator (PI) reviewed the charts of scheduled patients, and the patients who meet the qualifications for the project were invited to participate in the project. There was a recruitment flyer placed in the waiting room and bathrooms of the clinic (Appendix C). Other medical providers were made aware of the ongoing project at the site and prompted the PI of their own patients who may meet eligibility for participation. From there, the PI personally spoke to those patients and screened for eligibility. A formal introduction, purpose of the project, and presentation of the disclosure form (Appendix B) was be completed by the PI prior to administration of the intervention booklet. Transparency was be maintained throughout the entire process and participation is voluntary. Patients who wished to participate was assigned

a participant identification number unrelated to any identifying information such as social security number or date of birth.

Consent and Ethical Considerations

Respect for Persons

Respect for persons involves allowing individuals to maintain autonomy, and to make decisions for themselves (Pierce, Steele, Flood, & Elliot, 2019). This was done by giving participants all the necessary information they needed regarding this project in order to make an informed decision on whether or not they would like to participate. This was evident as we collected informed consent from participants in order to participate in this project. As outlined by the Belmont Report, a key guide for ethics in healthcare research, informed consent ensures that participants were given sufficient information to know "…1) what exactly they will be asked to do, 2) the risks and benefits of participating, and 3) how the reminiscences they provide will be used" (Pierce, Steele, Flood, & Elliot, 2019).

Beneficence

Beneficence signifies the commitment to promote good and/or beneficial outcomes to the participants, and to not harm them (Pierce, Steele, Flood, & Elliot, 2019). This was highlighted by offering a free educational booklet aimed at increasing knowledge on CVD with the goal to improve knowledge and perceptions of CVD within African Americans. A high-quality educational material was provided from a credible source. This projected required no costs to the participants, thus eliminating financial burdens from our participants.

Justice

The commitment to justice involves ensuring fairness and equal opportunity within this project. Justice as a principle ensures that fairness is maintained amongst those eligible to participate in the project (Pierce, Steele, Flood, & Elliot, 2019). It was ensured that participation requirements were met by everyone, and no exceptions were made for those not meeting the set standards. In addition, it was also important to ensure that there was no biased towards participant recruitment selection such as factoring in income or level of education. By following the principal of justice, selecting participants based off "good fit" must be avoided. For fair selection, participants were selected based upon qualifying criteria, with no bias towards advanced age, experience, income and education.

Data Collection

As a part of the project requirements, each participant completed a pretest and posttest survey to evaluate their knowledge and perception on CVD. The pretest survey was completed on site in the waiting room and was available in paper format. Participants were assigned a participant identification number (2020-1, 2020-2...etc.), that corresponded with both their pre-test and post-test survey questionnaire. This number was assigned in sequential order according to the order in which each patient signed up to participate. This informational remained confidential, and the PI was the only one with access to the survey information. Due to time constraints and current social distancing mandates by the state of California due to COVID-19, the posttest survey was not be completed on site. Therefore, participants were given a secured manila envelope containing the educational booklet, posttest survey, and an addressed pre-stamped return envelope to mail survey responses back into the clinical site. Participants were

also given the option to deliver the post-test survey back to the clinic front desk, which was held in a secure drop box until collected by the PI. Those who chose to mail the survey responses back, must have done so by the pre-specified date in order to ensure timely collection. There was no patient identifying data on the survey questionnaires.

The pre- and posttest survey questionnaires were created by the PI (Appendix D) based upon the specific goals of this project. Three doctoral prepared nurse practitioners peer reviewed the survey questionnaires to evaluate for integrity, accuracy, and comprehensibility. The pretest survey consisted of patient demographics including age and gender. The pretest survey (Appendix D) also assessed for baseline CVD knowledge through use of multiple-choice questions pertaining to the topic. These same questions were then repeated on the posttest survey. All questions came from educational information found in the "*On the Move to better Heart Health for African Americans*" booklet. Perception of CVD was assessed by using a 5-point Likert scale to allow participants to choose one option that best aligns with their views based upon the preceding question or statement (Sullivan & Aryino, 2013). The Likert scale questions assessed for confidence and intent to incorporate heart healthy lifestyle habits, self-perceived ability to identify signs and symptoms of a heart attack, and self-perceived improvement in knowledge and perception of CVD following the program intervention. The Likert scale questions were formatted in a five-point scale of agreement or likelihood to modify current health behavior. The statements will include, "strongly disagree," "disagree," "neutral," "agree," and "strongly agree."

Data Analysis

For the purposes of analyzation and management of data for this project, survey data from the pre- and posttest questionnaire survey was manually entered into Excel. Data transferred into excel was reviewed thoroughly for accuracy, and then paper surveys were shredded. Quantitative descriptive analysis was utilized to analyze data from the survey responses. For the multiple-choice portion, four questions evaluated CVD knowledge. Each question will be worth 25 points for a total of 100 points possible. The multiple-choice data was analyzed determine the percentage of correct and incorrect responses. The differences in the correct/incorrect pre- and posttest survey multiple-choice responses was then be compared. The Likert scale results was analyzed as ordinal data and displayed in graphs.

RESULTS

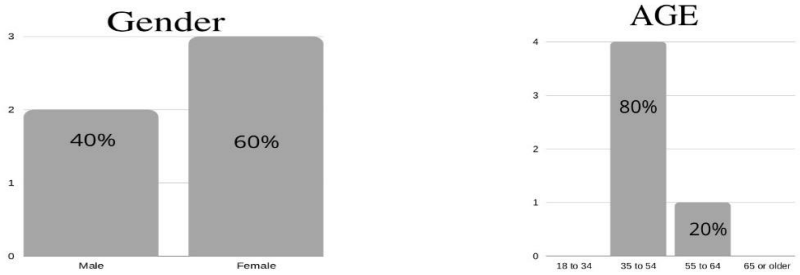
Participant Demographic Results

A total of 17 African American patients at St. John's Well Child and Family Center clinic in Los Angeles, California met the qualifications for participation in this project during the implementation period and thus were invited to participate. Of these 17, nine patients agreed to participate in the project and received all of the required materials. Of the nine participants, five completed and returned both the pre-test and post-test surveys by the required date, indicating a 29% response rate. As required, all participants were African Americans with or at risk for CVD. Participants were characterized by their age and gender. Of these five participants, 80% were between the ages of 35 and 54, and 20% between the ages of 55-64. There were no participants less than 35 years of age nor were there any participants older than 64 years of age. Some 60% of

the participants were female, and 40% of the participants were male. Graphical illustrations of patient demographics can be seen in Table 1 below.

Table 1

Gender and Age of Participants



Pretest Survey Results

The five participants answered all of the pretest survey questions. There was 10 questions on the pretest survey (Appendix D): two questions addressed patient demographics, and four multiple choice questions addressed knowledge of CVD derived from content in the educational booklet that the participants were required to read. Among the five participants, none of the participants 0%, (n=0) answered all of the multiple-choice questions correctly on the pre-test survey. Some 80% (n=4) were able to correctly define heart disease. And 40% (n=2) were able to identify the symptoms of a heart attack. None of the participants, 0%, (n=0) were able to identify all of the correct hypertensive blood pressure values. Some 60% (n=3) of the participants were able to identify non-modifiable risk factors for heart disease. See Table 2 for a graphical illustration of these results.

The remaining four questions were self-rated on a five-point Likert scale ranging from “strongly disagree” to “strongly agree” with a score of ‘1’ to ‘5’ assigned to each rating respectively. A score of ‘1’ or ‘strongly disagree,’ indicated a more negative response, and a

score of ‘5’ or ‘strongly agree’ indicated a more positive response. Participants were asked to self-rate their knowledge of CVD, their ability to make healthy lifestyle and diet choices, and their confidence to lower their risk for CVD. Pertaining to the self-rated questions, 20% (n=1) ‘agreed’ that they could identify the signs and symptoms of a heart attack or stroke. Also 40% (n=2) were ‘neutral,’ and 40% (n=2) ‘disagreed.’ Moreover, 40% (n=2) ‘disagreed’ that they make healthy food decisions, while 40% (n=2) was ‘neutral,’ and 20% (n=1) ‘agreed.’ Some 60% of the participants ‘disagreed’ that others close to them motivate and encourage them to practice healthy lifestyle habits while 20% (n=1) were ‘neutral’ and 20% (n=1) ‘disagreed’ with the statement. In addition, 60% (n=2) ‘disagreed’ that they felt confident that they could lower their risk for heart disease if counseled by a healthcare provider. Also 20% (n=1) were ‘neutral,’ and 20% (n=1) ‘agreed.’

Posttest Survey Results

The five participants answered all of the posttest survey questions. There was 12 questions on the posttest survey (Appendix D). The same four multiple-choice questions on CVD knowledge were asked again on the posttest survey. The remaining eight questions of the posttest survey remained in the same 5-point Likert scale format as aforementioned. Four of these questions corresponded with the pretest questions of CVD knowledge, perception of CVD, the ability to make and or influence others to make healthy lifestyle and diet choices, and confidence to lower risk factors for CVD following participation in this project. The remaining four Likert questions assessed for the participants perception of the intervention on improving their cardiovascular health.

Following the project implementation, 40% of the participants (n=2) answered all of the multiple-choice questions correctly (Table 2). All participants (100%; n=5) were able to correctly able to define heart disease. In addition, 60% (n=3) were able to correctly identify the symptoms of a heart attack. And 60% (n=3) were able to correctly identify a hypertensive blood pressure value. While 80% (n=4) were able to identify non-modifiable risk factors for heart disease.

Outcomes

As evident by the data results presented above, it was determined that the project outcomes were met. On average, the participants showed an increased ability to described CVD, identify modifiable and non-modifiable risk factors for the disease, and expressed an increased intent to incorporate healthier lifestyle habits in order improve their cardiovascular health. They also reported an increased intent to speak with their healthcare provider regarding CVD prevention and treatment. The project confirmed the readiness, intent, confidence, and knowledge of participants to make healthier lifestyle decisions following the project intervention in order to improve their heart health.

Knowledge

Participants' knowledge surrounding CVD was assessed on the pretest and posttest survey. There were four questions derived from content in the booklet that the participants were tested on in order to determine their baseline knowledge of CVD and their knowledge following the project intervention. The purpose of these four questions were to determine their ability to define heart disease, describe the symptoms of a heart attack, identify hypertensive blood pressure values, and identify risk factors for heart disease. The same four questions were used on

both the pretest and posttest survey. After participants read the educational booklet, there was a 25% increase in score of participants who were able to define heart disease, a 300% increase in those who could correctly identify the symptoms of a heart attack, and a 60% increase in those who could correctly identify a hypertensive value. There was no change, 0% (n=0) in those who could identify non-modifiable risk factors for heart disease following the change. Overall, there was an impressive 65% average improvement in CVD knowledge scores following the educational booklet (Table 2).

These values demonstrate an overall effectiveness of the educational booklet in increasing the knowledge of CVD for African American patients at the clinic. In the area that there was no change in score, it may be possible that the question was unclear, or the information was not presented clearly in the booklet. See Table 2 below for multiple-choice pretest and posttest comparative results.

Table 2

Pre-test and Post-test Quiz Results

Column1	Pre-test Knowledge quiz	Post-Test Knowledge Quiz	Column2
Participant Number	Percentage correct	Percentage Correct	change
1	80	100	25%
2	25	100	300%
3	50	80	60%
4	25	50	100%
5	50	50	0%
Mean Score	46	76	65%

Perception

The remaining questions on the pretest and posttest survey were 5-point scale Likert style questions that assessed for perception of cardiovascular disease. Participants were asked to self-rate their perception of their knowledge of CVD, their ability to make healthy lifestyle and diet

choices, and their confidence to lower their risk for CVD. On the posttest survey, corresponding statements were repeated from the pretest survey in addition to statements that were intended to assess the participants perception of confidence in speaking with their provider about CVD, and if their perception of CVD has improved following the program intervention. A higher score response on the Likert scale indicated a more positive perception of that particular question as it related to CVD. A comparison in scores was then made between the pretest and posttest survey to determine whether an improvement in perception ranking was made following the project intervention.

The data from the Likert scale questions (Questions 7, 8, 9, 10 of pretest survey, & questions 7, 8, 9, 10 of posttest survey) are listed below in Table 3. Each participant reported a higher score for each statement following the project intervention, indicating a more positive response following the intervention. For the statement, "After reading this, I know more about the signs and symptoms of a heart attack and stroke," there was an average increase of 44% agreeance. For the statement, "After reading this, I will make healthy decisions when selecting foods that are heart healthy," there was an average 91% increase of agreeance. For the statement, "After reading this I will encourage others close to me to live a healthy lifestyle," there was a 111% increase of agreeance. Finally, for the statement "I know I can help my heart stay healthy if I choose to," there was a 20% increase in agreeance. On the posttest survey, participants were also asked if their perception of cardiovascular disease improved following the project intervention. All of the participants either "agreed" or "strongly agreed" with this statement.

When asked if they would have sought out information regarding CVD had it not been given to them through this project, the average response ranked '2' on the Likert scale indicating

that they patients would probably not have inquired about CVD education had it not been for this project. These values demonstrated an undivided improvement in the participant perceptions of their ability to make healthier decision in order to improve their heart health following the project intervention.

Table 3

Pretest and Posttest Likert Scale Results

Participant Number	Pre-Test Question 7: Signs and Symptoms	Post-Test Question 7	Percent Change	Pre-test Question 8: Healthy Decsions	Post-test Question 8	Percent Change	Pre-test Question 9: Motivate Others	Post-test Question 9	Percent Change2	Pre-test Question 10: Confident in Lowering Risk	Post-test Question 10	Percent Change3
1	4	5	25%	2	4	100%	2	4	100%	4	5	25%
2	3	4	33%	3	4	33%	2	4	100%	5	5	0%
3	2	5	150%	1	5	400%	2	4	100%	4	5	25%
4	3	4	33%	3	3	0%	1	3	200%	3	5	67%
5	4	5	25%	2	5	150%	2	4	100%	4	4	0%
Mean Score	3.2	4.6	44%	2.2	4.2	91%	1.8	3.8	111%	4	4.8	20%

DISCUSSION

Summary

The purpose of this project was to evaluate and improve knowledge and perception of cardiovascular disease through a culturally sensitive educational booklet. African American patients at St. John's Well Child and Family Center clinic in Los Angeles, California were invited to participate in this project. The participants filled out a pretest survey, read the *"On the Move to Better Heart Health"* booklet, and took a posttest survey. The data analysis concluded that scores improved following the intervention, suggestive that culturally sensitive education helped to improve knowledge and perception of CVD.

While evaluating post-test multiple-choice scores, the participants had an overall 65% improvement in knowledge of CVD (Table 2). Participants had a 100% success rate in defining CVD (previously 80%) and a 60% success rate (previously 40%) in identifying the symptoms of a heart attack on questions 1 and 2, respectively. Participants also had a 60% success rate in

identifying hypertensive values (previously 0%), and an 80% success rate in identifying nonmodifiable risk factors (previously 60%) on questions 3 and 4, respectively. Furthermore, there was an improvement in perception of CVD in every category that was addressed (Table 3). Participants reported an overall agreeance to select healthier foods to eat, practice healthy lifestyle habits, and encourage others close to them to live a healthier lifestyle. These results indicated that not only did African American patients demonstrate an increased improvement of knowledge and perception of CVD after reading the *"On the Move to Better Heart Health"* educational booklet, but also they are also now more likely to share what they have learned with others. These findings provide implications for providers to implement culturally sensitive educational tools and materials for African Americans in order to improve their knowledge and perception of CVD, with the ultimate goal of improving their cardiovascular health. It is the PI's assumption that African Americans benefit more from CVD educational materials that specifically acknowledge and embrace their ethnicity and culture.

Providers have traditionally presented CVD education to patients as a "one size fits all" topic. Incorporating culturally specific education into the topic of CVD offers an improved understanding and retention of pertinent CVD information that can help African Americans improve their risk for heart disease. With the continued use of culturally sensitive education, the author believes that providers will see better health outcomes for African American patients with or at risk for CVD. It is anticipated that the education and knowledge gained form this project will ultimately encourage providers to implement culturally sensitive educational materials for African American patients with the prospect of reducing CVD disparities.

Interpretation

Based upon the data analysis conducted from this project and the results aforementioned, African American patients showed an improvement in CVD knowledge and perception following the implementation of culturally sensitive education. These patients showed an improved knowledge base of heart disease, symptoms of a heart attack, hypertension, and CVD risk factors. The bases of these findings suggest that with improved knowledge and perception of CVD, African American patients may be more likely to lower their risk for heart disease by utilizing the information learned from culturally sensitive education.

Strengths

This project incorporated a one-group pretest/posttest design with the establishment of a bassline in knowledge and perception as it related to CVD. This served as an added strength as the data was obtained immediately before and immediately following the educational intervention with the inference that the educational material was the most logical explanation for the improved knowledge and perception scores reflected in the data (Polit & Beck, 2012). Based on the results of this study, the posttest scores showed impressive improvement from the pretest scores, confirming that there was an improvement in knowledge and perception of CVD.

Limitations

A limitation of this project was the sample size (n=5) of African American patients. The sample size was small, which left room for an increased level of uncertainty and question of statistical significance (Polit & Beck, 2012). A larger sample size would have increased the power of the study to draw conclusions. The results of this study are also limited to the African American patients at St. John's Well Child and Family Center in Los Angeles, California. This

suggests that the results of this study are not valid for other facilities or populations beyond those of this project. Further educational interventions regarding CVD education for African American patients are needed to further infer knowledge and perception gained and the efficiency of this educational intervention.

Other limitations included the ongoing COVID-19 pandemic. Due to social distancing mandates by the state and federal government, modifications were made to the project, which originally called for patients to be educated on CVD with a provider in an in-person group style environment. However patients were required to take the materials home for self-guided learning. These mandates limited both the sample size of the project, and the ability of the patients to ask the providers questions and/or clarify topics found in the educational materials possibly having an effect upon their learning experience.

Implications

Education

In the studies conducted by Der Ananian et al. (2018) and Abbot and Slate (2018), it was found that very few people were successfully able to define hypertension, heart attack, or stroke, nor were they able to identify the symptoms of these disorders. The results of this project reflected that after implementation of culturally sensitive education, there was a significant improvement in the participants ability to define heart disease, signs and symptoms of a heart attack, hypertension, and risk factors for CVD. This emphasizes the need for further education regarding CVD to be given to African Americans by healthcare providers in a way that values their culture and understanding. It also calls for providers to be further educated on how culture tendencies may impact the learning experience of patients.

Practice

The results of this project suggest that African American patients have improved knowledge and perception of CVD following the implementation of culturally sensitive educational materials. Implications for practice includes analyzing the effects of culturally sensitive education in various settings as a means to improve health disparities in African American patients with or at risk for CVD or other chronic diseases. It also shows a need for providers to diversify the way patients are educated in practice so that it may be more culturally appealing and retainable.

Research

Until now, very little research has been done to investigate how culturally sensitive education may improve knowledge and perception of CVD in African American patients. The results of this project show that there was an improvement in knowledge and perception of CVD following a culturally tailored educational booklet. The findings derived from this project highlight the importance of future research to further analyze the impact that culturally specific education may have on chronic disease prevention and treatment for both providers and patients.

Policy

As discussed earlier in this text, cardiovascular disease disparities amongst African American patients are projected to increase. Morbidity and mortality related to CVD may be prevented or decreased with proper education and modifications of lifestyle habits. The results of this study have shown that culturally appropriate education may help to achieve improved knowledge and perception in African American patients. This supports implications for policy that sets the standards of how patients are educated by providers according to their cultural

preferences. It also calls for policy makers to identify cultural educational tools and materials that can be used to best educate these patients

DNP Essentials Addressed

There are eight DNP essentials developed by the American Association of College of Nursing (AACN) (2006) which were established as the foundational components of outcome competencies determined to be essential for graduates of the University of Arizona's DNP program. The DNP essentials relevant to this DNP project include:

DNP Essential I: Scientific Underpinnings for Practice

The scientific foundations in this DNP project included integrating nursing knowledge with science from using culturally appropriate educational materials to educate African American patients on CVD. Corresponding with this essential, an aim of this project was to facilitate positive changes in CVD disparities, and to promote optimal health of African American patients with or at risk of CVD.

DNP Essential II: Organizational and Systems Leadership for Quality Improvement

This project exemplified organizational and systems leadership for quality improvement by incorporating an intervention to improve CVD disparities amongst African American patients at St. John's Well Child and Family clinic in Los Angeles, California. The project further assessed the impact of thus said intervention in improving CVD health outcomes, highlighting the PI's ability to conceptualize new care delivery models that are both feasible and sustainable within organizational, political, and economical perspectives.

DNP Essential III: Clinical Scholarship

As a hallmark of doctoral education, there was a major emphasis on clinical scholarship as it pertained to this project. This DNP project required an extensive review of the literature, utilization of evidenced based interventions, the collection of appropriate and accurate data, the translation of research into practice, and the dissemination of findings in order to improve healthcare outcomes.

DNP Essential VII: Clinical Prevention and Population Health

Clinical prevention and population health for improving the nation's health was another key essential in this project. This project focused on CVD health promotion and prevention for African Americans by addressing health disparities and gaps in care, and establishing an intervention that represented the cultural uniqueness of this population in order to improve health status and reduce risk of disease development.

DNP Essential VIII: Advanced Nursing Practice

The DNP programs strives to ensure that the graduate is prepared to practice in his or her perspective specialization, and function as an expert in his or her field. This project required a demonstration of an advanced level of thinking, delivering, and evaluation of evidence-based care in order to improve patient outcomes. This project also serves a demonstration of the ability to incorporate diverse and culturally sensitive approaches to care.

Conclusions

Plan for Sustainability

The plan for sustainability of this project involves educating the providers and stakeholders at St. John's clinic on the success that this project has shown in improving

knowledge and perception of CVD amongst African American patients. Leadership and providers will be asked to consider incorporating this educational intervention as a mandatory tool to facilitate educating African American patients at the clinic on CVD.

Plan for Dissemination

The data derived from this project may provide meaningful insight into the utilization of culturally sensitive educational materials for the purpose of improving knowledge and perception of CVD in African American patients. The data will be shared via a poster presentation with healthcare providers at St. John's Well Child and Family Center in Los Angeles, California, and with any other persons, groups, or organizations that seeks its benefit or purpose.

Summary

This DNP project concluded that African American patients at St. John Well Child and Family Center in Los Angeles, California showed improved knowledge and perception of CVD after implementation of a culturally sensitive education booklet entitled, "On the Move to Better Heart Health." Based upon the data derived from this project, healthcare providers may continue to improve CVD health disparities for African Americans by incorporating the use of culturally sensitive educational materials into their practice and educational tactics. Culturally sensitive education may lead to improved knowledge of health information critical in helping African Americans lower their risk factors for health disease.

APPENDIX A:

ST. JOHN'S WELL CHILD AND FAMILY CENTER SITE APPROVAL

St. John's Well Child and Family Center
808 W 58th Street
Los Angeles, CA

August 15th 2020

University of Arizona Institutional Review Board c/o
Office of Human Subjects
1618 E Helen St
Tucson, AZ 85721

Please note that Ms. Teal R. Curry, UA Doctor of Nursing Practice student, has permission of the St. John Well Child and Family Center to conduct a quality improvement project at our facility for her project, "Improving Knowledge and Perception of Cardiovascular Disease Amongst African Americans"

Ms. Curry will conduct a survey and distribute an CVD educational booklet to qualifying participants. She will recruit participants on site via flyers and word-of-mouth. She will provide a description of the project, what they will be asked to do, the time involved, and copies all necessary materials including a pre-test and post-test survey, and a cardiovascular disease educational booklet entitled "On the Move to a Better Heart" developed by the National Heart Lung and Blood Institute. Ms. Curry's activities will be completed by *(TBA)*.

Ms. Curry has agreed to provide to my office a copy of the University of Arizona Determination before she recruits participants. She will also present aggregate results to the providers at their monthly staff meeting.

If there are any questions, please contact my office.

Signed,

Izunna Vincent Ewudo, DNP, FNP

APPENDIX B:

CONSENT DOCUMENT (DISCLOSURE FORM)

IMPROVING KNOWLEDGE AND PERCEPTION OF CARDIOVASCULAR DISEASE AMONGST AFRICAN AMERICANS
Teal Renee Curry

The purpose of this project is to evaluate and improve knowledge and perceptions of cardiovascular disease through culturally sensitive education.

If you choose to take part in this project, you will be asked to complete a pre-test survey. It will take approximately 15 minutes to complete this survey and will be done in the clinic. After the survey you will be given the "On the Move to Better Heart Health" educational booklet to take home and complete. This booklet will take approximately one hour to finish. You will have at least one week to read this booklet. This booklet offers education on cardiovascular (heart) disease. After completing this booklet, you will complete a post-test survey that will take approximately 15 minutes. The post-test survey must be returned back to the clinic by the instructed date via the pre-stamped and pre-addressed envelope that will be provided to you. It is requested that you do NOT write a return address on this envelope when you mail it back to the site. There will also be a secured drop box at the front desk for those who wish to deliver the post-test survey back to the clinic. There are no foreseeable risks associated with participating in this project and you will receive no immediate benefit from your participation. Survey responses are anonymous.

If you choose to participate in the project, participation is voluntary, refusal to participate will involve no penalty or loss of benefits to which you are otherwise entitled. You may withdraw at any time from the project. In addition, you may skip any question that you choose not to answer. By participating, you do not give up any personal legal rights you may have as a participant in this project.

For questions, concerns, or complaints about the project, you may call Teal Curry, BSN-RN at email tealcurry@email.arizona.edu

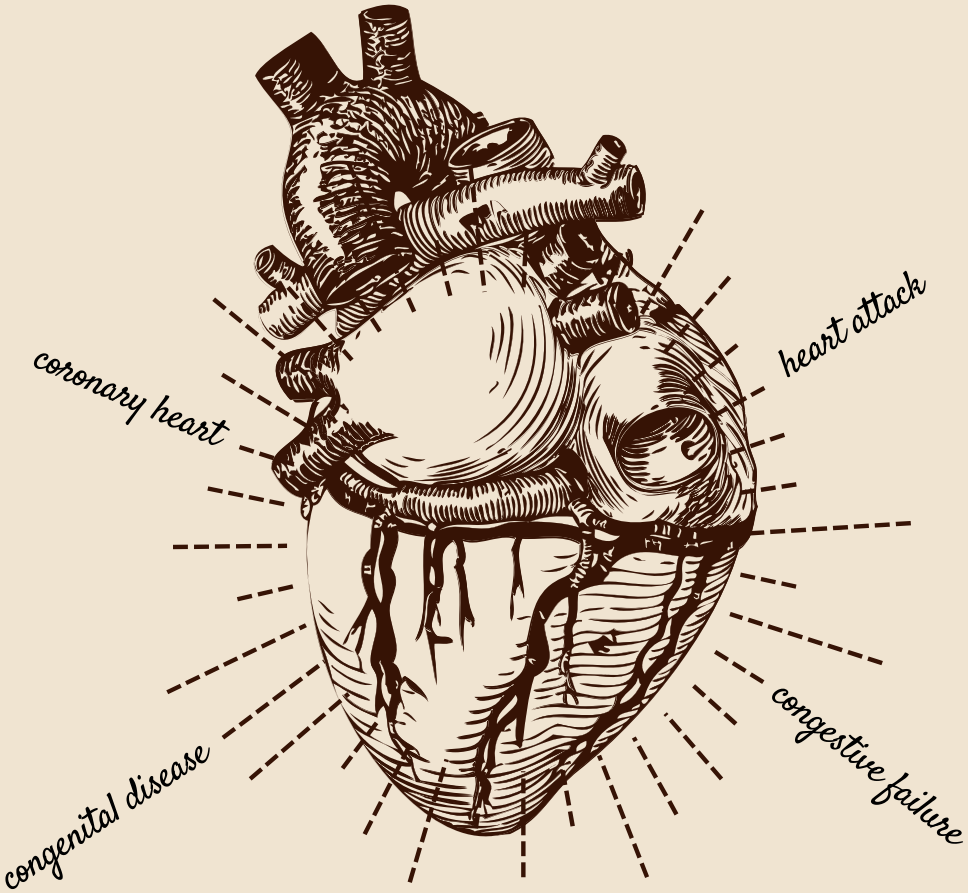
Teal R. Curry
University of Arizona
College of Nursing

APPENDIX C:

RECRUITMENT MATERIAL (RECRUITMENT FLYER)

THE UNIVERSITY OF ARIZONA
COLLEGE OF NURSING

KNOWLEDGE IS POWER! SEEK FACTS!



DO YOU KNOW YOUR HEART HEALTH?

A project designed to help imrprove cardiovascular disease in African Americans. Contact: Tealcurry@email.arizona.edu or the front desk for more information on participating in this project

APPENDIX D:

EVALUATION INSTRUMENTS (HEART HEALTH PRETEST SURVEY / HEART HEALTH POSTTEST SURVEY)

Heart Health Pre-test Survey

Thank you for participating in this project. The purpose of this project is to evaluate the perceptions and knowledge of Cardiovascular Disease (CVD) in African Americans, and to provide culturally catered education counseling. The following survey asks questions related to demographics, CVD (including hypertension, heart attack, stroke), and lifestyle habits (i.e. smoking, exercise, diet).

This survey should take approximately 30 minutes to complete. Your answers to these questions will remain confidential and answering any these questions is voluntary. Please answer the questions to the best of your ability. For any assistance with this survey, please contact Teal Curry, RN at tealcurry@email.arizona.edu

For each item below: please check the box for the answer that best fits what you think, do, act or feel, and what you know to your best knowledge. Unless indicated, please only select ONE answer for each question.

Demographics

1. How do you identify?
   - ❑ Male
   - ❑ Female
   - ❑ Other
2. What is your age group?
   - ❑ 18 to 34
   - ❑ 35 to 54
   - ❑ 55 to 64
   - ❑ 65 or older

Knowledge and Perceptions

3. What is heart disease?
   - ❑ When you cannot breath easily.
   - ❑ When blood vessels in the heart become narrowed and clogged
   - ❑ When blood is flowing properly through the heart.
4. Symptoms of a heart attack can include which of the following? **SELECT ALL THAT APPLY**
   - ❑ No symptoms
   - ❑ Trouble breathing
   - ❑ Pain or pressure in the chest
   - ❑ Arm, back or stomach pain
   - ❑ All of the above

5. Which of following values are considered high blood pressure?
   - ❑ 90/60
   - ❑ 100/75
   - ❑ 130/80
   - ❑ 140/90
   - ❑ Both C and D

6. Which risk factors for heart disease can someone **NOT** change?
   - ❑ Cigarette smoking
   - ❑ Being overweight
   - ❑ Age
   - ❑ High cholesterol

Please select only one answer choice for the following questions below.
1= Strongly Disagree, 2= Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree

7. I know the signs and symptoms of a heart attack or stroke.

Strongly Disagree					Strongly Agree
	Disagree	Neutral	Agree		

8. I make healthy decisions when selecting foods to eat (i.e. foods low in salt, low in cholesterol, and low in fat)

Strongly Disagree					Strongly Agree
	Disagree	Neutral	Agree		

9. Others close to me motivate and encourage me to practice healthy lifestyle habits.

Strongly Disagree					Strongly Agree
	Disagree	Neutral	Agree		

10. I feel confident I can lower my risk for heart disease if I was counseled by a healthcare provider.

Strongly Disagree					Strongly Agree
	Disagree	Neutral	Agree		

Heart Health Post-Test Survey

Thank you for participating in this project. The purpose of this project was to evaluate the perceptions and knowledge of Cardiovascular Disease (CVD) in African Americans, and to provide culturally relevant education and counseling. The following survey asks questions to evaluate your knowledge and perception of Cardiovascular disease following the project.

This survey should take approximately 30 minutes to complete. Your answers to these questions will remain confidential and answering any these questions is voluntary. Please answer the questions to the best of your ability. For any assistance with this survey, please contact Teal Curry, RN at tealcurry@email.arizona.edu

For each item below: please check the box for the answer that best fits what you think, do, act or feel, and what you know to your best knowledge. Unless indicated, please only select ONE answer for each question.

Knowledge and Perceptions

1. What is heart disease?
   - ❑ The inability to breathe properly.
   - ❑ When blood vessels in the heart become narrowed and clogged
   - ❑ When blood is flowing properly through the heart.

2. Symptoms of a heart attack can include which of the following?
   - ❑ No symptoms
   - ❑ Trouble breathing
   - ❑ Pain or pressure in the chest
   - ❑ Arm, back or stomach pain
   - ❑ All of the above

3. Which of following values are considered high blood pressure?
   - ❑ 90/60
   - ❑ 100/75
   - ❑ 130/80
   - ❑ 140/90
   - ❑ Both C and D

4. Which risk factors for heart disease can someone **NOT** change?
   - ❑ Cigarette smoking
   - ❑ Being overweight
   - ❑ Age
   - ❑ High cholesterol

Please select only one answer choice for the following questions below.
1= Strongly Disagree, 2= Disagree, 3=Neutral, 4=Agree, 5=Strongly Agree

5. After reading this, I feel I have more information to speak with my doctor or nurse practitioner about my risk for heart disease.

Strongly Disagree ◯ ◯ ◯ ◯ ◯ Strongly Agree

Disagree Neutral Agree

6. I feel good about encouraging others close to me to practice heart healthy lifestyle habits.

Strongly Disagree ◯ ◯ ◯ ◯ ◯ Strongly Agree

Disagree Neutral Agree

7. After reading this, I know more about the signs and symptoms of a heart attack and stroke.

Strongly Disagree ◯ ◯ ◯ ◯ ◯ Strongly Agree

Disagree Neutral Agree

8. After reading this, I will make better decisions in selecting foods that are heart healthy.

Strongly Disagree ◯ ◯ ◯ ◯ ◯ Strongly Agree

Disagree Neutral Agree

9. After reading this, I will encourage others close to me to live a healthy lifestyle.

Strongly Disagree ◯ ◯ ◯ ◯ ◯ Strongly Agree

Disagree Neutral Agree

10. I know I can help my heart stay healthy if I choose to.

Strongly Disagree ◯ ◯ ◯ ◯ ◯ Strongly Agree

Disagree Neutral Agree

11. My perception of Cardiovascular disease has improved after participating in this project

Strongly Disagree ◯ ◯ ◯ ◯ ◯ Strongly Agree

Disagree Neutral Agree

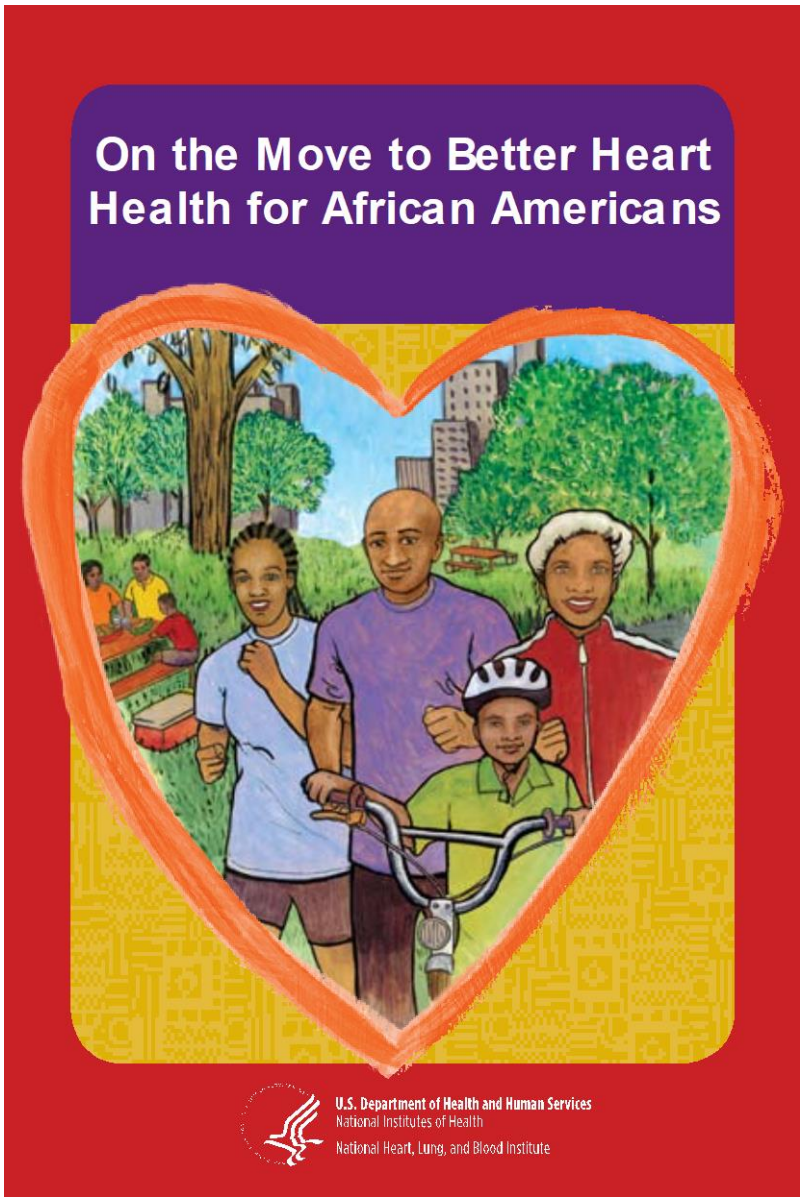
12. I would have sought out information regarding cardiovascular disease had it not been given to me through this project

Strongly Disagree ◯ ◯ ◯ ◯ ◯ Strongly Agree

Disagree Neutral Agree

APPENDIX E:

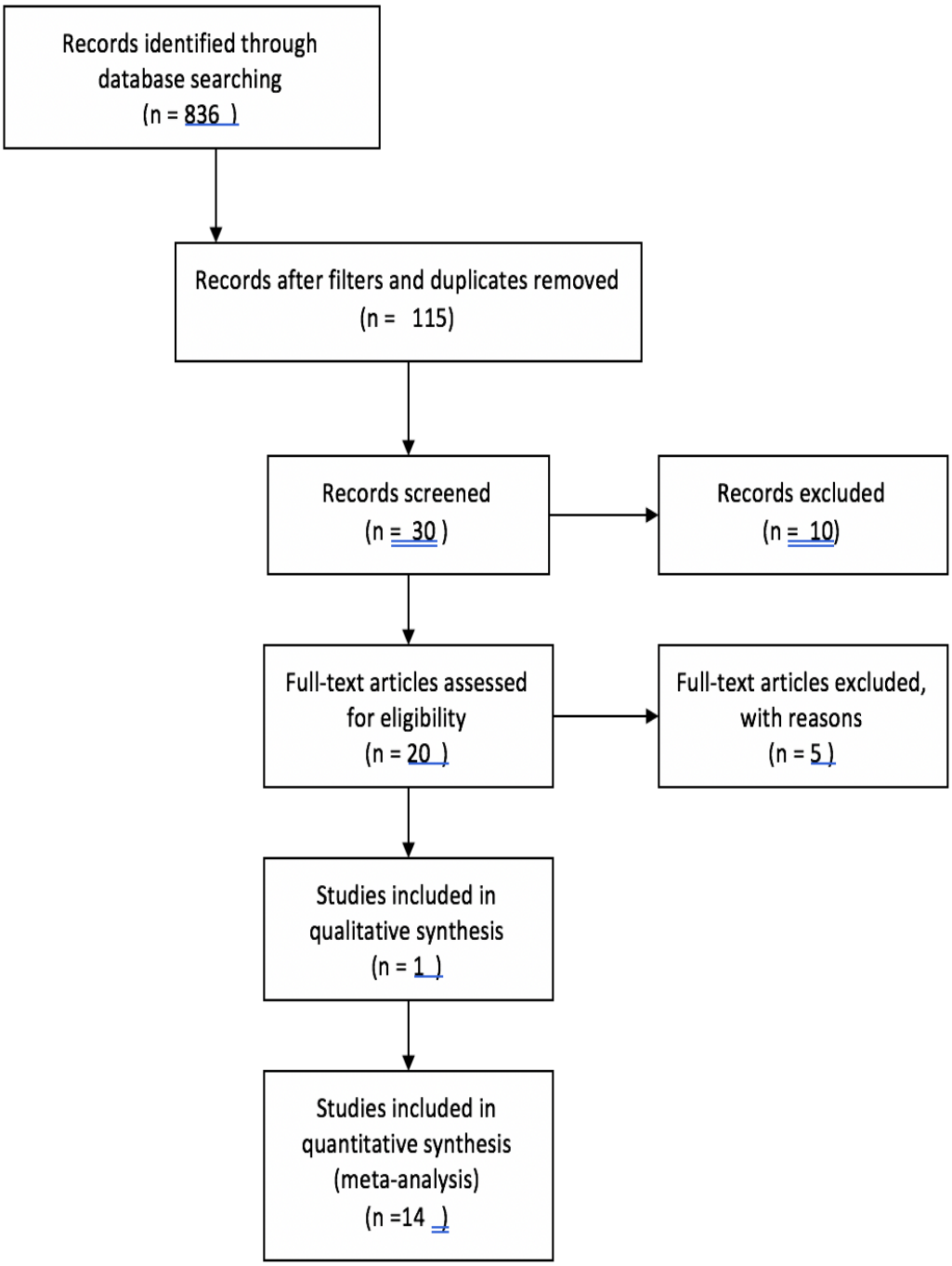
PARTICIPANT MATERIAL (PUBLICATION BROCHURE AND WEBSITE LINK)



https://www.nhlbi.nih.gov/health-topics/all-publications-and-resources/move-better-heart-health-african-americans

APPENDIX F:

LITERATURE REVIEW FLOW DIAGRAM


Records identified through database searching (n = 836)
Records after filters and duplicates removed (n = 115)
Records screened (n = 30)
Records excluded (n = 10)
Full-text articles assessed for eligibility (n = 20)
Full-text articles excluded, with reasons (n = 5)
Studies included in qualitative synthesis (n = 1)
Studies included in quantitative synthesis (meta-analysis) (n =14)

APPENDIX G:

LITERATURE REVIEW GRID

Pub. Year; Author's Last Name	Title of Publication	Type of Study	Main Outcomes of Findings	Support for and or Link to Project
Aminde, L. & Veerman, L. (2016)	Interventions for the prevention of cardiovascular diseases: A protocol for a systematic review of economic evaluations in low-income and middle-income countries	Systematic review	The objective of this review was to identify and provide a comprehensive synthesis of interventions for primary and secondary prevention of CVD	Systematic review of interventions on the primary and secondary prevention of CVD. This is especially relevant to my project.
Abbott, L., Williams, C., Slate, E., Gropper, S. (2018)	Promoting heart health among rural African Americans.	Cluster randomized controlled trial	The cardiovascular health promotion program presented to African Americans had a positive influence on produce consumption and reduction of saturated fat enhances participants attitudes and elf-efficacy of regarding exercise.	Supports and helps further development of project intervention aimed at reducing CVD in the primary care setting.
Arnett, D. K et al. (2019)	2019 ACC/AHA guidelines on the primary prevention of cardiovascular disease: A report of the American College of Cardiology/American Heart Association task force on clinical practice guidelines	Clinical practice guideline	1) Most ASCVD events are avoidable through prevention of risk factor development 2) Tobacco avoidance is critically important 3) A diet high in fruits, fish, vegetables and whole grains is the best. The clinician goal should be to match the intensity of the ASCVD prevention efforts to the CVD risk factor score	CPG supportive that prevention measures should be taken in the primary care setting to reduce risk of CVD.
Braun et al. (2016)	Cardiovascular risk in midlife African American women participating in a lifestyle physical activity program.	Cross sectional	-African American women had less adequate control of hypertension -Women showed lower levels of low-density-lipoprotein cholesterol level after participating in a physical activity program	-Hypertension is less controlled in African Americans -Cholesterol can be improved with exercise

Pub. Year; Author's Last Name	Title of Publication	Type of Study	Main Outcomes of Findings	Support for and or Link to Project
Brewer, L. C. et al. (2019)	Promoting cardiovascular health and wellness among African Americans: Community participatory approach to design an innovative mobile-health intervention	Mixed methods study; 4-phase interactive development process for intervention design	1) Both focus groups expressed interest in incorporating mobile technologies into their daily life (health related) to track desired behaviors, goals, and for visual benefits (such as health related images or videos). The second focus group however was still in favor of face-to-face educational program as opposed to the app.	May support mobile technologies or educations as a re-enforcement to education provided in the clinic
Carnethon et al., (2017)	Cardiovascular health in African American patients: A scientific statement from the American Heart Association.	Systematic review	-African American have a younger prevalence of CVD risk factors (e.g. hypertension, diabetes, obesity and atherosclerotic risk). -Disease management is less effective among African Americans -These disparities are multifactorial and span from the individual level to the social environment.	>Supports the notion of CVD disparities that African Americans face > Summarizes major findings related to CVD risk factors and prevention.
De Backer, G. G. (2019)	Risk scoring for primary prevention of cardiovascular disease.	Risk scoring in primary prevention of atherosclerotic cardiovascular disease: Strengths and limitations	1) Risk scoring in primary prevention of ASCVD involves an estimation of the likelihood of a person developing ASCVD over a defined period of time 2) The use of risk scoring may also stimulate greater equity in the distribution of effective therapies. 3) A clinical estimation of ASCVD by the provider may over or under estimate the real ASCVD	This is important for my project as the ASCVD risk score should be utilized for a more accurate estimate of the true risk factor rating.
Der Ananian, C., Winham, D. M.,	Perceptions of heart healthy behaviors among Africa	Mixed Methods	-African American concerned about CVD, stroke and diabetes, but less	- provides insight into CVD and associated disease-related

Pub. Year; Author's Last Name	Title of Publication	Type of Study	Main Outcomes of Findings	Support for and or Link to Project
Thompson, S. V., & Tisue, M. E. (2018)	American adults: A mixed methods study		certain about the physiological consequences of the disease -Participated noted low socioeconomic status and limited access to healthy foods as contributors to disease risk -20% of participants worried a lot about heart disease, 48% worries a little.	perceptions, knowledge, and attitudes among African Americans in the Southwest and recommendations for interventions to reduce CVD risk.
Dutta, M. J., Collins, M., Sastry, S., Dillard, S., Anaele, A., Kumar, R., Roberson, C., Robinson, T., Bonu, T. (2018)	A culture-centered community-grounded approach to disseminating health information among African Americans	Case control	- increased community CER knowledge in communities relative to communities that did not receive culturally centered health information	-supports the use of utilizing culture to increase knowledge of CVD in African Americans
Ferdinard, K.C. et al. (2017)	Disparities in hypertension and cardiovascular disease in blacks:	Systematic review	This review identified social determinants (i.e., patient-provider communication and socioeconomic status) as key factors that affect adherence and disparity and eight practical approaches addressing medication adherence with the potential to attenuate disparities: (1) patient engagement, (2) consumer-directed health care, (3) patient portals, (4) smart apps and text messages, (5) digital pillboxes and pill bottles, (6) pharmacist-led engagement, (7) cardiac rehabilitation, and (8) cognitive-based behavior.	Supports and helps further development of project intervention aimed at reducing CVD in the primary care setting. Also explores which factors are associated with medication compliance of African Americans (which is important for controlling hypertension).
George, K. et al. (2017)	Factors related to differences in retention among African American and White	Cohort study	1) In the ARIC cohort, retention differed among African Americans and Whites, but related more to	Explores the differences in compliance/retention rates of

Pub. Year; Author's Last Name	Title of Publication	Type of Study	Main Outcomes of Findings	Support for and or Link to Project
	participants in the atherosclerosis risk in communities study (ARIC) prospective cohort: 1987-2013		mortality differences than dropping-out (8% higher incidence of death in African Americans) **VERY INTERESTING 2) African Americans compared with Whites at visit 5 were more likely to have low levels of physical activity, be current smokers, but were less likely to be current drinkers. African Americans had more prevalent obesity, diabetes, and hypertension.	African Americans in CVD prevention programs. Supports and helps further development of project intervention aimed at reducing CVD in the primary care setting.
Haldeman, L. & Batten, K. (2019)	P115 eating regulation, diet related autonomy and competence, and body image among African American women	Cross sectional	1) Results showed that group did not believe that over-eating and eating behaviors are intrinsically motivated. 2) Discrepancies in weight status, dietary intake, and perceptions of eating behaviors highlight the need to target nutrition education interventions in ways that address specific beliefs about diet and overall health	Explores the correlation of eating regulation and cardiovascular disease risk factors for African American women
Jones, L. M. et al. (2017)	Exploring predictors of information use to self-manage blood pressure in Midwestern African American women with hypertension	Cross-sectional correlational design	1) Nearly all of the women in the sample (89%) reported at least one mode of information use to self-manage blood pressure Attitude towards blood pressure self-management and subjective norms scores were strongly positive	Supports and helps further development of project intervention aimed at reducing CVD in the primary care setting. Supports the need to increase proper blood pressure self-management in African American women

Pub. Year; Author's Last Name	Title of Publication	Type of Study	Main Outcomes of Findings	Support for and or Link to Project
Long, E., Ponder, M., Bernard, S. (2017)	Knowledge, attitudes, and beliefs related to hypertension and hyperlipidemia self-management among African American men living in the Southeastern United States	Qualitative methods: in-person focus groups.	1. There is gaps in knowledge of hyperlipidemia compared to hypertension, and low perceived susceptibility prior to adverse health events indicating the need for greater focus on cholesterol and better targeting of younger African-American men in prevention efforts Findings also indicate the importance of practitioner awareness regarding these cultural perceptions, discussing perceptions with African American male patients, and considering them when making prevention and treatment recommendations.	Important to understand the perceptions that African Americans have related to cardiovascular disease and self-management and needed areas of knowledge improvement.
Zilbermint, M., Hannah-Shmouni, F., & Stratakis, C. A. (2019)	Genetics of Hypertension in African Americans and others of African descent	Systematic review	1) African Americans excrete a sodium load more slowly and less completely than whites resulting in suppression of the renin-aldosterone-angiotensin system (RAAS) due to volume-loading that typically begins in childhood 2) Several genes implicated in RAAS activation have been studied in African American populations and have revealed a surprising number of novel variants and pathways possibly implicated in the pathogenesis of hypertension	Explores how genes may play a role in hypertension; relevant for understanding the disproportionate association of CVD and African Americans

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