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# Hypertension Awareness and Health Care Access/ Use in Black Women with Hypertension

Marlène Trusiak  
*Walden University*

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# Walden University

College of Health Sciences

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Marlène Trusiak

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2017

Abstract

Hypertension Awareness and Health Care Access/Use in Black Women with

Hypertension

by

Marlène Trusiak

MD, International University of the Health Sciences Medical School, 2012

MHA, Chapman University, 2001

BHS, Chapman University, 1999

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Health

Walden University

January 2018

## Abstract

Black women in the United States have a high prevalence of hypertension and suffer the most complications of cardiovascular disease. Black women, though aware of the dangers associated with hypertension, have limited opportunity to access health care and or change their lifestyles. The purpose of this quantitative cross-sectional study was to test if there was a significant difference in hypertension awareness, health care access/use, and lifestyle modifications in Black women prior to and post implementation of The Patient Protection and Affordable Care Act, as compared to women of other races. The behavior modification theory guided this study. Secondary data from the National Health Interview Survey for the years 2009 to 2013 for women ages 20 - 65 were analyzed using logistic regression analysis. According to the study results, there was no association ( $p$  values  $> 0.05$ ) among variables age, education, income, length of employment, and hypertension awareness, health care access/use, and life style modification among Black women in the United States, as compared to women of other races. The findings from this study may allow researchers and policy makers to develop more culturally significant health services for Black women. These findings could create positive social change by targeting programs that promote hypertension awareness leading to effective lifestyle changes in Black women.

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## Dedication

This is dedicated to my father Monicel whose instruction taught me that knowledge is priceless, but education is expensive. I learned that the best kind of knowledge to have is that which you can share for the ultimate good. It is also dedicated to dear husband Jeffrey for his patience during this enduring time, and for believing in me. I give special dedication to my wonderful children Samuel, Daniel, Brian, and Josef who never complained and look up to me. To my late mother Yvonne (who recently died before I could finish the dissertation) I am eternally grateful for the intercessory prayers on my behalf and to my sister Carline who has been my sounding board and my friend. Finally, praises be to God the rock on whom I lean. The accomplishment of this project was done one step at a time through hardship, blood, sweat and tears, mostly of joy.

I finally dedicate this project to all women who suffer from hypertension who either know or don't know they can fight this preventable and curable disease or in the least manage it to live a productive, rewarding life. My hope is that a heightened level of awareness on the importance of awareness of hypertension, proper healthcare access, services, and utilization; effective lifestyle changes can decrease the incidence and prevalence of hypertension and minimize the effect of CVD in Black women in the United States and all women around the world.

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## Chapter 1: Introduction to the Study

### Introduction

Approximately one-third of the U.S. population has hypertension (Center for Disease Control and Prevention [CDC], 2011; Valderrama, 2012). Blacks are twice as likely to have uncontrolled hypertension compared to Whites (Fuchs, 2011). The American Heart Association (AHA, 2013) indicated that the number of Black women living with hypertension was higher, at 64%, as compared to 52% of White women and 51% of Black and White men, inclusively. In 1962, the CDC identified the southeastern area of the United States as the *stroke belt*, a surname used because of its high incidence of stroke and cardiovascular diseases. The designated stroke areas included are: Alabama, Arkansas, Georgia, Indiana, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, and Virginia (Perry & Rocella, 1998).

Often, Blacks are faced with health hazards for which little to no access to health care exists (Thorpe et al., 2014). Thorpe et al. (2014) and Perry and Rocella (1998) examined the living environment of Blacks and Whites and determined that Blacks have a higher chance of having hypertension in the same social settings as Whites; however, Blacks often knew of their status and were receiving treatments.

Many factors account for the disparity in health status that predisposes Black women to hypertension. Black women are often confronted with high blood cholesterol, obesity/overweight, physical inactivity, and diabetes (National Institute of Health [NIH], 2009). The NIH (2009) also stipulated that Black women were more likely to have hypertension at an earlier age; the NIH stated that 37% of Black women have



hypertension. Approximately 20% of people in the United States who have hypertension do not know that they have hypertension because they may not experience symptoms (AHA, 2012). Although there may be no warning of hypertension, it is a life-threatening disease, and it increases the risk of heart disease and stroke (Chobanian et al., 2003). Hypertension requires long-term treatment (Roger et al., 2011). Researchers have identified that controlling the elevated high blood pressure that some Black women experience requires lifestyle modifications that include: physical activity, a diet (i.e., healthy food options and portion control), and education about decreasing salt and alcohol intake. Furthermore; stable, sustainable, and controllable, health care access with consistent follow-up must be established to ensure proper long-term treatments of high blood pressure to break the stigma of high prevalence.

Hypertension remains often uncontrolled, and it is more likely to be undiagnosed among uninsured adults or those with public health insurance than among those with paid health insurance (CDC/NCHS, 2008). On March 23, 2010, The Patient Protection and Affordable Care Act (PPACA) became law (Rosenbaum, 2011). It is a landmark health reform legislation referred to as *Obamacare*, which engages the individual and the employer to commit to provisions of health care coverage. Such coverage operates through Medicaid as well as private insurance (Rosenbaum, 2011).

There was a gap in the literature relative to the role of hypertension awareness and health care access/use prior to and post implementation of PPACA in the Black community. The purpose of the study was to test if there is a significant difference in hypertension awareness and health care access/use in Black women,

prior to and post implementation of the PPACA, as compared to women of other races. I also hoped to determine if a relationship exists between lifestyle modifications, such as implementing a healthy diet and exercise, and hypertension in the Black woman, prior to and post implementation of the PPACA, as compared to other races. The positive change that could result from difference in access and use of health services made available through the PPACA could be the breakthrough that would help Black women to implement healthy behaviors.

In this chapter, I will examine how the lack of health care awareness, access and use of health services, environment, socioeconomic, and low health literacy could affect compliance with management and treatment of high blood pressure. The research questions and the hypothesis will also be discussed, followed by the theoretical framework, assumptions, limitations, and the significance of the study. The findings of this study may lead to increased positive predictive value, hence adjusting treatment specific to the minority demographic and lowering prevalence of hypertension.

### **Background of Study**

Roger et al. (2011) indicated that awareness of hypertension was lowest among Black and Hispanic women, which makes them least likely to be perceptive of the consequences of hypertension. As the result of this lack of health knowledge, Roger et al. stipulated that the risks of cardiovascular disease (CVD) became a higher burden on women and caused them to have a greater death toll than men with the same diagnosis. George et al. (2016) and Roger et al. argued that due to the obesity epidemic in this

country and its role in elevated high blood pressure, women are at a more significant level of risk of hypertension (particularly the Black female population) because of their lower awareness of heart disease. According to Roger et al. the rate of CVD in Black women is 286.1 per 100,000 compared to 205.7 per 100, 000 in White women.

Schiller, Lucas, Ward, and Peregoy (2012) identified a lack of proper diet and exercise in the Black female population as a limitation in reaching maximum health and maintaining high blood pressure under control.

Yoon, Burt, Louis, and Carroll (2012) stated that the prevalence of hypertension remained highest among non-Hispanic, Black adults while the treatment and control of the disease did not differ from such groups. Nwankwo, Yoon, Burt, and Gu (2013) confirmed that the prevalence of hypertension in non-Hispanic Black adults was at 42% of the growth rate of the disease. Among the 83% of adults with hypertension, only 52% had their blood pressure controlled to a parameter of 140/90 (Nwankwo et al., 2013).

Valderrama et al. (2012) reported hypertension as a chronic disease. Because the affected population is mainly Black women, the health system should establish parameters that encourage the provider, as well as the patient, to follow more strict guidelines about blood pressure monitoring. The prevalence of high blood pressure peaks in non-Hispanic, Black adult females (Gillepsie & Hurvitz, 2013). However, Black women died more frequently of CVD resulting from lack of identifiable hypertension treatment options because styles of treatments were not appropriately addressed in the Black female population. There was a gap in knowledge about Black women's health care management of high blood pressure. This study helped to fill this gap and made a

positive contribution to health promotion in the affected Black population. I studied the impact of the PPACA on Black women's awareness of hypertension, and access/use of health services before and after the PPACA. The findings from this study may help researchers to better understand the extent to which health care knowledge and the use of services contribute to the prevalence of high blood pressure in the Black female population.

### **Problem Statement**

One in three adults in the United States, or approximately 70 million people, have hypertension, defined as high blood pressure (CDC, 2014b; Valderrama et al., 2012). Hypertension, a chronic illness with few early signs, significantly increases the risk of CVD and stroke, two of the leading causes of death in the United States (Roger et al., 2011). Hypertension is a preventable and controllable disease that can be managed with medications and lifestyle changes (Roger et al., 2011). The CDC (2010) named diet as one of the most important contributors to this disease. Despite available treatments, less than half of those with hypertension successfully control their blood pressure (Valderrama et al., 2012). Blacks living in the United States have the highest prevalence of hypertension of any subgroup of Black people worldwide (Roger et al., 2011); they have high comorbidity rates for CVD and renal diseases (Yoon et al., 2012). The prevalence of hypertension is more common among Black women than Black men, White men, and women. According to the AHA (2013), the rate of hypertension among Black women was 64%, while it was 52% in White women and 51% for Black and White men.

In addition, Black women have a shorter life expectancy, earlier onset of CVD, and poorer blood pressure control relative to White women (Schiller et al., 2012). There is a need to identify the level of hypertension awareness to help Black women self-manage their blood pressure (Flack et al., 2010). According to Smedley, Stich, and Nelson (2009), such health disparities are unacceptable and unfair, and they recommended that studies be conducted to identify sources of disparities and to develop strategies to reduce those disparities.

An estimated 9 million people signed up for health insurance in the year 2014 under the PPACA; however, 33 million people in the United States (representing 10.4% of the U.S. population) still do not have coverage (Smith & Medalia, 2015). This disparity is more evident in the poor, Black, and Hispanic communities where 4.5 million individuals are children (Barry-Jeste & Casselman, 2015). Politics play a role in the PPACA, as the House of Representatives continues to address a need for repeal. State-level governors and legislators can refuse to establish exchanges to facilitate subsidized private insurance and can even prevent Medicaid from expanding (Béland, 2013). In June 2012, although the federal government upheld the PPACA, it could also not penalize the states refusing to expand Medicaid starting in 2014 (Paradise, 2015). Many levels of the government were involved in the implementation of the PPACA, which caused a setback in the planned expansion of coverage. The PPACA had to move forward amidst the political turmoil of the administrative process that led to many individuals not having access to proper health care (Paradise, 2015). In this study, I addressed a gap in the literature on factors, such as lack of hypertension awareness and

health care access/use that has led to noncompliance with hypertension treatment in Black females.

### **Purpose of Study**

The purpose of the study was to test whether there is a significant difference in hypertension awareness and health care access/use in Black women, prior to and post implementation of the PPACA, as compared to White or women of other races. I also determined that a relationship existed between lifestyle modification approaches, such as diet and exercise, and hypertension in Black women, prior to and post implementation of the PPACA, as compared to other races. For the first research question, the study's independent variable was race, and the dependent variables were hypertension awareness and health care access/use. For the second research question, the independent variable was race, and the dependent variable was lifestyle modification. Socioeconomic status was the covariate.

### **Research Questions and Hypotheses**

RQ1. Is there a significant difference in hypertension awareness and health care access/use in Black women for the years 2009-2013, pre- and post-PPACA, as compared to women of other races, when controlling for confounding factors (age, education, income, and employment)?

$H_0$ 1: There is no significant difference in hypertension awareness and health care access/use in Black women for the years 2009-2013, pre- and post-PPACA, as compared to women of other races when controlling for confounding factors (age, education, income, and employment).

*H*<sub>1</sub>1: There is a significant difference in hypertension awareness and health care access/use in Black women for the years 2009-2013, pre- and post-PPACA, as compared to women of other races, when controlling for confounding factors (age, education, income, and employment).

RQ2. Is there a relationship between hypertension awareness and lifestyle modifications such as exercise in Black women for the years 2009-2013, pre- and post-PPACA, as compared to women of other races when controlling for confounding factors (age, education, income, and employment)?

*H*<sub>0</sub>2: There is no relationship between hypertension awareness and lifestyle modifications such as exercise in Black women for the years 2009-2013, pre- and post-PPACA, as compared to women of other races when controlling for confounding factors (age, education, income, and employment).

*H*<sub>1</sub>2: There is a relationship between hypertension awareness and lifestyle modifications such as exercise in Black women for the years 2009-2013, pre- and post-PPACA, as compared to women of other races when controlling for confounding factors (age, education, income, and employment).

The theoretical framework of this study was the behavior modification theory (BMT). BMT promotes desirable behavior with positive and/or negative reinforcement, similar to instrumental conditioning; a learning process is driven by the desire to avoid or control consequences (Thorndike, 1911). In 1911, Thorndike was the first to use the term behavior modification; subsequently, in the 1940s and 1950s, it was used again in a research group conducted by Joseph Wolpe; since then,

BMT became popular. The BMT is based on techniques to increase adaptive behavior by emphasizing reinforcement and by decreasing dysfunctional conducts through disappearance or punishment while placing more importance on the positive. When applied to skilled behavior and adjustment principles, the BMT has been successful in producing the desired results in the process of evidence-based treatments (O'Donohue & Ferguson, 2006).

BMT-related therapy could mitigate health disparity caused by poverty by teaching healthier behaviors (i.e., lifestyle modifications) and improving access to relevant health information pertaining to hypertension to increase knowledge and awareness of this disease. Armed with the necessary information, Black women may visit a doctor more often, learn about their symptoms, manage and improve the outcomes of hypertension, and use medical care facilities to receive treatments that could bring them to optimum health. These women will learn the value of proper diet, lifetime exercise programs, and the need to adhere to them. In applying BMT to my research, with the appropriate health education and willingness to manage hypertension, Black women will desire to avoid/control the consequences of hypertension in order to live a healthier and longer life.

### **Nature of the Study**

I used a quantitative, cross-sectional design to analyze secondary data from the National Health Interview Survey (NHIS) for the years 2009 to 2013. I also used a nonexperimental quantitative method to allow for the use of the survey tools I had access to, and I used responses in a numerical fashion; this also allowed me to test



the association of the variables statistically (Aschengrau & Seage, 2008). In this study, I investigated the impact of a lack of awareness of hypertension, a lack of access and use to health care, socioeconomic status based on family income, age, employment, and education and the prevalence of hypertension among Black women in the United States.

The use of a quantitative study was necessary because (a) the research problem was clearly stated, (b) study variables were clearly defined and measured, and (c) there was a desire to achieve high levels of reliability and reduce the potential for bias (Leedy & Ormrod, 2012). In this quantitative study, the hypotheses were either accepted or rejected based upon observable, measurable results. This study met the criteria for the use of a quantitative design because the study variables involved continuous numeric data linked closely in time. For the first research question, the study's independent variable was race, and the dependent variables were hypertension awareness and health care access/use. For the second research question, the independent variable was the race, and the dependent variable was lifestyle modification. Socioeconomic status was the covariate. I used data from the NHIS survey for the years 2009 through 2013. In my research of applied behaviour analysis, I used logistic regression to ascertain the association between the dependent and independent variables.

### **Definition of Terms**

*Hypertension:* Hypertension is a sustained elevation of systemic arterial pressure beyond 140/90 mmHg in an adult. It is usually a chronic medical condition,

which leads to damage of blood vessels of various organs including brain, heart, kidney, and eye (Free Farlex Dictionary, 2017). Management of a hypertensive individual includes maintenance of optimal blood pressure as well as routine screenings and attending to its secondary adverse effects on organs (WebMD, 2016).

*Hypertension in Blacks:* Being Black is a risk factor in itself for developing elevated arterial blood pressure. Other factors include smoking, advanced age, obesity, having other people in the family with high blood pressure, being diabetic, lack of exercise, consuming salt in excess, and a lack of potassium in the diet (WebMD, 2016).

*Hypertension awareness:* When a medical professional follows a standard guideline and measures a person's blood pressure at three different times and the person's blood pressure remains  $\geq 140$  mm Hg and/or diastolic blood pressure  $\geq 90$  mm Hg; it is reported to the patient and/or the patient him/herself states of using blood pressure lowering medications (Muntner et al., 2010).

*Life style:* According to the Webster Word Dictionary (1992), "lifestyle is a way of life or style of living that reflects the attitudes and values of a person or group" (p. 349). This way of living may include family, a single person, or a group of nonrelated people. Their way of living deals with physical, social, and emotional stress by how they conduct their daily living and the way they perceive themselves, do things, and treat others. Such behavior as desires, motivation, values, and culture are also reflected.

*Life style modifications:* *Life style* modifications may be necessary prior to starting drug therapy and may be used concurrently with such therapy. Individuals

applying lifestyle modifications may be able to have their blood pressure controlled enough where drug therapy may no longer be needed (Appel, 2003).

*The PPACA:* The PPACA was first passed by Congress and then on March 23, 2010, President Barak Obama signed it into law. The PPACA enabled all people in the United States access to quality, affordable health care and made changes that are appropriate to the existing health care services in order to control costs and quality. In addition, The Congressional Budget Office (CBO) made the PPACA at no charge to the people insurance and serviced 94% or more people while maintaining “under the \$900 billion limit” (Government Track, 2016, p. 1).

*Socioeconomic factors:* Is a measure of income level that is an economic facet that defines a group of people based on their wages and their physical demographic in the United States. This method estimated the economic global parameters concurrently and included all factors and variances for the comparison (U.S. Census Bureau, 2014).

### **Assumptions**

I assumed that the participants were honest in providing answers to the questions during the survey. I assumed that these data were reliable. Secondly, I assumed that the data were recorded in the database without any error. These assumptions were necessary because bias in the respondents’ responses to the questions could have created standard and methodical errors that could have compromised this study and could have distorted the quantification of the process. Although it is not always possible to eliminate bias, it was important to avoid or

control bias because biases in a study can distort internal and external validity, construct validity, and statistical conclusion validity (Sica, 2005).

I also assumed that the respondents complied with the guidelines of the research regarding their race and sex and that the women who participated were Black, born female, born and lived in the United States, or possibly transplanted and living in the country. Furthermore, because my demographic was in the lower socioeconomic spectrum, I assumed that literacy of these women may have affected their responses. According to Gerber and Wellens (2011), language barriers due to low literacy can change the meaning of a sensitive question and affect compliance in responses to questions, especially if the participant primary language is other than English.

### **Scopes and Delimitations**

I limited my sample for this research to noninstitutionalized Black women in the United States who participated in the NHIS for the years 2009-2013. I used a sample of Black women because this group has the highest incidence and prevalence rate of hypertension, suffered more complications from CVD, and had a higher number of deaths related to hypertension (Roger et al., 2011). Second, one-third of the people in the United States, about 70 million people, suffered from hypertension, and the Black female population is at an increased risk because of their race (CDC, 2015a).

The U. S. Census Bureau (2015) indicated that, in 2014, the total population of the United States was 318,857,056 with an estimated 323, 341, 000 for 2016;

Blacks or African American alone made up 13.2 % of that total. According to the U.S. Census Bureau (2015), there are 45,003,665 African Americans in the United States, making them 14.1% of the total U.S. population of 316.1 million. This includes those who identified as Black only or as Black in combination with other races. The Black only category itself totaled 41.6 million African Americans or 13.2% of the total population (U.S. Census Bureau, 2015). Black females made up 23.5 million, of which 53 % are between 35 to 65 years of age (U.S. Census Bureau, 2015). Forty-six percent of African American women over 20 years of age had hypertension (U. S. Census Bureau, 2014).

According to the CDC (2011) and Nwanko, Yoon, Burt, and Gu (2013), the prevalence of hypertension had not changed much from 2009 to 2010. In addition, the National Center for Health Statistics (2015) reported that the cost of treatment for high blood pressure was beyond the goal of 65% and 69 % as planned by The Million Hearts Initiative and Healthy People 2020. Based on the data, one in three people in the United States had high blood pressure for an estimated 70 million people in the United States with hypertension; 5,729,300 are Black females between 35 and 65 years of age as they represent 8.18 % of the population living with hypertension (CDC, 2011; Yoon et al., 2013).

For the theoretical framework of my research study, I also considered the health promotion model proposed by Pender (1996). I did not use this theory because the nonadherence to treatment and lifestyle modification is rooted deeper in the culture of the Black community. Furthermore, I considered the health belief

model (HBM), which reflects a psychological change in behavior, predicted and defined health-related behaviors as they relate to use of health services (Carpenter, 2010). I did not choose HBM because it would have enumerated what is already known without finding the reason why it has happened.

### **Limitations**

Using secondary data came with some limitations. Information about illegal aliens or undocumented immigrants may not have been made available to the national data seekers, and, therefore, may not have been included in the reports. Such information could have changed the incidence or possibly the prevalence of hypertension in Black women documented in these reports. In using the list of databases and their datasets, I adhered to the responses noted by the respondents, which were based on predetermined questions that have been asked. Because I used U.S. survey databases when I compared Black women to other women, using only this segment of the U.S. Black female population may have limited the homogeneity of the study findings. Furthermore, because lifestyle is an aspect of my research, its impact on Black women could also have had effects on the incidence rate of hypertension, socioeconomic status, compliance with lifestyle modifications and treatments, awareness to hypertension, and access and use of health services. There is also the possibility that the participants may not have placed enough value on the information provided to them, and they may have not perceived the diagnosis and treatment of hypertension to be as important as it was because they had not yet had reportable symptoms. In addition, their responses may have reflected their actual

perception, attitudes, and behaviors towards high blood pressure, and these discrepancies may have compromised the study's internal validity. Because it would have been difficult to access this demographic across the spectrum with the same language skills in the questionnaire and ensure that they understood all the issues, this could pose a threat to internal and external validity. External validity may have been an issue due to participants anticipating compensation. Pinzon-Perez, Perez, Torres, and Krenz (2005) found that the values and perceptions of volunteers in studies may be different from the general population.

Sampling/selection bias may have made a difference in the external validity of the study. The results of the study may not represent the general population based on differences or similarities among the sample size (Cortes & Mohri, 2014). To avoid bias, when choosing a population, the criteria of the research should take into consideration the framework and concept used, the inclusion criteria, the availability of data to be used, avoid inexactness of meaning in language, and be transparent (Agency for Health Care and Research Quality, 2013; Pannucci & Wilkins, 2010).

### **Significance of Study**

While researching hypertension in Black women, I identified that many barriers (awareness, socioeconomic status, health care knowledge, health care access and use, and lifestyle modifications) can impact high blood pressure treatments and management in my studied demographic in the United States. This study helped to fill a gap in the literature related to hypertension in Black women. Policy makers, public health providers, and other governmental agencies can use the results of this

study to have more appropriate guidelines, plan better programs targeting Black women, and improve interventions targeting the Black female population with the expectation of increasing health care access and use and adherence to lifestyle modifications/treatments in the United States Black female population. My research could lead to positive social change by addressing health care disparity of access and use of health services for Black women with hypertension in the United States.

Furthermore, a network of health promotion and education has been identified and tested so that the at-risk population will be referred to the proper providers for adequate identification of hypertension awareness. The health education can address the barriers to health care that Black women face to improve health care access and use.

### **Summary**

With the high incidence of high blood pressure in the United States and the increase prevalence of high blood pressure in Black women, keeping hypertension under control is a key national priority. By the year 2025, an estimated 1.56 billion of people will be living with hypertension (Mac Gill, 2015). I evaluated the impact of the PPACA, awareness of hypertension, socioeconomic status, access and use of health services, and lifestyle modifications in Black women living in the United States. My research findings will assist subsequent researchers in examining the extent to which certain risk factors affect compliance of high blood pressure management and treatments. In Chapter 2, I present a review of the literature on hypertension among African Americans and Black woman living in the United States.



## Chapter 2: Literature Review

### Introduction

One-third of Blacks suffer from hypertension in the United States (CDC, 2014b; Valderrama et al., 2012). Hypertension is a chronic illness that significantly increases the risk of CVD and stroke, two of the leading causes of death in the United States (Roger et al., 2011). Hypertension is often preventable and controllable with a prescription, medications, and lifestyle changes (Roger et al., 2011). However, even with available treatments, more than half of those with hypertension do not achieve a controlled state of blood pressure (Valderrama et al., 2012).

The CDC (2009a) indicated that the United States spends more on health care per person per capita at \$7,000 plus per year when it comes to chronic diseases without an effective decrease in life expectancy. Heart disease and stroke were at the top of these chronic diseases, which made the early diagnosis of hypertension by routine blood pressure screening an asset in reducing the incidence and prevalence of hypertension (CDC, 2009a). Hypertension also has a significant financial, psychological, and physical impact on Black women (Peer, Steyn, Lombard, Gwebushe, & Naomi, 2013).

Researchers have attributed hypertension in Black women to lower socioeconomic status, racial discrimination, stress, and occupational stress; genetic and environmental factors are not negligible contributors (Grewen, Girdler, & Light, 2005). By the year 2005, 133 million people in the United States, almost one in two adults, had one chronic illness among their disease process (World Health Organization [WHO], 2005). Thirty-five million people died in 2005 of chronic diseases as indicated by Lee (2005), who stated

that 80 % of these deaths were in the low-income sector; among these deaths, 17, 582.000 globally were cardiovascular related. The WHO (2009) claimed that by eliminating only the risk factors of hypertension, 80% of all heart disease and stroke can also be eradicated.

An increase in blood pressure screening and lifestyle modification at society, community, and individual levels can decrease the incidence, prevalence, and mortality rates of the disease, especially among minority groups (Halpin, Morales-Suárez-Varela, & Martin-Moreno, 2010). Blacks in the United States have the highest prevalence of hypertension, as compared to other subgroups of Blacks in the world (Roger et al., 2011), with high comorbidity rates for CVD and renal diseases (Yoon et al., 2012). The prevalence of hypertension in Blacks is 44%, higher than among Whites (Roger et al., 2011). In addition, Black women have a shortened life expectancy, earlier onset of CVD, and poorer blood pressure control relative to White women (Schiller et al., 2012). The Institute of Medicine (IOM, 2001) claimed that studies should be conducted to identify sources of disparities and develop strategies to reduce such disparities. According to Health and Human Services [HHS] (2011), there have been minor advancements in disparities in the last 10 years as evidenced by the Healthy People 2010 objectives. However, there is a need to identify appropriate interventions to help Black women self-manage their blood pressure (Heidenreich et al., 2011). There was a gap in the literature on the role of hypertension awareness and health care access/use prior to and post implementation of the PPACA in the Black community.

The purpose of this study was to test if there was a significant difference in hypertension awareness and health care access and use in Black women, prior to and post implementation of the PPACA, as compared to women of other races. In addition, the purpose of this study was to test if a relationship existed between lifestyle modifications, such as diet and exercise, and hypertension in the Black woman, prior to and post implementation of the PPACA, as compared to other races. This chapter provides information about the literature search strategy and theoretical framework for this research, as well a review of the literature on the variables and concepts for this research.

### **Literature Search Strategy**

I conducted a systematic literature review of existing research on the identified barriers to hypertension awareness and lifestyle restructuring in Black women living in the United States. I used the Walden University library to search for information related to my research. The databases used to conduct a literature search were the Cumulative Index to Nursing and Allied Health Literature (CINAHL), New England Journal of Medicine (NEJM), American Journal of Nursing (AJN), MedScape, and PubMed/Medline. The Google Scholar search engine was used as well. Searches were conducted by the Institute of Medicine (IMA), American Society of Hypertension (ASH), NHANES, NHIS, Educus, National Institute of Health (NIH), AHA, CDC, and WHO websites. I conducted a search of the literature using such keywords as *hypertension, blood pressure, Blacks, African American women, minority with hypertension, lifestyle changes, diet, physical activity, income, education, health literacy, health awareness, employment in Blacks, disparity, disadvantaged, exercise, ethnic differences, beliefs/*

*values, CVD, lifestyle modifications, behavior promoting health, barriers to health, toolkit development, evidence-based practice, health care access/use, PPACA, clinical trials, treatment effectiveness evaluation, behavior analysis, and behavior modification.*

The literature search yielded a variety of articles related to hypertension. The articles used were written from 2005 to 2015, except for two articles: one from 1991 and 1999. Articles were peer-reviewed and full text.

### **Theoretical Framework**

I chose the BMT to form the theoretical framework for my research. The BMT originated from Thorndike in 1911. Thorndike made several mentions of the term acquired behavior. Thorndike also made frequent mentions of the term "modifying behavior" and claimed that behavior modification strategies (positive and negative) can decrease unwanted behavior and may help people to show more suitable behavior. Different views are expressed about behavior modification, also referred to as applied behavior (Smith, 2013). Behavior modification is often described as a service that can be offered to at risk populations when a problem is needed to be solved for effective and consistent lifestyle changes (Stuart-Shor, Berra, Kamau, & Kumanyika, 2012). Scholars have referred to behavior modification as a problem-solving strategy that fosters changes (Smith, 2013).

According to Franklin, Brinks, and Friedman (2013), behavior change stems from a psychological point of view as well. It has been used in shared behavior between the providers in the population at risk, namely Black women. Once the etiology, prevention, and treatment of hypertension have been established, the Black woman needs to evolve in

consciousness and proceed in a series of time dimensions and processes. Franklin et al. stated that whether Black women will or will not partake in an instructed lifestyle change and maintain the behavior is directly related to culture, poverty, outlook on life, estimated price of prescribed medications, and their assumption or belief that something will happen in the future resulting from the high blood pressure.

Behavior modification is not a one-time attempt; it requires multiple interactions. The BMT has worked with Black women because BMT-related therapy mitigates the health disparity caused by poverty by teaching healthier behaviors (i.e. lifestyle modifications) and improving access to relevant health information pertaining to hypertension to increase knowledge and awareness of this disease. Such engagements require quality improvement as a reinforcement to assure the consistency necessary for change (Ferguson & O'Donohue, 2003).

I chose the BMT for this research on hypertension in Black women because it is a tool for reshaping behaviors. Because behaviors may be rooted in the culture of Black women, BMT proposed a desirable behavior with positive and/or negative reinforcement, such as instrumental conditioning. The latter is a learning process that is driven by the desire to avoid or control the consequences of behaviors (Thorndike, 1911). According to Dean, Fixsen, Blasé, Wolf, and Wolf (2007), behavior modification programs are at the heart of many programs in treatment facilities, and it has been successful in achieving goals, especially in noncompliant individuals. The BMT did not discount cultural beliefs/values, but empowers Black women to make healthier lifestyle choices that may have long lasting changes that lead to a better quality of life. In addition, Franklin et al.

suggested that because the underlying causes of hypertension continue to spiral, it is important to focus on appropriate behaviors that emphasize health care that will prevent rather than treat high blood pressure and eventually CVD.

### **Literature Review Related to Key Variables**

I used several articles related to the variables of interest and the chosen methodology. These articles included the effect of the PPACA on consumers as it related to health care awareness, access and use, lifestyle modifications, prevention, and management of hypertension among African American women. The articles also reflected the financial burden of the uninsured, the benefits to the newly insured, and the advantage and disadvantages of the participating states in the program. The studies varied in design from randomized to nonrandomized, longitudinal, cohort, and pilot studies, and they focused on the evaluation of access and use as the primary tool for managing hypertension in African American women.

### **Hypertension**

High blood pressure is known as a silent chronic disease that has a significant impact on the risk for cardiovascular disease (CVD), and stroke, which are at the forefront of death precipitating factors in the United States (Roger et al., 2011). Giardina Elsa-Grace et al. (2012) agreed that cardiovascular disease (CVD) awareness has been effective in the decline of CVD among women in the last 20 years. Because women may not have been aware of the heart attack risks of hypertension, the lack of knowledge puts women at a disadvantage. The CDC (2010) indicated that 42.5% non-Hispanic Black persons have a significantly higher prevalence of hypertension compared with non-

Hispanic Whites (29.1%). Hypertension is a chronic condition associated with cardiovascular disease (CDC, 2010) and the CDC agrees with the National Center for Health Statistics (NCHS), as well as Healthy People 2010 and 2020, that hypertension is one of the leading causes of death in the United States. The commonness of hypertension was of a greater vertical extent among non-Hispanic Black adults as compared to other races, including people of Hispanic origins (CDC, 2010). According to Yoon et al. (2015), Black female adults of non-Hispanic descents have hypertension less well controlled (52.3 %) than White females (59.1 %). In the event that hypertension is left untreated, there will be irreversible damage to end organs such as the kidneys, the heart, and the brain. Very often a hypertensive person will die of a failing heart, chronic renal failure (CRF), and stroke (Law, Morris, & Wald, 2009).

In more than 90% of hypertensive people, the cause of hypertension can be identified and it is either listed as "primary" or "essential" hypertension (Carretero & Oparil, 2000). The term "essential" is believed to be associated with an increase in pressure which leads to malfunctioning arteries causing the increase in blood pressure (Carretero & Oparil, 2000). Vascular variations play a key role in blood pressure self-regulation (Garcia & Durand, 2006); but dietary sodium cannot be ruled in this process (Frolich & Varagic, 2004). Increased sodium intake can lead to increase intravascular fluid volume which can lead to an increase in cardiac output by an increase in left ventricular volume. The increase left ventricular volume caused an increase in peripheral resistance leading to the increase in blood pressure. With a considerable elevation in blood pressure, there has been an increase in renal perfusion pressure which caused an

increase excretion of sodium and water. However, when managing essential hypertension, the task leading to sodium excretion is inhibited potentially because of polygenic impacts (Sacks & Campos, 2010).

### **Hypertension Awareness**

Awareness about one's blood pressure status and the factors associated with hypertension played a key role in the treatment and control of the disease. There was a loose association in the literature between awareness and treatment as well. Oshtega, Hughes, Wright, McDowell, and Louis (2008) found that in general women and the aged, those 60 and over, were found to have the least controlled hypertension. That observation was extended for Blacks that are non-Hispanics, people of lower socio-economic status, including diabetics (Ostchega et al., 2008). The International Society of Hypertension chose May 17, 2015, as World Hypertension Day (WHD) in the hope of fostering awareness of hypertension. The tradition of hypertension day started in 2006 and was created to help people to 'Know Your Numbers'. The optimum goal for this endeavor was to increase awareness of hypertension in all people ISH (2015). Such tradition was rooted in world statistics and confirmed by CDC (2015) stipulating that only (52%) people with high blood pressure kept the condition under control. In most populations, globally no more than 75 % of people knew they had high blood pressure while some societies could only account for 10% of people who were aware of their hypertensive status (ISH, 2015). The most crucial factor in increasing awareness of hypertension could be by diagnosing, which was simply by reaching out to as many people in the at-risk population as possible and made it possible to screen most people



with high blood pressure. Another strategy would be mandatory routine blood pressure at all health care visits regardless of the reasons for the visit (ISH, 2015). A study was conducted by Olive, Myerson, Mokdad, Murray, and Lim (2013) in the United States; the study indicated that in 2009, 57.1% (range: 43.0 to 65.46%) of women had uncontrolled hypertension with Black women at 89.86%. While awareness varied by region, the number of people living with hypertension continued to increase in the United States as indicated by Olive et al. (2013) and stated that this geographic disparity in hypertension stemmed from lack of awareness and treatment and that they are two of the main limitations preventing control and eradication of this disease.

Another study was conducted by Thorpe et al. (2014) which stated that the Black person was more likely to know of his or her high blood pressure; however, this person was least likely to keep it under control when comparing data for a white person. Clearly, there is a disparity. Thorpe et al. (2014) stated that awareness of the disease was one of the obstacles in hypertension treatments; such treatment could not have taken place without provisions for the treatment itself. The recording of blood pressure parameters was often done by a medical professional and without lack of health knowledge and access to health care, the Black woman may have missed that opportunity or it may not have happened in the context of the poor and disadvantaged person as they may have needed access to health care to achieve such endeavor.

Numerous research confirmed that knowledge about hypertension and its pervasiveness has evolved in the Black population (Carter-Edwards, Jackson, Runaldu, & Svetkey, 2002; Graham et al., 2006; Martins, Gor, Teklehaimanot, & Norris, 2001;

Oliveria, Chen, McCarthy, Davis, & Hill, 2005; Wilson et al., 2002). However, many Black women seemed to think that their only alternative to health is with prescription drugs (Okonofua, Cutler, Lackland, & Egan, 2005; Wilson et al., 2002), which created another barrier because of the high price of medication.

### **Hypertension and the Role of Socioeconomic Factors**

Socioeconomic factors have often been associated with many negative behaviors and attributes including an elevated blood pressure (Matthews & Gallo, 2012). The reason for this association resided in the fact that a socially disadvantaged person is often jobless or worked for very low income, lived in a poor neighborhood with unsanitary conditions, had limited education and health education, or lacked insight into their or their own family's health hazards and risks for hypertension. Stein, Merkin, Stevenson, and Powe (2002) suggested that when it came to socioeconomic status factors, Blacks in general have been at a disadvantage even if they were in a higher social bracket. They also indicated that racism have played a vital role in the disparity and is evident in the treatment that Blacks received especially the women in the lower socioeconomic status. According to Stein Merkin et al. (2002), the lower the socioeconomic status the more Blacks suffered when it came to health care disparity.

Some scholars suggested that the relationship between high blood pressure and socioeconomic factors has not completely been elucidated because the issue was very complicated (Lam, 2011). However, what can be documented is that heart disease was related to consumption of alcohol, being overweight, and state of inactivity but that fact was not consistent throughout the world (De Gaudemaris et al., 2002). It has been

suggested that environmental factors such as employment and stress played a role in consumption of beverages such as alcohol, which had a detrimental role in increasing blood pressure, and that each hypertensive person had to be managed on an independent basis to deter high blood pressure (Wamala et al., 1997; Van Rossum et al., 2000; Grobbee, 2000).

Black women were in a minority group, often referred to as disadvantaged, may have suffered from discrimination and detrimental upkeep of all basic needs in addition to their health, and likely were not able to meet their needs for essential health services because of their race, sex, and social status among other factors (Babitsch, Gohl, & Lengerke, 2012; Kilborne, Switzer, Hyman, Crowley-Matoka, & Fine, 2006; Shi & Stevens, 2011). Black women, according to Aday (2003), became vulnerable and in many cases, were at risk for neglect, and more discrimination, and suffer trauma because of their inability to crossover the bridge between help and their social status, hence less able to have access to health services.

### **Risk Factors**

The Black population had the highest prevalence of hypertension in the United States and around the world, with an earlier peak of onset, more deficient control rates, with poorer outcome including CVD and end-stage renal complications than White Americans (Fuchs, 2011). Douglas (2005) named the Hypertension in African Americans Work Group (HAAWG) of the International Society of Hypertension in Blacks as a developer of the first consensus statement and has documented an evidenced-based approach practically geared toward achieving a more desirable blood pressure control

among Blacks. According to the CDC (2015), to successfully manage hypertension in a person of any race, three criteria needed to be met: identify that high blood pressure is present, or self-reporting of hypertension and having current drug treatment in progress, consistently recording an average systolic blood pressure lower or equal to 140 mm Hg and a diastolic blood pressure lower or equal to 90 mm Hg. The CDC also suggests that by managing risk factors like a surplus of weight or obesity, replacing harmful diet with a balanced one, decreasing table salt, decreasing consumption of alcohol, increasing activity, and smoking cessation can control high blood pressure. Douglas (2005), and Sutter, Sierro, and Vetter (2002) emphasized the need for diet as the primary mode of controlling and maintaining optimum blood pressure in the Black population. To institute a positive impact on the diet in the Black population (Suter et al., 2002) suggested a salt reduction as well because sodium while a nutrient, was frequently associated with high blood pressure. Since the year 1950, some studies have corroborated the association between salt intake and high blood pressure in Blacks (Suter et al., 2002; Welch, Bennett, Delp, & Agarwal, 2006). As a measure of how the blood pressure responded to dietary salt in the Blacks, one can be inclined to agree that by decreasing salt intake, in the “salt sensitivity,” people, there was a direct reduction in blood pressure (Suter et al., 2002; Welch et al., 2006).

Of importance, there were many other factors that increased sodium in an individual and such factors also increased blood pressure by different mechanisms, not limited to volume expansion, particularly extracellular volume, increased vascular resistance, hormonal fluctuation, increased sympathetic nervous system, vasoactive

hormones from the endothelium, or any irregularity of ion balance, control and transport at the level of the vascular smooth muscle cells as well as cardiotonic steroid (Carrey, 2007). According to Gaddam et al. (2008), there was a hypothesis that aldosterone (a corticosteroid hormone that stimulates absorption of sodium by the kidneys and so regulates water and salt balance) was a contributor to drug treatment resistance in hypertensive patients receiving medication. (Gaddam et al., 2008) and Saito (2010) have identified that due to the aldosterone effect, there was a maintained state of fluid retention which caused the release of natriuretic peptide level (a *peptide hormone* secreted by myocytes of the cardiac *atria* that in pharmacological doses promoted salt and water excretion and lowered blood pressure).

### **Lifestyle Modifications**

#### **Life Style and Lifestyle Changes**

Lifestyle alterations were associated with attitude and beliefs. Lifestyle modifications were ways of approaching wellness in a manner that altered health for the benefit of the Black women in an attempt to keep hypertension under control (Valderama et al., 2012). For example, a person with limited resources may have no other available options other than to purchase low-quality food because of low budget and these foods were often high in calories; this person may have eaten a lot of unhealthy premade foods, and the result of these choices were obesity which disturbed the body's metabolic and hemodynamic aspects. The low-quality foods ultimately lead to hypertension and other chronic illnesses (Lam, 2015). In 2014, Lategan et al. (2014) conducted a study of hypertension in Blacks and the results showed that if lifestyle modifications were used in

the proper manner, they could have made a difference in the life of Black women with hypertension and may even become the primary tools in fighting the disease.

Among epidemiological studies reviewed and conducted by medical doctors (Brown & Bussell, 2013) stated the next five factors as causes for non-adherence to treatment; they were socioeconomic, the health care team and system in place, disease-related, therapy-related, and patient-related. Similar to what has been reported worldwide, lack of awareness, and symptomatic treatment negatively affected adherence to blood pressure in our population (Brown & Russell, 2013). Poor adherence to life alteration methods and treatments were the biggest obstacles in therapeutic control of high blood pressure (Lam, 2011). Empirical studies found mixed results on the issues of socioeconomic status as an important label in the direct factors that impacted high blood pressure and according to Lam (2011); socioeconomic status direct correlation to cardiovascular disease was loosely associated while the impact is multi-factorial and behavioral to include diet and exercise.

Lifestyle changes have been identified as a key factor in hypertension management but the compliance with treatment remained low among Black women especially if they had already experienced a heart attack or a stroke (Brown & Bussell, 2011). More alarming research suggested that 80 % of patients on hypertension medication did not adhere to the prescribed treatment (Law, Morris, & Ward, 2009). Among the strategies to help modify risks factors associated with hypertension were: smoking cessation, avoidance or decrease of alcohol intake, increased physical exercise,

and decreased salt intake and, according to Ibekewe (2015) the risk factors were the same in industrialized countries.

### **Smoking Cessation**

Persoskie, Kaufman, and Leyva (2014) studied the dichotomy that existed between smokers and nonsmokers in a large population and found that often smokers did not receive nor reported that it was recommended to stop smoking. Primatesta, Falaschetti, Gupta, Marmot, and Poulter (2001) ran a nationwide cross-sectional random study for three years from 1984 to 1986 to determine the association between smoking and high blood pressure. As Primatesta et al. (2001) indicated in their study of male and female  $\geq 16$  years old who smoke more than 10 cigarettes per day, there was an increase of  $\geq 2$  mmHg in blood pressure; however, there was an intricate relation between cigarette smoking, alcohol intake, and BMI  $>25$  to  $30 \text{ kg/m}^2$  that should have been emphasized. WHO (2001) stressed that the nurse, doctor or health care practitioner should try to establish their patient smoking status, once it is determined that the patient is a smoker the health care team could present the patient with several options for smoking cessation, referral and support; that way the practitioner could play a crucial role in deterring CVD and heart complications.

### **Avoidance of Alcohol**

According to Fuchs, Chambers, Whelton, Nieto, and Heiss (2001), alcohol consumption played a significant role in hypertension and those that consumed it regularly  $\geq 210$  g per week have increased the incidence of high blood pressure across the gender strata. Fuchs et al.'s (2001) study also indicated that from a minimal to 209 g of

alcohol per week, the 95% confidence interval for Black women who drink within the indicated parameter was 0.88 (0.59 to 1.33) versus White women 0.89 (0.73 to 1.09) in white women. Gupta and Guptha (2010) performed a meta-analysis that led to the deduction that avoidance of alcohol or decreasing it to 360 ml of regular beer, 150 ml of wine (12% alcohol), and 45 ml of 80-proof distilled spirits can reduce systolic BP by 3.3 and diastolic BP by 2.0 mm Hg.

### **Decrease Salt Intake**

An essential factor in managing hypertension was lifestyle modification (AHA, 2014). These modifications have decrease blood pressure with or without the use of prescription medications, but prescribed medications should not be neglected (AHA, 2014). The American Heart Association strongly advocated for people with hypertension to assume a lifestyle conducive to good health as a radical way to prevent, manage, and eradicate hypertension. Gupta and Guptha (2010) found that salt intake reduction demonstrated the most benefits in Blacks; they suggested that people should choose food with low salt content but also to decrease salt to 1.65 g/d an equivalent day of sodium. In addition, Whelton et al. (1998) suggested that an increase in potassium could also cause a decrease in systolic and diastolic BP respectively of 65 mmol per deciliter of blood.

### **Obesity**

Obesity, the increase in body mass index (BMI)  $\geq 30$  kg/m<sup>2</sup>, as well as an increase in abdomen contour that is greater in centimeter than the height, and excess fat deposits in unwanted areas of the body were all contributors to hypertension (CDC, 2014b). Obesity leads to hypertension by the following mechanism: Increase cardiac output and



glomerular filtration rate causing renal sodium retention (Re, 2009). Lategan, Van Den Berg Violet and Walsh (2014a) indicated that the proper screening tool to evaluate increased blood pressure in Black females and the timely approach to keeping weight under control included awareness of the disease which lead to adherence to prescribed medications. CDC (2015b) indicated that overweight people were more likely to be told to exercise and to follow a “good diet” when controlling for lower socio- demographic factors. Persoskie et al. (2014) believed that the problem of obesity is addressed much easier because it is visible. The CDC (2015b) indicated that one of the secrets to attaining and sustaining healthy weight involved lifestyle changes associated with healthy foods that has affected health now and later in life.

### **Physical Exercise**

A significant body of evidence indicated that blood pressure can be decreased through the regular use of exercise and medication (Cornelissen, Verheyden, Aubert, & Fagard, 2010). In clinical trials, exercise is shown to decrease systolic blood pressure by 10 mmHg (Cornielssen et al., 2010). The Mayo Clinic, a nonprofit medical practice and medical research group based in Rochester, Minnesota indicated in 2010 that a regimen consisting of exercising 3 times per week for 20 minutes, weight loss, combination of exercise and medication was shown to decrease blood pressure even more if a sensible diet was associated with it (Cornielssen et al., 2010).

According to the Mayo Clinic (2010), the exercise, in general, had the capacity to ameliorate health of people across the spectrum. When a person exercised consistently on a regular basis, the health benefits overlapped and lead to many significant returns; such

as decreasing body weight, increasing body mass index (BMI), and hence reducing blood pressure. Such physical activities have caused the body to be stronger, increased bone mass index (BMI), and may have fostered a boost in energy and mental wellbeing (Mayo Clinic, 2010). The CDC (2000a) and Chobanian et al. (2003) recommended that a moderate, sustained regular physical activity for 20 to 30 minutes daily has not only decreased blood pressure but has also improved general health.

Promoting and educating people about exercise as a lifestyle change in decreasing hypertension plays a significant part in the management of blood pressure especially in the Black female because she is at increased risk for obesity which can lead to hypertension. Staffileno, Minnick, Coke, and Hollenberg (2007) indicated that the need for exercising regularly exists in the Black female community, however; the type of exercise that would be beneficial to these women is not elucidated clearly through programs.

There are many myths why Black women did not exercise, and hair is was one myth based on a qualitative report in March 2004 by Hesse-Biber, Howling, Leaby, and Lovejoy. In a standard interview with Fitness and Nutrition magazine, “Don't Let Hair Get In The Way”, the country’s leading spokesperson on health issues, U. S. Surgeon General Regina F. Benjamin once said “it is okay that the Black woman’s hair be messy at times” (NPR, 2012, p. 3). She intervened on hypertension in Black women as a subject of national importance; her reasoning was that Black women spent a lot of money on hair but sweat and water will often get it back to an undesirable state. In her Alabama clinic, Dr. Benjamin encouraged Black women to look and feel good through exercise; giving

and granting them the power to perform various acts such as winning prizes like a \$ 5,000 to the winner of fitness and hair competition (NPR, 2012) and feeling good about themselves (O'Connor, 2011). Dr. Benjamin also pointed out the fact that Black women had a sense of community, trust and they were also likely to visit a physician if high blood pressure issues were addressed by their hairdressers in small talks while they do their hair (O'Connor, 2011). Through collections of many testimonies from Black women who chose the time and financial investment in their hair over exercise, U. S. Surgeon general Dr. Benjamin confirmed as an authority on women's health that her fitness initiatives won assets in the Black women population (O'Connor, 2011).

In 2014 Versey published an article that also placed a lot of emphasis on hair as a deterrent to physical activity in Black women. The article was generated as the result of a study of 123 Black women from age 21 to 60 who claimed to avoid exercise because of their hair. Because sweat and water played a key role in this group of women, over 20% of them did not swim nor got involved in any physical exercise involving water because of their hair for two reasons, the cost and time for upkeep (Versey, 2014).

### **Healthcare Access and Utilization**

There was a scarcity of studies in the literature that focused on providing information on healthcare access and utilization in Black women specifically. Having access to healthcare could potentially promote an increase in its utilization. Once the Black woman was aware of her risk factors through affordable access to health care, use was assumed to be reachable and, if the World Hypertension League was correct in its

assumption, by year “2025” the goal of a “25%” reduction in uncontrolled hypertension could be achieved (ISH, 2015).

According to Weil (2015) of The Health Affairs, a web health newspaper, people with a lot more to benefit from the Affordable Healthcare Act in terms of access and utilization were people with other chronic diseases such as HIV who now meet the historical eligibility requirements for Medicaid for example. Lack of healthcare coverage was the stumbling block for the Black women/minority trying to access medical care and services, and these women were often financially destitute and more so than their counterpart White women, and had no insurance through an employer (Henry J. Kaiser Family Foundation, 2001).

Among the countries that have moved away from an agriculture-based economy and into a more industrialized, urban economy was the United States which lagged in healthcare and especially if a person was non-White, then there was a variation on healthcare access which was sub-standard particularly if a person was disadvantaged; the difference was discernible with no means to solve it (Pearl, 2015). Taylor, Larson, and Correa-de-Araujo (2005) indicated that the most significant reports on privately insured women or even women on Medicaid suggested that these women sought regular healthcare services while the uninsured had not. The authors also made a striking comparison between White, Black, and Hispanic women; they determined that Black and Hispanic women were least likely to use ambulatory care, buy prescribed medicines, or use prevention as a mean of healthcare. However, Black women paid less out-of-pocket for

health services than the other two groups (Taylor et al., 2005). The study suggested that as these women became older, so will their need for healthcare services.

In studying access to health services and spending Taylor et al. (2005) also indicated that the reason for less access to healthcare in Black women was directly correlated to their lack of health coverage, taking into consideration women who lived in rural areas, urban areas, mode of payment, women over 18 years of age, level of income and education. According to Taylor et al. (2005), the poorer the health status of the Black woman was, the least likely these women were to have healthcare or to have used preemptive methods of health. Taylor et al. (2005) inferred that women on public insurance were the largest users of in-patient hospitalization accounting for “39%” of the expenditure; the poorer the women the more they spent when they were sick so more of their income went into healthcare services.

The aim of this study was to determine if there was a relation between hypertension awareness and healthcare access and utilization in Black women since the use of Affordable Care Act which if it was significant may help to bridge the gap in healthcare disparity while aiding at improving the quality of health care especially hypertension for the Black women living in the United States. To achieve these goals, it would help that the policy makers understood the factors that influenced the utilization and expenditures for health services in Black women.

### **The Patient Protection and Affordable Care Act**

The (PPACA) were often referred to as the Affordable Care Act (ACA) or, as Obama care (Wallace, 2012). It was the United States federal enactment that became law

on March 23, 2010, under the presidency of Barack Obama (Wallace, 2012). This law became one of the most important of regulations in the age of Medicare and Medicaid to date since 1965 (Wallace, 2012). The ACA allowed the spectrum of healthcare such as hospitals and primary care physicians to boost the outcome of healthcare practice and improve health, ameliorate outcome in a way that decrease cost, and dramatically changed their practices financially, technologically and clinically as well as producing something better than their existing process of delivery and consumer use of services (Pear, 2012).

With the implementation of the ACA, several programs have been created in the hope of linking the eventual consumers in the general sector to specific plans for service; that effort has proven to be a very difficult task both by its magnitude as well as the financial burden it represented (Grob & Schlesinger, 2015). The execution of these plans occurred on a state level with all the intricacies, specific differences and major overall aims pertaining to each state in question. For many potential consumers, assistance was needed for enrollment and selecting plans, to finding a friendly most appropriate Affordable Healthcare Act provider (Grob & Schlinger, 2015). According to Grob and Schlesinger (2015), people needed assistance in signing onto these programs and it was a basic need to be in contact with individuals who could assist consumers for the much-needed synchronization of care and in perusing the highway of paperwork which for the most part is now paperless. According to the American Academy of Nursing (2010), enrollment is only the beginning of the process because managing it is another dilemma

and the population in question often may not have access to the technology required for this complex activity and bring the different elements of the equation together.

According to the National Partnership for Women and Families (2015), the ACA meant the improvement of *women's health* and especially women of color and Black women in general. Their stipulation was that now these women can afford private insurance coverage more so than they did before. Enhancements have been made to Medicare to be broader, and made room for assimilation and acculturation of healthcare in Black women. In addition, the National Partnership for Women and Families equated ACA with improved access to services thus made use of healthcare more likely for Black women.

### **Summary**

The literature review provided insight about hypertension awareness, healthcare access, and utilization through the ACA in the population of Black women. Changes in factors such as hypertension awareness, use of available healthcare services, diet and lifestyle modifications among Black women pre-and post-ACA justified the purpose of my research. The contribution of my research may allow the lawmakers of the ACA to determine whether awareness of health status, access, and use of care has increased since the installation of the ACA as compared from 2009 to 2013.

Black women represented a large portion of the minority population and possibly the largest after the Hispanic women population in the United States. While the literature review was consistent with inadequate health services, access and compliance in the studied population, the study on the ACA pertaining to Black women, in particular, was

limited in their breadth and depth about the extent to which the previously mentioned extraneous factors impacted awareness of hypertension in particular. Chapter 3 provided a discussion of the methodology for this research.



## Chapter 3: Research Method

### **Introduction**

The purpose of this study was to test whether there was a significant difference in hypertension awareness and health care access/use in Black women, prior to and post implementation of the PPACA, as compared to women of other races. In addition, I determined if a relationship existed between lifestyle modifications, such as diet and exercise, and hypertension in the Black woman, prior to and post implementation of the PPACA, as compared to other races.

In this chapter, I describe the research design of the study along with the rationale, methodology, population, sampling procedures (i.e., sample selection, size, and power analysis), data collection, data analysis, and ethical considerations. In addition, I conduct operationalization of variables using secondary data that I analyzed, assess threats to validity and reliability that occurred from my use of the NHIS dataset, and ethical considerations for the study.

### **Research Design and Rationale**

I used a quantitative, cross-sectional, nonexperimental approach to investigate the impact of the independent variable (race) on the dependent variables (hypertension awareness, health care access/use, and lifestyle modifications). A quantitative method was the appropriate method for investigating the relationship between the variables and testing of the hypothesis, as well as obtaining a generalized sample of the population. Moballegh and Moghaddam (2008) found that quantitative researchers used observations that have been quantified numerically to examine causal relationships. Using numerical

observations allows the researcher to examine causal relationships or associations between factors that affect the variables and influence the outcome of the experiment (Moballegh & Moghaddam, 2008).

According to Belli (2008), nonexperimental research involves variables that a researcher cannot change, but works with just the way they were. For example, race and gender cannot be manipulated. The approach I used in this study allowed me to investigate the independent variables and determine how they influenced the dependent variable. In addition, the nonexperimental design afforded me the opportunity to interpret and to draw conclusions about the level of awareness of the participants towards hypertension. Abel (2011) used a similar design in studying the differences in adherence and nonadherence to treatment in Black women who had hypertension aged 40 to 46 who were taking five to seven medications. Abel studied the factors surrounding adherence or lack thereof, as well as the women's reactions toward compliance to medication, and concluded that although there was no difference in the women who adhered or did not adhere, the most significant factor related to adherence was trust in the provider from the start of their doctor-patient relationship.

## **Methodology**

### **Population**

The participants for this study were Black women between the ages of 20–65, living in the United States, who responded to the NHIS survey for the years 2009 to 2013. Information for women of all races in this age group was collected for comparison. I chose this age group using guidelines for hypertension incidence and prevalence. My

sample was comprised of women living in the United States because more than 40% of non-Hispanic Blacks had high blood pressure (AHA, 2014). Based on the guidelines, women between the ages of 20 to 65 should be routinely screened for high blood pressure. There are two types of hypertension: (a) BP  $\geq$ 135/85 mm Hg without signs or symptoms of end-organ damage, these patients received preclinical/ CVD, or CVD (primary prevention) and (b) BP  $\geq$ 130/80 mm Hg clearly showing signs and symptoms of end-organ damage, were in the (secondary prevention) group (Flack et al., 2010). In the United States, there is an estimated 5,729.300 Black females between 35 and 65 years of age, which represents 8.18 % of the population living with hypertension (U. S. Census Bureau, n.d.). According to the U.S. Census Bureau (n.d.), these women reported speaking English in their homes and being fluent in the English language. It is unknown if any percentage of these Black women were born outside of the country, were not fluent in the English language, or did not speak the English language at home.

The data of NHIS were compiled for the years 2009 to 2013, and the NHIS reported that an estimated 45.8 % of the Black female population had hypertension, took an antihypertensive, or had uncontrolled high blood pressure. I chose this population because this group had the highest incidence/prevalence hypertension as well as the highest rate of CVD complications from hypertension in the country (CDC, 2014).

### **Sampling and Sampling Procedures**

The NHIS used a multistage sampling in a stratified design to estimate the population at large. Such sampling method has been revised by the NIHS on a regular basis, and it promoted a flexible representation of the general population of the United

States. These surveys were usually carried out on an annual basis; the tasks were made to represent characteristics of all areas, provinces, and territories of the United States. The sample for the research was comprised of Black women between the age of 20 to 65 who had responded to and participated in the NHIS survey for the years 2009, 2010, 2011, 2012, and 2013.

### **Power Analysis: Calculation of Sample Size**

The following is a complete power analysis of the minimum number of the sample size that was needed for this study based on effect size, statistical power level, and the probability level ( $p$ -value, alpha level, and/or error rate).

In this power analysis, I used an effect size of 0.20 and an alpha of 0.05 and a statistical power of 0.8. I used a G\*Power calculator version 3.1.9.2.

Table 1

#### *Sample Size Calculation for Logistic Regression Test*

---

<b><math>\chi^2</math> tests</b>	Goodness-of-fit tests:	Contingency tables
<b>Analysis:</b>	A priori:	Compute required sample size
<b>Input:</b>	Effect size w	= 0.2
	$\alpha$ err prob	= 0.05
	Power (1- $\beta$ err prob)	= .8
	Df	= 5
<b>Output:</b>	Noncentrality parameter $\lambda$	= 12.8400000
	Critical $\chi^2$	= 11.0704977
	Total sample size	= 321
	Actual power	= 0.8004433

---

Table 2

*Sample Size Calculation for Logistic Regression Analysis*


---

<b>z tests</b>	Logistic regression	
<b>Options:</b>	Large sample z-Test, Demidenko (2007) with var corr	
<b>Analysis:</b>	A priori:	Compute required sample size
<b>Input:</b>	Tail(s)	= Two
	Odds ratio	= 1.3
	Pr(Y=1 X=1) H0	= 0.2
	$\alpha$ err prob	= 0.05
	Power (1- $\beta$ err prob)	= .8
	R <sup>2</sup> other X	= 0
	X distribution	= Normal
	X parm $\mu$	= 0
	X parm $\sigma$	= 1
<b>Output:</b>	Critical z	= 1.9599640
	Total sample size	= 721
	Actual power	= 0.8001115

---

**Procedure for Accessing the Data Set**

For over 50 years, the NHIS has been the primary source of health data on the U.S population. The dataset was free to the public with easy online access via the NHIS website. The interviewers were employees of the U.S government and were trained using NCHS specifications to collect data using face-to-face interaction. The questionnaires administered included a Computer Assisted Personal Interviewing (CAPI) mode because of the quality of the data and timeliness it provides (Saisbury, Ditch, & Hutton, 1993). The CAPI assisted the interviewer in determining the response range and checking the

error parameter and any mistake in transcribing the data; it also improved data storage and rid of printing and mailing cost (CDC, 2014).

### **Procedure for Data Collection**

The NHIS administered information on the health status of the U.S. civilian non-institutionalized population by way of confidential interviews conducted in households by Census Bureau interviewers. NHIS has been the nation's largest in-person household health survey and has provided data on health status, access to and use of health services, health insurance coverage, immunizations, risk factors, and health-related behaviors.

Data collected by NHIS was based on interviews and surveys of a sample among 100,000 of the civilian non-institutionalized population. The NHIS conducted interview surveys involving an extensive number of households which allowed them to get a statistical representative sample of the U.S. civilian non-institutionalized population. The interviewers visited 35,000–40,000 households across the country and collected data about 75,000–100,000 individuals. To make certain of the accuracy of the results, the interviewers needed to reach as many homes selected for the sample as possible. Once the respondents had been selected, the respondents could not be replaced by anyone else.

### **Instrumentation and Operationalization of Constructs**

Kimberly and Winterstein (2008) indicated that in public health research the use of measurements in the study enabled the researcher to designate numerical elements to an observation and allowed the researcher to quantify distinct aspects of a phenomenon. The instruments I chose to use from the NHIS were from The Integrated Health Interview Series (IHIS), which was completely free of charge from the data repository made

available to the public and supervised by the Minnesota Population Center which is located at the University of Minnesota. Their funder is the National Institute of Child Health and Human Development (NICHD as indicated on the site. I used the Integrated Health Interview Series, 2010 which was a homogenized blend of data in the scope of documentation relating to the U. S. population's health. These instruments were reliable and valid because they were strictly monitored, reproducible tools and they were quantified; however, NHIS did not provide values.

### **Dependent Variables**

Hypertension awareness, health care access/use, and lifestyle modification were the dependent variables for this study. The recommended screening for hypertension according to the CDC (2015) included the following criteria: Self-reporting, receiving an active drug treatment, and successfully recording a blood pressure greater than 140/90 on three independent occasions. Women from ages 20-60 had blood pressure taken at each doctors' visit and had it repeated after 10 minutes if the systolic was above 140 and the diastolic over 90; if it remained high, then she was rescheduled for two weeks when the same process was repeated. However, women who were at high-risk for hypertension (e.g., Black women, women with history of hypertension, women with a history of abnormal blood pressure during pregnancy, women going through menopause, women with cardiovascular disease, women with end-stage kidney disease were on an independent individualized schedule per the discretion of their provider (Group Health Cooperative, 2014).

The dependent variables were defined and measured in the surveys. As multi-purpose health surveys conducted by the National Center for Health Statistics (NCHS), Centers for Disease Control and Prevention (CDC), they served as primary resources for information about the civilian health, the noninstitutionalized, and the household population of the United States.

The NHIS has been conducting surveys since it started in 1957. Usually, the sample for the NHIS was repeated and updated every decade to better reflect the change in the population of the United States as well as aiming at new target criteria for the United States. The way the sample was chosen allowed each person in the population to have a known non-zero probability of selection. For the Sample Adult questionnaire, one adult per family (the 'sample adult') was randomly selected with increased possibility for Black, Hispanic, or Asian persons aged 65 years or older to be selected. The person answered for him/herself to the questions in that section unless he/she was incapable physically or mentally to provide the desired information, then, a consent proxy was permitted to answer for the sample adult. A new sample design for the NHIS was implemented in 2006 and was effective for several more years. The core building block of the new 2006 NHIS sample design remained homologous to the years 1995-2005 NHIS sample design. By 2002-2004, The NHIS sample size was sized down due to budget cuts. In 2009 the NHIS sample was decreased by approximately 50% during January-March 2009. The NHIS sample size then increased by 25% in January-March 2010. There was no increase or decrease from March until the end of the year 2010. Hence, in 2010 the NHIS sample size was somewhat slightly larger than the 2009 sample



size. The appendages to the Family Core in 2013 incorporated addition of health care access and utilization, functioning and disability, along with questions that measured family food security. Over time State-level stratification measurement scale was done in such a way that it allowed NHIS sample design that allowed state estimates and potential future dual-frame surveys at the state level. Public use micro-data files were released on an annual basis.

The redesigned NHIS introduced in 1997 was made of Basic Modules or Cores as well as variable Supplements. The Family Core component obtained information on everyone in the family unit, and its sample also become the blue print for homogenous surveys, as necessary. The information obtained for the family members consisted of three parts: *The Family Core, the Sample Child Core, and the Sample Adult Core*. The Family Core component collected information on everyone in the family, and its sample also served as a sampling frame for additional integrated surveys, as needed. Information collected for all family members included: Household composition, socio-demographic characteristics, tracking information, information for linkage to administrative data bases, basic indicators of health status, activity limitations, injuries, health insurance coverage, and access to and use of health care services. The Modules remained unchanged for the most part on a yearly basis.

### **Independent Variables**

Race is the independent variable and has been evaluated along with the following variables: gender, age, predisposing factors such as socioeconomic status based on family income, awareness about hypertension, employment, education, enabling factors such as

lack of exercise, diet, co-morbidity and known hypertensive status. According to the CDC (2010); Thorpe et al. (2014), there was a high prevalence of hypertension in non-Hispanic Black women. Black non-Hispanic females were more likely to have uncontrolled hypertension (Yoon, Fryar, & Carroll, 2015). Matthews and Gallo (2012) reasoned that low socioeconomic conditions inversely affected blood pressure health in Black women. Sutter, Sierro, and Vetter (2002) gave special importance to diet as the number one factor in controlling hypertension. Suter et al. (2002) included that a salt reduction in addition to the appropriate diet was necessary because the nutritive value of sodium did not keep it from increasing blood pressure. Valderama et al. (2012) emphasized lifestyle modifications for high blood pressure and Lama (2015) found that improper food dynamic led to hypertension by causing obesity. A direct correlation existed between smoking and high blood pressure (Primatesta, Falaschetti, Gupta, Marmot, & Poulter, 2001). Fuchs, Chambers, Whelton, Nieto, and Heiss (2001) conducted a study indicating that alcohol consumption played a role in hypertension as well. Scholars found that empirical evidence has shown that lack of exercise has led to hypertension (Cornelissen, Verheyden, Aubert, & Fagard, 2010).

Table 3

*Questions Assigned to Variables and Measurements*

<b>Type of Variable</b>	<b>Question(s)</b>	<b>Responses with Option(s)</b>	<b>Question on Number/Code</b>	<b>Data Type</b>
Age Confounding factor	How old are you?	0-120, Refused, Don't know 000-120 Age in years 997 Refused 999Don't know	AID.050_00.000 AIDAGE	Ordinal

(Table Continues)

Type of Variable	Question(s)	Responses with Option(s)	Question on Number/Code	Data Type
Income Confounding factor	You may not be able to give us an exact figure for your total household income, but can you tell me if this income in {LAST CALENDAR YEAR} was	1 \$20,000 or more, 2 less than \$20,000? 7 Refused 9 Don't know	INQ 260	Discrete
Education Confounding factor	What is your highest grade or level of school completed or the highest degree you received?	1 Less than 9 <sup>th</sup> grade 2 9 <sup>th</sup> to 11 <sup>th</sup> grade (includes 12 <sup>th</sup> with no diploma) 3 High school Grad/GED or Equivalent 4 Some college or AA Degree 5 College graduate or above 7 Refused 9 Don't know . Missing	DMDEDU C2	Nominal
Employment Dependent variable	What is your correct working status?	1 Working for pay at a job or business 2 With a job or business but not at work 3 Looking for work 4 Working, but not for pay, at a family-owned job or business 5 Not working at a job or business and not looking for work 7 Refused 9 Don't know	ASD.060_00.000 WRKCOR	Nominal
Hypertension awareness (dependent variable)	Have you ever been told by a doctor or other health professional that you had hypertension, also called high blood pressure?	1 Yes 2 No 7 Refused 9 Don't know	ACN.010_00.000 HYPEV	Dichotomous

(Table Continues)

Type of Variable	Question(s)	Responses with Option(s)	Question on Number/Code	Data Type
Healthcare access/use	1- What kind of place do you usually go to when you need routine or preventive care, such as a physical examination or check-up?	0 Doesn't get preventive care anywhere 1 Clinic or health center 2 Doctor's office or HMO 3 Hospital emergency room 4 Hospital outpatient department 5 Some other place 6 Doesn't go to one place most often 7 Refused 9 Don't know	AAU.037_00.000 AHCPLKND	Nominal
	2-About how long has it been since you had your blood pressure checked by a doctor, nurse, or other health professional?	<b>00</b> Never <b>01-94</b> 1 to 94 <b>95</b> 95 or more <b>97</b> Refused <b>99</b> Don't know	ACN.021_01.010 HYBPCKNO	Interval
	3- Was any medicine ever prescribed by a doctor for your high blood pressure?	<b>1</b> Yes <b>2</b> No <b>7</b> Refused <b>9</b> Don't know	ACN.022_02.020 HYPMDEV2	Dichotomous
	4- Are you now taking any medicine prescribed by a doctor for your high blood pressure?	<b>1</b> Yes <b>2</b> No <b>7</b> Refused <b>9</b> Don't know	ACN.022_03.030 HYPMED2	Dichotomous
Lifestyle modification (dependent variable)	1- During the past 7 days, how many meals did you get that were prepared away from home in places such as restaurants, fast food places, food stands, grocery stores, or from vending machines?	Please verify that you ate more than 3 meals prepared away from home every day during the past 7 days."  __ __  ENTER NUMBER NONE 2 REFUSED 77 DON'T KNOW99	DBQ.895 G/Q DBQ.905	Continuous

(Table Continues)

Type of Variable	Question(s)	Responses with Option(s)	Question on Number/Code	Data Type
	2- How often do you do light or moderate leisure-time physical activities for at least 10 minutes that cause only light sweating or a slight to moderate increase in breathing or heart rate?	Enter number of light or moderate leisure-time physical activities. * Enter '0' for Never. * Enter '996' if unable to do this type of activity. 000 Never 001-995 1-995 time(s) 996 Unable to do this type activity 997 Refused 999 Don't know	AHB.110_01.000 MODNO	Ordinal
Race (independent variable)	What race do you consider yourself?	HAND CARD DMQ5 SELECT 1 OR MORE 9 WHITE 10. BLACK/AFRICAN AMERICAN 11 INDIAN (AMERICAN) 12 ALASKA NATIVE 13 NATIVE HAWAIIAN 14 GUAMANIAN. 15 SAMOAN 16 OTHER PACIFIC ISLANDER (SPECIFY) 17 ASIAN INDIAN 18 CHINESE 19 FILIPINO 20 JAPANESE21 KOREAN 22 VIETNAMESE 23 OTHER ASIAN (SPECIFY) 24 SOME OTHER RACE (SPECIFY) 25 REFUSED 77 DON'T KNOW 99	DMQ.260 AIDAGE	Nominal

### **Data Analysis Plan**

I analyzed data using Stata data analysis logistical software for SE 14.2, for Windows updated March 16, 2017. Descriptive statistics was performed for the following: hypertension awareness, health care access/use, and life style modifications for hypertension. I will use an alpha level ( $\alpha = .05$ ) to determine statistical significance and reject the null hypothesis based on the following:

- A  $p$ -value less than or equal to the alpha level, reject the null hypothesis and accept the alternative hypothesis.
- A  $p$ -value greater than the alpha level, retain the null hypothesis and reject the alternative hypothesis.

### **Statistical Analysis for Research Question 1**

The first research question for this study was:

RQ1. Is there a significant difference in hypertension awareness and health care access/use in Black women for the years 2009-2013, pre-and post-PPCA, as compared to women of other races, when controlling for confounding factors (age, education, income, and employment)?

$H_0$ 1: There is no significant difference in hypertension awareness and health care access/use in Black women for the years 2009-2013, pre-and post-PPCA, as compared to women of other races when controlling for confounding factors (age, education, income, and employment).

$H_1$ 1: There is a significant difference in hypertension awareness and health care access/use in Black women for the years 2009-2013, pre-and post-PPACA, as compared

to women of other races when controlling for confounding factors (age, education, income, and employment).

I conducted a logistic regression analysis test for independence that ascertained the significance of results obtained and to decide whether to reject or not reject the null hypothesis based on the stated alpha level of 0.05.

### **Statistical Analysis for Research Question 2**

The second research question for this study was:

RQ2. Is there a relationship between hypertension awareness and lifestyle modifications such as exercise in Black women for the years 2009-2013, pre-and post-PPACA, as compared to women of other races when controlling for confounding factors (age, education, income, and employment)?

$H_0$ 2: There is no relationship between hypertension awareness and lifestyle modifications such as exercise in Black women for the years 2009-2013, pre-and post-PPACA, as compared to women of other races when controlling for confounding factors (age, education, income, and employment).

$H_1$ 2: There is a relationship between hypertension awareness and lifestyle modifications such as exercise in Black women for the years 2009-2013, pre-and post-PPCA, as compared to women of other races when controlling for confounding factors (age, education, income, and employment).

I conducted a logistic regression that measured the significant difference between the effect of race on hypertension awareness and lifestyle modification. An alpha value of 0.05 was used to determine if the null hypothesis can be rejected. The logistic regression

was ascertained and the significance of the results was based on the stated alpha level of 0.05. The logistic regression was a predictive analysis and was used to describe the data and to explain the relationship between race and health care access/use.

In my research, I evaluated the effect of the ACA by comparing the expansion of health insurance and its reforms of the health care delivery system in the studied population subsequent to the provision of the law from March 2010 to the year 2013. I examined a state's previously uninsured residents from 2009 who did not have health care coverage. I conducted a meta-analysis of the subsequent years until 2013 from the preexisting data which allowed me to determine the prevalence of the studied population who had health coverage until 2013. In addition, this investigation allowed me to study these Black women's health care habits with the access available to them and their current use of the new health services.

Cleaning data prior to entering it into the computer could promote refinement in the data because unclean data may potentially modify how reliable and correct the study was. Researchers have cleaned data utilizing a master plan to avoid errors, by pointing them out to mend errors so that they had less effect on the study (Van den Broeck, Cunningham, Eeckels, & Herbst; 2005; Osborne, 2013). The essence and origin of crude data determined the condition of the data. A combination of algorithms was used when repeating screen cycles, diagnosing, and curtailing data to lessen data abnormalities by the circumspection of modifications in phases; they were screening, diagnostic, and treatment phases, which led to more accurate results (Van den Broeck et al., 2005; Wu, 2013).



In my research, I used existing data from the previously stated sources and these data were weighted to reflect the US population. In general, weighting was a system put in place to ensure the samples were representative of the population of interest and that the other objectives were met. I then accepted the fact that there were no substantial differences between the response distribution and the population distribution therefore, I drew the conclusion that there was a fair representation with respect to this variable.

### **Critical Analysis of the Affordable Care Act (ACA)**

Critical analysis of the ACA indicated that the average person living in the United States who did not have health insurance prior to the ACA became insured with the ACA after 2010 with affordable health coverage. My main point strived to show that the legislation aimed at providing a governing framework to supply, concentrate, provide, and broaden coverage while influencing health care costs, and enhancing the health care distribution system. The evidence given to support this point was strongly rooted in logistics already in place such as Electronic Health Record foundation, Biomedical Informatics program and resources, Ancillary systems foundation, Data warehouse, high computing capacity and My Chart Patient portal foundation (Kaiser Family Foundation, 2013). The information was reliable because it had been voted into law and had been enacted (Wallace, 2012). The persuasiveness of the ACA was evidenced with consistent and convincing arguments in the summary the Overall approach to expanding access to coverage, Individual mandate, Employer requirements, Expansion of public programs, Premium and cost-sharing subsidies to individuals, Premium subsidies to employees, Tax exchange related to health insurance or financing

health reforms, Health insurance exchanges, Benefit designs, Changes to private insurance, State role, Cost containment, Improving quality health system performance, Prevention/wellness, Long term care, and other investments (Kaiser Health Foundations, 2013). My approach was to compare the results from the year prior to implementation of the ACA, and compare them to the results from the three years following the implementation of the ACA.

### **Threats to Validity**

The threats to validity for my non-experimental study were primarily established on computations since the secondary data undervalued the threat, but did not provide the research the exact measures for investigations (Campbell and Stanley, 1963). It is possible that there was recall bias from the NHIS survey participants. In recent years, Conway and Lance (2010) clearly stipulated that self-reporting tends to contain bias for the following reasons; the participants often said what was expected of them or what they think the surveyor was looking for, they also answered based on they own reality e.g. abilities, knowledge, beliefs and opinions. Hence, self-reporting was not always accurate. In validating the self-report of the Black female population with hypertension in the U.S., there was a possibility that Black women did not know how to navigate the ACA modules or they were not aware of the intricacies associated with the many levels of care necessary to bring them to optimum health.

Black and Hispanic women often were very under represented when reporting blood pressure screenings as compared to White non-Hispanic women (Olesen, Butterworth, Jacomb, & Tait, 2012). However, Olsen et al. (2012) further stipulated that

self-reporting should not be neglected as the benefit it brings to a survey can be the fundamental aspect of data collection when a large sample was used in a survey.

Low prevalence in the surveyed population had inflated results hence could increase specificity which may have represented a threat to external validity (CDC, 2014; Smith et al., 2010). If there was a type 1 error, the validity of the measurement procedures may have altered the size, the sampling procedure and power could be affected; thereby affecting the validity and nullify the conclusion. As I have described in the study design, it has minimized any threat to the internal and external validity as well as the numerical results.

### **Ethical Procedures**

In this study, I used secondary data from NHIS and, as such, human participants were not directly contacted for this study. I contacted the Division of Health Interview Statistics, the CDC and the National Center for Health Statistics and verified that all data were free online for access by the public and that no special permission was needed to retrieve and use this data for educational purposes. NHIS has secured the information anonymously to protect the participants. I did not make any attempt throughout the study to retrieve any personal information or identifying data. This research study was approved by the Institutional Review Board (IRB) at Walden University (IRB #: 10-05-16-0277575).

Since I used secondary data for the study it did not require any processes or recruitment materials or any interventional activity. In addition, the information used in the survey was untraceable. Employees of the U.S. government were trained by the U.S.

Census Bureau according to procedures and protocols of the NCHS to collect the data for the NHIS. These employees were obligated to sign statements stipulating they did maintain strict confidentiality of the data (CDC, 2014a).

The data I used was not identifiable by name nor did I attempt at any given time to procure distinguishable information. The document included in the reports was done in a professional manner to ensure the rights of the participants in the original surveys that were conducted by the NHIS were respected. I maintain the maximum integrity and I exercised professionalism throughout the data analysis and I did not attempt to make nor to falsify, tamper with, modify, or alter any data used in the study. I safely stored the data on my personal computer and kept it in a locked desk drawer where I will keep it for no more than 5 years. I am the only person with access to this data, which I will destroy when the 5-year period has passed.

### **Summary**

In chapter three I presented the research design and methodology used for a cross-sectional, non-experimental quantitative study using data from NHIS, a free online public data repository of the National Center for Health Statistics, a division of the Centers for Disease Control and Prevention. Data obtained from this study may assist in determining that there was a significant difference in hypertension awareness and health care access/use in Black women, prior to and post implementation of the PPACA, as compared to women of other races. I discussed the study design, sampling, methodology, instrumentation, process of data analysis, limitations, and ethical considerations for this study. In Chapter 4, I present the results from my data analysis.

## Chapter 4: Results

### Introduction

The purpose of this cross-sectional, quantitative study was to test if there was a significant difference in Black women having hypertension prior to and postimplementation of the PPACA, as compared to White or women of other races. I determined that a relationship existed between lifestyle modification, such as exercise, in Black woman with hypertension prior to and postimplementation of the PPACA, as compared to other races.

The research questions and hypotheses that guided this study were the following:

RQ1: Is there a significant difference in hypertension awareness and health care access/use in Black women for the years 2009-2013, pre- and post- PPACA, as compared to women of other races, when controlling for confounding factors (age, education, income, and employment)?

$H_01$ : There is no significant difference in hypertension awareness and health care access/use in Black women for the years 2009-2013, pre- and post-PPACA, as compared to women of other races when controlling for confounding factors (age, education, income, and employment).

$H_11$ : There is a significant difference in hypertension awareness and health care access/use in Black women for the years 2009-2013, pre- and post-PPACA, as compared to women of other races, when controlling for confounding factors (age, education, income, and employment).

RQ2. Is there a relationship between hypertension awareness and lifestyle modifications, such as exercise, in Black women for the years 2009-2013, pre- and post-PPACA, as compared to women of other races when controlling for confounding factors (age, education, income, and employment)?

*H<sub>0</sub>2*: There is no relationship between hypertension awareness and lifestyle modification, such as exercise, in Black women for the years 2009-2013, pre- and post-PPACA, as compared to women of other races when controlling for confounding factors (age, education, income, and employment).

*H<sub>1</sub>2*: There is a relationship between hypertension awareness and lifestyle modification, such as exercise, in Black women for the years 2009-2013, pre- and post-PPACA, as compared to women of other races when controlling for confounding factors (age, education, income, and employment).

In this chapter, I discuss my protocol for data collection and analysis and present the results of my investigation.

### **Data Collection**

I analyzed secondary data obtained from the NHIS for the years 2009 to 2013 to determine the extent to which the independent variable, race, affected the dependent variables, covariates, and confounding variables of gender, age, socioeconomic status based on family income, awareness about hypertension, employment, education, lack of exercise, and known hypertensive status.

The NHIS is a cross-sectional household interview survey. The target population for the survey was the civilian, noninstitutionalized population residing in the U.S. at the

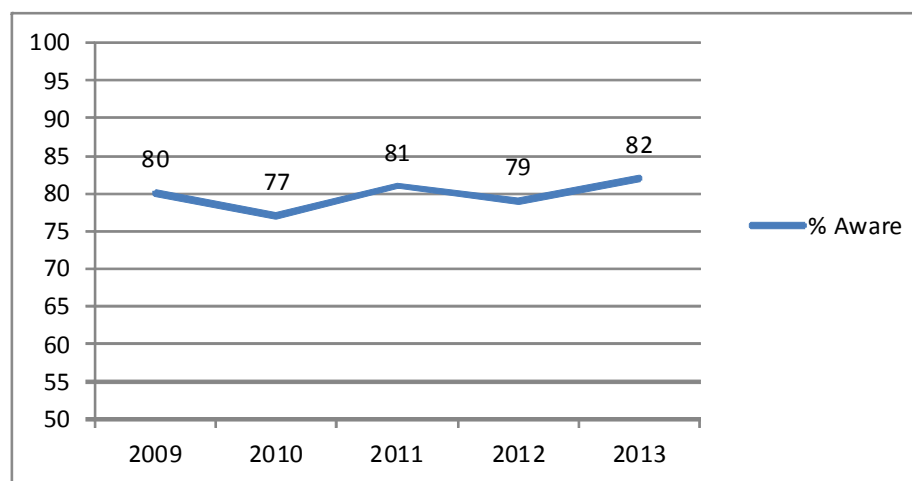
time of the interview. The survey did not include long-term care institutions (for example, nursing homes for the elderly, hospitals for the chronically ill or physically or intellectually disabled, and wards for abused or neglected children), correctional facilities (for example, prisons or jails, juvenile detention centers, and halfway houses), and U.S. nationals living in foreign countries. Active-duty Armed Forces personnel were also excluded.

The NHIS has collected data by conducting personal household interviews for over 50 years. The interviewers were from the U.S. Census Bureau, who visited homes in the U.S. The questions they asked were broad and covered different health topics. The responses obtained from these U.S. homes became the survey results and have been the protagonist of data that helped to track health status, health care access, and progress toward achieving national health objectives.

The NHIS interviewers visited 35,000–40,000 households across the country and collected data from about 75,000–100,000 individuals on a year-by-year basis. Although household participation was optional and no incentives were offered, the overall response rate varied; it was 51 and 53% respectively for the years 2009 and 2010. The response rate for the year 2011 was 61 %, for 2012 it was 63%, and for the year 2013 the response rate was 82% for the adult sample of the 35 to 40, 000 households across the country.

The sample for this study was Black women in the U.S between the ages of 20-65. I chose this age group based on the latest guidelines from the CDC (2015) that recommended routine screening for hypertension for Black women between ages 20-65 at each doctor's visit. The data used in my study were randomly collected by the NHIS

from women in the United States. Therefore, the sample was representative of the population of interest. Figure 1 provides information about U.S. Black Female Respondents to NHIS, 2009–2013.



*Figure 1. Hypertension Awareness of the Study Participants in 2009, 2010, 2011, 2012, and 2013*

I analyzed the association between high blood pressure awareness and the following confounding variables: age, education, income, and employment (measured by chronology, school grade completed, and family income).

### **Results**

Descriptive statistics were provided for race, age, income, and employment distribution for the years 2009-2013. Statistical analysis was conducted using logistic regression.

#### **Descriptive Statistics**

The following tables provide descriptive information about race, age, education, income, and employment.



Table 4

*Frequency and Percent of Participant Race Distribution by Year from 2009-2013*

Year	Race <i>n</i> (%)			
	White	African American	Asian	Other
2009	11,371 (73.5%)	2,814 (18.2%)	894 (5.8%)	391 (2.5%)
2010	11,071 (73.0%)	2,724 (18.0%)	967 (6.4%)	409 (2.7%)
2011	13,441 (73.8%)	3,060 (16.8%)	1,162 (6.4%)	540 (3.0%)
2012	14,232 (73.9%)	3,236 (16.8%)	1,184 (6.2%)	600 (3.1%)
2013	14,180 (74.2%)	3,175 (16.6%)	1,149 (6.0%)	613 (3.2%)

Table 5

*Frequency and Percent of Participant Age Distribution for age 65 and > from 2009-2013*

---

Age <i>n</i> (%) 18- 65 and Older				
Year	White	African American	Asian	Other
2009	2,591 (22.75%)	503 (17.875%)	152 (17.00%)	43 (10.51%)
2010	2,603 (22.79%)	505 (18.54%)	160 (16.55%)	53 (10.50%)
2011	3,288 (24.46%)	572 (18.69%)	190 (16.35%)	600 (3.1%)
2012	3,472 (24.40%)	615 (19.00%)	229 (19.34%)	94 (15.33%)
2013	3,668 (25.87%)	637 (20.06%)	218 (18.97%)	329 (12.89%)

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Table 6

*Frequency of Participant Education by Year from 2009-2013*

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Education = High School Diploma

Year	White	African American	Asian	Other
2009	3,058	761	170	105
2010	2,941	779	146	88
2011	3,462	776	206	119
2012	3,621	861	198	144
2013	3,534	952	192	162

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Table 7

*Frequency of Participant Income Distribution by Year from 2009-2013*

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Year	Income <i>n</i> Above Poverty Line			
	White	African American	Asian	Other
2009	6,252	1089	511	161
2010	5,943	989	558	177
2011	7,181	1136	639	222
2012	7,544	1127	650	240
2013	7,688	1141	635	235

---

Table 8

*Frequency and Percent of Participant Employment Distribution by Year from 2009-2013*

---

Employment <i>n</i> 10-12 months				
Year	White	African American	Asian	Other
2009	5,634	1,410	455	178
2010	5,208	1,270	471	196
2011	6,280	1,413	564	250
2012	6,802	1,498	577	283
2013	6,785	1,502	543	257

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Table 9

*Results for All Races Without Health Insurance*

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Survey	Yes	No	Don't Know	Total
2009	683	12,327	2,460	15,470
2010	658	12,042	2,471	15,171
2011	837	14,321	3,045	18,203
2012	881	15,293	2,952	19,252
2013	805	15,360	14,006	19,117
Total	3,864	69,343	14,006	87,213

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Table 10

*Results for White Races Without Health Insurance*

Survey	Yes	No	Don't Know	Total
2009	479	9,178	1,714	11,371
2010	434	8,892	1,745	11,071
2011	565	10,692	2,184	13,441
2012	622	11,372	2,238	14,232
2013	550	11,494	2,136	14,180
Total	2,650	51,628	10,017	64,295

Table 11

*Results for Black/African American Races Without Health Insurance*

Survey	Yes	No	Don't Know	Total
2009	155	2,136	523	2,814
2010	156	2,062	506	2,724
2011	185	2,287	588	3,060
2012	170	2,507	559	3,236
2013	169	2,473	533	3,175
Total	835	11,465	2,709	15,009

Table 12

*Results for Other Races Without Health Insurance*

Survey	Yes	No	Don't Know	Total
2009	24	278	89	391
2010	32	295	82	409
2011	37	404	99	540
2012	43	452	105	600
2013	45	454	114	613
Total	181	1,883	489	2,553

Table 13

*Results for Asian Races Without Health Insurance*

Survey	Yes	No	Don't Know	Total
2009	25	735	134	894
2010	36	793	138	967
2011	50	938	174	1,162
2012	46	962	176	1,184
2013	41	939	169	1,149
Total	198	4,367	791	5,356

### Had Health Insurance Previous Year

Based on survey-adjusted weightings, there were no trends with regards to having health insurance the previous year between the years 2009 and 2013. Whites had a high rate of insurance at 83.6 in 2009. In 2013, 83.5% of Whites had health insurance. The 5-year average was 83%. Among Black/African Americans, there was a slight improvement from 75% with insurance in 2009 to 77 % in 2013. Asians had a similar pattern as Whites with 83% having insurance in 2009 and 82% in 2013.

Table 14

#### *Ratio of Income Poverty Level for White Race*

Survey	Under 1.00	1.00 to 1.99	2.00 and up	Unknown	Total
2009	1,682	1,997	6,252	1,440	11,371
2010	1,791	1,943	5,943	1,394	11,071
2011	2,220	2,395	7,181	1,645	13,441
2012	2,396	2,622	7,544	1,670	14,232
2013	2,255	2,522	7,688	1,685	14,180
Total	10,344	11,509	34,608	7,834	64,295



Table 15

*Ratio of Income Poverty Level for Black/African American Race*

Survey	Under 1.00	1.00 to 1.99	2.00 and up	Unknown	Total
2009	836	597	1,089	292	2,814
2010	830	577	989	328	2,724
2011	955	651	1,136	318	3,060
2012	1,027	704	1,127	378	3,236
2013	942	757	1,141	335	3,175
Total	4,590	3,286	5,842	1,651	15,009

Table 16

*Ratio of Income Poverty Level for Other Races*

Survey	Under 1.00	1.00 to 1.99	2.00 and up	Unknown	Total
2009	98	83	161	49	391
2010	111	82	177	39	409
2011	145	117	222	56	540
2012	165	137	240	58	600
2013	165	154	235	59	613
Total	684	573	1,035	261	2,553

Table 17

*Ratio of Income Poverty Level for Asian Race*

Survey	Under 1.00	1.00 to 1.99	2.00 and up	Unknown	Total
2009	117	122	511	144	894
2010	154	142	558	113	967
2011	208	196	639	119	1,162
2012	190	191	650	153	1,184
2013	202	182	635	130	1,149
Total	871	833	2,993	659	5,356

Table 18

*Months worked Previous Year for White Race*

Survey	3 Months	4-6 Months	7-9 Months	10-12 Months	Unknown	(Unknown Continued)
2009	297	445	447	5,634	4,548	11,371
2010	353	460	469	5,208	4,581	11,071
2011	414	567	504	6,280	5,676	13,441
2012	437	562	582	6,802	5,849	14,232
2013	422	531	508	6,785	5,934	14,180
Total	1,923	2,565	2,510	30,709	26,588	64,295

Table 19

*Months worked Previous Year for Black/African American Race*

Survey	3 Months	4-6 Months	7-9 Months	10-12 Months	Unknown	(Unknown Continued)
2009	94	139	118	1,410	1,053	2,814
2010	87	149	117	1,270	1,101	2,724
2011	101	159	151	1,413	1,236	3,060
2012	105	155	118	1,498	1,360	3,236
2013	100	150	125	1,502	1,298	3,175
Total	487	752	629	7,093	6,048	15,009

Table 20

*Months worked Previous Year for Other Races*

Survey	3 Months	4-6 Months	7-9 Months	10-12 Months	Unknown	(Unknown Continued)
2009	11	30	28	178	144	391
2010	22	23	21	196	147	409
2011	25	26	27	250	212	540
2012	31	41	19	283	226	600
2013	28	40	29	257	259	613
Total	117	160	124	1,164	988	2,553

Table 21

*Months worked Previous Year for Asian Races*

Survey	3 Months	4-6 Months	7-9 Months	10-12 Months	Unknown	(Unknown Continued)
2009	28	25	40	455	346	894
2010	35	33	33	471	395	967
2011	37	44	41	564	476	1,162
2012	27	56	38	577	486	1,184
2013	39	49	31	543	487	1,149
Total	166	207	183	2,610	2,190	5,356

Table 22

*Educational Level for White Race*

Independent Variable	2009	2010	2011	2012	2013	Total
Less than HS	1,826	1,835	2,114	2,154	2,096	10,025
HS Diploma	3,058	2,941	3,462	3,621	3,534	16,616
Some college	2,247	2,195	2,674	2,877	2,805	12,798
Associate Degree	1,256	1,214	1,549	1,689	1,668	7,376
Bachelor Degree	1,957	1,847	2,315	2,493	2,597	11,209
Graduate Degree	977	1,000	1,269	1,356	1,419	6,021
Unknown	50	39	58	42	61	250
Total	11,371	11,071	13,441	14,232	14,180	64,295

Table 23

*Educational Level for Black/African American Race*

Independent Variable	2009	2010	2011	2012	2013	Total
Less than HS	572	571	621	629	584	2,977
HS Diploma	761	779	776	861	952	4,129
Some college	636	602	743	754	711	3,446
Associate Degree	336	295	342	358	354	1,685
Bachelor Degree	320	310	356	375	364	1,725
Graduate Degree	173	149	199	240	190	951
Unknown	16	18	23	19	20	96
Total	2,814	2,724	3,060	3,236	3,175	15,009

Table 24

*Educational Level for Other Races*

Independent Variable	2009	2010	2011	2012	2013	Total
Less than HS	84	70	94	110	115	473
HS Diploma	105	88	119	144	162	618
Some college	88	116	140	153	145	642
Associate Degree	45	59	69	80	73	326
Bachelor Degree	43	43	89	70	78	323
Graduate Degree	21	30	27	41	39	158
Unknown	5	3	2	2	1	13
Total	391	409	540	600	613	2,553

Table 25

*Educational Level for Asian Race*

Independent Variable	2009	2010	2011	2012	2013	Total
Less than HS	105	107	165	153	138	668
HS Diploma	170	146	206	198	192	912
Some college	148	132	144	167	158	749
Associate Degree	75	92	88	104	101	460
Bachelor Degree	240	310	340	366	331	1,587
Graduate Degree	147	167	207	183	221	925
Unknown	9	13	12	13	8	55
Total	894	967	1,162	1,184	1,149	

Table 26

*Results for Age for White Race*

Independent Variable	18 to 29	30 to 44	45 to 64	65 & up	Total
2009	1,938	2,999	3,843	2,591	11,371
	17.04	26.37	33.8	22.79	100
2010	1,972	2,792	3,704	2,603	11,071
	17.81	25.22	33.46	23.51	100
2011	2,367	3,390	4,396	3,288	13,441
	17.61	25.22	32.71	24.46	100
2012	2,505	3,512	4,743	3,472	14,232
	17.6	24.68	33.33	24.4	100
2013	2,398	3,452	4,662	3,668	14,180
	16.91	24.34	32.88	25.87	100
Total	11,180	16,145	21,348	15,622	64,295
	17.39	25.11	33.2	24.3	100

Table 27

*Results for Age for Black/African American Race*

Independent Variable	18 to 29	30 to 44	45 to 64	65 & up	Total
2009	601	819	891	503	2,814
	21.36	29.1	31.66	17.87	100
2010	578	732	909	505	2,724
	21.22	26.87	33.37	18.54	100
2011	626	809	1,053	572	3,060
	20.46	26.44	34.41	18.69	100
2012	619	845	1,157	615	3,236
	19.13	26.11	35.75	19	100
2013	598	868	1,072	637	3,175
	18.83	27.34	33.76	20.06	100
Total	3,022	4,073	5,082	2,832	15,009
	20.13	27.14	33.86	18.87	100



Table 28

*Results for Age for Other Races*

Independent Variable	18 to 29	30 to 44	45 to 64	65 & up	Total
2009	102 26.09	119 30.43	122 31.2	48 12.28	391 100
2010	101 24.69	126 30.81	139 33.99	43 10.51	409 100
2011	157 29.07	149 27.59	153 28.33	81 15	540 100
2012	193 32.17	172 28.67	172 28.67	63 10.5	600 100
2013	156 25.45	172 28.06	191 31.16	94 15.33	613 100
Total	709 27.77	738 28.91	777 30.43	329 12.89	2,553 100

Table 29

*Results for Age for Asian Race*

Independent Variable	18 to 29	30 to 44	45 to 64	65 & up	Total
2009	184	283	275	152	894
	20.58	31.66	30.76	17	100
2010	200	311	296	160	967
	20.68	32.16	30.61	16.55	100
2011	271	371	330	190	1,162
	23.32	31.93	28.4	16.35	100
2012	259	370	326	229	1,184
	21.88	31.25	27.53	19.34	100
2013	258	342	331	218	1,149
	22.45	29.77	28.81	18.97	100
Total	1,172	1,677	1,558	949	5,356
	21.88	31.31	29.09	17.72	100

RQ1. Is there a significant difference in hypertension awareness and health care access/use in Black women for the years 2009-2013, pre-and post-PPACA, as compared to women of other races, when controlling for confounding factors (age, education, income, and employment)?

*H<sub>0</sub>1*: There is no significant difference in hypertension awareness and health care access/use in Black women for the years 2009-2013, pre-and post-PPACA, as compared to women of other races when controlling for confounding factors (age, education, income, and employment).

*H<sub>1</sub>1*: There is a significant difference in hypertension awareness and health care access/use in Black women for the years 2009-2013, pre-and post-PPACA, as compared to women of other races when controlling for confounding factors (age, education, income, and employment).

Results of Logistic Analysis for RQ1 are outlined in Table 30.

Table 30

*Results of the Logistic Regression Model for Hypertension Awareness, Healthcare Access and Utilization*

Independent variable	Coef.	Robust Std. Err.	z	P> z	95% Confidence Interval	
					Lower	Upper
<b>Race</b>						
White	-.4575961	.0543049	-8.43	0.000	-.5640317	-.3511605
Black	0	(base)				
Other	-.4913507	.141634	-3.47	0.001	-.7689482	-.2137531
Asian	-1.275979	.1156217	-11.04	0.000	-1.502593	-1.049364
<b>Age from 18</b>						
Age from 18	.068946	.0015196	45.37	0.000	.0659677	.0719244
<b>Race and Age from 18</b>						
White	-.0110027	.0016291	-6.75	0.000	-.0141956	-.0078097
Other	-.0013908	.0042602	-0.33	0.744	-.0097405	.006959
Asian	.0079768	.0031403	2.54	0.011	.001822	.0141315
<b>Year</b>						
2009	0	(base)				
2010	.0843766	.0322274	2.62	0.009	.0212121	.1475412
2011	.0107074	.0311493	0.34	0.731	-.503442	.071759
2012	.0090782	.0314956	0.29	0.773	-.0525521	.0708085
2013	-.0010553	.0316187	-0.03	0.973	-.0630268	.609162

(Table Continues)

Independent variable	Coef.	Robust Std. Err.	<i>z</i>	<i>P</i> >  <i>z</i>	95% Confidence Interval	
					Lower	Upper
<b>Education</b>						
< HS diploma	0	(base)				
HS or GED	-.138661	.0310934	-4.46	0.000	-.199603	-.077719
Some college	-.1973094	.0334326	-5.90	0.000	-.262836	-.1317828
Associate	-.2187403	.0382894	-5.71	0.000	-.2937861	-.1436945
Bachelor	-.5051058	.0368243	-13.72	0.000	-.5772801	-.4329315
Graduate	-.6542591	.0435275	-15.03	0.000	-.7395715	-.5689468
Unknown	-.583397	.147243	-3.96	0.000	-.871988	-.294806
<b>Without Health Insurance</b>						
Yes	.1322168	.0480742	2.75	0.006	.0379931	.2264405
No	0	(base)				
Don't Know	-.1991865	.0296581	-6.72	0.000	-.2573153	-.1410577
<b>Income to poverty ratio</b>						
< 1.00	0	(base)				
1.00 to 1.99	-.0722122	.0329091	-2.19	0.028	-.1367128	-.0077116
≥ 2.00	-.2373193	.0305345	-7.77	0.00	-.2971658	-.1774727
Unknown	-.3818971	.0380614	-10.03	0.00	-.4564961	-.3072981
<b>Months worked</b>						
≤ 3 months	0	(base)				
4 to 6 months	.0163352	0.757662	0.22	0.829	-.1321639	.1648343
7 to 9 months	.07647778	.0745913	1.03	0.305	-.0697185	.2226742
10 to 12 months	-.0538083	.0596616	0.90	0.367	-.170743	.0631263
Unknown	.903856	.0601452	1.50	0.133	-.0274967	.2082679
_cons	-1.96815	.0809589	-24.31	0.000	-2.126827	-1.809474

**Had Health Insurance Previous Year**

Based on survey adjusted weightings, there were no trends with regards to having health insurance the previous year between the years 2009 and 2013. Whites had a high of 83.6 with insurance in 2009. In 2013 83.5% of Whites had health insurance. The 5-year average was 83%. Among Black/African Americans, they saw a slight improvement from 75% with insurance in 2009 to 77 % in 2013. Asians had a similar pattern as whites with 83% having insurance in 2009 and 82% in 2013. The ACA has been successful increasing the number of uninsured in a small way for the period studied from 2009-2013. I deduct from my study that if the study period was longer in duration, there would be millions more people insured, and the newly insured could not only make better use of their hypertension awareness; they could integrate the health care system by accessing and using the health care services. There is no significant difference in hypertension awareness and health care access/use in Black women for the years 2009-2013, pre-and post-PPACA, as compared to women of other races when controlling for confounding factors (age, education, income, and employment). Therefore, I cannot reject the null hypothesis.

Table 31

*Results of the Simple Effects of Categorical Variables vs Their Mean*

Independent Variable	df	Wald	P>Wald
<b>Race</b>			
White vs mean	1	7.04	0.008
Black vs mean	1	86.38	0.000
Other vs mean	1	0.21	0.647
Asian vs mean	1	67.04	0.000
Joint	3	145.12	0.000
<b>Education</b>			
< HS diploma vs mean	1	114.71	0.000
HS or GED vs mean	1	56.74	0.000
Some college vs mean	1	11.20	0.001
Associate vs mean	1	2.56	0.110
Bachelor vs mean	1	120.47	0.000
Graduate vs mean	1	153.45	0.000
Unknown vs mean	1	4.95	0.026
Joint	6	355.25	0.000
<b>Without Health Insurance</b>			
Yes vs mean	1	11.46	0.001
No vs mean	1	20.40	0.000
Don't Know vs mean	1	48.99	0.000
Joint	2	59.39	0.000

(Table Continues)

Independent Variable	df	Wald	P>Wald
<b>Income to Poverty</b>			
< 1.00 vs mean	1	62.66	0.000
1.00 to 1.99 vs mean	1	29.62	0.000
≥ 2.00 vs mean	1	24.85	0.000
Unknown vs mean	1	55.43	0.000
Joint	3	126.88	0.00
<b>Months worked</b>			
≤ 3 months vs mean	1	0.06	0.800
4 to 6 months vs mean	1	0.00	0.969
7 to 9 months vs mean	1	1.74	0.187
10 to 12 months vs mean	1	37.77	0.000
Unknown vs mean	1	33.09	0.000
Joint	4	40.95	0.000

I used the above parametric statistical test to establish a relationship between data items in all women to compare with Black women so to establish a statistical model with parameters that have been estimated from a cross sectional sample of women and I have established the logistic noted in table 30. In table 31, I represented the true value of the parameter based on the sample estimate and the hypothetical difference in all women vs. Black women with hypertension based on race, age, education, income, and employment.



Table 32

*Main Effects of Categorical Variables*

	df	Wald	P>Wald
Race	3	145.12	0.000
Education	6	355.25	0.000
Health insurance	2	59.32	0.000
Income to poverty	3	126.88	0.000
Months worked	4	40.96	0.000

RQ2: Is there a relationship between hypertension awareness and lifestyle modifications such as exercise in Black women for the years 2009-2013, pre-and post-PPACA, as compared to women of other races when controlling for confounding factors (age, education, income, and employment)?

$H_02$ : There is no relationship between hypertension awareness and lifestyle modification such as exercise in Black women for the years 2009-2013, pre-and post-PPACA, as compared to women of other races when controlling for confounding factors (age, education, income, and employment).

$H_12$ : There is a relationship between hypertension awareness and lifestyle modification such as exercise in Black women for the years 2009-2013, pre-and post-PPACA, as compared to women of other races when controlling for confounding factors (age, education, income, and employment).

RQ2 results of logistic analysis for RQ2 are outlined in Table 33:

Table 33

*Results of the Logistic Regression Model for Lifestyle Modification: Moderate Exercise for Year 2009-2013; Results of the Moderate Exercise*

Independent variable	Coef.	Std. Err.	<i>z</i>	<i>P</i> >  <i>z</i>	95% Confidence Interval	
<b>Race</b>						
White	0.336	0.82	4.10	0.000	0.175	0.497
Black	0.000	(base)		0.471	-0.256	0.555
Other	0.149	0.207	0.72	0.340	-0.582	0.201
Asian	-0.190	0.200	-0.95	0.000	-0.011	-0.005
Age from 18	-0.008	0.002	-4.78			
<b>Race and Age from 18</b>						
White	-0.003	0.002	-1.36	0.173	-0.006	0.001
Other	0.006	0.005	1.09	0.275	-0.004	0.015
Asian	0.011	0.004	2.62	0.009	0.003	0.019
<b>Year</b>						
2009	0.000	(base)				
2010	-0.046	0.041	-1.12	0.263	-0.127	0.035
2011	-0.018	0.040	-0.45	0.654	-0.096	0.060
2012	0.102	0.039	2.58	0.010	0.024	0.179
2013	0.036	0.039	0.92	0.356	-0.041	0.114
<b>Education</b>						
< HS diploma	0.000					
HS or GED	0.208	0.035	5.92	0.000	0.139	0.277

(Table Continues)

Independent variable	Coef.	Std. Err.	<i>z</i>	<i>P</i> >  <i>z</i>	95% Confidence Interval	
Some college	0.508	0.040	12.74	0.000	0.430	0.586
Associate	0.599	0.048	12.60	0.000	0.506	0.692
Bachelor	0.813	0.048	16.91	0.000	0.719	0.907
Graduate	1.023	0.060	16.96	0.000	0.905	1.142
Unknown	0.201	0.167	1.20	0.229	-0.127	0.528
<b>Income to poverty ratio</b>						
< 1.00	0.000	(base)				
1.00 to 1.99	0.146	0.039	3.70	0.000	0.069	0.224
≥ 2.00	0.448	0.038	11.85	0.000	0.374	0.522
Unknown	0.191	0.045	4.27	0.000	0.103	0.279
<b>Months worked</b>						
≤ 3 months	0.000	(base)				
4 to 6 months	0.106	0.114	0.93	0.351	-0.117	0.329
7 to 9 months	-0.057	0.114	-0.50	0.615	-0.280	0.166
10 to 12 months	-0.222	0.088	-2.52	0.012	-0.395	-0.050
Unknown	-0.258	0.088	-2.95	0.003	-0.430	-0.087
_cons	-0.140	0.114	-1.23	0.219	-0.363	0.083

Table 33 for years 2009-2013 represents the investigated impact of hypertension awareness and lifestyle modification, such as Black women exercising moderately, taking into consideration access and use of health care, socioeconomic status based on family income, age, employment, and education, on the prevalence of hypertension among Black women in the U.S. Based on my findings, I determined that there is no statistical

significance related to a  $p$  value of  $< 0.05$  for each of the indicators in Black women with hypertension awareness and lifestyle modification such as exercise in Black women for the years 2009-2013, pre-and post-PPACA as compared to White women and women of other races based on (age, education, income, and employment). The null hypothesis cannot be rejected.

Table 34

*Simple Effects of Categorical Variables vs Their Mean for Years 2009-2013*

	df	Wald	P>Wald
<b>Race</b>			
(White vs mean)	1	11.67	0.001
(Black/African American vs mean)	1	148.54	0.000
(Other vs mean)	1	0.00	0.953
(Asian vs mean)	1	84.00	0.000
Joint	3	205.89	0.000
<b>Education</b>			
(less than high school diploma vs mean)	1	123.14	0.000
(high school diploma or GED vs mean)	1	55.10	0.000
(some college vs mean)	1	12.78	0.000
(associate degree vs mean)	1	3.02	0.082
(Bachelor's degree vs mean)	1	164.29	0.000
(Graduate Degree vs mean)	1	166.94	0.000
(unknown vs mean)	1	8.06	0.005
Joint	6	407.83	0.000

(Table Continues)

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	df	Wald	P>Wald
<b>Health Insurance</b>			
(1 Yes vs mean)	1	10.86	0.001
(2 No vs mean)	1	39.43	0.000
(9 Don't know vs mean)	1	76.15	0.000
Joint	2	84.61	0.000
<b>Income to Poverty</b>			
(under 1.00 vs mean)	1	75.09	0.000
(1.00 to 1.99 vs mean)	1	35.07	0.000
(2.00 and higher vs mean)	1	41.78	0.000
(unknown vs mean)	1	62.23	0.000
Joint	3	152.04	0.000
<b>Months worked</b>			
(3 months or less vs mean)	1	0.65	0.419
(4 to 6 months vs mean)	1	0.06	0.800
(7 to 9 months vs mean)	1	2.41	0.120
(10 to 12 months vs mean)	1	59.87	0.000
(unknown vs mean)	1	54.00	0.000
Joint	4	66.21	0.000

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I used the above parametric statistical test in Table 34 to establish a relationship between data items in all women to compare with Black women to establish a statistical model with parameters that have been estimated from a cross sectional sample of women. I have established the logistic noted in Table 34 to help represent the true value of

hypertension awareness of the parameter based on the sample estimates and the hypothetical difference in all women vs. Black women with lifestyle modification, such as exercise, based on race, age, education, income, and employment.

Table 35

*Main Effects of Categorical Variables for Years 2009-2013*

	df	Wald	P>Wald
Race	3	205.89	0.000
Education	6	407.83	0.000
Health insurance	2	84.61	0.000
Income to poverty	3	152.04	0.000
Months worked	4	66.21	0.000

RQ1- Analytic Comparison of 2009-2010 Before ACA vs. 2011 to 2013 After ACA for Hypertension Awareness, Access to Healthcare and Use:

All the data above are based on the sample client data from NIHS, analyzed for logistic regression through Strata analysis for years 2009 through 2013, respectively. Here is the comparison of the years 2009 to 2010 before the ACA and for years 2011 to 2013 after implementation of ACA for Black women hypertension awareness and healthcare access and use. This comparison yielded the stated results as indicated by the descriptive statistics for each variable herein. As I compare hypertension awareness, access, and use for 2009- 2010, it is evident that in 2009, 155 out of 2,814 Black women had health insurance. In 2010, 156 out 2,724 Black women had health insurance hence; this number dictated awareness, access and use. These numbers are not large enough to prove that there were any improvements in access and use thus far.

For the year 2011, 185 out of 3,060 had health insurance. In 2012, 170 out of 3,236 and in 2013 the numbers decreased to 169 out of 3,175 women having health insurance. These figures indicate that from the implementation of the ACA in 2009 to the end of the study in 2013, the numbers have not staggered.

RQ2- Analytic Comparison of 2009-2010 Before the implementation of the ACA vs the years 2011 to 2013, after the implementation of the ACA for Hypertension awareness, Lifestyle Modification: Exercise:

When it comes to moderate exercise, my study has found that in year 2009 out of 2,814 Black women, 49.96% Black women were exercising as compared to 46.99% out of 2,724 in 2010. Again, in 2011, after the implementation of the ACA, out of 3,060 Black women, 50.07% were exercising. In 2012, out of 3236 Black women, 51.48 % were exercising, and finally in 2013, out of 3,175, 50.68% Black women were exercising. While the number of Black women exercising did not increase, it did not fall below 50% of the population studied.

However, due to random influences, I could expect the sum of the women moderately exercising to be equal to or stretched out in numbers, even if the sum of the actual women who did exercise did not reflect it. Consequently, I followed the hypothesis testing procedure. I cannot reject the null hypotheses.

## Summary

The analysis of the results of my investigation regarding the extent of the relationship between Black women having hypertension and Black women exercising as life style modification for the years 2009-2013 in the U.S, and the confounding factors of age, education, income, and employment are measured by chronological years, number of years completed in school, family income and job held. The results revealed that there was an association between age, education, income, and employment and hypertension awareness, health care access/use and life style modification such as exercise among Black women in the U.S. Chapter 5 provides a discussion of the interpretation of findings based on the peer-reviewed literature, significance of findings, limitations of the research study, recommendations, and conclusions.



## Chapter 5: Discussion, Conclusions, and Recommendations

### **Introduction**

The purpose of this cross-sectional, quantitative study was to test if there was a significant difference in hypertension awareness and health care access/use in Black women, prior to and postimplementation of the PPACA, as compared to White women or women of other races. I also wanted to determine if a relationship existed between lifestyle modification, such as exercise, in Black woman with hypertension, prior to and post implementation of the PPACA, as compared to women other races.

### **Interpretation of Findings**

I analyzed all data, with year as predictor, for Black women having hypertension for the years 2009-2013; the odds ratio of White women having hypertension was 42% less as compared to Black women, but there was no implication of temporality; just being White was statistically significantly related to having lower blood pressure in White women than Black women. For every year of age above 18, a Black woman's risk of having hypertension increased by 7%. For White women, the odds decreased by 1% for each level of education above having a high school diploma; the odds of having hypertension decreased for any woman having above a high school diploma. For example, women with a high school diploma had an odds ratio of 21% less of having hypertension than women without a high school diploma. Women with a graduate degree had an odds ratio of 54% less than women without a high school diploma. With regards to having health insurance, women with health insurance were 11% more likely to have

hypertension than women without hypertension. This is most likely due to having a higher likelihood of being diagnosed.

Women with an income level at or below the poverty line had higher odds ratio of having hypertension than women above the poverty line; this was also probably due to inefficient health care access and use. Women below the poverty line's odd ratio of hypertension was 16% higher than women with an income at least two times greater than the income associated with the poverty level, which also is associated with lack of health care access and use. However, there was no conclusive statistical evidence that the number of months employed during the previous year increased or decreased the odds ratio of having hypertension.

I examined the risk factors for hypertension to ascertain the extent to which socioeconomic status (age, education, income, and employment) were associated with compliance with exercise. I used logistic regression for data analysis using Strata SE 14.2, updated March 16, 2017. With the analysis of age, education, income, and employment for the years 2009- 2013, my findings were consistent with the CDC (2015a) that demonstrated that compliance with exercise was related to a woman's level of education, especially with education above a high school diploma and particularly a graduate degree. I also found that women with an income above minimum wage were more likely to comply with exercise; but, length of employment made no difference in Black women with hypertension exercising moderately.

I also interpreted all data including year as predictor for 2009-2013 for Black women with hypertension exercising moderately. The odds ratio of White women

exercising moderately was 39% greater than Black women. Age as a factor for exercising was not statistically significant. For each level of education above a high school diploma, the odds of exercising moderately increased for all women. For example, women with a high school diploma had an odds ratio 23% greater of moderately exercising than women without a high school diploma. Women with a graduate degree had an odds ratio 2.7 times greater than women without a high school diploma. Women with income at two times greater than the poverty level had an odds ratio 56% greater than those at or below the poverty line of exercising moderately.

The findings of this study aligned with the BMT. BMT promotes desirable behavior with positive and/or negative reinforcement, similar to instrumental conditioning, which is a learning process driven by the desire to avoid or control consequences (Thorndike, 1911). The BMT explained how its techniques increased adaptive behavior by emphasizing reinforcement and decreasing dysfunctional conducts whereas punishment is minimized and reinforcing positive behavior is enhanced. Such proposition has encountered successes in the setting of BMT (O'Donohue & Ferguson, 2006).

My study involved determining how several covariates (age, education, income, and employment) affected Black women in the United States having hypertension pre- and post-PPACA for the years 2009-2013, as well as exercise as behavior modification for those years. The logistic regression data I considered had different results for each of those years, and the interpretation of those 5 years as compared to the risk factors indicated that there were common principles. When I revised the updated research on the

BMT for my population at risk for hypertension, these documents explained measures in health services that exert an influence on many conditions and illnesses similar to hypertension; such models highlighted changes in personal practices, screening services, and positive behavior changes that helped other at-risk populations to change the offending behavior (Klein et al., 2001).

The results of my study are similar to the published literature; Black women ages 20 to 65 were more likely to have hypertension than any other race when accounting for income, education, and employment. According to the data, Black women were aware of their hypertension status, but did not have health care access; when they had access, they were more likely to make a choice between buying food or medications. Furthermore, the trends over time that I expected to see in lifestyle modifications were not statistically significant in terms of the small percentage I saw in fluctuation over the years from 2009-2013 when it came to exercise. Time is essential for changes to take place.

### **Limitations of Study**

The study findings cannot be generalized to Black women from other countries who may have fewer hypertensive issues than Black women in the United States. Scholars have not sufficiently studied race as a risk factor to determine the environmental issues Black women with hypertension face because blood pressure problems are not consistent throughout (Pickering, 2017). Harburg stipulated that socioeconomic factors, such as income and demographics, influence Black people living in poor neighborhoods (as cited in Pickering, 2017).

In Chapter 1, I presented several peer-reviewed articles that supported Pickering's (2017) reasoning and have demonstrated that high blood pressure was more prevalent in Black women living in the poorest areas of the United States. The socioeconomic factors alone make persistent high blood pressure an issue, and the gap in the literature needed to be addressed, hence, giving a purpose to my study. There is a statistically significant difference in Black women having hypertension and Black women having hypertension exercising moderately pre-and post-PPACA from years 2009-2013.

My study is also limited as evidenced in chapter one by the data on hand. A form of sampling/selection that may have caused a bias in the external the external validity of the study causing the results to not represent the general population or influence the internal validity respectively based on differences or similarities among the sample size (Cortes & Mohri, 2014). I have taken into consideration the framework but it is not entirely possible to remove all bias because Black women in the United States come from different countries and different cultures. Once a Black woman naturalized she is called an "African American" and some of them when interviewed may fail to mention their initial country of origin. I have also used the inclusion criteria, the availability of data to be used, and I have, as much as possible, avoided incorrect meaning in language and translation of data; I have done so in a transparent way as to avoid doubts.

Another limitation in using the U.S. survey databases within this sample when comparing Black women to other women from this segment of the U.S. Black female population, is that the sample may have excluded certain segments of women in favor of

women who may have a higher incidence rate of hypertension and very low compliance with exercise due to: low income, an education level less than a high school education, no health insurance, and no employment. Since lifestyle modification is an essential facet of this study, relevance of its impact on Black women could also have had effects on the incidence rate of hypertension due to covariates such as socioeconomic status, compliance with lifestyle modifications and treatments, awareness to hypertension as well as access and use of health services. When these covariates are taken into consideration, there is also the possibility that participants may place little value on the information they receive; lessening the importance they place on the proper diagnosis and treatment of hypertension because they had not displayed nor felt any reportable symptoms.

Furthermore, the responses of Black women within this sample may have reflected their actual perception, attitudes, and behaviors towards high blood pressure and these misconceptions may have compromised internal validity of the study. It was nearly impossible to gain a perspective into the life of these Black women in a homogeneous way due to the differences in their social standing, thus making the questionnaire a challenge due to poor language skills and comprehension issues. External validity may have been compromised due to the participants' anticipation of compensation. Finally, sampling/selection bias is responsible for the difference in the external validity of the study, creating an inaccurate representation of the general population which may have influenced the internal validity as well.

### **Recommendations**

My findings from this study reveal that future studies must be done and may need to focus on variables such as age, income, education, co-morbidity, prior health status, immigration status and the age at which the woman emigrated the United States, as they relate to hypertension in Black women and moderate exercise of those Black women with hypertension. It also is important that the study considers whether these women are second or first generation of Black women born in the United States so that the genetic factor affecting Black women with hypertension can be elucidated in a clearer and more concise manner.

### **Implications**

The implication for social change is the knowledge of the extent to which age, education, income, health awareness, and employment impact the occurrence of hypertension in Black women and moderate exercise of Black women with hypertension in the United States. The knowledge gained from my study could help to improve compliance with health behavior modification and possibly decrease the long-term consequences of untreated hypertension in Black women. The findings of this study could assist policymakers, lawmakers, public health providers, and other governmental agencies to promote programs, redesign guidelines and interventions that may improve compliance with hypertension treatment in the Black female population. Additionally, the awareness of hypertension and knowledge of its risk factors can improve the use of all offered health services and strengthen compliance in the affected population.

I urge policy makers and stakeholders to consider instituting programs involving community leaders, churches, politicians, health organizations, individual medical practices, local gyms, equipment manufacturers as well as small businesses in underserved communities, focused on improving the health of their constituents. It is evident that Black women within this sample are 61% less likely to exercise than white women, Black women without a high school diploma are 77% less likely to exercise than those with a high school diploma, and Black women living below poverty level are 54% less likely to exercise, increasing the likelihood of hypertension becoming a societal problem. It is my hope that public health providers and policy makers form an alliance that one day would become a common denominator in the fight to treat hypertension in Black women in the United States.

My study findings may help provide information to treat hypertension and ultimately reduce heart disease among Black women in the United States. Positive social change may result from evidence that age, education, income, healthcare awareness, and education play a role in poor Black women having hypertension and not knowing the benefit of moderate exercise in the United States.

### **Conclusions**

Hypertension remains both a national and global public health concern due to the likelihood that the lack of treatment can lead to heart disease. The chances of Black women having uncontrolled hypertension is double compared to Whites. A study of 70,000 people in the *stroke belt* revealed that the number of Black women living with



hypertension was higher, at 64%, as compared to 52% of White women, and 51% of Black and White men, inclusively (American Heart Association, 2013).

Bringing awareness of hypertension to Black women living in the United States through subtle ways that are familiar to them is the best way of getting Black women's attention. It is also the single best way to keep the Black women focused and ensure positive changes in health behaviors that are sustainable. Furthermore, regardless of level of education, income, and employment, moderate exercise and compliance with prescribed treatment, Black women could enhance the efforts to decrease both the incidence and mortality rates of hypertension.

Future studies should focus on the impact of risk factors such as age, poverty, awareness of health status, education, and co-morbidity to create more sound compliance with hypertension treatment among Black women in the United States.

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