THE RELATIONSHIP BETWEEN HEALTH BEHAVIORS OF WOMEN AND HEALTH LOCUS OF CONTROL AMONG BLACK CARIBBEAN WOMEN AND BLACK AMERICAN WOMEN WITH HYPERTENSION

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THE RELATIONSHIP BETWEEN HEALTH BEHAVIORS OF WOMEN AND HEALTH LOCUS OF CONTROL AMONG BLACK CARIBBEAN WOMEN AND BLACK AMERICAN WOMEN WITH HYPERTENSION

a dissertation

by

CAMELLE CHARLES

submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy

May 1, 2020
MOLLOY COLLEGE
THE BARBARA H. HAGAN SCHOOL OF NURSING & HEALTH SCIENCES

The dissertation of Camelle Charles

Entitled THE RELATIONSHIP BETWEEN HEALTH BEHAVIORS OF WOMEN AND HEALTH LOCUS OF CONTROL AMONG BLACK CARIBBEAN WOMEN AND BLACK AMERICAN WOMEN WITH HYPERTENSION

in partial fulfillment of the requirements for the degree of Doctor of Philosophy

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Abstract

Background

Millions of Caribbean women have migrated to the United States, and a sizeable number of these women and Black American women suffer from hypertension and other cardiovascular health problems. This research showed the comparison of health behaviors of both groups of women and the difference in their health outcomes. Today, there are more migrants in the world than ever before; an estimated 272 million international migrants in 2019, which is an increase in 51 million since 2010 (United Nations, 2019) and Caribbean migrants are a substantial portion of this pool. Approximately 4.4 million Caribbean immigrants reside in the U.S. and this represents 10 percent of the 44.5 million immigrants who live here (Zong & Batalova, 2016). Hypertension has been recognized as a major health burden both nationally and globally and is a leading cause of cardiovascular morbidity and mortality. According to the National Health and Nutrition Survey, 85.7 million adults have hypertension and more than half of these are women. Cardiovascular disease is attributed to one in three deaths of women in the U.S. (Abramson, Sivaratharajah, Davis & Parapiuid, 2018).

Purpose

The purpose of this study is to explore and compare health beliefs, health-promotion activities, and reported health quality among women with hypertension from different cultures, focusing on Black Caribbean immigrant women and Black American women living in the New York Tri-State area. Pender’s (1987) Health Promotion Model (HPM) serves as the comprehensive theoretical framework to understand the full range of health perceptions and health behaviors of the women in this study.
Method

The sample was recruited from the offices of two internal medicine doctors who were located in the New York Tri-State area. A six-page survey was delivered to all female subjects who met the criteria in these two offices. All questionnaires and surveys were coded and distributed in packets with sealable envelopes for confidentiality. The Quality of Life Instruments for Chronic Diseases – Hypertension Scale (QLICD – HY) for self-reported health quality and the health locus of control scales were used. QLICD-HY scale is a five-level Likert-type scoring system, consisting of 47 questions, which measures the physical, psychological, social and specific self-reported symptoms related to hypertension of the subjects.

The Multidimensional Health Locus of Control (MHLC), including the God Locus of Health Control (GLHC) scales, were used to determine the individual’s belief in what determines health outcomes. These beliefs were combined with questions that focus on the cultural lifestyles of these women from the other scales, which involved diet, exercise and their spiritual beliefs.

Other measures of health promotion behaviors were included with the demographic questions, and self-reported health quality related to hypertension was measured via a questionnaire. This research helped to provide culturally appropriate and equitable care that has been a challenge for nurses, as social and cultural boundaries become complex, and as nurses see more patients from backgrounds that are different from their own.

Analysis

Quantitative analysis was used for this research study. A non-experimental, comparative and correlational design was used to examine the association among the variables of interest. Descriptive statistics was used to describe the entire sample. Demographic data described
that the sample was using frequencies and appropriate descriptive statistical techniques (percentage, mean, standard deviation and variance).

Analysis of variance (ANOVA) was used to test differences among the cultural groups (as defined) and for four selected subscales of the MHLC Scale, four subscales of the self-reported health quality, and eight questions related to health-promotion behaviors. Pearson Product Moment correlations were computed to explore possible relationships between health locus of control and health behaviors.

Results

The findings from this study showed that there is a difference between groups within select demographic variables, the self-reported health locus of control, self-reported health quality, and self-reported health-promoting behaviors. The findings did show there is a difference between Black Non-Caribbean and Black Caribbean women’s self-reported health quality and that there is not a statistically mean significant difference between Black Caribbean women and Black Non-Caribbean women’s health locus of control, with the exception of the “Powerful Other” measure.

Keywords: Hypertension, Caribbean Immigrants, Black American Women, Culture, Health, Health Locus of Control
Acknowledgments

The completion of this dissertation represents the collective efforts of many individuals who have supported me through this process. First, I express my deep and heartfelt gratitude to my advisor and dissertation chair, Dr. Veronica Feeg, for her amazing expertise, unwavering support, patience, guidance and moral encouragement. You are the quintessential mentor. I thank my other committee members, Dr. Ethel Ulrich and Dr. Marcia Caton, for their support, encouragement and insightful contributions. My sincere thanks to the librarian of Molloy College, Theresa Rienzo, for spending many hours assisting me with my literature review search. A special thanks to Dr. Ebenezer Odoom and Dr. David Tavakoli for their support and kindness for the use of their facilities.

Words cannot express my deep gratitude for the support I have received from family and friends. My husband, Vernon, whose unfailing love, constant support, motivation, encouragement, prayers and faith provided me with a secure foundation from which I felt free to pursue my goals. Special thanks to my children, Melissa and David, for their unconditional love and moral support.

Finally, I thank God for his grace and guidance in the completion of this work.
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Chapter 1: Introduction and Statement of the Problem

Hypertension, or high blood pressure, is a significant worldwide public health challenge because of its high frequency and associated risks of cardiovascular disease. It is a public health issue that is prevalent within the United States (U.S.) and beyond. Hypertension is principal cause for cardiovascular disease both nationally and globally. Today, more than 85.7 million adults have hypertension in the U.S. and more than half of these are women. Cardiovascular disease is attributed to 1 in 3 deaths of women in the U.S. (Abramson, Srivaratharajah, Davis, & Parapiuid, 2018). Hypertension presently affects over a billion people globally and 40% are adults over 25 years of age. Cardiovascular disease is attributable to over 17 million deaths worldwide and hypertension is responsible for 9.4 million of these deaths; heart disease accounts for 45% and stroke account for 51% of these deaths (Pavuk, et al., 2019). According to Zhang, Wang, Zhang, Fang, and Ayala (2017), the estimated national cost of treating hypertension was increased from $58.7 billion in 2000-2001 to $109.1 billion in 2012-2013. The per-person annual payments were 22.7% higher in 2012-2013 than in 2000-2001. The estimated cost of hypertension from 2014 to 2015 in the US (annual average) was $55.9 billion. From 2003 to 2014, the annual mean additional medical cost for a person with hypertension was $1920 compared with a person without hypertension (American Heart Association (AHA), 2020). Projections of cost for high blood pressure further showed that by 2035, the total direct costs of high blood pressure could increase to an estimated $220.9 billion. Prescriptions cost for antihypertensive medication increased from 614 million to 653 million between 2010 and 2014. The 653 million antihypertensive prescriptions filled in 2014 cost $28.81 billion (AHA, 2020). The global burden of hypertension is expected to increase by 60%, with a projected 1.56 billion hypertensive people in world (Lackland & Weber, 2015). This significant increase in the cost of treating hypertension calls for urgency in the prevention and control of this disease.
One of the major challenges for policy makers and healthcare practitioners is the growing diversity in our society. According to Titzmann and Fuligni (2015), the United Nations reported a significant increase in the number of migrants entering the United States. There have been 152 million migrants in 1990, 175 million migrants in 2000, and 232 million migrants in 2013. Zong and Batalova (2019) reported that there are approximately 4.4 million Caribbean immigrants who are presently residing in the US, which accounts for 10% of the nation’s 44.5 million immigrants. These steep numbers and the growing cultural population diversity pose a complex challenge in dealing with the issues of a multicultural society. Policy makers and healthcare practitioners will have to develop ideas and approaches that will not only help to understand minority or immigrant adaptation to a new society but also may have to provide evidence that can help these immigrants with their adaptation. It has been reported in the literature that migrants show a gradual shift from their culture to the receiving culture and can easily be involved in both cultures simultaneously (Berry, 1997; Ryder, Alden, & Paulhus, 2000).

Examining the immigration system, all ecological systems are affected by the transition to a new country or by the situation of being a member of a minority in a particular host country (Titzmann & Fuligni, 2015). To understand the impact of this cultural transition, we need to examine the underlying cultural norms and behaviors of the different minority groups. Thus, this impact of cultural transition clearly demonstrates that there is a growing necessity for research in this increasingly diverse society. For example, in studying minorities in the 21st century in the United States, a growing number of people cannot be classified by race alone; an appreciation for the complexities of culture and racial identity is more important than ever before. There is a need for increased awareness, serious reflections, and sensitivity to multiculturalism and cultural diversity (Quiros, 2012). There is the tendency to look at all minorities with “dark skin” and clump them all as Black. What makes this research so interesting is the crucial understanding of
“difference” for this specific group of Black Caribbean women and Black American women. It appears that the public has fallen into a trap where language and labels are used to describe and generalize populations.

Quiros (2012) explains that the society in the US habitually assigns identifiers to individuals and groups primarily based on race, and we tend to provide health care based on these generalizations. Black women of diverse ethnic ancestry are relegated to a single and predetermined racial label (Root, 1992, 1998, 2000; Wallace, 2004). By this overgeneralization, it negates their individual cultural beliefs and behaviors that may be unique to their ethnic origin.

Approximately 4 million immigrants from the Caribbean reside in the United States, accounting for 9% of the nation’s 42.4 million immigrants. Over 90% of Caribbean immigrants came from the following countries: Cuba, Dominican Republic, Jamaica, Haiti, Trinidad and Tobago, Barbados, Grenada, Bahamas, Dominica, West Indies, Saint Vincent and the Grenadines, and other Caribbean countries, including Guyana (see Table 1). The Census Bureau classifies persons born in Puerto Rico and the US Virgin Islands as U.S. born and therefore are not included in this analysis of the foreign born from the Caribbean. The majority of immigrants from the Caribbean come with various skill levels, racial composition, language background, as well as migration pathways to the U.S., depending on their country of origin and period of arrival (Zong & Batalova, 2016). The term "immigrant" (or "foreign born") refers to people residing in the United States who were not U.S. citizens at birth. This population includes naturalized citizens, lawful permanent residents, certain legal nonimmigrants (e.g., persons on student or work visas), those admitted under refugee or asylee status (a person who is seeking or is granted political asylum), and persons illegally residing in the U.S. (Thomas, 2012; Zong & Batalova, 2016).
Table 1. Distribution of Caribbean Immigrants by Country of Origin, 2017

<table>
<thead>
<tr>
<th>Region and Country</th>
<th>Number of Immigrants</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caribbean</td>
<td>4,415,000</td>
<td>100.0</td>
</tr>
<tr>
<td>Cuba</td>
<td>1,312,000</td>
<td>29.7</td>
</tr>
<tr>
<td>Dominican Republic</td>
<td>1,163,000</td>
<td>26.3</td>
</tr>
<tr>
<td>Jamaica</td>
<td>745,000</td>
<td>16.9</td>
</tr>
<tr>
<td>Haiti</td>
<td>680,000</td>
<td>15.4</td>
</tr>
<tr>
<td>Trinidad and Tobago</td>
<td>235,000</td>
<td>5.3</td>
</tr>
<tr>
<td>Barbados</td>
<td>56,000</td>
<td>1.3</td>
</tr>
<tr>
<td>Grenada</td>
<td>34,000</td>
<td>0.8</td>
</tr>
<tr>
<td>Dominica</td>
<td>34,000</td>
<td>0.8</td>
</tr>
<tr>
<td>Bahamas</td>
<td>33,000</td>
<td>0.7</td>
</tr>
<tr>
<td>West Indies</td>
<td>25,000</td>
<td>0.6</td>
</tr>
<tr>
<td>St. Vincent and the Grenadines</td>
<td>24,000</td>
<td>0.5</td>
</tr>
<tr>
<td>Other Caribbean</td>
<td>76,000</td>
<td>1.7</td>
</tr>
</tbody>
</table>


The acceleration of the Caribbean individuals immigrating to the U.S. started in the 1960s. Starting with fewer than 200,000 in 1960, the Caribbean population in the U.S. grew significantly over the next couple decades. Figure 1 depicts graphically the waves of immigration from 1980 to 2017. The population increased 248% from the 1960s (675,000), 86% in the 1970s (1.3 million), 54% in the 1980s (1.9 million), 52% in 1990s (3 million), and another 35% between 2000 and 2017, totaling over 4 million immigrants (Thomas, 2012; Zong & Batalova, 2016).
Figure 1: Caribbean Immigrant Population in the U.S. (1980-2017)

Source: MPI Data from US Census Bureau 2010 and 2017 American Community Surveys (ACS)

Figure 1 shows immigration pathways and the naturalization of Caribbean immigrants compared to all other immigrants who entered the U.S. by period of arrival between 2000 and 2017. Caribbean immigrants were much more likely to be naturalized U.S. citizens than overall immigrants. In 2017, 59% of the 4 million Caribbean immigrants residing in the U.S. were naturalized, compared to 49% of all foreign-born individuals. Trinidad and Tobago immigrants had the highest naturalization rate (70%), followed by Jamaican immigrants (68%). Dominican immigrants had the lowest rate (52%), while Cubans (57%) and Haitians (56%) fell in between.

The period of arrival of Caribbean immigrants roughly mirrored the trend of the overall immigrants in the United States, with slightly more Caribbean immigrants entering before 2000 (62%). Less than 10% of immigrants from Jamaica (9%) and Trinidad and Tobago (6%) arrived between 2010 and 2014. In contrast, 14% to 15% of Dominican and Cuban immigrants arrived during this period (Thomas, 2012; Zong & Batalova, 2016).
Although there is a vast number of Caribbean immigrants with naturalization status, most of them live at the poverty level, which is directly related to their educational and occupational status. The federal poverty guidelines (Healthcare.gov, 2018) for 2018 are shown below:

- $16,460 for a family of 2
- $20,780 for a family of 3
- $25,100 for a family of 4
- $29,420 for a family of 5
- $33,740 for a family of 6
- $38,060 for a family of 7
- $42,380 for a family of 8
### Table 2. Poverty Thresholds by Family Size in NYC

Source: NYC Opportunity 2018 Poverty Report

<table>
<thead>
<tr>
<th>Family Size</th>
<th>Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>One Adult, No Child</td>
<td>$15,017</td>
</tr>
<tr>
<td>Two Adults, No Child</td>
<td>$21,174</td>
</tr>
<tr>
<td>One Adult, One Child</td>
<td>$22,174</td>
</tr>
<tr>
<td>One Adult, Two Children</td>
<td>$26,903</td>
</tr>
<tr>
<td>One Adult, Three Children</td>
<td>$30,874</td>
</tr>
<tr>
<td>Two Adults, One Child</td>
<td>$28,520</td>
</tr>
<tr>
<td>Two Adults, Two Children</td>
<td>$32,402</td>
</tr>
<tr>
<td>Two Adults, Three Children</td>
<td>$36,094</td>
</tr>
</tbody>
</table>

Figure 3 compares the type of occupation Caribbean immigrants hold compared to all other immigrants in the U.S. Compared to immigrant workers overall, Caribbean immigrants were more likely to be employed in service occupations (30%); sales and office occupations (21%); and less likely to be in management, business, science, and arts occupations (20%) and natural resources, construction, and maintenance occupations (9%). Consistent with their higher levels of English proficiency and educational attainment, immigrants from Jamaica and Trinidad and Tobago were more likely than Caribbean immigrants overall to be in management, business, science, and arts occupations (32% and 37%, respectively). Immigrants from the Dominican Republic and Haiti were more likely to be employed in service occupations (33% and 41%, respectively). Caribbean immigrants worked in the labor force at a similar rate to the overall immigrant population and at a higher rate than the native born (Zong & Batalova, 2016).

Caribbean immigrants had lower incomes compared to both the total foreign and native-born populations. In 2017, the median household income among Caribbean immigrants was $47,000, compared to $56,700 and $60,800 for all immigrant households and U.S.-born households, respectively (Zong & Batalova, 2019). Caribbean immigrants were more likely to be
in poverty than those born in the U.S. In 2017, 17% of Caribbean immigrants lived in poverty, compared to 13% of the U.S. born and 15% of the overall foreign born (Zong & Batalova, 2016).

Figure 3: Caribbean Immigrants and Occupation Status in the U.S.

Source: MPI Tabulation of data from the US Census Bureau 2017 ACS

Figure 4 shows the comparison of health insurance of all immigrants with Caribbean immigrants and those who are native born. Caribbean immigrants were more likely to be insured than the overall foreign-born population: 16% of Caribbean immigrants were uninsured, versus 20% of all immigrants and 7% of the native born. Caribbean immigrants were more likely to have public health insurance (40%) than the overall immigrant population, but less likely to have private coverage. About 52% of Caribbean immigrants have private insurance (Zong & Batalova, 2019). While the overall coverage rates among Caribbean immigrant groups remained roughly the same, the source of coverage differed: approximately two-thirds of the immigrants from Jamaica have private insurance (66%), and those from Trinidad and Tobago (65%) have private insurance. The majority of the immigrants from Cuba and the Dominican Republic have public insurance, 41% and 49%, respectively (Zong & Batalova, 2019). This difference in health coverage
affects the health care received by these immigrants. These immigrants may be more likely than the general population to work in jobs that do not provide health insurance. The lack of health insurance will affect when these immigrants seek health care. Immigrants who are undocumented tend to avoid medical care for fear of acquiring debt that might threaten a future immigration proceeding (Zong & Batalova, 2016).

Figure 4: Number of Caribbean Immigrants with Insurance
Source: MPI tabulation of data from US census Bureau 2017 ACS

Figure 5 shows the Caribbean immigrant population was older than both the overall immigrant and native-born population. The median age of Caribbean immigrants was 49 years, compared to 45 for all foreign born and 36 for the U.S. native born. In 2017, 76% of Caribbean immigrants were of working age (18 to 64), compared to 80% of all immigrants and 60% of the native-born population. Median age also varies by origin country; most immigrants from the Dominican Republic (78%), Trinidad and Tobago (77%), and those from Jamaica and Haiti.
(76%) each were of working age. Cuban immigrants were also much less likely to be of working age, (27%) of Cuban immigrants were seniors, 65 years of age or older (Zong & Batalova, 2019).

Figure 5: Age Distribution of Caribbean Immigrants in the U.S.
Source: MPI tabulation from the U.S. Census Bureau 2017 (ACS)

Education and Health of Immigrants

Caribbean immigrants have lower levels of educational attainment compared to the overall foreign- and native-born populations. In 2014, 20% of Caribbean immigrants (ages 25 and over) had a bachelor’s degree or higher, compared to 29% of the total foreign-born population and 30% of the U.S.-born population. Across Caribbean immigrant groups, Dominican (15%) and Haitian (16%) immigrants were the least likely to be college graduates, while immigrants from Jamaica (24%) and Trinidad and Tobago (26%) were the most educated, although their college-educated shares were still lower than that of immigrants overall (Zong & Batalova, 2016).

A recent study done comparing Canada, England, and the United States showed marked differences in hypertension prevalence, awareness, treatment and control rates. Canada showed the lowest prevalence at 19%, followed by England and the United States at 30% each. The main determinants of hypertension in these three countries include: poor dietary habits, excess sodium
intake, physical inactivity, obesity, excess alcohol consumption, as well as age, gender, race, and socio-demographic factors (Joffres et al., 2013).

Table 3 shows the distribution of Caribbean immigrants in the U.S. Between 2013 and 2017, Caribbean immigrants were heavily concentrated in Florida (41%), New York (26%), and to a less extent New Jersey (8%), according to 2010-14 ACS data. The top four counties with Caribbean immigrants were Miami-Dade County in Florida, Kings County in New York, Broward County in Florida, and Bronx County in New York. Together, these counties represented 41% of the Caribbean immigrant population in the United States. In the 2010-14 period, the U.S. cities with the greatest number of Caribbean immigrants were the New York City and Miami metropolitan areas. These two metropolitan areas accounted for 63% of Caribbean immigrants in the U.S. (Zong & Batalova, 2019).

It is widely recognized that health outcomes are deeply influenced by a variety of social factors outside of health care. Education is critical to social and economic development and has a profound impact on the population’s health. Poverty and poor education are key social determinants that have the power to shape one’s life. Poor education and the health needs of this population result in an increased demand for health services, particularly in the urban areas as shown in Table 3.
Hypertension and Cardiovascular Health

Hypertension (HTN) is the leading cause of cardiovascular mortality and morbidity, both nationally and globally. According to the National Health and Nutrition Survey, 87.7 million US adults > age 20 have hypertension and more than half of them are women. Of these women, one in three deaths are attributed to cardiovascular disease (Abramson, Srivaratharajah, Davis, & Parapid, 2018). The estimated cost of treating hypertension was $51.2 billion in 2012-2013 and is estimated to be $200 billion in 2030 (DePalma et al., 2018).

Based on the 2017 AHA data, the age-adjusted death rate attributable to cardiovascular disease (CVD), is 219.4 per 100,000. On average, there are 2,353 deaths from cardiovascular disease each day in the U.S., which equals someone dying every 37 seconds. On average, someone in every 40 seconds and it is reported that someone dies of a stroke every 3.59 minutes in the U.S. There are about 401 deaths from stroke each day, based on the 2017 AHA data.

As the population in the U.S. continues to age, the effective prevention, treatment, and control of chronic diseases remain essential to preserving the health and well-being of the nation.
Approximately two in three older adults in the U.S. have high blood pressure, putting a large and growing proportion of the older population at increased risk, a range of health problems, including cardiovascular disease, heart attack, stroke, kidney disease, and death (Yang, Boen, & Harris, 2015). The American Heart Association recommends focusing on 7 health factors (Life's Simple 7) for primordial prevention of cardiovascular health. However, whether greater adherence to Life's Simple 7 in midlife improves prognosis after myocardial infarction in later life is unknown to improve the cardiovascular health of all Americans by 20% and reduce deaths from cardiovascular disease and stroke by 20%, they recommend focusing on 7 cardiovascular health factors (smoking, body mass index [BMI], physical activity, diet, total cholesterol, blood pressure, and fasting blood glucose) for primordial or primary prevention of cardiovascular disease and defined them as Life's Simple 7 (Mok et al., 2018; Verani et al., 2020).

Hypertension remains the leading risk factor for death and disability that is seen globally and in the U.S. today. Almost half of patients with hypertension remain undiagnosed, even though much of hypertension is preventable with diet, exercise and blood pressure monitoring (Kaur, Arora, & Jain, 2017). Hypertension is often called “the silent killer” because it typically has no symptoms until after it has done significant damage to the heart and arteries (Sawicka et al., 2011).

Hypertension is associated with an increased risk of cardiovascular disease, which includes myocardial infarction, (MI), heart failure, and renal disease, and is related to the direct and indirect cost of disability and premature deaths. The direct and indirect costs of treating hypertension was $46.4 billion in 2011, $51.2 billion in 2012-2013, and total direct costs is projected to be $274 billion by 2030. Hypertension affects approximately one-third of adults in the U.S. and causes one out of every seven deaths (DePalma, Himmelfarb, MacLaughlin, & Taler, 2018).

Hypertension is defined as having a blood pressure higher than 120 over 80 mmHg, with a
consensus across medical guidelines. Blood pressure is the force exerted by the blood against the walls of blood vessels, and the magnitude of this force depends on the cardiac output and the resistance of the blood vessels. This means the systolic reading (the pressure as the heart pumps blood around the body) is over 120 mmHg (millimeters of mercury) and/or the diastolic reading (as the heart relaxes and refills with blood) is over 80 mmHg. This threshold has been set to define hypertension for clinical use, as patients experience benefits once they bring their blood pressure below this level. However, medical experts consider high blood pressure as having a continuous relationship to cardiovascular health.

The new recommendations for adult hypertension by the ACC/AHA, (Whelton et al., 2017) guideline classifies blood pressure into four categories: normal, elevated, stage 1, and stage 2 hypertension. Table 4 below compares the new ACC/AHA, 2017 guidelines to the old Journal of Nuclear Cardiology, 7. According to the new ACC/AHA, 2017 guidelines, non-pharmacological intervention is the preferred treatment for elevated blood pressure and the first-line treatment for Stage 1 Hypertension in patients who are not at elevated cardiovascular disease risk. These non-pharmacological interventions include the following: weight loss for those who are overweight or obese, increased physical activity with a structured exercise program, and a diet with reduced intake of sodium with intake of dietary potassium (unless contraindicated), and moderation of alcohol intake.
Table 4. Comparing Blood Pressure Classification
Source: Journal of the American Academy of Physicians Assistants (JAAPA)

<table>
<thead>
<tr>
<th>Systolic BP (mm/hg)</th>
<th>Diastolic BP (mm/hg)</th>
<th>2017 Guidelines</th>
<th>JNC 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;120</td>
<td>&lt;80</td>
<td>Normal</td>
<td>Normal</td>
</tr>
<tr>
<td>120-129</td>
<td>&lt;80</td>
<td>Elevated</td>
<td>Prehypertension</td>
</tr>
<tr>
<td>130-139</td>
<td>80-89</td>
<td>Stage 1 HTN</td>
<td>Prehypertension</td>
</tr>
<tr>
<td>140-159</td>
<td>90-99</td>
<td>Stage 2 HTN</td>
<td>Stage 1 HTN</td>
</tr>
<tr>
<td>&gt;160</td>
<td>&gt;100</td>
<td>Stage 2 HTN</td>
<td>Stage 2 HTN</td>
</tr>
</tbody>
</table>

High blood pressure is a symptomless disease, except in most extreme cases known as hypertensive crisis. Hypertensive crisis is when blood pressure (BP) readings rise to 180 or above for the systolic (top number) or 110 or above for the diastolic (bottom number). These elevated blood pressure readings are now classified and treated as emergencies and urgencies and are associated with target organ damage; new, progressive, or worsening.

Individuals whose blood pressure is higher than 140/90 mm Hg (140 systolic or above or 90 diastolic or above) often are treated for serious cardiovascular problems (Whelton et al., 2018). According to the Centers for Disease Control and Prevention (2014), the risk for hypertensive crisis increases even more if one has high blood pressure along with other risk factors, which include:

- Age - between 25 to 65 years old
- Heredity (including race) - Caribbean women: Guyanese, Grenadians, Trinidadians, Jamaicans, Barbadians and Haitians
- Gender - female
- Overweight or obesity - BMI over 35
• Smoking history - cigarettes, cigars or marijuana
• High cholesterol - LDL and HDL ratio
• Diabetes - Type I and Type II
• Physical inactivity - not having a routine of cardiovascular exercises

There are many risk factors for developing hypertension. Risk factors include a family history of the condition, race or ethnicity (particularly African American), obesity, high sodium or alcohol intake, a low-potassium diet, and a sedentary lifestyle. The risk factors for high blood pressure can be either modifiable or non-modifiable. Age, sex, race, and ethnicity are non-modifiable factors that can increase the risk for developing high blood pressure. Modifiable risk factors are the ones that can be controlled, such as weight, physical activity and smoking (Mozaffarian et al., 2015).

There are usually no warning signs with hypertension, and people who develop hypertension generally do not realize they have an illness. The detection of hypertension ordinarily occurs during a routine exam or sick visit. Regular blood pressure monitoring and routine checkups are important for early detection (Agu et al., 2014).

Through risk reduction and treatment of high blood pressure, one can lower their risk for many of these cardiovascular diseases. Hypertension is an important worldwide public health challenge because of its high prevalence and concomitant risks of cardiovascular disease morbidity and mortality as well as other conditions such as, sleep apnea, diabetes and renal disease. Hypertension is said to be responsible for 1 in 5 deaths in American women and contributes to many of these comorbidities. According to AHA (2020), the prevalence of hypertension among blacks in the United States is among the highest in the world. The age-adjusted prevalence of hypertension among blacks was 57.6% among males and 53.2% among females. The data also showed that Black adults over 18 years of age were more likely to have
hypertension (33.0%) than American Indians/Alaska Native adults (26.4%), White adults (23.5%), Hispanic of Latino adults (22.9%), and Asian adults (19.5%). Minority women, especially African Americans and Hispanics are more susceptible to hypertension (Wenger et al., 2016). One common misconception is that high blood pressure or hypertension rarely affects women. However, nearly half of all adults with high blood pressure are women, and at 65 and older, women are more likely than men to be diagnosed with hypertension. It is shown that 40% of Black adults compared to 30% of White adults have hypertension and the incidence of hypertension occurs at a younger age for blacks than whites.

Throughout a woman’s life, health issues like pregnancy, pregnancy prevention (birth control), and menopause can increase the risk of developing hypertension. Medical researchers have found that birth control pills increase blood pressure in some women. Hypertension is more likely to occur if a woman is overweight, was diagnosed with gestational hypertension during pregnancy, or has a family history of high blood pressure or kidney disease. The combination of birth control pills and cigarette use may also be a major cause of hypertension in women. One in three deaths of women in the U.S. are attributed to cardiovascular disease (Abramson, Srivaratharajah, Davis, & Parapid, 2018).

According to Lackland and Weber (2015) hypertension is expected to increase by 60% globally and it is projected that 1.56 billion people in the world will have hypertension. Due to this global increase, there is a great need for blood pressure prevention and control strategies. In order to do so, it is important to identify high-risk populations, implement cost-effective treatment and management protocols, and collaboratively prioritize population-based strategies for this major health burden. As much as 30% of all deaths in hypertensive black men and 20% of all deaths in hypertensive black women might be attributable to high blood pressure (Williams, Ravenell, Seyedali, Nayef, & Ogedegbe, 2016). Approximately half of the African American population do not have their blood pressure under control and as a result encounter more hypertension-related
In the United States, cardiovascular disease is said to be the leading cause of death, and hypertension is often the leading modifiable risk factor affecting many adults in this country. Since the USA Immigration Act of 1965, many immigrants have entered the United States of America from various parts of the world and many of them have migrated from the Caribbean countries. A large portion of these immigrants have settled in the New York City area and they have immersed themselves into a new culture, leaving many of these immigrants to deal with many new stressors.

Culture care theory is one of the leading theories that guides nurses to care for patients from different ethnic backgrounds. It aims to provide a culture-specific approach, yet it remains broad and holistic (Leininger, 2002). Nurses are often the health professionals who care for diverse patients in the NYC area and need to know how culture affects belief and health behaviors of immigrants with hypertension. It is important to understand that when it comes to nursing, the difference between cultures may lay in a different set of behaviors, ways of thinking, and responses, all of which need an individualistic approach when caring for these patients.

**Purpose of the Study**

The purpose of this study was to compare the health beliefs and behaviors including locus of control among women with hypertension, who are from diverse cultures, focusing on their health, specifically related to Black Caribbean women and Non-Caribbean (Black American) women who live in the New York Tri-State area. The objective of this study is three-fold: (1) to describe the health-promotion behavior practices of Black Caribbean women and Black American women with hypertension; (2) to compare health beliefs, reported health quality and health promotion behaviors with health beliefs, reported health quality and health promotion behaviors of women from different cultures, focusing on Black Caribbean and Black American women living in the New York Tri-State area; and (3) to identify differences in the health locus of control of Black Caribbean and Black American women with hypertension and determine its influence on
their health promotion behaviors and health quality of life.

A community-based sample of women who met the criteria for inclusion was recruited to complete a questionnaire that measures their health-promotion activities, reported health quality and health locus of control related to hypertension.

**Background and Significance**

Today, there are more migrants in the world than ever before. In 2013, approximately 232 million international migrants were recorded, and Caribbean migrants were a large portion of this pool (United Nations, 2019). In 2017, approximately 4.4 million Caribbean immigrants reside in the United States today and accounts for 10% of the global immigrants totaling 44.5 million (Zong & Batalova, 2016). Cardiovascular disease is the leading cause of death, both in the United States and in New York City. Hypertension is a leading modifiable risk factor affecting 1 in 4 New York City adults. Since the Immigration Act of 1965, there has been an inflow of immigrants from Latin America/Caribbean, Eastern Europe and Asia. Many of these individuals came and settled in the NYC metropolitan area. Many chronic health conditions have been identified in these newcomers, making it critical to understand these health patterns and identify emerging health disparities. Given the changing demographics of NYC and the differences in the assimilation experience among racial/ethnic groups, hypertension prevalence estimates account for the complex relationships between acculturation-related factors and race/ethnicity are warranted (Yi, Elfassy, Gupta, Myers, & Kerker, 2014).

Hypertension is considered one of the most modifiable risk factors for stroke and is more prevalent in women than men. Hypertension is said to be more poorly controlled in women than men; only 23% of women versus 38% of men, have a blood pressure less than 140/90. Gender
differences in hypertension and stroke risks have been recognized in many areas in medicine. In the U.S., it is estimated that there is 6.8 million persons who have had a stroke, most of whom are women, totaling 3.8 million. Women who experience a stroke have worse outcomes than men. After a stroke, women are more likely to be institutionalized and have a poorer recovery and worse quality of life than men (Bushnell & McCullough, 2014). There is currently no evidence that antihypertensive treatments differently affect blood pressure response or stroke prevention by gender, but evidence has shown that there are major evidence gaps about appropriate drug choices, treatment resistance, adherence, drug choices and hormone-dependent and independent approaches to blood pressure. Examinations of sex differences have shown that there is a higher prevalence of atrial fibrillation and a higher associated risk for thromboembolic occurrences in women (Bushnell & McCullough, 2014).

High blood pressure has become a major health burden and a major risk factor for stroke. Stroke remains the leading cause of disability and the third leading cause of death among women in the U.S. today. Women tend to live longer than men, so a stroke will have a more negative impact on their lives. Each year, stroke kills twice as many women as those with breast cancer (Wenger et al., 2016). Cardiovascular disease is the world's leading cause of death, accounting for 17.5 million deaths (31% of all deaths) globally. Of these deaths, an estimated 7.4 million were due to coronary heart disease (CHD) and 6.7 million were due to stroke (Peters, Singhateh, Mackay, Huxley, & Woodward, 2016).

Hypertension is also a serious risk factor for cardiovascular disease in the Caribbean population. Globally, high blood pressure is responsible for 51% of cerebrovascular disease (stroke) and 45% of deaths due to ischemic heart disease, which is the leading cause of death in the Caribbean. Hypertension affects 21% of adults in Barbados and Trinidad and Tobago; 25% in Jamaica; and 35-38% in St. Kitts, British Virgin Islands and Grenada (Figueroa, Harris, Duncan &
In the Caribbean population, hypertension and diabetes are overrepresented. The mortality rate in the Caribbean island of Martinique is 19% at one month after stroke, 29% at one year after stroke, and 49% five years after stroke. Caribbeans tend to suffer their first stroke earlier than Europeans; between 64 and 69 years in Martinique and Guadeloupe versus 73 years in European nations, as registered in the Dijon Stroke Registry (Galanth, Tressieres, Lannuzel, Foucan & Aledcu, 2014).

Cardiovascular disease has become the single-most important and largest cause of non-communicable disease deaths worldwide, reaching over 50%. The World Health Organization estimates that 17.6 million people died of cardiovascular disease Worldwide in 2012. Proportionally, this accounts for an estimated 31.43% of global mortality, Ischemic Heart Disease accounted for approximately 7.4 million deaths, (13.2% of the total) and was also the greatest single cause of death in 2000, accounting for an estimated 6.0 million deaths. The global burden of cardiovascular disease falls, principally, on the low and middle-income (LMI) countries, accounting for over 80% of cardiovascular disease deaths (McAloon et al., 2016).

**Theoretical Framework**

Models are being developed to guide research and practice in the field of health promotion. A model that was founded on social cognitive theory is Pender’s (1987) Health Promotion Model (HPM). The model illustrates the mechanism that explains and predicts the health-promoting component of lifestyles. Pender’s (HPM) will be used as a theoretical framework for this study, focusing on specific concepts to guide the research questions. Pender’s Health Promotion Model, was designed to be a complementary counterpart to model health protection. It defines health as a positive dynamic state, not merely the absence of disease (Pender, 1987). Pender’s (HPM) has been used in research, clinical practice, and nursing education. Hundreds of published nursing
articles have used the model as a theoretical framework.

Pender’s (1987) HPM is a middle-range theory that explains and predicts how the complex interaction among perceptual and environmental factors influences health-related choices. Pender focuses the model on high-level wellness and health promotion. Deciding to participate in health-promoting behavior will be affected by the individual’s definition of health, as well as perceived barriers and benefits from it. The most substantial part of the model is composed of variables based on beliefs and outside influences that are fused together under the heading “Behavior Specific Cognitions and Affect.” This category includes propositions that people will be more successful if they anticipate benefit, perceive self-efficacy, and have a positive affect toward the health-promotion goal.

Pender has 10 major theoretical propositions of the revised HPM, which collectively states that individual characteristics and beliefs will influence the person’s level of commitment and likelihood of demonstrating the desired health promotion behavior. These interrelated variables are represented into three categories: individual characteristics and experiences, behavior-specific cognitions and affect, and behavioral outcomes. Pender’s HPM examines the dynamic process, whereby one decides to initiate and maintain health promoting behavior. Health promotion occurs in two phases: (1) decision-making phase and (2) the action phase (Pender, Murdaugh, & Parsons, 2002).

The HPM defines health as a positive dynamic state, not merely the absence of disease. Health promotion is directed at increasing a client’s level of well-being. The HPM describes the multi-dimensional nature of persons as they interact within their environment to pursue health. The Pender HPM serves as the comprehensive conceptual framework to understand the full range of health perceptions and health behaviors.

The HPM is based on the following assumptions, which reflect both nursing and behavioral
science perspectives HPM Assumptions (Pender, Murdaugh, & Parsons, 2011):

Persons seek to create conditions of living through which they can express their unique human health potential.

1. Persons have the capacity for reflective self-awareness, including assessment of their own competencies.
2. Persons value growth in directions viewed as positive and attempt to achieve a personally acceptable balance between change and stability.
3. Individuals seek to actively regulate their own behavior.
4. Individuals in all their biopsychosocial complexity interact with the environment, progressively transforming the environment and being transformed over time.
5. Health professionals constitute a part of the interpersonal environment, which exerts influence on persons throughout their lifespan.
6. Self-initiated reconfiguration of person-environment interactive patterns is essential to behavior change.

HPM Theoretical Propositions

Theoretical statements derived from the model provide a basis for investigative work on health behaviors. The HPM is based on the following theoretical propositions:

1. Prior behavior inherited and acquired characteristics influence beliefs, affect, and enactment of health-promoting behavior.
2. Persons commit to engaging in behaviors from which they anticipate deriving personally valued benefits.
3. Perceived barriers can constrain commitment to action, a mediator of behavior as well as actual behavior.
4. Perceived competence or self-efficacy to execute a given behavior increases the
likelihood of commitment to action and actual performance of the behavior.

5. Greater perceived self-efficacy results in fewer perceived barriers to a specific health behavior.

6. Positive affect toward a behavior results in greater perceived self-efficacy, which can in turn result in increased positive affect.

7. When positive emotions or affect are associated with a behavior, the probability of commitment and action is increased.

8. Persons are more likely to commit to and engage in health-promoting behaviors when significant others model the behavior, expect the behavior to occur, and provide assistance and support to enable the behavior.

9. Families, peers, and health care providers are important sources of interpersonal influence that can increase or decrease commitment to and engagement in health-promoting behavior.

10. Situational influences in the external environment can increase or decrease commitment to or participation in health-promoting behavior.

11. The greater the commitment to a specific plan of action, the more likely health-promoting behaviors are to be maintained over time.

12. Commitment to a plan of action is less likely to result in the desired behavior when competing demands (over which persons have little control) require immediate attention.

13. Commitment to a plan of action is less likely to result in the desired behavior when other actions are more attractive and thus preferred over the target behavior.

14. Persons can modify cognitions, affect, and the interpersonal and physical environment to create incentives for health actions.
Figure 6: Pender’s Health Promotion Model

The HPM is represented diagrammatically in Figure 5. The concepts are clearly shown above with the modifying or background factor having an impact on seven cognitive perceptual factors that in turn affect participation in the health-promoting behaviors. Pender (1987) proposed that demographic factors, such as sex, age, income, marital status, education and other biological characteristics, (e.g., height, weight) affect health-promoting behaviors indirectly through cognitive–perceptual mechanisms.

The cognitive-perceptual factors, the primary motivational mechanism for acquisition and maintenance of health-promoting behaviors, are said to apply a direct influence on health-promoting behaviors. For example, perceived control of health operates such that individuals
who have an internal locus of control are more likely to exhibit overt health-promoting behaviors while those with an external locus of control are less likely to engage in health-promoting behaviors because they believe their health is beyond their immediate control. Pender (1987) argues that highly self-efficacious individuals exert greater efforts to master health-promoting behaviors and that “feeling good” or perceiving one’s self as healthy serves as a basis of motivation for behaviors to increase personal health status.

The absence of direct effects between the modifying factors and participation of promoting behaviors states that according to the HPM, modifying factors employ their influence through the cognitive–perceptual mechanism that directly affects behavior. Each arrow in the model represents a hypothesized relationship. In the same manner, the absence of arrows in a model indicates that the theoretician has hypothesized that no causal relationship exists in a particular location. In the HPM, it is clear that no direct effects are hypothesized to exist between the modifying factors and the participation in health-promoting behaviors and that the cognitive–perceptual factors create the source of all the connections between the modifying factors and participation in the health-promoting behaviors (Pender, 1987).

These variables can influence behaviors, beliefs and outcomes. The most substantial part of the model is composed of variables based on beliefs and outside influences that are fused together under the heading “Behavior Specific Cognition and Effect.” This category includes propositions that people will be more successful if they anticipate benefits, perceive self-efficacy, and have a positive affect toward the health promotion goal (Sheehan, 2011).

Pender’s (1987) conceptual map related variables are clustered together and separated into three main categories. The antecedents to action are the individual characteristics and experiences, which include variables that have been determined by past experiences, genetics, or
biopsychosocial influence. The majority of the other variables that are based on belief and outside influences are fused together under the heading “Behavior Specific Cognitions and Affect.” Both groupings are related to the last cluster of variables termed the “behavioral outcome.” The desired outcome is the health-promotion behavior, which is influenced by competing demands and making a commitment to change behavior.

Pender’s Revised Health Promotion Model (RHPM) provides a theoretic framework of factors influencing health-promoting behaviors that integrates nursing and behavioral science perspectives, mainly the expectancy-Value Theory and Social Cognitive theory (Wu & Pender, 2005).

According to Pender (1987), there are three (3) major groups of factors that influence health-promoting behaviors: (a) Individual characteristics and experiences; (b) Behavior-specific cognitions (which includes interpersonal influences from family, peers, providers, and situations), and affect; (c) Immediate behavioral contingencies (p.114). Health-promoting behaviors is the desired behavioral outcome.

Pender’s model seeks to explain and predict how the complex interaction among perceptual and environmental factors influences the health-related choices that people make. Pender intended the model to be “high-level wellness and health promotion” instead of disease prevention. Pender’s representation of healthy behavior is deductive in that it was originally based on concepts from the Health Belief Model, Expectancy Value Theory, and Social Cognitive Theory (Pender, 1987). However, the model is also inductive because over time, Pender has made modifications based on research finding. Since her first model in 1987 was published, she has revised her model twice, first in 1987 and then in 1996. Her changes were made based on the research using fewer variables, with more direct and indirect relationships. The assumptions of the Health Belief Model stress the interactive nature of client and environment, which included:
1. People desire conditions that facilitate the expression of their individual potential
2. People have the capacity of self-awareness
3. People value positive growth and attempt to equalize change and stability
4. There is a natural human desire to control one’s own behavior
5. Humans both change their environment and are changed by it
6. As part of the environment, health care workers influence others
7. Lasting behavior modification is based on self-initiated change (Pender, Murdaugh, & Parsons, 2002).

The theoretical propositions of the revised HPM state that the characteristics and beliefs of an individual will influence the person’s level of commitment and likelihood of demonstrating the health promotion behavior. The HPM consists of nine groups of interrelated variables. Some of the variables that are proposed to indirectly and directly influence one’s commitment to a healthy plan of action are past behavior and personal characteristics, positive emotions, perceived self-efficacy, perceived benefits and barriers, expectations of others, environment, and competing demands (Pender et al., 2002). For the purpose of this study, the belief that one’s actions can affect one’s health is determined by the individual’s belief that the control of health is internal, external (chance) or by some powerful other. This is one’s measurable health locus of control.

**Multidimensional Health Locus of Control Scale (MHLC)**

Wallston, Wallston, and DeVellis (1978) developed and tested the Multidimensional Health Locus of Control Scale. This scale has been used in hundreds of research studies to tap into the individual’s basis of self-efficacy. There are three forms of the MHLC Scale: Forms A, B and C. Forms A and B contain three six-item subscales: internality; powerful others externality; and chance externality. Form C is designed to be “condition-specific” and can be used in place of...
Form A/B when studying people with an existing health/medical condition (Wallston, 2005).

There is also the God Locus of Health Control (GLHC) Scale, which was developed to use when studying the relationship between religious belief and health. The GLHC Scale contains six items and can be used alone or in conjunction with one of the forms of the MHLC. There are two versions of the GLHC: one assesses the belief that God controls one’s health in general; the other assesses the belief that God controls changes in one’s medical condition. See Forms C of the MHLC Scale in the appendix, which will be used in this research (Wallston et al., 1999).

In addition to the MHLC Scale, Schiller and Levin’s (1988) review of the medical literature over the last 100 years found religion terminology in more than 200 published studies. Relationships between morbidity and mortality were found for many diseases such as hypertension and heart diseases. Furthermore, relationships were found between religious beliefs and health measures. Positive relationships were found between religious belief and health status indicators such as self-reported health, symptomology, disability and longevity. Levine, Chatters and Taylor (1997), cite reviews and a meta-analysis that quantitatively confirm religious involvement as an epidemiological protective factor. Research studies have found beneficial health effects of religion practice, such as attending religious services, religious observance, and religious involvement among several populations, including the elderly and physically ill (Koenig, 1998).

Hixson, Gruchow, and Morgan (1998) examined the relationship between religiosity dimensions and selected health behaviors, and blood pressure measures for a group of females. The study was designed to determine which dimension of religiosity most strongly related to blood pressure and whether direct or indirect effects of religiosity had a greater influence on blood pressure. The results of the study supported the beneficial nature of religiosity on blood pressure. So, if religion seems to play a major role in the life of individuals and their health issues, one can ask the question: Does believing in God determines one’s health and their ultimate outcome of
their illnesses?

The GLHC scale was developed to assess the extent of an individual’s belief that God controls his or her health status (Wallston et al., 1999). The positive and negative consequences of seeking and gaining control over life events has been studied by many psychologists (Shapiro, Schwartz & Astin, 1996). A sense of personal control has been related to positive outcomes in individuals with physical illness and has shown that those who believe that there are ways of exercising control over their illness or related circumstances have more positive psychological and physical adaption than those who are not (Affleck, Tennen, Pfeiffer, & Fifield, 1987; Shapiro et al., 1996).

Both the MHLC and the GLHC Scales were used in this study. The development of the MHLC scale was established to tap beliefs that the source of reinforcements for health-related behaviors is primarily internal, a matter of chance, or under the control of powerful others. The original Health Locus of Control scale was developed by Wallston, Wallston & DeVellis (1978) as a unidimensional measure of people’s belief that their health is or is not determined by their behavior. If the person believes that his or her own behavior influences his or her health status, (i.e., one stays and becomes healthy or sick as a result of one’s own behavior), the person is said to possess an internal locus of control orientation with regards to his or her health. If on the other end of the dimension, the person believes that his or her health status is influenced by the actions of another person or is due to fate, luck, or chance, the person is said to have an external health locus of control orientation.

The outcome of one’s self-efficacy is one’s health-promotion behavior. For this study, one’s health promotion behaviors are specific to controlling hypertension. The main questions recommended to providers to assess one’s health-promotion activities have been included in the ACC recommendations (Whelton et al., 2017). These questions for women with hypertension are
specific about: (1) how often she checks her blood pressure; (2) if her medication is taken regularly; (3) if she smokes; (4) if she limits alcohol; (5) if she eats a heart-healthy diet; (6) if she limits salt intake; (7) if she exercises regularly; and (8) if she is trying to lose weight (if applicable). These behaviors to control hypertension are recommended for improving the woman’s health quality. As an outcome for measuring health quality for this study, self-report will be acceptable on the Quality of Life Instrument for Chronic Diseases - Hypertension Scale (QLICD-HY) developed by Wan et al., (2011).

**Research Questions**

The general research questions below identify the study concepts and ask how the concepts might be related.

1. Are there relationships among selected demographic variables and health beliefs, health quality or health-promotion behaviors of Black Caribbean women and Black-American women with hypertension?

2. What are the health beliefs specially related to health locus of control, and the health behaviors specifically related to health promoting and risk avoidance of Black Caribbean women and Black American women with hypertension?

3. Are there cultural differences between Black Caribbean women and Black-American women with hypertension and their health locus of control?

4. Are there cultural differences between Black Caribbean women and Black-American women with hypertension and their health quality and health-promotion behaviors?

5. Are health beliefs (health locus of control) and health-promotion behaviors related to health quality of life for Black Caribbean women and Black American women with hypertension?
Research Variables

*Operational Definition of Non-Caribbean Women:* For the purpose of this study, Non-Caribbean women would be Black Americans who are of American Origin. These will be self-reported as general statements by the participants and coded according to a definition scheme.

*Conceptual Definition of Black Caribbean Women:* Women from the Caribbean are women who were born in, or who live in, or who are from the region of the Caribbean and now reside in the United States. Caribbean women refer to any woman who is not of original origin of the United States. The U.S. Census Bureau defines the foreign born as individuals who had no U.S. citizenship at birth. The foreign-born population includes naturalized citizens, lawful permanent residents, refugees and asylees (those seeking political asylum), legal nonimmigrants (including those on student, work, or other temporary visas), and persons residing in the country without authorization. For the purpose of this study, foreign-born or those who self-identify will be included. These will be self-reported as general statements by the participants and coded according to a definition scheme.

*Conceptual Definition of Non-Caribbean (Black American Women):* Black American women were born in the U.S. or became citizens and resides in the U.S., but is not of Caribbean origin. These will be self-reported as general statements by the participants and coded according to a definition scheme.

Table 5 helps to identify and differentiate women from the Caribbean, Black American women and all other women that are not Caribbean or Black American women. The three categories show women from the different countries who are presently residing in the U.S.
Table 5. Caribbean Women and Black American Women with Hypertension in the U.S.

<table>
<thead>
<tr>
<th>Caribbean Women</th>
<th>Non-Caribbean/ Non- Black Americans</th>
<th>Black American Women</th>
</tr>
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<td>Jamaica</td>
<td>N/A for this sample</td>
<td>Black Americans</td>
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<tr>
<td>Guyana</td>
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<td>Blacks from Africa</td>
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<td>Trinidad and Tobago</td>
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<td>Other</td>
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</table>

**Operational Definition of Health Locus of Control:** Health beliefs that one has control over one’s health is the variable of health locus of control. This measures an individual’s own belief, about the sense of control one has over the domain of health – specially hypertension for this study, using the MHLC and GLHC Scales.

**Conceptional Definition of Health Promoting Behaviors:** Health promoting refers to personal health practices of Black Caribbean women and Non-Caribbean women (Black American women).

**Operational Definition of Health Promoting Behaviors:** Health behaviors refer to personal health practices women engage in relation to their hypertension. These behaviors are specifically recommended by the American College of Cardiology guidelines (Whelton & Carey, 2018,) including such practices as exercise and restraint from practices such as salt intake, smoking and drinking.

**Operational Definition of Health Quality:** Health quality for this study is measured as a self-report on the QLICD-HY Scale. As a self-report, gets a score about how one feels at the time of completing the survey and has limitations. These will be eight specific questions that are summed as a measure of self-reported health-promotions behavior.
practices.

Summary

This research study was designed to assess the relationship and differences between health behaviors, health beliefs and health locus of control among Caribbean and non-Caribbean Black women with hypertension. These are also stated as comparisons of Black Caribbean and Black American women (who are not Caribbean) throughout the dissertation. Pender’s HPM was used as a theoretical framework for this research, focusing on specific concepts to guide the research questions for this study. The HPM serve as the comprehensive conceptual framework to understand the full range of health beliefs and health-promotion behaviors. The MHLC scale was used to measure an individual’s beliefs about the sense of control over the domain of health and the degree in which women believe that health outcomes are under the control of the self, relates to powerful others and relates to chance. The GLHC scale was used to assess the belief that God is either the locus of control of one’s health or one’s specific disease. Health-promotion behaviors and health quality was measured by self-report.
Chapter 2: Review of Literature

This chapter summarized and compared literature related to the health locus of control among women with hypertension who are from diverse cultures, focusing on their health, specifically related to black Caribbean women and Black (non-Caribbean origin) American women who live in the New York Tri-State area. Due to the paucity of research literature that focuses on culture dynamics that are linked to African American and Caribbean women cultural norms, it is not well understood what the subtle cultural behaviors result in hypertension throughout the Unites States in general, and a special population of women whose roots are racially and culturally connected to other origins. To gain a better understanding and provide the best possible care for these two diverse groups, health care providers must be skilled in culture competency of African American and Caribbean ancestry. Racial/ethnic disparities in health in the U.S. has been described in the literature, and the field of “cultural competence” has emerged as one strategy to address these disparities (Betancourt, Green, Carrillo, & Ananeh-Firempong, 2016). This chapter specifically looks at (1) the definition of hypertension; (2) women, hypertension and heart disease; (3) exercise and hypertension; (4) race, racism and hypertension; (5) hypertension and socioeconomic status; (6) hypertension and diet; and (7) cultural norms and hypertension.

Hypertension

Hypertension is one of the main causes of cardiovascular morbidity and mortality both in the U.S. and globally. Based on the most recent National Health and Nutrition Survey, 85.7 million US adults above age 20 have hypertension and more than half of this population are women. One in three of these women die from cardiovascular disease and, after menopause, there is a greater risk of hypertension. After menopause, the number increased to twice the risk for hypertension, with a prevalence of 75% in post-menopausal women. Higher rates of hypertension can be seen in women
over 65 years of age compared to men of the same age. Women over 75 years old have a higher prevalence of hypertension compared to men of the same age (81.2% versus 73.4%, respectively (Abramson, Srivaratharajah, Davis, & Parapid, 2018).

Hypertension has been recognized as a major health burden in the U.S., especially in the areas of strokes, cardiovascular disease and end-stage renal disease. The burden of hypertension is expected to be over 60% globally, estimated at 1.56 billion people in the world by the 21st century (Lackland & Weber, 2015). According to the World Health Organization Global Burden of Disease Study, hypertension is one of the leading risk factors for death and disability nationally and globally. Heredity and certain modifiable risk factors are said to be linked to developing hypertension. Some of the risk factors for hypertension include genetics, family history, age, race, and gender. Some of the modifiable risk factors include obesity, diabetes, high fat and salt intake, excessive alcohol use, physical inactivity, high cholesterol, sleep apnea, and poor stress management (Pavuk et al., 2019).

Hypertension is at epidemic levels in the United States, particularly among African-American and Caribbean women. A number of factors contribute to increased hypertension risk. According to Lee, Mamma, and Adamus-Leach (2012), culturally-specific beliefs regarding hypertension and perceptions regarding weight within the African-American and Caribbean community place this population, particularly African-American and Caribbean women, at increased risk for hypertension. In particular, African-Americans use inaccurate concepts to define hypertension. In addition, African-Americans do not convey the importance of the relationship between lifestyle factors such as diet and physical activity and hypertension risk. It is commonly believed that culturally accepted notions regarding weight and preferences for larger body size tend to compound hypertension risk in this population. Hence, this study is designed to assess hypertension risk within the context of the Health Beliefs Model in order to explore ways in which cultural notions regarding hypertension, weight, diet, and physical activity influence hypertension
risk in African-American women and Black Caribbean women.

There are numerous social determinants that produce sources of inequalities among diverse populations. African-American are merged with a multicultural society and interact with people from different cultural backgrounds, which can lead to an interchange of cultural attitudes, beliefs, and behaviors. Embracing this new standard of American culture can lead African Americans having more stress, leading to hypertension-related diseases. (Hasson et al., 2013).

There is a large health disparity related to hypertension in the U.S., where African Americans bear a large portion of this disease. African Americans remain the least healthy ethnic group in the U.S. This is due to social determinants and health inequalities such as poverty, incarceration, racial discrimination, violence, environmental exposures and lack of access to health care (Noonan, Velasco-Mondragon, & Wagner, 2016).

The new hypertension guidelines (Sripipatana, Pourat, Chen, Zhou, & Lu, 2019) state that more than a third (46%) of American adults have hypertension, and an estimated 103.3 million individuals nationally in the United States. Among adults over 60 years of age, hypertension rate is at its highest at (66%). Hypertension has placed a significant burden on the healthcare system of the U.S. and is shown to be the top-ranking diagnosis and the leading cause of cardiovascular disease and stroke. This statistic had led to the most common and highest rate of mortality in the U.S. With respect to racial and ethnic minorities, African Americans have shown to have the highest morbidity and mortality rates for hypertension compared to American Whites. The annual national burden of hypertension consistently increases, showing from $58.7 billion in 1999-2000 to $109.1 billion in 2015-2016. This heavy burden on the US economy is mainly due to the increase in the number of people treated with hypertension (Zhang, Wang, Zhang, Fang & Ayala, 2017).

Hypertension remains a serious public health challenge in the U.S. and is responsible for the high morbidity and mortality rates of cardiovascular diseases. Fryar, Ostchega, Hales, Zhang,
and Kruszon-Moran, (2017) showed that the overall prevalence of hypertension in adults was 29%, which increased with age. Age groups 18-39 increased 8%, age groups 40-59 increased 33%, and 63% among those 60 years and over. The data showed that the prevalence of hypertension was higher among men than women: age 18-39 (9.2% compared to 5.6%, respectively), and 40-59 (37.2% compared to 29.4%). In the age group 60 years and over, women showed a higher prevalence of hypertension than men (66.8% compared to 58.5%, respectively).

A study done by Lane, Lip, and Beeveres (2005) in the United Kingdom showed that hypertension (HTN) is the one of the main risk factors for heart attacks and strokes. Hypertension was the most common among African-Caribbean and South-Asians in Britain. The study revealed a substantial increase in hypertension and higher mean blood pressure among African-Caribbean men and women who had significantly higher mean diastolic and systolic blood pressure compared to White Europeans. The study consisted of 2,624 participants; 2089 (79.6%) were White Europeans (1,475 men and 614 women); 340 (13.0%) were African-Caribbean (223 men and 117 women), and 195 South-Asian men. African-Caribbean men showed 26.9% and Africa-Caribbean women showed 28.2%, while White Europeans men showed 19.1% and White-European women showed 12.7%. South-Asian men were much younger ($p=0.00001$) than White-Europeans. African-Caribbean men and women had greater mean BMI and greater frequency of obesity than White-Europeans did. South-Asian men had a significantly lower mean BMI and lower prevalence of obesity than White-Europeans. African-Caribbean men smoked more than European men and fewer African-Caribbean women and South-Asian men smoked compared to White-European women and men (Lane et al., 2005).

Hypertension, also known as “high blood pressure,” is relatively common in the United States and more so in patients with heart disease. According to the Centers for Disease Control (CDC, 2018), about 1 of 3 U.S. adults have high blood pressure. Only about half (54%) of these people have their high blood pressure under control. More than 360,000 American deaths in 2013
included high blood pressure as a primary or contributing cause, which is almost 1,000 deaths each day. High blood pressure raises one’s risk for heart disease and stroke, which are leading causes of death in the United States. CDC further confirms that 7 of every 10 people that have their first heart attack have high blood pressure, 8 of every 10 people that have their first stroke have high blood pressure, and 7 of every 10 people with chronic heart failure have high blood pressure. Kidney disease is also said to be a major risk factor for high blood pressure (75 million people) which makes it the most common risk factor for heart disease. Hypertension develops when the heart is forced to work too hard. If left untreated, this can lead to the weakening of the heart, enlargement of the heart and stiffening of the heart. This in turn can lead to the narrowing of the smaller blood vessels in the body, which can also lead to many other organ diseases. There are two types of hypertension: essential (primary) hypertension and secondary hypertension. Primary hypertension has no clear etiology, while secondary hypertension has an underlying and preventable cause. Atherosclerotic renal artery stenosis, renal failure, and hypothyroidism are common causes of secondary hypertension (Lesley, Triscott, & Dobbs, 2017).

Hypertension is an insidious disease, since it is usually asymptomatic. High blood pressure is measured in two ways: it is expressed in a numeric combination, millimeters of mercury; for example, 120 mm Hg (Systolic Blood Pressure) over 70 mm Hg (Diastolic Blood Pressure). The first number known as systolic blood pressure, refers to the heart when it contracts, where blood is pushing through the aorta and the pulmonary artery. The second number, known as diastolic blood pressure, refers to when the heart is at rest and the two lower chambers relax and fill with blood. According to the 2017 ACC/AHA guidelines (Whelton et al., 2017), blood pressure should be categorized as normal, elevated, stage 1 or stage 2 to prevent and treat high blood pressure. Normal blood pressure is between <120 mm Hg (SBP) and <80 mm Hg (DBP); elevated blood pressure is 120-129 mm Hg (SBP) and <80 mm Hg (DBP). Stage 1 is 130-139 mm Hg (SBP) or 80-89 mm Hg (DBP); Stage 2 is >140 mm Hg (SBP) or >90 mm HG (DBP). The 2017 ACC/AHA
guidelines (Whelton et al., 2017) further state that individuals with SBP and DBP in two categories should be moved to the higher blood pressure category (p. 2209).

**Women, Hypertension, and Heart Disease**

Hypertension is a major problem among African American women who are at a higher risk for cardiovascular disease and its risk factors, including earlier onset compared to American white women. Blacks with normal blood pressure at a younger age have twice the risk of developing hypertension by age 55 years. In spite of this increased risk of hypertension, not much attention has been given to racial disparities in hypertension during young adulthood (Hines & Thorpe, 2019). Hypertension is accountable for 1 in 5 deaths in American women and is a main factor that contributes to other comorbidities. American women have a greater risk for ischemic stroke, intracranial hemorrhage, and heart failure compared to men. Wenger et al. (2016) further states that African American and Hispanic women have a higher prevalence of hypertension and poorer control rates of their blood pressure. Approximately 50% of these minority women (African and Hispanic) have hypertension.

According to the American Heart Association (2010), twice as many women die from heart disease than from cancer. More women (38%) than men (25%) die from heart disease within one year. The death rate associated with heart disease among minorities, especially among African American women, is significantly higher than among Caucasian women. More women are hospitalized in a given year with heart disease than any other disorder. Of these women, 64% who died from heart disease had no previous symptoms. One in 2.6 female deaths is from heart disease, compared to 1 in 30 deaths from breast cancer. Heart disease in women claim more lives than do the next four most common causes of death combined. Each year, 349,000 women will likely die from heart disease; coronary heart disease is the number-one killer of women over age 25. One of the most significant overlooked differences between women and men with heart disease is that there are actually several different cardiovascular symptoms and risk factors for each gender.
Triantafyllidi et al. (2015) looked at the association of elevated high-density lipoprotein (HDL-C) levels with carotid atherosclerosis in middle-aged women with untreated essential hypertension. They found that increased HDL-C may predict the absence of carotid atherosclerosis but may contribute to total cardiovascular risk and treatment plan. Moreover, the appearance of coronary artery disease is being delayed by 3 to 5 years in those patients with increased HDL-C compared to patients with low or normal HDL-C levels. Unfortunately, this favorable profile changes when coronary heart disease is diagnosed, since patients with elevated HDL-C develop similar cardiac events as do other cardiac patients. The study also indicated that HDL-C seems to have a greater impact in women and the risk of developing myocardial infarction associated with a low high-density lipoprotein-cholesterol (LDL-C) concentration was far greater in women than in men, while an increase in HDL-C produced a greater cardiovascular (CV) benefit in women than in men. The study further indicated that arterial hypertension is a major risk factor for cardiovascular disease, leading to subclinical organ involvement, target organ damage, a stage in the continuum of vascular disease as well as an important determinant of cardiovascular disease.

The National Institutes of Health developed the Women’s Ischemia Syndrome Evaluation Syndrome (WISE), which is one of the most important studies for women with heart disease (Shaw, 2006). The goal of this was to understand how heart disease develops in women and to evaluate the influence of hormones. It was discovered that as many as 3 million women with coronary artery heart disease may not develop plaque as major blockages, but instead, the plaque is spread evenly throughout the artery walls. Thus, diagnostic studies such as coronary angiograms would show that these women had clear coronary arteries, falsely indicating low risk for coronary artery disease. The WISE investigation showed that the majority of hypertensive women with clear angiography who were not diagnosed will continue to have symptoms, a declining quality of life and repeated hospitalization and tests.
The high excess risks of adverse cardiovascular outcomes associated with high blood pressure are the result of individuals aware and unaware of uncontrolled hypertension for prolonged periods of time. For example, hypertension is the leading cause of heart failure in Africa and accounts for half of the deaths from strokes globally (Lackland & Weber, 2015). The identification and recognition of high blood pressure appears to be a major risk factor and has affected blood pressure levels and subsequent stroke mortality risks.

A cross-sectional study done in the United Kingdom (U.K.) by Agyemang and Bhopal (2003) showed that the hypertension and stroke are among the dominant causes of death in people of African descent in the United Kingdom as compared to the white population. The research study looked at Afro-Caribbean and West Africans as one ethnic group but found that the method of combination of these different ethnic groups used was subjective, imprecise and unreliable. Fourteen studies were identified in this study, and nearly all the studies were carried out in the London area. The data showed important differences among studies in terms of age and sex of samples, definition of African/black and methods of evaluating blood pressure. A total of 10 studies reported higher mean systolic blood pressures, while 11 studies reported higher mean diastolic BPs in men from African descent compared to white men. In women, 10 of 12 studies reported higher systolic, and 10 of 12 studies reported higher diastolic BPs. For prevalence of hypertension, 8 of 10 studies reported higher rates in men from African descent; and 8 of 9 studies showed higher rates of hypertension in women from African descent.

Overall, the most representative sample and up-to-date data came from the Health Survey for England 1999. Ethnic group differences in blood pressure were not present in the youngerage groups. Women of African descent had higher blood pressure and higher BMI. In men of African descent, high blood pressure did not coincide with higher BMI (Agyemang & Bhopal, 2003). This research study further revealed that Afro-Caribbean people have cultural values that are different from people of West African culture. Even the West African culture displayed major
ethnic differences in terms of culture such as language, diet, religion, geography and socioeconomic variations. There are also many black mixed races in the U.K. (individuals who have White ancestry), which further complicated the interpretation of the results of the study. In the West African group, higher blood pressure readings and a higher incidence of hypertension was seen in the West African group, which was supportive of the United States African-American and white comparisons. The mortality statistic of this study showed that black Africans have higher rates for chronic rheumatic heart disease and hypertension disease than Afro-Caribbeans (Agyemang & Bhopal, 2003).

Another study done by Butler et al. (2019) looked at African Americans with hypertension and what effects psychological distress has on their disease outcome if they were aware of their diagnosis of hypertension. The sample included 2,815 participants with hypertension from the Jackson Heart Study. The majority of participants totaling 2,572 (91.4%) were aware of their hypertension and showed higher levels of stress and depressive symptoms and poorer perceived health than those who were unaware.

Sanon, Mohammed, and McCullagh (2014) conducted a qualitative study in Miami, Florida, stating that Haitian immigrants are one of the largest groups in the United States (U.S.) and hypertension is a major concern in the Haitian group. These Caribbean immigrants are said to make up the second largest black immigration population in the U.S. (N = 907,790 in 2011). These immigrants settled mainly in Miami, New York, and Boston. Due to their traditional ways of viewing health, these immigrants tend to have poor health outcomes. This close-knitted relationship associated with their cultural background, have a tendency to move these immigrants away from modern medicine to their own beliefs, while living in the United States.

In contrast to the above study done by Agyemang and Bhopal (2003), Odell, Kotelchuck, and Chetty (2006) conducted a retrospective study in Massachusetts using 4,320 Haitians and 12,258 African American maternity patients. These authors looked at the difference of low birth
weight (LBW) between Haitian and African-American women with chronic hypertension. They found that Haitian women were more likely than African-American women to have chronic hypertension (2.7% vs. 2.1%, \( p = .006 \)). The LBW rate was 10% among African-American women and 8.2% among Haitian women. These authors further confirmed that chronic hypertension and pre-eclampsia are strong risk factors for LBW for both Haitian and African-American women, but unknown factors make these disorders much more potent for Haitian women.

**Hypertension and Cardiovascular Disease**

Cardiovascular diseases are the leading causes of death in the United States and worldwide. According to Fryar et al. (2019), the major risks factors of cardiovascular disease are: high blood pressure, high cholesterol, diabetes, overweight, and obesity and cigarette smoking. Approximately 32% of US adults have hypertension, 29% have hypercholesterolemia, 14% have diabetes, 72% are overweight, and 14% smoke cigarettes. The AHA has projected that healthcare costs related to cardiovascular disease prevalence will substantially increase by 2030, and also by 2030, cardiovascular disease in the foreign-born population is projected to increase to 16% from 13% in 2014. These authors further cited that acculturation factors such as length of residence in the US, affect health behavior and outcomes. Residents born outside of the U.S. have a less chance of cardiovascular disease risk factors than those born in the US.

Multiple studies were conducted by Bidulescu et al. (2015) on behalf of the U.S. Caribbean Alliance for Health Disparities Research Group, and most of these studies were conducted in the United Kingdom. Bidulescu et al. (2015) stated that hypertension was higher among Afro-Caribbeans compared to Caucasians, South-Asians, and African Blacks. One of their studies found that women’s systolic blood pressure and diastolic blood pressure were higher in African-Caribbeans than in their white counterparts. Three other studies showed hypertension to be higher in Afro-Caribbeans compared to African Blacks. Similar studies done
by Ferguson et al. (2011), which were done in Jamaica, reported higher levels of hypertension among Afro-Caribbean women compared to men.

A study done in Trinidad and Tobago by Gulliford, Mahabir, and Rockie (2004) found a decrease in the prevalence of hypertension as monthly income increased in both sexes, but showed great significance in women ($p = .04$). This study also showed evidence that women with higher education and higher income levels had lower blood pressures. Both studies done in Jamaica and Trinidad and Tobago showed the burden of hypertension was higher among the lesser educated, and in Jamaica, the prevalence was as wide as 64% between the educated and lesser educated (Ferguson et al., 2011; Gulliford et al., 2004).

Strimike (2010) conducted a research study examining the prevalence of modifiable vascular disease risk factors among middle-aged and minority women. Statistically, the research showed a significant increase among older women in all the groups with dyslipidemia, diabetes and waist conference, whereas there was a substantial decrease in women who smoke (all $p$ values $< .001$). Women between 35-45 and those between 45-54 years old showed significant increase in the prevalence of hypertension ($p$ value $< .05$), waist circumference ($p = .02$), and stroke risks ($p < .001$). When looking at the ethnicity of these women, Black women exhibited a major increase in the incidence of hypertension, metabolic syndrome, and waist circumference. The Hispanic group of women showed an increase in hypertension with increased age ($p < .001$), whereas white women did not experience any significant changes. Black women ($p = .004$) and white women ($p = .04$) showed significant increase in stroke risks scores with increasing age. Hispanic women showed no significant difference in stroke risks. Thus, the study revealed these risks factors are more prevalent among minority women.

According to Machado, Valdares, Costa-Paiva, DeSouza and Pinto-Nito (2014), the prevalence of systemic arterial hypertension will increase by 60% by year 2025, and more so in women. They found hypertension will be affecting 29.2% of all adults, 29% of men and 29.5%
of all women. In Brazil, arterial hypertension is said to be the most common chronic condition and the prevalence increases with age, primarily in women. A cross-sectional study done by Machado et al. (2014) studied 622 women in Brazil of 50 years of age and examined the association between sociodemographic, clinical, and behavioral factors and the woman’s age at the onset of hypertension. One of the questionnaires used in the study was taken from the Women’s Health and Aging Study used in the United States. This questionnaire was divided into five sections: sociodemographic evaluations, health-related habits, self-perception of health, and evaluation of functional capacity and health-related problems. The independent variables consisted of educational level (<8 years of schooling; > 8 years of schooling), marital status (partner or no partner); skin color (white and other), number of individuals in the home (<2 or >2), smoking (never, current or past), alcohol consumption (yes or no), women with private medical insurance (yes or no), frequency of weekly practice of physical activity (<2 days or >2 days; (BMI); self-perception of health (very good, good or other), and menopause (yes or no). No association was seen between menopausal women and the cumulative occurrence rate of systemic arterial hypertension (SAH). The cumulative occurrence rate of SAH over time increased as a function of BMI at 20-30 years of age (coefficient = .78; \( p < .001 \)). Being white was related with an increase in the cumulative occurrence rate of SAH over time (coefficient = .485; \( p = .004 \)).

**Exercise and Hypertension**

Regular physical activity has been shown to reduce high blood pressure in individuals with hypertension. In such a prevalent disease as hypertension, it is important to look at preventive measures and therapeutic alternative changes in life-style behavior. Healthy body weight promotes general good health and reduces the risks of developing diseases such as hypertension and other cardiovascular diseases. A study conducted by Gambardella, Morelli, Wang and Santulli (2020) indicated that alternative approaches (non-pharmacological
treatment) are able to lower blood pressure. These alternative approaches can be classified into three categories: behavioral therapies, non-invasive procedures, and exercise-based regimens. These authors further confirmed that exercise and fitness can produce many benefits in the overall population, thus reducing risks of death by 20%-35%, especially deaths caused by cardiovascular diseases. Schroeder, DuBois, Sadowsky and Hilgenkamp (2020) showed in their study that adults with hypertension with intellectual disability who had increasing levels of physical activity, reduced obesity, which resulted in decreased cardiovascular risks in this population.

Participation in regular exercise has shown to positively affect the health of women with hypertension and enhance their sense of well-being. According to Costa et al. (2019), physical activity in older women is the best non-pharmacological therapies for hypertension. This randomized, controlled cross-over study recruited women 64 years and older who were inactive and who were all taking antihypertensive medications. Their blood pressure (BP) measurements were tested after aerobic exercise. They found that women who did the aerobic exercise and had systolic BP >140 mm Hg had lowering blood pressure effects of systolic BP > than 9 mm Hg, which had similar effects of antihypertensive medications. Börjesson, Onerup, Lundqvist and Dahl (2016) also cited that continued physical activity helps to reduce blood pressure in those persons with hypertension. In a randomized controlled study done by these authors, medium-intensity to high-intensity aerobics reduces blood pressure by a mean of 11/5 mm Hg. Thus, it can be concluded that physical activity has an important role in not only the prevention of hypertension but also in the treatment of hypertension.

Modeste, Brathwait, Fraser, and Toh (2007) conducted a study in Barbados using a sample of Black Caribbeans to look at the relationship between physical activity, blood sugar, hypertension and high cholesterol; 37.6% were male and 62.4% were female. It is said that
obesity, high cholesterol merged with a sedentary lifestyle presents a substantial problem for cardiovascular disease and early mortality for the people in the Caribbean and those in the U.S. The study revealed that the females have a more sedentary lifestyle than males, and even though males exercise more frequently than females, there were no differences with the prevention and control of the blood sugar, cholesterol or hypertension. Thus, physical activity did not seem to be a good control for these women.

**Race, Racism, and Hypertension**

There is a great disparity related to hypertension and race in the United States and African Americans have shown greater risks of this disease than other groups. According to the Centers for Disease Control and Prevention (2020) high blood pressure is more common in non-Hispanics black adults (54%), than in non-Hispanic whites (46%), non-Hispanic Asians (39%), and in Hispanic adults (36%). Even among those who take blood pressure medications, blood pressure control is higher among non-Hispanic whites (32%) than in non-Hispanic black adults (25%), non-Hispanic Asians (19%) or Hispanic adult (25%). Therefore, hypertension is significantly more prevalent among Blacks than Whites. Among Blacks, hypertension has an earlier age of onset, with greater severity, and is associated with greater pressure related target-organ damage and higher cause-attributable mortality.

A study done by Hickens, Lee, Morenoff, House and Williams (2014) further agree that stress-related factors were the cause of the increased hypertension seen in blacks compared to whites. These authors further looked at the association between anticipatory stress, also known as racism-related vigilance, and hypertension prevalence in Black, Hispanic, and White adults and found that chronic stress contributed to the well-documented higher prevalence of hypertension among Blacks than Whites. Brondolo, Love, Pencille, Schoenthaler, and Ogedegbe (2011) reported that hypertension and racism continue to be a crucial problem in the United States. Blacks usually present with higher risk profiles, such as, obesity, physical inactivity,
cigarette smoking, excess sodium, low socioeconomic status, limited access to quality health care, family history of cardiovascular disease, and stress (Crimmins, Kim, Alley, Karlamangla, & Seeman, 2007). Racial discrimination leads to inequitable access to social, educational, and material resources that have both direct and indirect effects on the health status of Blacks (Adler & Rehkopf, 2008). Blacks who report past experiences with racism also exhibit exaggerated blood pressure reactivity (Clark, 2000). These findings largely support the tenet of reactivity linking racism as a stressor with heightened blood pressure.

Brondolo, Love, Pencille, Schoenthaler and Ogedegbe (2011) defined *racism* as “the beliefs, attitude, institutional arrangement and acts that tend to denigrate individuals or groups of phenotypic characteristics of ethnic discrimination which can be considered as a form of social ostracism” (p. 518). These authors explained that cultural of phenotypic characteristics tend to render individual outcasts, leading to social outcasts. Thus, steering to social exclusion, unfair treatment and directly or indirectly, robbing these individuals of social and economic opportunities. They further described racism occurring at multiple levels such as the individual/interpersonal level, internalized level and at the institutional level. It was shown in this study that these racial discriminations can lead to greater risk of psychological distress (such as hostility, negative affect, anger, depression, anxiety, and negative moods), all of which eventually leads to increased alcohol use, increased weight gain, and thus higher blood pressure levels. The data suggest that individuals living in these segregated communities have less access to healthy foods, have fewer recreational facilities, thus do fewer physical activities, and have more availability and greater access to liquor stores. In this study, there was substantial evidence that Black Americans living in disadvantaged communities with low levels of neighborhood economic resources, poor housing quality and affluence have been associated with higher levels of hypertension.
Despite improved hypertension (HTN) awareness and treatment, racial disparities tend to be increasing in our society, not only for Black Americans but also for other minority groups. These discrepancies occur despite the fact that Black Americans are more likely to be aware of their hypertension. Racism has been conjectured as a psychological stressor, which leads to hypertension in American Blacks (Brondolo et al., 2011).

**Hypertension and Socioeconomic Status**

Socioeconomic status creates circumstances that are generally linked to obesity, cardiovascular diseases, hypertension, diabetes, cancer, arthritis, and low birth weight (CDC, 2013). Ultimately, social determinants such as race, ethnicity, education, parental dysfunction, income, stress levels, and language contribute to sources of inequality that produce health disparities across populations. Atallah et al. (2007) showed that there is a significant level of poor control of hypertension that is associated with low socioeconomic. This cross-sectional study was done in Guadeloupe, a French Caribbean Island, using 2,420 unemployed subjects. It was shown that different socioeconomic groups do not receive the same equal access to health care. It was observed that higher levels of hypertension and more poorly controlled hypertension was seen in the lower socioeconomic group. The authors compared their results with two other studies using the same methodology: (1) the INHAPAG study of 6113 participants; and (2) the IHPAF study of 29,656 participants, which showed a higher level of hypertension among women. Obesity and excess weight were one of the main factors that affected the lower-class Caribbean women. The use of excessive alcohol was also seen to be another factor that led to increased hypertension in the lower socioeconomic group.

Caribbean Black Women Research from the National Survey of American Life stated that African American Blacks born within the U.S. have poor health outcomes compared to Caribbean-born Blacks due to their ethnic diversity and nativity (Giger et al., 2007; Griffith, Johnson, Zhang, Neighbors & Jackson, 2011). Moreover, health disparities result from high
prevalence and mortality rate of related obesity incidence among African American women and Caribbean Black women. There are numerous social determinants that produce sources of inequalities among diverse populations; health disparities are rarely caused by one determining factor (Al-Bayan, Islam, Edwards, & Duncan, 2016; Bender & Clark, 2011). For example, research has indicated that life expectancy in regard to individual economic and social advantage: Caribbean Blacks living in the U.S. have a longer life expectancy of (73.5 years) and better perceived health assessment than African Americans, whose life expectancy is 72.3 years; 80% of Caribbean life expectancy is over 70 years, such as Jamaicans 76.3 years (4 years more than African Americans). Griffith, Johnson, Zhang, Neighbors and Jackson (2011) compared Caribbean Blacks with African Americans who reside within the U.S. and England, and reported that African Americans perceived health was worse than Caribbean Blacks in England and Whites living in the U.S. Caribbean Blacks stated that they are more skilled, more ambitious, better-educated, hard workers, and extremely more motivated than African American Blacks. Ultimately, social determinants such as race, ethnicity, education, parental dysfunction, income, stress levels, and language contribute to sources of inequality that produce health disparities across populations (CDC, 2013). It has also been shown that African Caribbean communities suffer greatly from lifestyle-related illnesses such as obesity, diabetes, strokes, cardiovascular, and hypertension compared to their white counterparts (Ochieng, 2013).

**Hypertension and Diet**

Obesity is associated with the increased risk of hypertension and other associated risks of cardiovascular diseases. Changes in dietary habits has been shown to reduce the risk of hypertension and decrease the probability of strokes. Feng et al. (2018) found that higher adherence to the DASH diet could lower blood pressure, reduce the prevalence of hypertension, and is related to a greater decreased risk of stroke development. The DASH diet consists of a high consumption of fruits, vegetables, whole grains, low-fat dairy foods, legumes, and nuts, and
a low intake of sweetened beverages and red and processed meats. In addition, the study also uncovered that the DASH diet helps to improve lipid profiles and body weight and decrease the risk of developing type 2 diabetes mellitus and metabolic syndrome.

During the Jim Crow era, all African American Blacks were categorized the same regardless of their origin (Alexander, 2011). Data from the National Survey of American Life stated that Caribbean-born Blacks are healthier than U.S.-born Caribbean Blacks due to cultural values and dietary habits (Griffith, Johnson, Zhang, Neighbors & Jackson, 2011). American Blacks are known as African Americans. Caribbean Blacks are referred to as the majority of American Blacks comprised with those of ancestral roots within the United States, Canada, South America, the Caribbean, and Africa. Ancestral roots from first-generation Caribbean blacks within the U.S. incline to possess better health outcomes due to their cultural norms of healthier lifestyles, whereas the next generation born within the U.S. result in poor health due to adopting unhealthy American dietary habits and lacking physical exercise (Griffith et al., 2011). Culture involves an individual’s knowledge, beliefs, customs, and behavioral habits linked to food, which is the driving force that influences health outcomes (Griffith et al., 2011). Public health researchers and clinicians should adapt cultural guidelines tailored to ethnic populations (Bender & Clark, 2011).

**Hypertension and Body Mass Index (BMI)**

Obesity in the United States is a major health issue. Obesity in an adult is defined as a BMI of 30 and above. Overweight in an adult is defined as a BMI of greater than 25 and less than 30. A high BMI is associated with overweight and obesity. Decreased BMI and weight loss significantly reduces high blood pressure and other cardiovascular diseases. Vuvor (2017) concludes that worldwide, there is an increase in the prevalence of obesity and overweight individuals. Globally, there are as many over nourished people as undernourished people. The incidence of high blood pressure increases in individuals with high BMI, leading to greater risks
of other cardiovascular diseases.

According to Kumanyika et al. (2007), approximately 15% of Black women are extremely obese with a body mass index greater than 40 kg/m², equivalent to about 100 pounds of extra weight. Such prevalence of obesity is also an alarming concern for African American children and adolescents within the U.S. (CDC, 2013). Obesity prevalence of adults within the United States is described as having a high body mass index (BMI) of 30 and above. BMI is measured by an individual's weight and height. Healthy weight is defined as a BMI of 18.5 to 24.9 kg/m². A BMI of 25 kg/m² to 29.9 kg/m² is considered overweight and clinical obesity is defined as a BMI of 30 kg/m² or greater according to the CDC (2010). Obesity prevalence during the period 2011-2012 for middle-aged adults ages 40 to 59 was higher than younger adults ages 20 to 39 or older adults ages 60 and above (Ogden, Carroll, Kit, & Flegal, 2013). Moreover, in 2010, Healthy People 2010 obesity goals of a 15% reduction in obesity were not achieved by any state in the United States (CDC, 2012).

**Hispanic White, and non-Hispanic Black**

A goal of Healthy People 2020 is to increase the number of adults who are at a healthy weight and reduce the number of adults who are obese (Ogden, Carroll, Kit, & Flegal, 2013). Obesity prevalence for adults within the U.S. remains above the Healthy People 2020 goal of 30.5%. The National Health and Nutrition Survey (NHANES) in the U.S. databases provides three alarming statistics regarding a substantial increase in the prevalence of overweight individuals; such as, percentiles of 85th to 95th of weight result in children ages 4 to 5 at 8% overweight in the U.S. (CDC, 2013). Moreover, in the U.S., obese children aged 6-11 years showed an increase from 7% in 1980 to about 18% in 2010, and obese adolescents aged 12-19 years showed an increase from 5% to 18% over the same period. Obese children and adolescents are more likely to become obese adults (CDC, 2013). Excess body weight is a risk factor to the
morbidity and mortality rate for chronic diseases such as hypertension, cardiovascular disease, high cholesterol, high blood pressure, type 2 diabetes, sleep apnea, impaired glucose tolerance, cancer, social and psychological problems, and poor self-esteem causing 3 million deaths every year globally (Finucane, et al., 2011).

**Diet, Hypertension, and Cultural Behaviors**

Healthy eating is important to promote good health, but the American diet and the habit of eating out has led to obesity in our society. Culture is defined as an individual’s knowledge, beliefs, customs, and behavioral habits linked to food, which is the driving force that influences health outcomes (Griffith, et al., 2011). Culture provides a body of shared knowledge that is created by a set of people for perceiving, interpreting, expressing and transmitting culture from one generation to the next (Ellis, Adams, & Bochnner, 2011). Anthropologists view culture as the shared beliefs and knowledge of a group. Moreover, a cultural model is stated as the individual’s reasoning of the environment that is shared among others in the group (Smith, 2012).

Johnson and Wesley (2012) studied social behavioral attitudes and practices on Black women’s impression of solid body size and what is appealing. Cachelin, Reveck, Chung, and Pelayo (2012) demonstrated that African-American men are more inclined to accept African-American women of bigger body size (as cited in Johnson & Wesley, 2012). Cachelin et al. (2012) cited that obesity in the U.S. is most common among women of ethnic minority groups (Black and Hispanic), and particularly among women of lower socioeconomic status. Researchers have hypothesized that these subcultures are more accepting of overweight figures. Cachelin et al. (2012) looked at a population of 1,229 members (801 women and 428 men), of which there were 288 Asian (23%), 548 Hispanic (45%), 208 African-Americans (17%), and 185 Whites (15%). Their findings demonstrated that African-American men picked the heaviest female figures that are most appealing and culturally recognized by size within the African-American population group. Black American society’s perception indicates that African-American women
have the perfect body size and the shape “being thick” is good compared to other ethnicities. These cultural perceptions raise the question whether African-American women conviction that her self-perception is satisfying to herself and her intimate partner (Johnson & Wesley, 2012). Different studies suggested that being “thick” is a social thought of a perfect body that advances a more advantageous self-perception for African American women and Caribbean women (Antin & Hunt, 2013).

**Hypertension and Cultural Norms**

The literature defines culture as the individual’s knowledge, beliefs, customs, and behavioral habits linked to food, which is the driving force that influences health outcomes (Griffith, Johnson, Zhang, Neighbors, & Jackson, 2011). Culture provides a body of shared knowledge that is created by a set of people for perceiving, interpreting, expressing and transmitting culture from one generation to the next (Ellis, Adams, & Bochner, 2011).

The American diet is comprised of numerous cultures and cuisines, including fast-food chain usage affecting those of low socioeconomic status and resulting in poor health outcome (Griffith et al., 2011). African American and Caribbean diets are passed down through generations that are focused on how they celebrate holidays, birthdays, and daily dietary intake. Traditionally, their dietary intake consists of starchy refined carbohydrates, pork, fish, chicken, tripe, oxtail, pigtail, tongue, and it often lacks fresh fruits and vegetables. Frying is the preferred method in preparation of most meals due to shorter duration. Research studies indicated that cultural beliefs influence disease conceptualization, adaption, and coping tactics of chronic diseases (Smith, 2012).

Olindo et al. (2014) documented that stroke is the leading cause of neurological incapacity and the second leading cause of death worldwide. The findings showed few studies conducted on trends in incidence of stroke, since the beginning of the 21st century and limited data are available on black subjects. In these limited existing studies, stroke incidence was decreased in the white
population compared to the black groups. The prevalence of vascular risk factors and the lower socioeconomic status levels found in blacks compared with whites, accounts for these trends’ differences (Olindo et al., 2014). In the Etude Réalisée en Martinique et Centrée sur l’Incidence des Accidents Vasculaires Cérébraux (ERMANCIA): one study conducted in Martinique, which assessed temporal trends in first-ever stroke incidence, risks factors, pathological types, and early outcomes in black Afro-Caribbean population, did show a heavy prevalence of vascular risks factors and a high incidence rate in the Afro-Caribbean population of Martinique.

**Acculturation to Western Society**

A number of researchers have documented that acculturation to the Western society have been closely associated with hypertension. These researchers have hypothesized that many people from western societies have higher blood pressure than those that are from other parts of the world. There is some discussion as to why acculturation negatively affects blood pressure. Two hypotheses repeatedly cited in the literature state acculturation to western society is associated with increases in blood pressure because of: (1) stressors associated with cultural change and (2) health behavior changes (diet, physical activity, etc.). Although there is evidence that higher socioeconomic status appears to be related to better cardiovascular health, increasing acculturation to western society appears to be related to worsen cardiovascular health. Although both distress and health behaviors influence the increase in blood pressure, some evidence showed that among acculturating populations, the distress associated with cultural change may be more important in predicting increased blood pressure than change in diet and health behaviors (Steffen, Smith, Larson, & Butler, 2006).

**Haitian Immigrants**

Sanon, Mohammed, and McCullagh (2014) conducted a qualitative study on Haitian immigrants and found that they are one of the largest Caribbean groups in the United States. Hypertension is a major concern among them, which leads to poor health outcomes. These
immigrants make up the second-largest Black immigrant population in the United States, and the largest concentration of this group is found in Miami, Florida, followed by New York and Boston.

In this research, Haitians viewed hypertension as either a natural body occurrence (called “tansyon”) or as an illness (called “malady”). Those who believed it was a natural body occurrence (tansyon) did not feel they needed medication and did not accept any treatment. They did not believe what the doctor told them about the disease and did not believe they were sick. Those Haitians who viewed hypertension as an illness thought it was caused by stress, everyday worries, getting upset, poor diet, being shocked, and family history. There were also difference in beliefs regarding whether hypertension could be cured or not.

Some Haitians believed that a diet high in fruit and vegetables and low in salt and fat would control their blood pressure, while others believed exercise and culturally—based herbal medicines were effective in lowering blood pressure. This study supports that hypertension definition and management strategies vary across cultural groups. This study adds to the literature by bringing to light how Haitians immigrants represents hypertension, in terms of how they define and manage their disease.

Odell et.al. (2006) conducted a retrospective cohort study with 4,320 Haitians and 12,258 African American maternity patients in Massachusetts and found that Haitian women were more likely to have hypertension compared to African American women. They also found that chronic hypertension and pre-eclampsia were the greatest risks for delivering a low-birth infant among Haitian immigrants.

**Summary**

In summary, this chapter explored pertinent literature and specifically looked at hypertension in black Caribbean and black American women in the U.S. The specific area looked at were women, hypertension and heart disease, exercise and hypertension race, racism and hypertension, hypertension and socioeconomic status, hypertension and diet and cultural norms.
and hypertension in the U.S. The finding did represent a call for urgency in prevention and control of hypertension in these women in the U.S. Furthermore, preventing hypertension could help contain cost and alleviate some of the burden of the expenditures to treat hypertension and hypertension-related diseases.
Chapter 3: Methodology

Introduction

In this chapter, the methodology of the study is presented. The instrument on hypertension is reviewed. Also, the procedure for protecting the participants and meeting the Institutional Review Board (IRB) requirements of both Molloy College and clinical data collection site/sites are discussed. The procedure for the data collection and the plan for the data analysis are presented in this chapter.

This research study explores the relationships between health behaviors of women with hypertension and health locus of control among Black Caribbean women and Black American women. A non-experimental comparative, correlational design was used to examine the association among the variables of interest. According to Polit and Beck, 2004 in a non-experimental, comparative correlational design study, the researcher collects data, analyzes the data, and uses this data to examine the relationships between the variables: “A correlation is a relationship or association between two variables” (p. 224).

In a quantitative research study, data are collected in a structured manner. Both the researcher and the participants in the study are constrained during the collection of the data to make sure there is consistency in what is asked and how answers are reported. This is done to improve objectivity, reduce bias and assist in the analysis of the data (Polit & Beck, 2004). The way that data are collected is of utmost importance, since these data can be used for many purposes, including testing hypotheses, addressing research questions, describing sample characteristics, controlling confounding variables, analyzing potential biases and interpreting results (Polit & Beck, 2004).

Research Design

A non-experimental, comparative and correlational design was used to examine the association among the variables of interest. The data were collected via paper survey with all the
variables of interest on one questionnaire at one point in time. According to Polit and Beck (2004), in non-experimental research, the researcher collects the study data without making changes or introducing treatments. The comparative aspects of this study analyzed group differences that emerged based on geographical race and cultural characteristics. Group data on health locus of control, reported health quality and health behaviors of women with hypertension were compared based on Pender’s Health Belief Model (see Figure 6).

Main Study Design

This research study is descriptive, exploratory and cross-sectional in nature and has been designed to assess the relevance of the Health Belief Model in terms of explaining the relationships between modifying factors associated with hypertension risk, hypertension-related health beliefs, and hypertension preventive health behavior in Black Caribbean Women and Non-Caribbean (Black-American) women. Cross-sectional studies are particularly useful when researchers aim to describe the frequency of a phenomenon at a particular point in time, since collecting and measuring data in the present is a hallmark of cross-sectional studies (Bums & Grove, 2001; Polit & Beck, 2004, Portney & Watkins, 2000). A cross-sectional research approach allows the researcher to have more control over data collection (Portney & Watkins, 2000).

Descriptive research is the most basic type of research design and has several advantages. A descriptive design is the most appropriate research design to employ when little is known regarding a phenomenon because the main objective of descriptive research studies is to document the existence of a particular phenomenon (Bums & Grove, 2001; Polit & Beck, 2004; Portney & Watkins, 2000). This is the case in this study because no quantitative research studies based on the Health Belief Model examining hypertension-related health beliefs and hypertension preventive health behaviors among Caribbean Women and Black-American women were found in the literature. Another advantage of descriptive research is that this research design allows the researcher to gather information on a particular group at one point in to draw conclusions specific to
that particular group (Bums & Grove, 2001; Polit & Beck, 2004; Portney & Watkins, 2000).

Comparisons of characteristics across a particular stratum can provide important information, particularly related to culturally embedded practices within a particular stratum. This study uses demographic variables that are self-reported to sort the subjects for comparisons. The comparison of the health perspectives and behaviors among Black-American women and Black Caribbean women is a unique approach used in this study, which should further elucidate how hypertension-related health beliefs influence hypertension-preventive health behaviors. The exploratory research design is useful when researchers need to understand ways in which human attributes and environmental characteristics interact to control behavioral responses (Portney & Watkins, 2000).

Research Questions

I. In describing the sample by demographics and by health beliefs/health locus of control (HLC), health quality (HQ) and health-promoting behaviors (HPB):
   1. What are the demographics of the sample?
   2. What are the self-reported health promoting behaviors, health locus of control, and health quality of Black women with hypertension?

II. In defining the relationship between health beliefs/health locus of control (HLC), health quality (HQ) and health promoting behaviors (HPB):
   3. What are the relationships among HLC, HQ, and HPB among Black women with hypertension?

III. In testing the differences between Black Caribbean and non-Caribbean women in health beliefs/health locus of control (HLC), health quality (HQ) and health-promoting behaviors (HPB):
   4. Are there differences between Black Caribbean women and Black Non-Caribbean women with hypertension and their self-reported health promoting behaviors
5. Are there differences between Black Caribbean women and Black Non-Caribbean women with hypertension and their health locus of control (HLC)?

6. Are there differences among Black Caribbean women and Black Non-Caribbean women with hypertension and their self-reported health quality (HQ)?

IV. In testing the relationships and differences among demographic and characteristics of Caribbean women and Black Non-Caribbean women with hypertension in their health beliefs/locus of control (HLC), health quality (HQ) and health-promoting behaviors (HPB):

7. Are there relationships among selected demographic variables and HLC, HQ or HPB between Caribbean women and Black Non-Caribbean women with hypertension?

8. Are there differences between selected demographic characteristics and HLC, HQ or HPB between Caribbean women and Black Non-Caribbean women with hypertension?

**Research Hypothesis and Planned Analyses**

The following are select hypotheses, which are the researcher’s expectations or predictions about relationships among the study variables on the sample of women with hypertension.

- Self-reported Health Locus of Control (HLC)
- Self-reported Health Quality (HQ)
- Self-reported Summed Health Promoting Behaviors (HPB)

1. There is a relationship between self-reported health-promoting behaviors, self-reported health locus of control and self-reported health quality in Black women with hypertension.
[correlation HPB–HLC–HQ]

2. There is a difference between Black Non-Caribbean and Caribbean women’s health-promoting behaviors. (t test for HPB)

3. There is a difference between Black Caribbean women and Black Non-Caribbean women’s health locus of control. (t test for HLC)

4. There is a difference between Black Non-Caribbean and Caribbean women’s self-reported health quality. (t test for HQ)

5. There is a relationship among select demographic variables (age, education, height, weight) and self-reported health locus of control (HLC), self-reported health quality (HQ) and self-reported health-promoting behaviors (HPB). (Pearson Correlations)

6. There is a difference between groups within select demographic variables (married/not married, college/no college, smoking/no smoking, insurance/no insurance, employed/not employed, medicine/no medicine, alcohol/no alcohol, diet/no diet, and exercise/no exercise) and the self-reported health locus of control (HLC) and self-reported health quality.
Recruited Sample: Office or Clinic Women with Hypertension

All Questionnaires
Collected via Flyer Info
SORTED BY SELF-REPORTED RESPONSES

Study Sample:
Black Women with Hypertension Demographics and Characteristics

Non-Black Women

Group A Self Identifying as Caribbean (West Indies) Country of Origin

Group B Self Identifying as Non-Caribbean (American) or Other Country of Origin

SELF-REPORT HEALTH QUALITY
Hypertension Scales
Physical
Psychological
Social
Hypertension Special Module

SELF-REPORT HEALTH BEHAVIORS
Self-Reported Items Total
Check Blood Pressure
Medication
Smoking
Drinking
Salt Intake
Exercise
Weight Loss Goal

HEALTH LOCUS OF CONTROL
MHLC Scales
Internal HLC
Chance HLC
Powerful Other HLC
God HLC

Figure 7: Design Model
Participants/Sample Population

The target population of this study was Caribbean women and Non-Caribbean (Black-American) women with hypertension who attended two doctors’ offices for medical care in the New York Tri-State area. A convenience sample was used to recruit and ensure that an adequate number of subjects in each group was available to conduct the proposed analysis. Power analysis was used to estimate sample size for a power of .80 comparing two groups, an alpha of .05, and eta of moderate size. A sample size of 128 women was the goal sought from these offices and two groups were formed (Caribbean Women and Non-Caribbean (Black American) women. Based on this estimation, women were recruited to reach the goal of enough women in each group, or if too difficult due to the eligibility restrictions, until a minimal sample was achieved of 35 per group who are clearly identified and without missing data. A total of 131 participants completed all questionnaire items with minimal missing data. All women were English speaking. The women who responded that they have high blood pressure or were being treated for high blood pressure were chosen to participate in this study. All potential participants were recruited and sorted on the inclusion criteria of cultural backgrounds of being (a) Caribbean origin or (b) Non-Caribbean (African American) and who were not of Caribbean origin. (Note: No other women who did not meet the criteria completed questionnaires). These qualifying statements were part of the demographic questions to be sorted so that participants can self-identify. Other participants who did not meet these criteria or did not complete the survey were screened out of the study.

Instruments

The questionnaire distributed to participants included all the variables of interest designed to produce measures. A demographic data sheet of 17 items was used to collect personal characteristics of each participant, such as age, race, and country of origin, marital, employment
and educational status. In addition to the general demographic questions, the questionnaire included several specific questions related to the participant’s hypertension that was used as a proxy for self-reported health-promotion behaviors. These questions have been developed from the ACC/AHA guidelines (DePalma, 2018) and were scored from 1-11 based on the “yes” or “no” responses and the frequency of checking blood pressure (see Figure 7).

![Figure 8: Measures of Self-Reported Health Promotion Behaviors on Demographics Self-Reported Health Quality](image)

The questionnaire also collected respondents’ self-report on a number of items that measures health quality specifically related to hypertension, using the Quality of Life Instrument for Chronic Diseases – Hypertension Scale QLICD-HY. The (QLICD-HY) scale, is a five-level Likert-type scoring scale ranging from Not at all = 1, A little = 2, Moderately = 3, Very Much = 4, Extremely = 5. The instrument consists of 47 questions, which were measured as the physical, psychological, social and hypertension specific modules of the subjects (Wan et al., 2011).

Permission to use the QLICD-HY Scale was granted by Wan et al., 2011, through an agreement between the researcher and Elsevier, which consists of license details, and the terms and conditions provided by Elsevier and Copyright Clearance Center (see Appendix).

The QLICD-HY Scale was developed based on programmed decision procedures with multiple nominal and focus group discussions and pilot testing. A total of 157 inpatients with
hypertension were used to provide the data measuring the quality of life (QOL) three times before and after treatment. The psychometric properties of the scale were evaluated with respect to validity, reliability and responsiveness using correlation, factor analysis and t tests. Correlation and factor analysis confirmed good construct validity and criterion-related validity. The test-retest reliability coefficients (Pearson’s r and intra-class correlation for the overall instrument score and all domains, except for the hypertension-specific domain (0.75) were higher than 0.80 with a range of 0.75-0.91. The QLICD-HY Scale showed good validity, reliability, and responsiveness and was deemed appropriate to use as a quality-of-life instrument for patients with hypertension. Each item of the QLICD-HY is rated on a five-level Likert-type scoring system, (not at all, a little, moderately, very much, and extremely.) The positively stated items are scored from 1 to 5, while the negatively stated items are reverse coded. Each domain score is obtained by adding together the within-domain item scores. The overall score is the sum of the five domain scores (see Figure 9). Reliability on the study population was calculated for each domain.

Quality of Life Instruments for Chronic Diseases

Hypertension Scale QLICD-HY (See Appendix)

Physical Function

PH1 Could you take care of your daily life? (e.g., eating, dressing, washing, using toilet).
PH2 Have you felt fatigued easily?
PH3 Do you have any trouble walking 800 m or more?
PH4 Do you have any trouble going up and down stairs?
PH5 Have you needed to take medications to maintain daily activities?
PH6 Have you had a good appetite?
HP7 Were you satisfied with your sleep?
PH8 Have you felt pain or discomfort?

Psychological Function

PS1 Has your memory and concentration been affected by the disease?
PS2 Have you felt mentally miserable because of the disease?
PS3 Have you felt lonely and helpless?
PS4 Have you felt pessimism and despair?
PS5 Have you been worried about your disease?
PS6 Have you felt fretful or irritable?
PS7 Have you felt nervous and anxious?
PS8 Is it possible for you to stop taking the drug because of its side effects?
PS9 Have you thought of yourself as a burden to your family?
PS10 Have you felt self-abasement because of the disease?
PS11 Have you recovered the emotions but could not forget?

Social Function

SO1 Has the disease or treatments interfered with your work or housework?
SO2 Could you undertake appropriate family roles (such as parent, husband, wife)?
SO3 Have you decreased your caring and attentions to your family because of the disease?
SO4 Have you had good relations with your families?
SO5 Could you acquire material and emotional help and support from your family when you needed it?
SO6 Has the disease affected your participation in leisure activities that you like?
SO7 Could you treat the illness positively and optimistically?
SO8 Have you thought that the treatment you received was good for curing the disease?
SO9 Have economic problems caused by your illness or treatment affected your life?
SO10 Could you get care and support from your friends and relatives?
SO11 Has the disease or treatment affected your sexual activities?

Special Module

HY1 Did you have headaches?
HY2 Did you feel dizzy?
HY3 Did you have tinnitus?
HY4 Did you have heart palpitations?
HY5 Did you have shortness of breath?
HY6 Did you have swelling in your ankles or legs?
HY7 Did you have increased urination at nights?
HY8 Did you feel dry mouth?
HY9 Did you have irritable cough?
HY10 Did you have blurred vision?
HY11 Did you feel slow reaction or slow movements?
HY12 Were you able to control your negative emotions?
HY13 Did you feel unhappy about your weight?
HY14 Did you feel uncomfortable about taking medicine for the disease?
HY15 Were you bothered by sexual problems caused by the disease?
HY16 How often do you worry about further damage to your health caused by the disease?
HY17 Were you able to adapt to lifestyle change such as low-salt diet and quit smoking?
**Multidimensional Health Locus of Control Scale (MHLC)**

MHLC measures an individual’s beliefs about the sense of control over the domain of health. This instrument measures the degree in which women belief that health outcomes are under the control of the self relates to powerful others and relates to chance. This scale is a 6-point Likert-type Scale, consisting of 18 questions. The scale ranges from $1 = \text{strongly disagree}$ to $6 = \text{strongly agree}$ to represent the degree to which the respondent agrees or disagrees with the statement in the item.

**MHLC Items:**

1. My good health is largely a matter of good fortune.
2. No matter what I do, I am likely to get sick.
3. Luck plays a big part in determining how soon I will recover from an illness.
4. Most things that affect my health happen to me by accident.
5. No matter what I do, if I am going to get sick, I will get sick.
6. If it’s meant to be, I will stay healthy.
7. If I take care of myself, I can avoid illness.
8. I am in control of my health.
9. The main thing that affects my health is what I myself do.
10. If I take the right actions, I can stay healthy.
11. If I get sick, it is my own behavior which determines how soon I get well again.
12. When I get sick, I am to blame.
13. Having regular contact with my physician is the best way for me to avoid illness.
14. Whenever I don’t feel well, I should consult a medically trained professional.
15. Health professionals control my health.
16. When I recover from an illness, it’s usually because other people have been taking good care of me.
17. Regarding my health, I can only do what my doctor tells me to do.
18. My family has a lot to do with my becoming sick or staying healthy.

There are three forms of MHLC Scale (A, B and C). MHLC—Form B is generally used in the study of populations that have chronic illnesses. MHLC—Form B consists of three six-item subscales: Internality (IHLC); Powerful other externality (PHLC); and Chance externality (CHLC) (See Figure 9).

Internal health locus of control (IHLC) relates to an individual’s belief that his other health is largely under one’s personal control. IHLC is a perspective where individuals are more apt to actively participate in their own health and health care. Question # 1, 6, 8, 12, 13, 17 represents this subscale.

![Figure 10: HLC Measures Health Locus of Control – Items on Questionnaire]

<table>
<thead>
<tr>
<th>SCORING INSTRUCTIONS FOR THE MHLC SCALE</th>
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</thead>
<tbody>
<tr>
<td><strong>SUBSCALE</strong></td>
</tr>
<tr>
<td>Internal</td>
</tr>
<tr>
<td>Chance</td>
</tr>
<tr>
<td>Powerful Others</td>
</tr>
</tbody>
</table>

The score on each subscale is the sum of the values circled for each item on the subscale (i.e., where 1 = strongly disagree and 6 = strongly agree). No items need to be reversed before summing. All of the subscales are independent of one another. There is no such thing as “total” MHLC score.
Chance health locus of control (CHLC) is defined as the extent to which an individual perceives health to be dependent on factors such as chance or luck. CHLC is a perspective where individuals perceive they have no control over their health and believe it is fate if they get sick or stay healthy. Questions 2, 4, 9, 11, 15, 16 represent this subscale.

Powerful other health locus of control (PHLC) is defined as an individual’s belief that one has no control over one’s health, which is largely determined by powerful others, such as health care professionals. PHLC is a perspective where individuals are more likely to rely on the medical professionals to take care of their health. Questions 3, 5, 7, 10, 14, 18 represent this subscale.

The God Locus of Health Control (GLHC) Scale

The GLHC (see Appendix H) is designed to assess the belief that God is in control of one's health status, in general, or in control of one's specific disease status. Different types of health-related locus of control have been studied including internal, chance and powerful others. Having a strong God health locus reflects the belief that God is responsible for one’s health. The GLHC-scale was developed to examine the extent to which one’s health or disease state is attributed to God’s will, specifically among individuals with acute or chronic medical conditions. This scale was first validated among three samples. Internal consistency reliability was excellent in all three samples (Alpha = .87 - .94). The response scale for the GLHC should be the same as for the MHLC scales, which, in this work, is a 6-point Likert-type scale: "strongly disagree"; "moderately disagree"; "disagree"; "agree"; "moderately agree"; and "strongly agree. As with the MHLC subscales, all the items are keyed in the same direction; a high score represents belief in God as a locus of control (Wallston et al., 1999).

The God Locus of Health Control Scale – Items:

1. If my (health; condition) worsens, it is up to God to determine whether I will feel better again.
2. Most things that affect my (health; condition) happen because of God.
3. God is directly responsible for my (health; condition) getting better or worse.
4. Whatever happens to my (health; condition) is God's will.
5. Whether or not my (health; condition) improves is up to God.
6. God is in control of my (health; condition).

**Reliability Testing of the Instruments in Prior Studies**

The reliability of the QLICD-HY Scale was evaluated by three procedures: test-retest, ICC (Internal Consistency Coefficient), and internal consistency. The test-retest correlation coefficients \( r \) for the 4 domains and 13 facets of QLICD-HY ranged between 0.68 and 0.92, with \( r = 0.86 \) for the overall scale and the minimum \( r = 0.75 \) for psychological domain (SPD) among the four domains. Cronbach’s alpha for these four domains were higher than 0.7 except for Social Domain, which was 0.66.

The QLICD-HY Scale was developed based on programmed decision procedures with multiple nominal and focus group discussions and pilot testing. The psychometric properties of the scale were evaluated with respect to validity, reliability and responsiveness using correlation, factor analysis and \( t \) tests. The test-retest reliability coefficients (Pearson’s \( r \) and intra-class correlation for the overall instrument score and all domains, except for the hypertension-specific domain (SPD) (0.75) were higher than 0.80 with a range of 0.75-0.91 (Wan, et al., 2011).

According to Wallston (2005), the MLHC Scale has been used in hundreds of studies and is said to have moderate reliability with Cronbach’s alphas ranging from .60 -.75. It is further stated that test-retest stability coefficients range from .60-.70. The validity of this scale is said to be modest and it depends on the validity for what purpose it is being used. The MHLC— Form A and B consists of three-six item subscales: Internality (IHLC); Powerful other externality (PHLC); and Chance externality (CHLC).

The GLHC Scale is used in conjunction with the Form B of the MHLC Scale. It is used for studying the relationship between religious beliefs and health. The GLHC scale was also developed as an adjunct to and expansion of the widely used MHLC scales and was designed to assess individuals’ cognitions about the degree to which God is a source of control over their personal health and illness. The GLHC is designed to assess the belief that God is either the locus of control
of one’s health status or the locus of control of one’s specific disease status. Wallston et al. (1999) had reported reliability of coefficient alphas of .87 - .94 in their research.

The Health Promotion Behaviors scale measure is a composite of the recommended items identified by the American College of Cardiology (2017) for health-promotion behaviors related to hypertension. It has no reported reliability as a composite scale in the literature, so this measure was tested for reliability on the current study participants. With a low reliability, interpretations of findings should be cautious.

**Recruitment Strategies/Participants**

Various recruitment strategies were used to obtain these subjects during a three-month period. These strategies included recruitment with the assistance of office staff, flyers and personal contact with the researcher (see Appendix I for recruitment flyer). The researcher started by having direct contact with the office patients. Questionnaires were given to all subjects in these offices. Office staff were asked to help by placing questionnaires in a box provided and helped in collecting responses by reminding participants of the opportunity to fill out questionnaires. Envelopes with postage were provided to the participants who wish to mail back their questionnaires. The researcher also made arrangements to quietly be available in the practice offices and assisted participants to fill out questionnaires and answer any questions concerning the surveys. A modest incentive was given to all participants who responded to the surveys. Names and addresses of all participants were collected to distribute gift cards and a “tear-off” at the end of each questionnaire was placed in the raffle box.

Face-to-face with pencil and paper and mail-back survey methods were used. According to Dillman, et al. (2009), the implementation of mixed modes surveys is the trend for the 21st century. New survey modes such as the internet and interactive voice response (IVR) give researchers more choices of which mode to use in addition to the traditional telephone, mail, and/or face-to-face surveys. The increase in cell phone use, the corresponding decrease in coverage for random digit
dialing (RDD) surveys, and declining telephone response rates force researchers to consider alternative survey modes for reducing nonresponse error.

Finally, previous research has shown that higher response rates can be obtained by the use of mixed modes. However, mixed-modes surveys could have potential drawbacks. It is reported that different survey modes can produce different answers to the same questions, such as a more positive response to scale questions for telephone than on web surveys (Couper, 2011; Dillman et al., 2009). For the purpose of this study, face-to-face and mail-back surveys will be used, so as to reduce correspondence error. Rookey, Lena, Littlejohn, and Dillman (2012) showed that mail-based collection methods for surveys seems to be increasing again to overcome difficulties associated with telephone and internet surveys.

Setting

This study was conducted in two different doctors’ offices that were in the New York Tri-State area. The researcher contacted each doctor from these offices to formulate a final plan as to how the research was carried out in each office. A letter documenting assistance in this effort was attached. All associated reviews and signatures for approvals were obtained before recruiting the subjects in each office. Informed consents were given as part of the survey package to all participants, and confidentiality and anonymity were maintained by coding and keeping all returned questionnaires in a safe place, where only the researcher had access to all information. All questionnaires and surveys had a number instead of names. A modest incentive was offered to participants for voluntarily taking the survey, using an envelope provided to participants in the packet.

Data Analysis

Quantitative analysis was used for this research study. A non-experimental, comparative and correlational design was used to examine the association among the variables of interest. Descriptive statistics was used to describe the entire sample. Demographic data describing the
sample used frequencies and appropriate descriptive statistical techniques (percentage, mean, standard deviation and variance).

Analysis of variance (ANOVA) or an Independent Sample t-tests were used to test differences among the cultural groups (as defined) and the three subscales of the MHLC Scale and GLHC Scale. Pearson correlation was used to correlate for interval variables analysis and conduct variables of health locus of control and health behavior. Cronbach’s alpha was performed on all the study subscales to test internal consistency and reliability.

**Human Subjects Protection Considerations**

Ethical issues and human rights are a major concern in research studies. Approval for this study was obtained from the Institutional Review Board (IRB) at Molloy College as well as from the clinical sites of the data collection to assist in referring patients to the signed study. Throughout this study, adherence to ethical principles was considered for all participants. All subjects participated on a voluntary basis, and privacy was maintained with all information collected on the surveys. Informed consents were given to every participant with each questionnaire. Only the researcher had access to all information collected, which was placed in a safe place. Confidentiality and anonymity were maintained with all information collected. No foreseeable risks were anticipated.

**Summary**

Chapter three described the quantitative method used in this study. A non-experimental, comparative and correlation design was used to examine the association among the variables. The comparative aspect of this study analyzed group differences that emerged based on the geographical and cultural characteristics. Group data on health locus of control, health quality and health behaviors of women with hypertension were compared. A demographic questionnaire, the MHLC scale, the GHLC scale, health-promotion behavior and the QLICD-HY instrument on hypertension was used in the analysis. The results of the statistical analysis were used to answer
the research questions meaningfully. The findings are presented in chapter four.
Chapter 4: Results

This chapter includes the presentation and analysis of the data collected for this research study. This study was conducted to understand the relationship between modifying factors associated with hypertension risks, hypertension-related health beliefs, hypertension preventive health behavior and hypertension health outcomes in Black Caribbean women and Non-Caribbean (Black American) women. The presentation in this chapter consists of demographic data that were used to collect personal characteristics of each participant, such as age, height, weight, race, country of origin, marital status, employment, educational status, health insurance, religious practice, years of hypertension, hypertension medication, smoking, alcohol, healthy diet, exercise and weight loss. In addition to the general demographic questions, the questionnaire includes several specific questions related to the participants’ hypertension, which looked at the statistical tests of the means and standard deviations of measures from the instruments used in this study; (the Quality of Life Instrument for Chronic Diseases – Hypertension Scale (QULICD-HY), Multidimensional Health Locus of Control Scale (MHLC Scale), which consists of Internal Locus of Control (IHLC), Chance Locus of Control (CHLC), Powerful Others (PHLC), and God Locus of Health Control (GLHC).

The data were analyzed from 131 questionnaire booklets completed by women with hypertension from two private doctors’ offices in the Queens community, New York City. The variables of health-promoting behaviors of these women with hypertension, personal characteristics, health locus of control and God locus of control were measured. Demographic information was used to describe the sample. The analysis of the data is organized according to the research questions.
**Preliminary Analysis**

Preliminary analyses were performed using IBM SPSS Version 23 for testing the hypotheses. The preliminary analyses were performed to determine whether the distribution of the selected variables exhibited unvaried normality. The frequencies and the descriptive statistics of the demographic variables: The Quality of Life Instrument for Chronic Diseases – Hypertension Scale (QLICD-HY), Multidimensional Health Locus of Control Scale (MHLCS Scale) and God Locus of Health Control (GLHC Scale) were investigated using procedures for accuracy of data entry and missing values. There were missing data in the demographic data # 20, on weight loss coded as .5.

Rookey, Lena, Littlejohn, and Dillman’s (2012) method of distribution was used for the study. Face-to-face and mail-back surveys were used, so as to reduce correspondence error. The results yielded 131 returned surveys of women with hypertension and the entire sample was used. Therefore, a sample n= 131 was selected for analysis since all the surveys were fully completed, except for some missing data on weight loss on 3 women.

**Data Analysis**

All data analysis was performed on the latest version of the SPSS (25.0) software. First, all variables were analyzed descriptively, including mean or standard deviation value for continuous variables (interval ratio) and counts/percentages for categorical (nominal or ordinal) variables. Next, the inferential analysis was used to test the study hypotheses. Specifically, Pearson’s zero-order correlations were used to examine Hypothesis 1 (There is a relationship between self-reported health-promoting behaviors, self-reported health locus of control, and self-reported health quality in Black women with hypertension). An independent samples t-test was used to test Hypothesis 2 (There is a difference between Black Non-Caribbean and Caribbean women’s health-promoting behaviors), Hypothesis 3 (There is a difference between Black Caribbean women and Black Non-Caribbean women’s health locus of control), and Hypothesis 4 (There is a difference
Pearson’s zero-order correlations were used to examine Hypothesis 5 (There is a relationship among select demographic variables and self-reported health locus of control, self-reported health quality, and self-reported health-promoting behaviors. Lastly, a series of independent samples t-tests were used to test Hypothesis 6 (There is a difference between groups within select demographic variables and the self-reported health locus of control, and self-reported health quality, and self-reported health promoting behavior.)

The following research questions guided the descriptive analysis and hypothesis testing.

Research Questions

1. What are the demographics of the sample?
2. What are the self-reported health promoting behaviors (HPB), health locus of control (HLC), and health quality (HQ) of Black women with hypertension?
3. What are the relationships in HLC, HQ, and HPB among Black women with hypertension?
4. Are there differences between Black Caribbean women and Black Non-Caribbean women with hypertension and their self-reported health-promoting behaviors (HPB)?
5. Are there differences between Black Caribbean women and Black Non-Caribbean women with hypertension and their health locus of control (HLC)?
6. Are there differences among Black Caribbean women and Black Non-Caribbean women with hypertension and their self-reported health quality (HQ)?
7. Are there relationships in selected demographic variables and HLC, HQ or HPB between Caribbean women and Black Non-Caribbean women with hypertension?
8. Are there differences in selected demographic characteristics and HLC, HQ or HPB between Caribbean women and Black Non-Caribbean women with hypertension?

**Inferential Statistics – Hypothesis Testing**

The following are select hypotheses which are the researcher’s expectations or predictions about relationships among the study variables on the sample of women with hypertension as they relate to: Self-reported Health Locus of Control (HLC); Self-reported Health Quality (HQ); and Self-reported Summed Health Promoting Behaviors (HPB).

1. There is a relationship between self-reported health promoting behaviors, self-reported health locus of control and self-reported health quality in Black women with hypertension. [correlation HPB~HLC~HQ]

2. There is a difference between Black Non-Caribbean and Caribbean women’s health promoting behaviors. (t test for HPB)

3. There is a difference between Black Caribbean women and Black Non-Caribbean women’s health locus of control. (t test for HLC)

4. There is a difference between Black Non-Caribbean and Caribbean women’s self-reported health quality. (t test for HQ)

5. There is a relationship among select demographic variables (age, education, height, weight) and self-reported health locus of control (HLC), self-reported health quality (HQ) and self-reported health-promoting behaviors (HPB). (Pearson Correlations)

6. There is a difference between groups within select demographic variables (married/not married) and the self-reported health locus of control (HLC) and self-reported health quality (HQ) and self-reported health-promoting behavior (HPB). [t tests by binary groups for HPB, HLC, HQ]
Descriptive Statistics

Table 6a presents the characteristics and demographic descriptive variable findings of the study participants. Data indicated that about half of the sample was over age 66 years \( (n=60, 45.8\%) \). The average study participant was 64.17 \( (SD=3.40) \) inches in height, weighed 187.00 \( (SD=45.21) \) pounds, and lived in the United States for 19.36 \( (SD=0.19) \) years. About half the study participants lived in the United States more than or less than 40 years: groups split under 40 years \( (n=62, 47.3\%) \) and over 40 years \( (n=69, 52.7\%) \). About half the sample reported being employed \( (n=67, 51.1\%) \). About one-third of the sample reported their occupation as retired/unemployed/non-workers/disability \( (n=43, 32.80\%) \) and health care workers \( (n=52, 39.70\%) \), and having a highest level of education of high school \( (n=40, 30.50\%) \). The majority of the sample reported having health insurance \( (n=124, 94.70\%) \) and being married \( (n=67, 51.10\%) \).

Table 6a. Characteristic and Demographic Descriptive Variable Findings

<table>
<thead>
<tr>
<th>Demographics and Characteristics</th>
<th>n</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Less than 26</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>26-35</td>
<td>1</td>
<td>0.8</td>
</tr>
<tr>
<td>36-45</td>
<td>14</td>
<td>10.7</td>
</tr>
<tr>
<td>46-55</td>
<td>21</td>
<td>16.0</td>
</tr>
<tr>
<td>56-65</td>
<td>35</td>
<td>26.7</td>
</tr>
<tr>
<td>66-75</td>
<td>40</td>
<td>30.5</td>
</tr>
<tr>
<td>Over 75</td>
<td>20</td>
<td>15.3</td>
</tr>
<tr>
<td><strong>Current height (Self-report in inches)</strong></td>
<td>( M= 64.17, SD=3.40 )</td>
<td>Min/Max =54.00-75.00</td>
</tr>
<tr>
<td><strong>Current weight (Self-report in pounds)</strong></td>
<td>( M=187.00, SD=45.21 )</td>
<td>Min/Max=103.00-325.00</td>
</tr>
<tr>
<td><strong>Years lived in the United States</strong></td>
<td>( M=19.36, SD=0.19 )</td>
<td>Min/Max=1.00-85.00</td>
</tr>
<tr>
<td><strong>Years lived in the United States</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Under 40 years</td>
<td>62</td>
<td>47.3</td>
</tr>
<tr>
<td>Over 40 years</td>
<td>69</td>
<td>52.7</td>
</tr>
<tr>
<td><strong>Is the patient currently employed?</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>67</td>
<td>51.1</td>
</tr>
<tr>
<td>No</td>
<td>64</td>
<td>48.9</td>
</tr>
</tbody>
</table>
### Occupation

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retired/Unemployed/Non-Workers/Disability</td>
<td>43</td>
<td>32.80</td>
</tr>
<tr>
<td>Health Care Workers</td>
<td>52</td>
<td>39.70</td>
</tr>
<tr>
<td>Business</td>
<td>12</td>
<td>9.20</td>
</tr>
<tr>
<td>Ancillary Service</td>
<td>24</td>
<td>18.30</td>
</tr>
</tbody>
</table>

### Occupation Grouped by Health Care vs Non-Health Care

<table>
<thead>
<tr>
<th>Occupation Grouped by Health Care</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health Care Workers</td>
<td>52</td>
<td>39.70</td>
</tr>
<tr>
<td>Non-Health Care Workers</td>
<td>79</td>
<td>60.30</td>
</tr>
</tbody>
</table>

### Highest level of education

<table>
<thead>
<tr>
<th>Highest level of education</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Some High School</td>
<td>19</td>
<td>14.50</td>
</tr>
<tr>
<td>High School</td>
<td>40</td>
<td>30.50</td>
</tr>
<tr>
<td>Some College</td>
<td>24</td>
<td>18.30</td>
</tr>
<tr>
<td>College</td>
<td>30</td>
<td>22.90</td>
</tr>
<tr>
<td>Vocational/Professional</td>
<td>2</td>
<td>1.50</td>
</tr>
<tr>
<td>Graduate/Doctoral</td>
<td>16</td>
<td>12.20</td>
</tr>
</tbody>
</table>

### Does the patient have health insurance?

<table>
<thead>
<tr>
<th>Does the patient have health insurance?</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>124</td>
<td>94.70</td>
</tr>
<tr>
<td>No</td>
<td>6</td>
<td>4.60</td>
</tr>
<tr>
<td>Unknown</td>
<td>1</td>
<td>0.80</td>
</tr>
</tbody>
</table>

### Marital status

<table>
<thead>
<tr>
<th>Marital status</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>67</td>
<td>51.10</td>
</tr>
<tr>
<td>Single</td>
<td>22</td>
<td>16.80</td>
</tr>
<tr>
<td>Co-living with partner</td>
<td>1</td>
<td>0.80</td>
</tr>
<tr>
<td>Separated</td>
<td>8</td>
<td>6.10</td>
</tr>
<tr>
<td>Divorced</td>
<td>12</td>
<td>9.20</td>
</tr>
<tr>
<td>Widowed</td>
<td>21</td>
<td>16.00</td>
</tr>
</tbody>
</table>

### Married v Single Separated Divorced Widowed Co-Living

<table>
<thead>
<tr>
<th>Married v Single Separated Divorced Widowed Co-Living</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Married</td>
<td>67</td>
<td>48.93</td>
</tr>
<tr>
<td>Non-Married/Single/Divorced/Widowed/Co-Living</td>
<td>64</td>
<td>51.07</td>
</tr>
</tbody>
</table>

Table 6b presents a descriptive analysis of the related descriptive variables. About one-third of the sample reported being told they had hypertension (high blood pressure) between 5 and 10 years prior \(n=44, 33.60\%\). About half of the sample reported checking his/her blood pressure occasionally \(n=72, 55.00\%). The majority of the study participants reported taking medication regularly for blood pressure \(n=115, 87.80\%), that he/she did not smoke \(n=117, 89.30\%), limited alcohol to one drink a day \(n=68, 51.90\%), eating a heart healthy diet \(n=102, 77.90\%), limiting his/her salt intake \(n=113, 86.30\%), not following a regular exercise program \(n=86, 65.60\%), and
presently trying to lose weight ($n=79$, 60.30%).

Table 6b. Related Descriptive Variables

<table>
<thead>
<tr>
<th>Other Variables</th>
<th>$n$</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Hypertension Related Characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>When was the patient told he/she has hypertension (high blood pressure)?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Never</td>
<td>9</td>
<td>6.90</td>
</tr>
<tr>
<td>Less than 5 years</td>
<td>22</td>
<td></td>
</tr>
<tr>
<td>Between 5 and 10 years</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>Between 10 and 20 years</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>More than 20 years</td>
<td>20</td>
<td>15.30</td>
</tr>
<tr>
<td>How often does the patient check his/her blood pressure?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not at all</td>
<td>11</td>
<td>8.40</td>
</tr>
<tr>
<td>Occasionally</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td>Frequently</td>
<td>36</td>
<td></td>
</tr>
<tr>
<td>Very Frequently</td>
<td>12</td>
<td>9.20</td>
</tr>
<tr>
<td>Does the patient take medication regularly for his/her blood pressure at present?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>115</td>
<td>87.80</td>
</tr>
<tr>
<td>No</td>
<td>16</td>
<td>12.20</td>
</tr>
<tr>
<td>Does the patient smoke?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>14</td>
<td>10.70</td>
</tr>
<tr>
<td>No</td>
<td>117</td>
<td>89.30</td>
</tr>
<tr>
<td>Does the patient limit alcohol to one drink a day?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>68</td>
<td>51.90</td>
</tr>
<tr>
<td>No</td>
<td>63</td>
<td>48.10</td>
</tr>
<tr>
<td>Does the patient report eating a heart healthy diet?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>102</td>
<td>77.90</td>
</tr>
<tr>
<td>No</td>
<td>29</td>
<td>22.10</td>
</tr>
<tr>
<td>Does patient limit his/her salt intake?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>113</td>
<td>86.30</td>
</tr>
<tr>
<td>No</td>
<td>18</td>
<td>13.70</td>
</tr>
<tr>
<td>Does patient follow a regular exercise program?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>45</td>
<td>34.40</td>
</tr>
<tr>
<td>No</td>
<td>86</td>
<td>65.60</td>
</tr>
<tr>
<td>Is patient presently trying to lose weight?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>79</td>
<td>60.30</td>
</tr>
<tr>
<td>No</td>
<td>48</td>
<td>36.60</td>
</tr>
<tr>
<td>Not Applicable</td>
<td>4</td>
<td>3.1</td>
</tr>
</tbody>
</table>
Table 6c presents a descriptive analysis of measures of central tendency for scale variables. The average study participant scored 7.37 (SD=1.6) on the Self-Report Summed Health Behaviors scale. Regarding the Health Quality Variables, the average study participant scored 25.68 (SD=7.2) on the Self-Report HQ Physical, 19.36 (SD=8.0) on the Self-Report HQ Social, and 36.62 (SD=10.9) on the Self-Report HQ Hypertension. Regarding the Health Locus of Control Variables, the average study participant scored 27.44 (SD=6.1) on the HLC Internal, (SD=7.2) on the HLC External, 26.34 (SD=5.7) on the HLC Powerful Other, 17.94 (SD=8.4) on the HLC God/Religious Focus.

### Table 6c. Measures of Central Tendency for Scale Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>N</th>
<th>Min</th>
<th>Max</th>
<th>Mean</th>
<th>SD</th>
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<tr>
<td><strong>Self-Report Summed Health</strong></td>
<td></td>
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<tr>
<td>Health Quality Variables</td>
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<tr>
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<td>12</td>
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<tr>
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<td><strong>Health Locus of Control Variables</strong></td>
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<tr>
<td>HLC External</td>
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<td>HLC Powerful Other</td>
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<tr>
<td>HLC God/Religious Focus</td>
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<td>6</td>
<td>36</td>
<td>17.94</td>
<td>8.4</td>
</tr>
</tbody>
</table>

Table 7 presents the results of a reliability analysis for the study subscales. The analysis indicated that several scales evidenced a sufficient level of internal consistency where the Cronbach’s alpha was at least .70, including the HLC Religious Focus (alpha = .86), HLC External (alpha = .74), HLC Internal (alpha = .71), HQ Hypertension (alpha = .73), and HQ Psychological (alpha = .82) subscales.

However, four subscales evidenced Cronbach’s alpha levels below .70, including HQ Social (alpha=.62), HQ Physical (alpha=.43), Health Behaviors (alpha=.38), and HLC Powerful Other (alpha=.62). The findings related to these scales must be interpreted with caution. Future analyses may benefit from using these items separately or modifying these scales by removing items in future analysis, as the composite scale did not evidence a sufficient level of internal
Table 7. Reliability Analysis and Alpha Coefficients for Study Subscales (n=131)

<table>
<thead>
<tr>
<th>Subscale</th>
<th># Items</th>
<th>Cronbach’s Alpha</th>
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</thead>
<tbody>
<tr>
<td>HLC Religious Focus</td>
<td>6</td>
<td>.86</td>
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<tr>
<td>HLC Powerful Other</td>
<td>6</td>
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</tr>
<tr>
<td>HLC External</td>
<td>6</td>
<td>.74</td>
</tr>
<tr>
<td>HLC Internal</td>
<td>6</td>
<td>.71</td>
</tr>
<tr>
<td>HQ Hypertension</td>
<td>17</td>
<td>.73</td>
</tr>
<tr>
<td>HQ Social</td>
<td>11</td>
<td>.62*</td>
</tr>
<tr>
<td>HQ Physical</td>
<td>8</td>
<td>.43*</td>
</tr>
<tr>
<td>HQ Psychological</td>
<td>11</td>
<td>.82</td>
</tr>
<tr>
<td>Health Behaviors</td>
<td>8</td>
<td>.38*</td>
</tr>
</tbody>
</table>

*For this composite scale, the Cronbach’s alpha is below an acceptable level (<.70) and the findings related to this scale must be interpreted with caution. Future analyses may benefit from using these items separately/modifying the as the composite scale did not evidence a sufficient level of internal consistency in the current analysis.

Hypothesis 1

There is a relationship between self-reported health-promoting behaviors, self-reported health locus of control and self-reported health quality in Black women with hypertension.

[correlation HPB~HLC~HQ]

Table 8 presents Pearson Correlations for subscales of Self-reported Health Locus of Control, Self-reported Health Quality and Composite Scale of Self-reported Health Promoting Behaviors.

HLC Religious Focus

Data indicated that the subscale 1-HLC Religious Focus was correlated at a statistically significant level with 2-HLC Powerful Other, $r(129) = .38, p<.01$, 3-HLC External, $r(129) = .42, p<.01$, 6-Self-reported Health Quality Social, $r(129) = .19, p<.05$, and 7-Self-reported Health Quality Physical, $r(129) = .18, p<.05$ subscales. Data indicated that the subscale 1-HLC
Religious Focus was not significantly associated with the 4-HLC Internal, 5-Self-reported Health Quality Hypertension, 8-Self-reported Health Quality Psychological, and 9-Self-reported Health Behaviors subscales.

**HLC Powerful Other**

Data indicated that the subscale 2-HLC Powerful Other was correlated at a statistically significant level with 1-HLC Religious Focus, \( r(129)=.38, p<.01 \), 3-HLC External, \( r(129)=.43, p<.01 \), 4-HLC Internal, \( r(129)=.29, p<.01 \), 5-Self-reported Health Quality Hypertension, \( r(129)=.19, p<.05 \), 6-Self-reported Health Quality Social, \( r(129)=.20, p<.05 \), and 8-Self-reported Health Quality Psychological, \( r(129)=.22, p<.05 \). Data indicated that the subscale 2-HLC Powerful Other was not significantly associated with 7-Self-reported Health Quality Physical and 9-Self-reported Health Behaviors subscales.

**HLC External**

Data indicated that the subscale 3-HLC External was correlated at a statistically significant level with 1-HLC Religious Focus, \( r(129)=.42, p<.01 \), 2-HLC Powerful Other, \( r(129)=.43, p<.01 \), and 4-HLC-Internal, \( r(129)=.17, p<.05 \). Data indicated that the subscale 3-HLC External was not significantly associated with the 5-Self-reported Health Quality Hypertension, 6-Self-reported Health Quality Social, 7-Self-reported Health Quality Physical, 8-Self-reported Health Quality Psychological, and 9-Self-reported Health Behaviors subscales.

**HLC Internal**

Data indicated that the subscale 4-HLC Internal was correlated at a statistically significant level with 2-HLC Powerful Other, \( r(129)=.29, p<.01 \), and 3-HLC External, \( r(129)=.17, p<.05 \), subscales. Data indicated that the subscale 4-HLC Internal was not significantly associated with the 1-HLC Religious Focus, 5-Self-reported Health Quality Hypertension, 6- Self-reported Health Quality Social, 7-Self-reported Health Quality Physical, 8-Self-reported Health Quality Psychological, and 9-Self-reported Health Behaviors subscales.
Self-Reported Health Quality Hypertension

Data indicated that the subscale 5-Self-reported Health Quality Hypertension was correlated at a statistically significant level with 2-HLC Powerful Other, \( r(129) = .19, p < .05 \), 6-Self-reported Health Quality Social, \( r(129) = .35, p < .01 \), 7-Self-reported Health Quality Physical, \( r(129) = .36, p < .01 \), and 8-Self-reported Health Quality Psychological, \( r(129) = .67, p < .01 \). Data indicated that the subscale 5-Self-reported Health Quality Hypertension was not significantly associated with the 1-HLC Religious Focus, 3-HLC External, 4-HLC Internal, and 9-Self-reported Health Behaviors subscales.

Self-Reported Health Quality Social

Data indicated that the subscale 6-Self-reported Health Quality Social was correlated at a statistically significant level with 1-HLC Religious Focus, \( r(129) = .19, p < .05 \), 2-HLC Powerful Other, \( r(129) = .20, p < .05 \), 5-Self-reported Health Quality Hypertension, \( r(129) = .35, p < .01 \), 7-Self-reported Health Quality Physical, \( r(129) = .21, p < .05 \), and 8-Self-reported Health Quality Psychological, \( r(129) = .37, p < .01 \), subscales. Data indicated that the subscale 6-Self-reported Health Quality Social was not significantly associated with the 3-HLC External, 4-HLC Internal, and 9-Self-reported Health Behaviors subscales.

Self-Reported Health Quality Physical

Data indicated that the subscale 7-Self-reported Health Quality Physical was correlated at a statistically significant level with 1-HLC Religious Focus, \( r(129) = .18, p < .05 \), 5-Self-reported Health Quality Hypertension, \( r(129) = .36, p < .01 \), 6-Self-reported Health Quality Social, \( r(129) = .21, p < .05 \), and 8-Self-reported Health Quality Psychological, \( r(129) = .44, p < .01 \), subscales. Data indicated that the subscale 7-Self-reported Health Quality Physical was not significantly associated with the 2-HLC Powerful Other, 3-HLC External, 4-HLC Internal, and 9-Self-reported Health Behaviors subscales.
Self-Reported Health Quality Psychological

Data indicated that the subscale 8-Self-reported Health Quality Psychological was correlated at a statistically significant level with 2-HLC Powerful Other, \( r(129)=.22, p<.05 \), 5- Self-reported Health Quality Hypertension, \( r(129)=.67, p<.01 \), 6-Self-reported Health Quality Social, \( r(129)=.37, p<.01 \), and 7-Self-reported Health Quality Physical, \( r(129)=.44, p<.01 \). Data indicated that the subscale 8-Self-reported Health Quality Psychological was not significantly associated with the 1-HLC Religious Focus, 3-HLC External, 4-HLC Internal, and 9-Self-reported Health Behaviors subscales.

Self-Reported Health Behaviors

Data indicated that the subscale 9-Self-reported Health Behaviors was not significantly associated with the 1-HLC Religious Focus, 2-HLC Powerful Other, 3-HLC External, 4-HLC Internal, 5-Self-reported Health Quality Hypertension, 6-Self-reported Health Quality Social, 7-Self-reported Health Quality Physical, and 8-Self-reported Health Quality Psychological subscales.
Table 8. Pearson Correlations for Subscales of Self-Reported Health Locus of Control, Self-Reported Health Quality and Composite Scale of Self-Reported Health Promoting Behaviors (n=131)

<table>
<thead>
<tr>
<th>Variable</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
</tr>
</thead>
<tbody>
<tr>
<td>1- HLC Religious Focus</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2- HLC Powerful Other</td>
<td>.38**</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3- HLC External</td>
<td>.42**</td>
<td>.43**</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>4- HLC Internal</td>
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<td>.29**</td>
<td>.18*</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5- Health Quality Hypertension</td>
<td>.08</td>
<td>.19*</td>
<td>.03</td>
<td>.10</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6- Healthy Quality Social</td>
<td>.19*</td>
<td>.20*</td>
<td>.04</td>
<td>.03</td>
<td>.35**</td>
<td>--</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7- Healthy Quality Physical</td>
<td>.18*</td>
<td>.15</td>
<td>.08</td>
<td>.12</td>
<td>.36**</td>
<td>.21</td>
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<td></td>
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<td>8- Healthy Quality Psychological</td>
<td>.17</td>
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<td>.07</td>
<td>-.08</td>
<td>.67**</td>
<td>.37**</td>
<td>.44**</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>9- Health Behaviors</td>
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<td>-.07</td>
<td>-.03</td>
<td>-.05</td>
<td>.09</td>
<td>.00</td>
<td>-.02</td>
<td>06</td>
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</tr>
</tbody>
</table>

p<.05 level (2-tailed), **p<.01 level (2-tailed).

**Hypothesis 2**

Testing: There is a difference between Black Non-Caribbean and Caribbean women’s health promoting behaviors. (t test for HPB).

Table 9 presents the results of an independent samples t-test examining mean differences in Self-Reported Health Behaviors by Caribbean and Non-Caribbean groups. Data indicated that there was not a statistically significant mean difference regarding Self-Reported Health Behaviors by Caribbean (M=6.63, SD=1.77) and Non-Caribbean Groups (M=6.38, SD=1.52), t(129)=.84, p=.40.
Table 9. Independent Samples t-Test Examining Mean Differences in Self-Reported Health Behaviors by Caribbean and Non-Caribbean Groups

<table>
<thead>
<tr>
<th>Group Membership</th>
<th>Black Caribbean</th>
<th>Black Non-Caribbean</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
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<tr>
<td>Self-report Health Behaviors</td>
<td>6.63</td>
<td>1.77</td>
</tr>
</tbody>
</table>

Hypothesis 3

Testing: There is a difference between Black Caribbean women and Black Non-Caribbean women’s health locus of control. (t-test for HLC)

Table 10 presents the results of an independent samples t-test examining mean differences in health locus of control variables by Caribbean and Non-Caribbean groups. Data indicated that there was not a statistically significant mean difference regarding health locus of control variables by Caribbean and Non-Caribbean groups regarding HLC internal, HLC external, and HLC Religious focus subscales. However, data indicated that the Black Caribbean group ($M=27.26, SD=5.67$) evidenced a significantly higher mean HLC Powerful Other focus score relative to the Black Non-Caribbean group ($M=24.98, SD=5.25$), $t(129)=2.27$, $p<.05$. Thus, Hypothesis 3 is supported for HLC Powerful Other.
Hypothesis 4

Testing: There is a difference between Black Non-Caribbean and Caribbean women’s self-reported health quality. (t-test for HQ).

Table 11 presents the results of an independent samples t-test examining mean differences in Self-reported Health Quality variables by Caribbean and Non-Caribbean Groups. Data indicated that there was not a statistically significant mean difference regarding in Self-reported Health Quality variables by Caribbean and Non-Caribbean Groups regarding the HQ Social subscale. However, data indicated that the Black Caribbean group evidenced higher mean scores relative to the non-Caribbean group regarding the HQ Physical ($M=26.97, SD=8.26$ vs. $M=23.77, SD=4.75$, respectively), $t(129)=2.55, p<.01$, HQ Psychological
Hypothesis 4 is supported by the findings.

Table 11. Independent Samples t-Test Examining Mean Differences in Self-Reported Health Quality variables by Caribbean and Non-Caribbean Group

<table>
<thead>
<tr>
<th>Group Membership</th>
<th>Black Caribbean</th>
<th></th>
<th>Black Non-Caribbean</th>
<th></th>
</tr>
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<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>n</td>
<td>M</td>
</tr>
<tr>
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<td>78</td>
<td>23.77</td>
</tr>
<tr>
<td>Self-report HQ Psychological</td>
<td>20.62</td>
<td>8.62</td>
<td>78</td>
<td>17.51</td>
</tr>
<tr>
<td>Self-report HQ Social</td>
<td>32.28</td>
<td>6.18</td>
<td>78</td>
<td>31.28</td>
</tr>
<tr>
<td>Self-report HQ Hypertension</td>
<td>38.23</td>
<td>12.27</td>
<td>78</td>
<td>34.25</td>
</tr>
</tbody>
</table>

*p<.05 level (2-tailed)

Hypothesis 5

Testing: There is a relationship in select demographic variables (age, education, height, weight) and self-reported health locus of control (HLC), self-reported health quality (HQ) and self-reported health promoting behaviors (HPB). (Pearson Correlations)

Table 12a presents a Pearson correlations analysis for scale variables and ordinal/interval demographic variables. Analysis indicated that higher age was significantly correlated with higher levels of HLC Religious focus, \( r(129) = .22, p < .05 \), HLC Power other, \( r(129) = .19, p < .05 \), and HQ Social, \( r(129) = .18, p < .05 \). A greater number of years in the US was significantly correlated with lower levels of HQ Hypertension, \( r(129) = -.23, p < .01 \). Higher level of education was significantly correlated with lower level of HLC External, \( r(129) = -.17, p < .05 \), HQ Hypertension, \( r(129) = -.25, p < .01 \), HQ Physical, \( r(129) = -.21, p < .05 \),
and HQ Psychological, $r(129)=-.34$, $p<.01$. Height was not significantly correlated with any demographic variables. Lastly, higher study participant weight was correlated with higher HQ internal scores, $r(129)=.21$, $p<.05$.

**Table 12a. Pearson Correlations for Scale Variables and Ordinal/Interval Demographic Variables**

<table>
<thead>
<tr>
<th>Variables</th>
<th>Age</th>
<th>Years</th>
<th>Education</th>
<th>Height</th>
<th>Weight</th>
</tr>
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<tbody>
<tr>
<td>HLC Religious</td>
<td>.22*</td>
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<td>-.15</td>
<td>.01</td>
<td>-.07</td>
</tr>
<tr>
<td>HLC Powerful</td>
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<td>-.17</td>
<td>-.21*</td>
<td>-.07</td>
<td>.00</td>
</tr>
<tr>
<td>HLC External</td>
<td>.16</td>
<td>.04</td>
<td>-.17*</td>
<td>.10</td>
<td>-.03</td>
</tr>
<tr>
<td>HLC Internal</td>
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<td>-.01</td>
<td>.01</td>
<td>.01</td>
<td>.21*</td>
</tr>
<tr>
<td>HQ Hypertensio</td>
<td>.07</td>
<td>-.23**</td>
<td>-.25**</td>
<td>.02</td>
<td>.11</td>
</tr>
<tr>
<td>HQ Social</td>
<td>.18*</td>
<td>-.07</td>
<td>-.03</td>
<td>-.01</td>
<td>-.08</td>
</tr>
<tr>
<td>HQ Physical</td>
<td>.12</td>
<td>-.10</td>
<td>-.21*</td>
<td>-.03</td>
<td>.15</td>
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<tr>
<td>HQ</td>
<td>.16</td>
<td>-.19*</td>
<td>-.34**</td>
<td>-.02</td>
<td>-.11</td>
</tr>
<tr>
<td>Health</td>
<td>.11</td>
<td>-.02</td>
<td>.03</td>
<td>-.10</td>
<td>.02</td>
</tr>
</tbody>
</table>

*p<.05 level (2-tailed), **p<.01 level (2-tailed).

**Hypothesis 6**

Testing: There is a difference between groups within select demographic variables (married/not married, college/no college, smoking/no smoking, insurance/no insurance, employed/not employed, medicine/no medicine, alcohol/no alcohol, diet/no diet, and exercise/no exercise) and the self-reported health locus of control (HLC) and self-reported health quality (HQ) and self-reported health promoting behavior (HPB). [T-Tests by binary groups for HPB, HLC, HQ].

There were no significant mean differences in any scale variable by study participants who were married or not married (i.e., single, divorced, widowed).

Table 12b presents mean differences in scale variables by study participants that attended college and did not attend college. Data indicated that study participants that attended college evidenced a significantly lower mean score reflecting Self-reported HQ Psychological ($M=16.89$, $SD=6.19$) in comparison to those that did not ($M=22.37$, $SD=8.99$), $t(129)=3.97$, $p<.001$.

Likewise, study participants that attended college evidenced a significantly lower mean
score reflecting Self-reported HQ Hypertension ($M=34.11$, $SD=9.77$) in comparison to those that did not ($M=39.68$, $SD=11.55$), $t(129)=2.99$, $p<.01$. Mean scores did not differ significantly by college attendance by Self-reported HQ Physical, Self-reported HQ Social, HLC Internal, HLC External, HLC Powerful Other, HLC Religious Focus or Self-reported Health Behaviors.

Table 12b. Comparing Those with No College/College by Scale Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>No College (n=59)</th>
<th>College (n=72)</th>
<th>$t$-value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-reported HQ Physical</td>
<td>$M$</td>
<td>$SD$</td>
<td>26.85</td>
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<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>24.72</td>
<td>5.23</td>
</tr>
<tr>
<td>Self-reported HQ Psychological</td>
<td>$M$</td>
<td>$SD$</td>
<td>22.37</td>
<td>8.99</td>
</tr>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>16.89</td>
<td>6.19</td>
</tr>
<tr>
<td>Self-reported HQ Social</td>
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<td>$SD$</td>
<td>32.47</td>
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<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>31.39</td>
<td>7.01</td>
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<tr>
<td>Self-reported HQ Hypertension</td>
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<td>$SD$</td>
<td>39.68</td>
<td>11.55</td>
</tr>
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<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>34.11</td>
<td>9.77</td>
</tr>
<tr>
<td>HLC Internal</td>
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<td>$SD$</td>
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<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>27.78</td>
<td>6.01</td>
</tr>
<tr>
<td>HLC External</td>
<td>$M$</td>
<td>$SD$</td>
<td>16.32</td>
<td>6.72</td>
</tr>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>14.58</td>
<td>7.49</td>
</tr>
<tr>
<td>HLC Powerful Other</td>
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<td>$SD$</td>
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</tr>
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<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>25.46</td>
<td>5.93</td>
</tr>
<tr>
<td>HLC Religious Focus</td>
<td>$M$</td>
<td>$SD$</td>
<td>18.34</td>
<td>8.17</td>
</tr>
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<td></td>
<td>$M$</td>
<td>$SD$</td>
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<td>8.65</td>
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<tr>
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<td>$M$</td>
<td>$SD$</td>
<td>6.59</td>
<td>1.67</td>
</tr>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td>6.47</td>
<td>1.68</td>
</tr>
</tbody>
</table>

*p<.05 level (2-tailed), **p<.01 level (2-tailed).

Table 12c presents mean differences in scale variables by study participants that smoke and do not smoke. Data indicated that smoking (Yes/No) was not significantly related to Self-reported HQ Physical, Self-reported HQ Psychological, Self-reported HQ Social, Self-reported HQ Hypertension, HLC Internal, HLC External, HLC Powerful Other, or HLC Religious Focus. However, smoking (Yes/No) was significantly different than Self-reported Health Behaviors,
where those who did not smoke had significantly lower Health Behaviors scores, $M=6.37$, $SD=1.66$, relative to those who did, $M=7.78$, $SD=1.18$, $t(129)=-3.08$, $p<.01$. This, however, is probably due to the measure itself.

Table 12c. Comparing Those Who Do Not Smoke/Smoke by Scale Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Don’t Smoke (n=117)</th>
<th>Smoke (n=14)</th>
<th>t-value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-reported HQ Physical</td>
<td>$M=25.54$, $SD=7.27$</td>
<td>$M=26.86$, $SD=6.78$</td>
<td>-.645</td>
<td>.520</td>
</tr>
<tr>
<td>Self-reported HQ Psychological</td>
<td>$M=19.28$, $SD=7.86$</td>
<td>$M=20.00$, $SD=9.71$</td>
<td>-.315</td>
<td>.753</td>
</tr>
<tr>
<td>Self-reported HQ Social</td>
<td>$M=31.97$, $SD=6.47$</td>
<td>$M=31.07$, $SD=5.47$</td>
<td>.501</td>
<td>.617</td>
</tr>
<tr>
<td>Self-reported HQ Hypertension</td>
<td>$M=36.66$, $SD=11.04$</td>
<td>$M=36.29$, $SD=10.31$</td>
<td>.120</td>
<td>.905</td>
</tr>
<tr>
<td>HLC Internal</td>
<td>$M=27.26$, $SD=6.19$</td>
<td>$M=28.93$, $SD=4.99$</td>
<td>-.972</td>
<td>.333</td>
</tr>
<tr>
<td>HLC External</td>
<td>$M=14.97$, $SD=7.07$</td>
<td>$M=18.64$, $SD=7.49$</td>
<td>-1.823</td>
<td>.071</td>
</tr>
<tr>
<td>HLC Powerful Other</td>
<td>$M=26.27$, $SD=5.84$</td>
<td>$M=26.86$, $SD=4.81$</td>
<td>-.359</td>
<td>.720</td>
</tr>
<tr>
<td>HLC Religious Focus</td>
<td>$M=17.94$, $SD=8.47$</td>
<td>$M=19.93$, $SD=8.14$</td>
<td>.005</td>
<td>.996</td>
</tr>
<tr>
<td>Self-reported Health Behaviors</td>
<td>$M=6.37$, $SD=1.66$</td>
<td>$M=7.78$, $SD=1.18$</td>
<td>-3.08</td>
<td>.003**</td>
</tr>
</tbody>
</table>

*p<.05 level (2-tailed), **p<.01 level (2-tailed).

Table 12d presents mean differences in scale variables by study participants that have and do not have health insurance. Data indicated that having health insurance (Yes/No) was not significantly related to Self-reported HQ Physical, Self-reported HQ Psychological, Self-reported HQ Social, Self-reported HQ Hypertension, HLC Internal, HLC External, HLC Powerful Other, HLC Religious Focus, or Self-reported Health Behaviors subscale scores, although HLC Powerful Other should be more closely investigated in the future $t(129)=-.194$, $p=.054$ (NS).
This may be a function of the low reliability for the HLC scale and must be interpreted as non-significant with caution.

Table 12e presents mean differences in scale variables by study participants that are and are not employed. Data indicated that being employed (Yes/No) was not significantly related to Self-reported HQ Physical, Self-reported HQ Psychological, Self-reported HQ Social, HLC Internal, HLC External, HLC Powerful Other, HLC Religious Focus, or Self-reported Health Behaviors subscale scores. However, data did evidence a significantly higher Self-reported HQ Hypertension scores among those not employed relative to employed ($M=39.68$, $SD=11.55$ vs $M=34.11$, $SD=9.77$, respectively), $t(129)=2.43$, $p<.05$.

<table>
<thead>
<tr>
<th>Variable</th>
<th>No Insurance (n=7)</th>
<th>Insurance (n=124)</th>
<th>$t$-value</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-reported HQ Physical</td>
<td>$M$ 26.00</td>
<td>$M$ 25.66</td>
<td>.120</td>
<td>.904</td>
</tr>
<tr>
<td></td>
<td>$SD$ 5.80</td>
<td>$SD$ 7.30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-reported HQ Psychological</td>
<td>$M$ 20.43</td>
<td>$M$ 19.29</td>
<td>.361</td>
<td>.719</td>
</tr>
<tr>
<td></td>
<td>$SD$ 9.11</td>
<td>$SD$ 8.01</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-reported HQ Social</td>
<td>$M$ 30.00</td>
<td>$M$ 31.98</td>
<td>-.803</td>
<td>.424</td>
</tr>
<tr>
<td></td>
<td>$SD$ 7.09</td>
<td>$SD$ 6.32</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-reported HQ Hypertension</td>
<td>$M$ 34.14</td>
<td>$M$ 36.76</td>
<td>-.613</td>
<td>.540</td>
</tr>
<tr>
<td></td>
<td>$SD$ 11.13</td>
<td>$SD$ 10.93</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HLC Internal</td>
<td>$M$ 26.14</td>
<td>$M$ 27.51</td>
<td>-.576</td>
<td>.566</td>
</tr>
<tr>
<td></td>
<td>$SD$ 9.78</td>
<td>$SD$ 5.86</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HLC External</td>
<td>$M$ 14.57</td>
<td>$M$ 15.41</td>
<td>-.300</td>
<td>.765</td>
</tr>
<tr>
<td></td>
<td>$SD$ 8.04</td>
<td>$SD$ 7.16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HLC Powerful Other</td>
<td>$M$ 22.29</td>
<td>$M$ 26.56</td>
<td>-.194</td>
<td>.054</td>
</tr>
<tr>
<td></td>
<td>$SD$ 9.25</td>
<td>$SD$ 5.43</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HLC Religious Focus</td>
<td>$M$ 17.43</td>
<td>$M$ 17.97</td>
<td>-.164</td>
<td>.870</td>
</tr>
<tr>
<td></td>
<td>$SD$ 9.09</td>
<td>$SD$ 8.14</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-reported Health Behaviors</td>
<td>$M$ 5.86</td>
<td>$M$ 6.56</td>
<td>-1.09</td>
<td>.277</td>
</tr>
<tr>
<td></td>
<td>$SD$ 1.57</td>
<td>$SD$ 1.67</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p<.05 level (2-tailed)*
Table 12e. Comparing Those Not Employed/Employed

<table>
<thead>
<tr>
<th>Variable</th>
<th>Not Employed (n=64)</th>
<th>Employed (n=67)</th>
<th>t-value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-reported HQ Physical</td>
<td>M</td>
<td>26.85 (8.97)</td>
<td>24.72</td>
<td>.423</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td></td>
<td>5.23</td>
<td>.673</td>
</tr>
<tr>
<td>Self-reported HQ Psychological</td>
<td>M</td>
<td>22.37 (8.99)</td>
<td>16.89</td>
<td>1.47</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td></td>
<td>6.19</td>
<td>.145</td>
</tr>
<tr>
<td>Self-reported HQ Social</td>
<td>M</td>
<td>32.47 (5.45)</td>
<td>31.39</td>
<td>1.66</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td></td>
<td>7.01</td>
<td>.100</td>
</tr>
<tr>
<td>Self-reported HQ Hypertension</td>
<td>M</td>
<td>39.68 (11.55)</td>
<td>34.11</td>
<td>2.43</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td></td>
<td>9.77</td>
<td>.016*</td>
</tr>
<tr>
<td>HLC Internal</td>
<td>M</td>
<td>27.02 (6.20)</td>
<td>27.78</td>
<td>-.857</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td></td>
<td>6.01</td>
<td>.393</td>
</tr>
<tr>
<td>HLC External</td>
<td>M</td>
<td>16.32 (6.72)</td>
<td>14.58</td>
<td>1.036</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td></td>
<td>7.49</td>
<td>.302</td>
</tr>
<tr>
<td>HLC Powerful Other</td>
<td>M</td>
<td>27.41 (5.32)</td>
<td>25.46</td>
<td>.472</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td></td>
<td>5.93</td>
<td>.638</td>
</tr>
<tr>
<td>HLC Religious Focus</td>
<td>M</td>
<td>18.34 (8.17)</td>
<td>17.61</td>
<td>.329</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td></td>
<td>8.65</td>
<td>.742</td>
</tr>
<tr>
<td>Self-reported Health Behaviors</td>
<td>M</td>
<td>6.59 (1.67)</td>
<td>6.47</td>
<td>.134</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td></td>
<td>1.68</td>
<td>.893</td>
</tr>
</tbody>
</table>

*p<.05 (2-tailed)

Table 12f presents mean differences in scale variables by study participants that do and do not take medicine. Data indicated that taking medicine (Yes/No) was not related to Self-reported HQ Physical, Self-reported HQ Social, HLC Internal, HLC External, or HLC Religious Focus. However, data indicated that study participants that took medicine relative to those that did not evidenced a significantly higher mean score reflecting Self-reported HQ Psychological (M=19.97, SD=8.07 vs M=15.00, SD=6.52, respectively), t(129)=-2.36, p<.05; Self-reported HQ Hypertension (M=37.41, SD=11.05 vs M=30.94, SD=8.15, respectively), t(129)=-2.25, p<.05; HLC Powerful Other (M=26.76, SD=5.44 vs M=23.31, SD=6.91, respectively), t(129), p=.024;
and Self-reported Health Behaviors ($M=6.70$, $SD=1.55$ vs $M=5.25$, $SD=1.98$, respectively),
$t(129), p=.002$.

Table 12g presents mean differences in scale variables by study participants that limit and
do not limit their alcohol consumption. Data indicated that limiting alcohol consumption
(Yes/No) was not significantly related to Self-reported HQ Physical, Self-reported HQ
Psychological, Self-reported HQ Social, Self-reported HQ Hypertension, HLC Internal, HLC
External, HLC Powerful Other, or HLC Religious Focus. However, limiting alcohol consumption
(Yes/No) was significantly related to Self-reported Health Behaviors, where those who did not
limit alcohol consumption had significantly lower Health Behaviors scores, $M=5.86$, $SD=1.64$,
relative to those who did, $M=7.15$, $SD=1.44$, $t(129)=-4.71$, $p<.001$. This is probably due to the
measure itself.

Table 12f. Comparing Those Who Do Not Take Medicine/Take Medicine

<table>
<thead>
<tr>
<th>Variable</th>
<th>Do not Take (n=16)</th>
<th>Take (n=115)</th>
<th>$t$-value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-reported HQ Physical</td>
<td>$M$ 22.87</td>
<td>$M$ 26.07</td>
<td>-1.67</td>
<td>.097</td>
</tr>
<tr>
<td></td>
<td>$SD$ 4.22</td>
<td>$SD$ 7.46</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-reported HQ Psychological</td>
<td>$M$ 15.00</td>
<td>$M$ 19.97</td>
<td>-2.36</td>
<td>.020*</td>
</tr>
<tr>
<td></td>
<td>$SD$ 6.52</td>
<td>$SD$ 8.07</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-reported HQ Social</td>
<td>$M$ 29.37</td>
<td>$M$ 32.33</td>
<td>1.69</td>
<td>.093</td>
</tr>
<tr>
<td></td>
<td>$SD$ 6.03</td>
<td>$SD$ 6.34</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-reported HQ Hypertension</td>
<td>$M$ 30.94</td>
<td>$M$ 37.41</td>
<td>-2.25</td>
<td>.026*</td>
</tr>
<tr>
<td></td>
<td>$SD$ 8.15</td>
<td>$SD$ 11.05</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HLC Internal</td>
<td>$M$ 27.25</td>
<td>$M$ 27.46</td>
<td>-.129</td>
<td>.897</td>
</tr>
<tr>
<td></td>
<td>$SD$ 6.12</td>
<td>$SD$ 6.11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HLC External</td>
<td>$M$ 15.88</td>
<td>$M$ 15.29</td>
<td>.301</td>
<td>.764</td>
</tr>
<tr>
<td></td>
<td>$SD$ 7.59</td>
<td>$SD$ 7.15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HLC Powerful Other</td>
<td>$M$ 23.31</td>
<td>$M$ 26.76</td>
<td>-2.29</td>
<td>.024*</td>
</tr>
<tr>
<td></td>
<td>$SD$ 6.91</td>
<td>$SD$ 5.44</td>
<td></td>
<td></td>
</tr>
<tr>
<td>HLC Religious Focus</td>
<td>$M$ 15.00</td>
<td>$M$ 18.34</td>
<td>-1.49</td>
<td>.136</td>
</tr>
<tr>
<td></td>
<td>$SD$ 9.8</td>
<td>$SD$ 8.17</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-reported Health Behaviors</td>
<td>$M$ 5.25</td>
<td>$M$ 6.70</td>
<td>-3.39</td>
<td>.002**</td>
</tr>
<tr>
<td></td>
<td>$SD$ 1.98</td>
<td>$SD$ 1.55</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p<.05 level (2-tailed), **p<.01 level (2-tailed).
Table 12g. Comparing Those Do Not Limit Alcohol/Limit Alcohol

<table>
<thead>
<tr>
<th>Variable</th>
<th>Do not Limit (n=63)</th>
<th>Limit (n=68)</th>
<th>t-value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-reported HQ Physical</td>
<td>M</td>
<td>26.17 (8.78)</td>
<td>25.22 (5.38)</td>
<td>.756</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-reported HQ Psychological</td>
<td>M</td>
<td>19.43 (8.72)</td>
<td>19.29 (7.40)</td>
<td>.095</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-reported HQ Social</td>
<td>M</td>
<td>31.52 (6.55)</td>
<td>32.21 (6.20)</td>
<td>-.612</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-reported HQ Hypertension</td>
<td>M</td>
<td>37.87 (12.59)</td>
<td>35.46 (9.06)</td>
<td>1.268</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HLC Internal</td>
<td>M</td>
<td>26.59 (6.91)</td>
<td>28.22 (5.12)</td>
<td>-1.543</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HLC External</td>
<td>M</td>
<td>15.05 (6.87)</td>
<td>15.66 (7.50)</td>
<td>-.488</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HLC Powerful Other</td>
<td>M</td>
<td>26.68 (6.18)</td>
<td>26.01 (5.29)</td>
<td>.666</td>
</tr>
<tr>
<td></td>
<td>SD</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>HLC Religious Focus</td>
<td>M</td>
<td>17.82 (8.48)</td>
<td>18.04 (8.40)</td>
<td>-.148</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self-reported Health Behaviors</td>
<td>M</td>
<td>5.86 (1.64)</td>
<td>7.15 (1.44)</td>
<td>-4.71</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*p<.05 level (2-tailed), **p<.01 level (2-tailed).

Table 12h presents mean differences in scale variables by study participants that diet/exercise and do not diet/exercise. Data indicated that diet/exercise (Yes/No) was not significantly related to Self-reported HQ Physical, Self-reported HQ Psychological, Self-reported HQ Social, Self-reported HQ Hypertension, HLC Internal, HLC External, HLC Powerful Other, or HLC Religious Focus. However, diet/exercise (Yes/No) was significantly related to Self-reported Health Behaviors, where those who did not diet/exercise had significantly lower Health Behaviors scores, $M=6.06$, $SD=1.58$, relative to those who did, $M=7.42$, $SD=1.47$, $t(129)=-4.80$, $p<.001$. This was probably due to the measure itself.
### Table 12h. Comparing Those Who Do Not Exercise/Diet with Those with Exercise/Diet

<table>
<thead>
<tr>
<th>Variable</th>
<th>No Diet/Ex (n=86)</th>
<th>Diet/Ex (n=45)</th>
<th>t-value</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-reported HQ Physical</td>
<td>M</td>
<td>26.03 (7.92)</td>
<td>25.00</td>
<td>.779</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>SF</td>
<td>5.60</td>
<td>.437</td>
</tr>
<tr>
<td>Self-reported HQ Psychological</td>
<td>M</td>
<td>19.47 (8.10)</td>
<td>19.46</td>
<td>.209</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>SF</td>
<td>7.99</td>
<td>.835</td>
</tr>
<tr>
<td>Self-reported HQ Social</td>
<td>M</td>
<td>31.98 (6.37)</td>
<td>31.66</td>
<td>.274</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>SF</td>
<td>6.37</td>
<td>.784</td>
</tr>
<tr>
<td>Self-reported HQ Hypertension</td>
<td>M</td>
<td>37.24 (9.92)</td>
<td>35.42</td>
<td>.906</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>SF</td>
<td>12.6</td>
<td>.367</td>
</tr>
<tr>
<td>HLC Internal</td>
<td>M</td>
<td>27.94 (5.34)</td>
<td>26.47</td>
<td>1.322</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>SF</td>
<td>7.26</td>
<td>.189</td>
</tr>
<tr>
<td>HLC External</td>
<td>M</td>
<td>14.69 (7.11)</td>
<td>16.64</td>
<td>-1.48</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>SF</td>
<td>7.22</td>
<td>.141</td>
</tr>
<tr>
<td>HLC Powerful Other</td>
<td>M</td>
<td>26.15 (5.24)</td>
<td>26.69</td>
<td>-.509</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>SF</td>
<td>6.59</td>
<td>.612</td>
</tr>
<tr>
<td>HLC Religious Focus</td>
<td>M</td>
<td>17.51 (8.51)</td>
<td>18.49</td>
<td>-.540</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>SF</td>
<td>8.28</td>
<td>.590</td>
</tr>
<tr>
<td>Self-reported Health Behaviors</td>
<td>M</td>
<td>6.06 (1.58)</td>
<td>7.42</td>
<td>-4.80</td>
</tr>
<tr>
<td></td>
<td>SD</td>
<td>SF</td>
<td>1.47</td>
<td>.001**</td>
</tr>
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*p<.05 level (2-tailed), **p<.01 level (2-tailed).

**Summary**

In conclusion, this chapter presents the sample characteristics, descriptive summary of the general responses of the participants, and the psychometric properties of the measures used in the research questions. It summarizes the overall questions and specifies the test hypotheses for the final research questions. Finally, it summarizes the general and specific findings to begin to construct a model for understanding the main research questions.
In summary, the following conclusions can be made from the analyses of the study.

1. The demographic descriptive findings of the study participants indicated:
   a. About half of the sample was over age 66 years \((n=60, 45.8\%)\).
   b. The average study participant was 64.17 \((SD=3.40)\) inches in height, weighed 187.00 \((SD=45.21)\) pounds.
   c. Participants lived in the United States for 19.36 \((SD=0.19)\) years.
   d. About half of study participants lived in the United States under 40 years \((n=62, 47.3\%)\) and over 40 years \((n=69, 52.7\%)\).
   e. About half the sample reported being employed \((n=67, 51.1\%)\).
   f. About one-third of the sample reported their occupation as Retired/Unemployed/Non-Workers/Disability \((n=43, 32.80\%)\).
   g. Health Care Workers \((n=52, 39.70\%)\).
   h. Highest level of education of High School \((n=40, 30.50\%)\).
   i. The majority of the sample reported having health insurance \((n=124, 94.70\%)\) and married \((n = 67, 51.10\%)\).

2. Descriptive analysis of the related descriptive variables:
   a. About one-third of the sample reported he/she was told they had hypertension (high blood pressure) between 5 and 10 years \((n=44, 33.60\%)\).
   b. About half of the sample reported checking his/her blood pressure occasionally \((n=72, 55.00\%)\).
   c. Majority of study participants reported taking medication regularly for his/her blood pressure \((n=115, 87.80\%)\).
   d. Participants that did not smoke \((n=117, 89.30\%)\).
   e. Participants that limited alcohol to one drink a day \((n=68, 51.90\%)\).
   f. Those eating a heart-healthy diet \((n=102, 77.90\%)\).
g. Those limiting his/her salt intake ($n=113$, 86.30%).

h. Participants not following a regular exercise program ($n=86$, 65.60%).

i. Those presently trying to lose weight ($n=79$, 60.30%).

3. Descriptive analysis of measures of central tendency for scale variables:

a. On the Self-Report Summed Health Behaviors scale: the average study participant scored $7.37$ ($SD=1.6$).

Regarding the Health Quality Variables – participants scored:

b. $25.68$ ($SD=7.2$) on the Self-Report HQ Physical.

c. $19.36$ ($SD=8.0$) on the Self-Report HQ Social.

d. $36.62$ ($SD=10.9$) on the Self-Report HQ Hypertension.

Regarding the Health Locus of Control Variables—participants scored:

e. $27.44$ ($SD=6.1$) on the HLC Internal.

f. $15.37$ ($SD=7.2$) on the HLC External.

g. $26.34$ ($SD=5.7$) on the HLC Powerful Other.

h. $17.94$ ($SD=8.4$) on the HLC God/Religious Focus.

4. Results of a reliability analysis for the study subscales: Reliability analysis and Alpha Coefficients for Study Subscales ($n=131$): Several scales evidenced a sufficient level of internal consistency where the Cronbach’s alpha was at least .70, including:

a. Analysis indicated that the HLC Religious Focus (alpha=.86).

b. HLC External (alpha=.74).

c. HLC Internal (alpha=.71).

d. HQ Hypertension (alpha=.73).

e. HQ Psychological (alpha=.82)

Four subscales evidenced Cronbach’s alpha levels below .70, including HQ Social (alpha=.62), HQ Physical (alpha=.43), Health Behaviors (alpha=.38), and HLC Powerful Other.
Hypothesis 1: There is a relationship between self-reported health promoting behaviors, self-reported health locus of control and self-reported health quality in Black women with hypertension. [correlation HPB~HLC~HQ]

- Data indicated that the subscale 1-HLC Religious Focus was correlated at a statistically significant level with 2-HLC Powerful Other, $r(129)=.38, p<.01$, 3-HLC External, $r(129)=.42, p<.01$, 6-Self-reported Health Quality Social, $r(129)=.19, p<.05$, and 7-Self-reported Health Quality Physical, $r(129)=.18, p<.05$.

- Subscale 2-HLC Powerful Other was correlated at a statistically significant level with 1-HLC Religious Focus, $r(129)=.38, p<.01$, 3-HLC External, $r(129)=.43, p<.01$, 4-HLC Internal, $r(129)=.29, p<.01$, 5-Self-reported Health Quality Hypertension, $r(129)=.19, p<.05$, 6-Self-reported Health Quality Social, $r(129)=.20, p<.05$, and 8- Self-reported Health Quality Psychological, $r(129)=.22, p<.05$.

- Subscale 3-HLC External was correlated at a statistically significant level with 1-HLC Religious Focus, $r(129)=.42, p<.01$, 2-HLC Powerful Other, $r(129)=.43, p<.01$, and 4-HLC-Internal, $r(129)=.17, p<.05$.

- Subscale 4-HLC Internal was correlated at a statistically significant level with 2-HLC Powerful Other, $r(129)=.29, p<.01$, and 3-HLC External, $r(129)=.17, p<.05$.

- Subscale 5-Self-reported Health Quality Hypertension was correlated at a statistically significant level with 2-HLC Powerful Other, $r(129)=.19, p<.05$, 6-Self-reported Health Quality Social, $r(129)=.35, p<.01$, 7-Self-reported Health Quality Physical, $r(129)=.36, p<.01$, and 8-Self-reported Health Quality Psychological, $r(129)=.67, p<.01$.

- Subscale 6-Self-reported Health Quality Social was correlated at a statistically significant level with 1-HLC Religious Focus, $r(129)=.19, p<.05$, 2-HLC Powerful Other, $r(129)=.20, p<.05$, 5-Self-reported Health Quality Hypertension, $r(129)=.35, p<.01$, 7-Self-reported Health Quality Physical, $r(129)=.21, p<.05$, and 8-Self-reported Health Quality Psychological, $r(129)=.37, p<.01$.

- Subscale 7-Self-reported Health Quality Physical was correlated at a statistically significant level with 1-HLC Religious Focus, $r(129)=.18, p<.05$, 5-Self-reported Health Quality Hypertension, $r(129)=.36, p<.01$, 6-Self-reported Health Quality Social, $r(129)=.21, p<.05$, and 8-Self-reported Health Quality Psychological, $r(129)=.44, p<.01$. 
Subscale 8-Self-reported Health Quality Psychological was correlated at a statistically significant level with 2-HLC Powerful Other, \( r(129)=.22, p<.05 \), 5-Self-reported Health Quality Hypertension, \( r(129)=.67, p<.01 \), 6-Self-reported Health Quality Social, \( r(129)=.37, p<.01 \), and 7-Self-reported Health Quality Physical, \( r(129)=.44, p<.01 \).

Subscale 9-Self-reported Health Behaviors was not significantly associated with the HLC Religious Focus, 2-HLC Powerful Other, 3-HLC External, 4-HLC Internal, 5-Self-reported Health Quality Hypertension, 6-Self-reported Health Quality Social, 7-Self-reported Health Quality Physical, and 8-Self-reported Health Quality Psychological. This, however, must be interpreted cautiously due to the low reliability of the composite measure of self-reported health behaviors.

**Hypothesis 2:** There is a difference between Black Non-Caribbean and Caribbean women’s health promoting behaviors. (t-test for HPB).

- Data indicated that there was not a statistically significant mean difference regarding Self-Reported Health Behaviors by Caribbean \((M=6.63, SD=1.77)\) and Non-Caribbean Groups \((M=6.38, SD=1.52)\), \( t(129)=.84, p=.40 \). This, however, must be interpreted cautiously due to the low reliability of the composite measure of self-reported health behaviors.

**Hypothesis 3:** There is a difference between Black Caribbean women and Black Non-Caribbean women’s health locus of control. (t test for HLC).

- Data indicated that there was not a statistically significant mean difference regarding health locus of control variables by Caribbean and Non-Caribbean Groups regarding HLC internal, HLC external, and HLC Religious focus subscales.

- Data also indicated that the Black Caribbean group \((M=27.26, SD=5.67)\) evidenced a significantly higher mean HLC Power focus score relative to the Black Non-Caribbean Group \((M=24.98, SD=5.25)\), \( t(129)=2.27, p<.05 \).

**Hypothesis 4:** There is a difference between Black Non-Caribbean and Caribbean women’s self-reported health quality. (t-test for HQ).

- Data also indicated that the Black Caribbean group evidenced higher mean scores relative to the non-Caribbean group regarding the HQ Physical \((M=26.97, SD=8.26 \text{ vs. } M=23.77, SD=4.75, \text{ respectively})\), \( t(129)=2.55, p<.01 \), HQ Psychological \((M=20.62, SD=8.62 \text{ vs. } M=17.51, SD=6.74, \text{ respectively})\), \( t(129)=2.31, p<.05 \), and HQ Hypertension \((M=26.97, SD=8.26 \text{ vs. } M=23.77, SD=4.75, \text{ respectively})\).
• Data indicated that there was not a statistically significant mean difference regarding in Self-reported Health Quality variables by Caribbean and Non-Caribbean Groups regarding the HQ Social subscale.

Hypothesis 5: There is a relationship among select demographic variables (age, education, height, weight) and self-reported health locus of control (HLC), self-reported health quality (HQ) and self-reported health promoting behaviors (HPB). (Pearson Correlations).

• Analysis indicated that higher age was significantly correlated with higher levels of HLC Religious focus, \( r(129)=.22, p<.05 \), HLC Power other, \( r(129)=.19, p<.05 \), and HQ Social, \( r(129)=.18, p<.05 \).

• A greater number of years in the U.S. was significantly inversely correlated with lower levels of HQ Hypertension, \( r(129)=-.23, p<.01 \).

• Higher level of education was significantly inversely correlated with lower level of HLC External, \( r(129)=-.17, p<.05 \), HQ Hypertension, \( r(129)=-.25, p<.01 \), HQ Physical, \( r(129)=-.21, p<.05 \), and HQ Psychological, \( r(129)=-.34, p<.01 \).

• Height was not significantly correlated with any demographic variables.

• Lastly, higher study participant weight was correlated with higher HQ internal scores, \( r(129)=.21, p<.05 \).

Hypothesis 6: There is a difference between groups within select demographic variables (married/not married, and other select variables) and the self-reported health locus of control (HLC) and self-reported health quality (HQ) and self-reported health promoting behavior (HPB). [T-Tests by binary groups for HPB, HLC, HQ].

• There were no differences between married and not married groups on HLC, HQ or HPB.

• Data indicated that study participants that attended college evidenced a significantly lower mean score reflecting Self-reported HQ Psychological (M=16.89, SD=6.19), in relation to those that did not (M=22.37, SD=8.99), \( t(129)=3.97, p<.001 \).

• Likewise, study participants that attended college evidenced a significantly lower mean score reflecting Self-reported HQ Hypertension (M=34.11, SD=9.77), in
Mean scores did not differ significantly by college attendance by Self-reported HQ Physical, Self-reported HQ Social, HLC Internal, HLC External, HLC Powerful Other, HLC Religious Focus or Self-reported Health Behaviors.

Data indicated that having health insurance (Yes/No) was not significantly related to Self-reported HQ Physical, Self-reported HQ Psychological, Self-reported HQ Social, Self-reported HQ Hypertension, HLC Internal, HLC External, HLC Powerful Other, HLC Religious Focus, or Self-reported Health Behaviors subscale scores, although HLC Powerful Other p=.054 and should be interpreted cautiously based on the limited sample size data did evidence a significantly higher Self-reported HQ Hypertension scores among those not employed relative to employed (M=39.68, SD=11.55 vs M=34.11, SD=9.77, respectively), t(129)=2.43, p<.05.

Data indicated that being employed (Yes/No) was not significantly related to Self-reported HQ Physical, Self-reported HQ Psychological, Self-reported HQ Social, HLC Internal, HLC External, HLC Powerful Other, HLC Religious Focus, or Self-reported Health Behaviors subscale scores.

Data also indicated that study participants that took medicine relative to those that did not, evidenced a significantly higher mean score reflecting Self-reported HQ Psychological(M=19.97, SD=8.07 vs M=15.00, SD=6.52, respectively), t(129)=2.36, p<.05, Self-reported HQ Hypertension (M=37.41, SD=11.05 vs M=30.94, SD=8.15, respectively), t(129)=2.25, p<.05, HLC Powerful Other(M=26.76, SD=5.44 vs M=23.31, SD=6.91, respectively), t(129)=2.43, p=.024, and Self-reported Health Behaviors(M=6.70, SD=1.55 vs M=5.25, SD=1.98, respectively), t(129)=2.43, p=.002.

Data indicated that smoking (Yes/No) was not significantly related to Self-reported HQ Physical, Self-reported HQ Psychological, Self-reported HQ Social, Self-reported HQ Hypertension, HLC Internal, HLC External, HLC Powerful Other, or HLC Religious Focus.

Data indicated that taking medicine (Yes/No) was not related to Self-reported HQ Physical, Self-reported HQ Social, HLC Internal, HLC External, or HLC Religious Focus.

Data indicated that limiting alcohol consumption (Yes/No) was not significantly related to Self-reported HQ Physical, Self-reported HQ Psychological, Self-reported HQ Social, Self-reported HQ Hypertension, HLC Internal, HLC External, HLC Powerful Other, or HLC Religious Focus.
• Data indicated that diet/exercise (Yes/No) was not significantly related to Self-reported HQ Physical, Self-reported HQ Psychological, Self-reported HQ Social, Self-reported HQ Hypertension, HLC Internal, HLC External, HLC Powerful Other, or HLC Religious Focus.
Chapter 5: Discussion

The final chapter of this dissertation provides a brief overview of the study, including a statement of the problem and the major methods involved. The majority of the chapter is dedicated to the summary and discussion of the hypotheses and to the discussion of the results. The intent of the study was to explore and compare health beliefs, health promotion behaviors, and health quality among women with hypertension from different cultures, focusing on Black Caribbean immigrant women and Non-Caribbean (Black American) women living in the New York Tri-State area. A sample \( n = 131 \), was selected for analysis. A quantitative approach using a community-based sample of women who met the criteria for inclusion were recruited to complete a questionnaire that measures their health promotion behaviors, health quality, and health beliefs as the locus of control related to hypertension. A demographic questionnaire, one user-designed scale (Health Promotion Behaviors), and three established scales from the literature, including the MHLC scale, the GHLC scale, and the QLICD-HY instrument on hypertension were used in the analysis.

Quantitative analysis was used for this research study. A non-experimental, comparative, and correlational design was used to examine the association among the variables of interest. Descriptive statistics were used to describe the entire sample. Demographic data describing the sample used frequencies and appropriate descriptive statistical techniques (percentage, mean, standard deviation and variance). Analysis of variance (ANOVA) or an independent sample \( t \) test was used to test differences among the cultural groups (as defined) and the three subscales of the MHLC Scale, the GLHC Scale, the five subscales of the QLICD-HY Scale, and the Health Behaviors summed score. Pearson correlation was used to correlate interval variables in the analysis and to calculate correlations for the variables of health locus of control and health
behavior. Cronbach’s alpha was performed on all the study subscales to test internal consistency and reliability.

**Characteristics and Demographics**

The survey components related to the demographics showed that the majority of these women were from an elderly population; over half of the sample was over 66 years old and most of them were overweight. The majority of these women were immigrants who lived in the United States for more than 20 years, and it could be concluded that these women were acculturated to the American lifestyle/culture. While some adaption is necessary, it is thought that the health belief and practices of these new customs can impact their health. The American diet is comprised of numerous cultures and cuisines, including fast-food chain usage affecting those of low socioeconomic status and resulting in poor health outcomes (Griffith et al., 2011). Thus, it can be concluded that the longer these women lived in the US, the more these inherited health beliefs and practices can lead to a higher risk of hypertension.

The data showed that only half of this sample was employed; one-third of these women reported they were retired, unemployed, or disabled. The majority of the population had health insurance and were married. About half of this sample were health care workers with high school education. Since this sample was selected using a convenience sample, it can be suggested that the demographic area chosen and socioeconomic factors played an important role in the health behavior choices of these women. It was identified in the analysis that factors such as age, level of education, occupation, and health insurance did influence their health-related variables.

**Descriptive Analysis**

Only about one-third of this population reported being told that they had hypertension between 5 and 10 years. Although the data showed that most of these women had insurance, it can be implied that these women never sought medical attention until years later of their diagnosis. Caribbean immigrants were more likely to have public health insurance than the overall
immigrant population but less likely to have private coverage (Zong & Batalova, 2016). This may be a factor that prevented Caribbean women from having early treatment for their hypertension. Having public health coverage may affect the health care received by these immigrants. They reported taking their medications; however, only half of them monitored their blood pressures. Smoking, drinking alcohol, and limiting salt intake was not a problem in this population. Most of them reported eating a heart-healthy diet, wanted to lose weight, but did not follow a regular exercise program. It can be concluded that a regular exercise program plays a great role in controlling blood pressure. Diet and exercise go hand in hand in controlling hypertension. Research showed that obesity and high cholesterol, merged with a sedentary lifestyle, presents a substantial problem for cardiovascular disease and early mortality for the people in the Caribbean and those in the USA (Modeste, et al., 2007).

The analysis indicated that several scales evidenced a sufficient level of internal consistency, including the HLC Religious Focus, HLC External, HLC Internal, HQ Hypertension, and HQ Psychological subscales. The four subscales, including HQ Social, HQ Physical, and HLC Powerful Other, showed acceptable reliability, although the user-developed health behavior scale, which was a composite of guideline behaviors that was not a reliable scale measure. Therefore, several of the individual items from that scale were used and yielded interesting results.

**Main Findings**

**Health Quality and Health Locus of Control Relationships**

The following are findings on the researcher’s expectations or predictions about relationships among the study variables on the sample of women with hypertension as they relate to Self-reported Health Locus of Control (HLC); Self-reported Health Quality (HQ); and Self-reported Summed Health Promoting Behaviors (HPB). It begins with a test of the model that suggests that the variables of interest are inter-correlated: that there is a relationship between self-
reported health-promoting behaviors, self-reported health locus of control, and self-reported health quality in Black women with hypertension. Although the results indicated that health behaviors as a composite (which was not a reliable measure) was not correlated with any subscales, several subscales of the health quality and health locus of control were significantly correlated:

a. Data indicated that the subscale HLC Religious Focus was correlated at a statistically significant level with HLC Powerful Other, HLC External, Self-reported Health Quality Social, Self-reported Health Quality Physical subscales;

b. HLC Powerful Other was correlated at a statistically significant level with HLC Religious Focus, HLC External, HLC Internal, Self-reported Health Quality Hypertension, Self-reported Health Quality Social, and Self-reported Health Quality Psychological;

c. HLC External was correlated at a statistically significant level with HLC Religious Focus, HLC Powerful Other, and HLC Internal;

d. HLC Internal was correlated at a statistically significant level with HLC Powerful Other, and HLC External;

e. Self-reported Health Quality Hypertension was correlated at a statistically significant level with HLC Powerful Other, Self-reported Health Quality Social, Self-reported Health Quality Physical, and Self-reported Health Quality Psychological;

f. Self-reported Health Quality Social was correlated at a statistically significant level with HLC Religious Focus, HLC Powerful Other, Self-reported Health Quality Hypertension, Self-reported Health Quality Physical, and Self-reported Health Quality Psychological;

g. Self-reported Health Quality Physical was correlated at a statistically significant level with HLC Religious Focus, Self-reported Health Quality Hypertension,
Self-reported Health Quality Social, and Self-reported Health Quality Psychological;

h. Self-reported Health Quality Psychological was correlated at a statistically significant level with HLC Powerful Other, Self-reported Health Quality Hypertension, Self-reported Health Quality Social, Self-reported Health Quality Physical.

The model proposed for the study suggested that these three health-related variables (beliefs, quality and behaviors) appear to demonstrate interrelationships between and among the subscales. These warrant closer investigation in understanding how these each can contribute to women’s hypertension progression and/or potential interventions.

Differences between Black Non-Caribbean and Caribbean Women

The results of the analysis yielded no significant differences in reported health-promotion behaviors between Black Non-Caribbean and Caribbean women. However, the composite scale did not yield acceptable reliability and individual health behavior characteristics were used in subsequent analyses. For the Health Quality and Health Locus of Control variables, there were several statistically significant differences between these two groups as the main focus of the study. These include:

a. For Health Locus of Control, results indicated that the Black Caribbean group evidenced a significantly higher mean HLC Power focus score relative to the Black Non-Caribbean Group, but not for the other subscales.

b. For Health Quality, results indicated that the Black Caribbean group evidenced higher mean scores relative to the non-Caribbean group regarding the HQ Physical, HQ Psychological, and HQ Hypertension. Data also indicated that there was no difference regarding in HQ Social variables by Caribbean and Non-
Caribbean groups.

These findings suggest that black Caribbean and non-Caribbean women have foundational differences in their beliefs and self-reported health quality that needs to be taken into consideration when treating them for the hypertension. These differences make it clear that race alone does not predict how women believe or feel about their hypertension and related health issues. The clinician needs to be aware of these fundamental differences in making health and lifestyle recommendations.

Differences between Select Demographics of Black Non-Caribbean vs Caribbean Women

The results of this study indicated that higher age was significantly correlated with higher levels of HLC Religious focus, HLC Power Other, and HQ Social. A greater number of years in the US were also significantly correlated with lower levels of HQ Hypertension. A higher level of education was significantly correlated with lower levels of HLC External, HQ Hypertension, HQ Physical, and HQ Psychological. Although height was not significantly correlated with any demographic variables, participant weight was correlated with higher HQ internal scores. Additionally, there was a significant difference between married and not married groups and the self-reported health locus of control (HLC) and self-reported health quality (HQ) and self-reported health-promoting behavior (HPB).

Pender’s model explains and predicts how the complex interaction among perceptual and environmental factors influences the health-related choices that people make. According to Pender (1987), there are three major groups of factors that influence health-promoting behaviors: (a) Individual characteristics and experiences; (b) Behavior-specific cognitions (which includes interpersonal influences from family, peers, providers, and situations) and affect; (c) Immediate behavioral contingencies. Pender (1987) further states that prior behavior inherited and acquired characteristics influence beliefs, affect, and enactment of health-
promoting behaviors.

**Differences Between Select Self-Reported Characteristics of Black Non-Caribbean vs Caribbean Women**

The results of this study indicated that there were no differences between married and non-married women on any study variables including, HLC, HQ, or HPB. However, results of participant characteristics indicated that those who attended college evidenced a significantly lower mean score reflecting Self-reported HQ Psychological in relation to those that did not. Likewise, study participants who attended college evidenced a significantly lower mean score reflecting Self-reported HQ Hypertension in relation to those that did not. Other mean scores did not differ significantly by college attendance for HQ Physical, HQ Social, HLC Internal, HLC External, HLC Powerful Other, HLC Religious Focus or Self-reported Health Behaviors, suggesting that more education makes a difference in one’s self-reported quality related to hypertension. This needs further study to interpret whether or not it is related to a more honest or factual understanding of the items in the scale or that those without a college education are less likely to state their psychological health quality related to their hypertension, which is beyond the scope of this study.

Participants’ report of smoking was significantly related to Self-reported Health Behaviors, where those who did not smoke had significantly lower health behaviors scores, relative to those who did. But this is understandable since the item itself is part of one’s health-promotion behaviors. It was not related to any other study variables.

Results of the study indicated that having health insurance was not significantly related to Self-reported HQ Physical, Self-reported HQ Psychological, Self-reported HQ Social, Self-reported HQ Hypertension, HLC Internal, HLC External, HLC Powerful Other, HLC Religious Focus, or Self-reported Health Behaviors subscale scores. However, it could be reported that HLC Powerful Other suggested a statistical trend (p=.054) that warrants further investigation.
into how participants with insurance may depend more on their physician and other healthcare professionals to influence their health.

Results of the study did find significantly higher Self-reported HQ Hypertension scores among those not employed relative to those employed, although this was not related to the other HQ or HLC subscales. Findings also indicated that study participants who took medicine, relative to those that did not, evidenced a significantly higher mean score for HQ Psychological. Self-reported HQ Hypertension, HLC Powerful Other, and Self-reported Health Behaviors, although not related to HQ Physical, HQ Social, HLC Internal, HLC External or HLC Religious focus. Perhaps being employed and taking medicines impact the women’s self-efficacy in taking care of themselves and should be explored further.

Neither diet/exercise or limiting alcohol consumption were related to any HQ or HLC subscales. However, it was significantly related to Self-reported Health Behaviors, where those who did not diet or limit alcohol consumption had significantly lower health behavior scores, relative to those who did, but this is also interpreted cautiously, as the behavior is part of one’s health-promoting behaviors.

The Pender Model suggests that one’s cultural background and beliefs or non-beliefs about affecting one’s own health care play a role in health quality and health-promoting behaviors. Although an outcome of demonstrating the impact of finding predictors of health-promotion behaviors was not evident in this study, there were numerous inter-relationships and differences between Black Women (Caribbean and Non-Caribbean) with hypertension. It is important for nurses to recognize that race alone does not predict health beliefs or quality for women in treatment for hypertension. This study gives important evidence to support the practice that advanced practice nurses individualize hypertension guidance to patients, recognizing the unique differences between and among women from the Caribbean who are Black and Black women who are not from the Caribbean.
Limitations of the Study

The empirical results reported in this study should be considered in light of some limitations. First, this was a convenience sample, and the geographical area used to limit the generalizability of the study findings of this population. The study was done on Black Caribbean and Non-Caribbean (Black American) women in two doctors’ offices in the same geographical area. This sample may not be a good representative of the population if used in a larger sample. Future studies may benefit from using a larger sample in a different geographical area.

Second, the time available for this researcher to complete this study was very minimal, and the researcher had to be available to meet all the participants to fill out each survey. This may have led to potential limits on the generalizability of the study.

Third, the number of questions used in the survey may have affected the way the participants answered the questions, since it was a long survey. Also, since the researcher had to be present when the participants had to fill out the surveys, this may have influenced their answers to some of the questions. For future studies, maybe new survey modes such as the internet and interactive voice response (IVR) may give researchers more choices of which mode to use in addition to the traditional telephone, mail, and/or face-to-face surveys.

Implication for Nursing

Freire (2012) confirms that penetrating one’s culture and understanding the way one thinks and functions is the key to a better system. Thus, by exploring the culture of others in our society, it would be beneficial to our health care system.

The purpose of this exploration was to help health care workers have a better understanding of their patients who are from different cultural backgrounds and to be competent in treating these patients in order to have better patient satisfaction. While diversity in our population has rapidly increased, so have the challenges for our health care system (Young &
Guo, 2016). Our health care system needs to be restructured to create teams of professional workers to provide care to this changing society. Health care workers need to understand the different cultures in order to give quality care to these different groups. To develop an appreciation for the uniqueness of members of a specific cultural team, it is necessary to understand the cultural values, beliefs and practices of other groups.

The ability to deliver appropriate care to culturally diverse clients requires a commitment to the process of becoming culturally competent (Leininger, 1995). It is believed that health care services that are respectful of and receptive to the health beliefs, practices, and cultural needs of diverse patients can bring about positive health outcomes. One of the main problems in caring for patients from different backgrounds is the lack of understanding and tolerance. How we care for patients and how the patient respond to this care is greatly influenced by culture.

As individual healthcare providers, we need to learn to ask questions sensitively and to show respect for different cultural beliefs. Healthcare providers must possess the ability and knowledge to communicate and to understand health behaviors influenced by culture. Having this ability and knowledge can eliminate barriers to the delivery of healthcare. This research provides information regarding the relationship between health-promoting behaviors and health locus of control between Black Caribbean women and Non-Caribbean (Black American) women. This study has implications for nursing in the areas of education, practice, and research, and since education is a major nursing role, knowledge about women from different cultures would help professionals to design interventions for these women that are suitable for these specific sub-groups. Nurses can play an important role in delivering culturally sensitive care. Healthcare providers should be familiar with different cultures, beliefs, values, and practices in order to provide adequate care for their patients.

**Future Recommendations**

Implications for cultural competence and sensitivity are needed in education,
administration, and research. Nurses practice from a holistic perspective and cultural competence must be a part of this role. Leever (2011) concludes that cultural competence represents significant moral progress in the way that health care is delivered…the strongest moral justification for being sensitive to patients’ culture is rooted in respect for patient autonomy and a commitment to the subjective good of the patient (p. 568). Since culture affects all aspects of life, it is essential to have a set of skills for all health care providers, to provide effective patient care across the continuum. To provide culturally sensitive care, it is important to not impose one’s cultural values on patients. Instead, one must respect the uniqueness of individual patients’ values and beliefs.

The ability to deliver appropriate care to culturally diverse clients requires commitment to the process of becoming culturally competent (Leininger, 1995). The most obvious implication of incorporating cultural sensitivity in practice is that it improves quality health outcomes. Another area to look at is one of social justice.

Burchum (2002) confirms that since people of non-dominant cultures may experience oppression or marginalization, the competent health care provider must equip clients with self-empowerment strategies (p.12).

One must pursue opportunities in which professional and political power may be used to promote effective health policies. Those in the academic arena have the task of preparing health care providers to adequately take care of diverse populations so that they will be well prepared when they enter the community. Those in administrative positions need to ensure that new employees are adequately prepared to meet the needs of the culturally diverse client population. It should be recommended that organizations acquire a culturally diverse staff as a means to help ensure cultural competence.
Implication for Nursing Research

There is a great need for research related to culturally sensitive care for all cultures, especially those of minority groups. Certainly, more studies need to be done to assess cultural competence and sensitivity that affects health outcomes. More studies need to be done to identify negative outcomes that are associated with the lack of provider cultural competence and sensitivity (Burchum, 2002). Acculturation is a process in which an individual adopts, acquires and adjusts to a new cultural environment over a prolonged period of time. These individuals go through a process of social, psychological, and cultural change, while trying to balance two cultures at the same time. In the course of transferring these new values and customs into everyday life, while trying to merge cultures, these immigrants may be at greater risks for developing health problems as they acculturate (Ward & Geeraert, 2016).

Thus, organizational cultural competence and sensitivity are areas that require further development. In order for health care providers to meet the needs of patients, a model needs to be developed that provides for the integration of provider cultural competence and organizational cultural competence, both working hand in hand to serve these populations better. As people in the world migrate and populations become more diverse, there will be a need for cultural sensitivity to better serve these groups. The best method to evaluate culturally sensitive care remains unclear and is in need of more research. Continued research in these areas is indicated and this concept analysis can help researchers clearly define or develop better tools to measure cultural competence and sensitivity.

There is a large health disparity related to hypertension and other cardiovascular disease in the U.S., where Black immigrants and Black non-immigrants bear a disproportionate burden of these comorbidities. Although there may be some genetic or biological aspects that contribute to these illnesses, many social and environmental factors are the main reasons for these health problems. As stated in the literature, Black Americans and other black minority
immigrant groups experience racism, which leads to many stressors, ultimately affecting their health outcomes. Noonan, Velasco-Mondragon, and Wagner (2016) confirm that African Americans remain the least healthy ethnic group in the U.S. and that this is due to many years of racial and social injustice.

Despite recent progress, racial and ethnic disparities persist among these minority groups. The weathering hypothesis explains race disparities in the U.S. and shows that African Americans’ health begin to deteriorate prematurely compared to Whites as a consequence of long-term exposure to social and environmental risks factors. (Ford, Crooks, Suglia, & Demmer, 2019). The findings from this study showed that the main social determinants of health disparities seen in these Black minority groups are namely racism, poverty, education, housing, access to healthy foods, environmental exposure, violence and criminal justice. Overwhelming evidence of disparities in morbidity and mortality rates have been identified in Blacks compared to Whites in all almost all health outcomes in the U.S., and Blacks tend to develop age-related diseases at an earlier age than Whites. Thus, the health beliefs and reported quality of life of these two groups of women plays a major role in their hypertension and other hypertension-related diseases.

It is truly important at this point of our history, that equal systemic solutions should be made, positive trends in black health indicators driven by social development programs, economic investment in education, and participation of African American and other black minority groups in policy and decision making. The elimination of racial/ethnic disparities in health status also will require important changes in the way health care is delivered and financed. Unequal access to care and unequal treatment of persons who receive care are key determinants of racial/ethnic disparities in health care and health status. In addition, more research is warranted to identify the factors attributed to these disparities, thus addressing the evidence gap.

The prevention and management of hypertension among the Black Caribbean & Non-
Caribbean black women remains a challenge for our society. These women are faced with limitations related to their knowledge of evidence-based strategies to prevent and manage hypertension. Developing culturally sensitive programs is an ongoing process. There seems to be no one recipe for cultural competency; it is an ongoing evaluation, as we continually adapt and reevaluate the way things are done. Cultural diversity tests our ability to truly care for patients, to demonstrate that we are not only clinically proficient but also culturally competent; that we care. Cultural competency is one of the most important ingredients needed in dealing with the multicultural society that we are faced within the United States of America. It is estimated that by 2050, minorities will represent more than half of the total population in the United States (US Census Bureau, 2010). To provide culturally sensitive care to these patients, all healthcare professionals must be trained to be culturally competent to close the disparities gap in health care. Culture is the sum of attitudes, customs, and beliefs that distinguishes one group of people from another. Culture is transmitted through language, material objects, ritual, institutions, and art, from one generation to the next (www.dictionary.com/browse/culture). The literature shows that to provide appropriate cultural and sensitive care for diverse populations in the US, health care professionals need knowledge, skills, culturally diverse experiences and ongoing education since the demographic shift in the US is according at a rapid rate (Young & Guo, 2016). The prevention of hypertension and cardiovascular diseases is critical to minimize health disparities in Black Caribbean women and Non-Caribbean women (Black American) groups.

Summary

This chapter concludes the findings of the study with respect to the conceptual framework and the literature review. Hypertension remains one of the most significant health problems in the United States. Lifestyle modifications are health-promoting behaviors that can enhance one’s quality of life and help to aid in the prevention of diseases such as hypertension. The most important factor is lifestyle modification, and it remains the primary means of prevention and
early treatment of hypertension for Black Caribbean and Non-Caribbean Black American women in the U.S.

The data from the finding showed that there is a difference between groups within select demographic variables, the self-reported health locus of control, self-reported health quality, and self-reported health-promoting behaviors. Although the study results failed to show there is a difference between Black Non-Caribbean and Caribbean women’s health-promoting behaviors, the individual health activities and behaviors should be looked into further in future studies to focus on the specific outcomes of health promotion based on the significant findings of health beliefs and self-reported health quality. The findings did show there is a difference between Black Non-Caribbean and Black Caribbean women’s self-reported health quality for almost all of the subscales and for health locus of control for the powerful other. The study indicated that there is a relationship among select demographic variables (age, education, weight), self-reported health locus of control, self-reported health quality, and self-reported health-promoting behaviors. It is for these reasons that future research in the area of health beliefs and health quality should be explored in populations that vary by culture rather than by race alone.
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Appendix A: Demographic Questionnaire

Thank you for taking the time to answer this questionnaire. Your answers are important for this study.

1. How old are you?
   18-25  26-36  37-47  48-58  49-59  60-65  >65

2. What is your current height? (Please be honest. This is confidential) ___________

3. What is your current weight in pounds? (Please be honest. This is confidential): ______ BMI ____________ (For Office Use Only) __________

4. How would you describe your race? __________________________________________

5. What is your country of origin? __________________________________________

6. How many years have you lived in the United States? _________________________

7. Are you currently employed? __________________________________________

8. What is your occupation? _______________________________________________

9. What is your highest level of education? __________________________________

10. Do you have health insurance?  Yes  No

11. What is your marital status?
    Married  Single  Separated  Divorced  Widowed

12. What religion do you practice? ___________________________________________

13. When were you told that you have hypertension (high blood pressure)?
    Never  <5 years  >5 years  >10 years  >15 years  >20 years

14. How often do you check your blood pressure?
    Not at all  Occasionally  Frequently  Very Frequently

15. Do you take medication for your blood pressure at present? Yes  No

16. Do you smoke?  Yes  No

17. Do you drink alcohol?  Yes  No

18. Do you limit your salt intake?  Yes  No

19. Do you follow a regular exercise program? Yes  No

20. Are you presently trying to lose weight?  Yes  No  Not Applicable
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Appendix C: Permission Letter to Conduct Research

Permission Letter to Conduct Research Study

Camelle Charles, RN, BSN, MSN, FNP, PhD.Candidate
Molloy College
1000 Hempstead Avenue
Rockville Center, NY 11570

January 26, 2019

Dear Dr.

I would like to ask your permission to conduct a research study in your office requesting the participation of your patients. It involves a simple confidential questionnaire about their healthy behaviors and does not involve any potential harm or disclosure.

I am currently a PhD student at Molloy College and I am in the process of finishing my dissertation for my research project, which is entitled “The Relationship Between Health Behaviors of Women and Health Locus of Control Among Caribbean Women and Black American Women with Hypertension.”

This survey will last about 15-20 minutes and will be arranged at a time convenient for you and your patients. They can fill it out in the waiting room or choose to mail it back to me. Participation in this research study is entirely voluntary and there are no known or anticipated risks to the participants. All information provided will be kept with utmost confidentiality and will be used only for academic purposes. The names of your patients will not appear in my dissertation or any publication resulting from this study.

If you agree, kindly sign the attached letter acknowledging you give your permission for me to conduct this research study and return the signed form in the enclosed envelope.

Your approval to conduct this study will be highly appreciated. Thank you in advance for your interest and assistance with this research.

Sincerely,

Camelle Charles, FNP
PhD Student @ Molloy College

cccharles@lions.molloy.edu
Date 5/6/19

To: Camille Charles, FNP, PhD Candidate
From: Dr. Tavakoli

I have read your request for permission to access patients in my practice who meet the criteria of having hypertension. I am willing to assist you in your data collection about their health behaviors by completing a confidential questionnaire. I understand that it is completely voluntary, which is explained in the cover letter of the survey stating that if they choose to participate, they can complete the questionnaire, return it in the envelope, and leave it in a designated area or mail it as instructed to the investigator. I also understand that their names will not be used with the data and their information will be coded so that their information is de-identified. I give you permission to discuss how these questionnaires can be distributed and collected in the public waiting areas of the practice. I believe the study is valuable and I am willing to help you with your dissertation efforts.

Approved by: K. DAVID TAVAKOLI M.D.
191-15 HILLSIDE AVE
NOLLIS, NY 11423
 LIC # 198615-1
HIPPIE # 1520148475

Signature ____________________________

Print Name Kamrya Tavakoli
Appendix D: Permission Letter to Conduct Research

Permission Letter to Conduct Research Study

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Your approval to conduct this study will be highly appreciated. Thank you in advance for your interest and assistance with this research.

Sincerely,

Camelle Charles, FNP
PhD Student @ Molloy College
ccharles@flions.molloy.edu
Date: 05/08/2019

To: Camille Charles, FNP, PhD Candidate

From: [Signature]

I have read your request for permission to access patients in my practice who meet the criteria of having hypertension. I am willing to assist you in your data collection about their health behaviors by completing a confidential questionnaire. I understand that it is completely voluntary, which is explained in the cover letter of the survey stating that if they choose to participate, they can complete the questionnaire, return it in the envelope, and leave it in a designated area or mail it as instructed to the investigator. I also understand that their names will not be used with the data and their information will be coded so that their information is de-identified. I give you permission to discuss how these questionnaires can be distributed and collected in the public waiting areas of the practice. I believe the study is valuable and I am willing to help you with your dissertation efforts.

Approved by: [Signature]

Print Name: [Signature] NY Multi Medical Care
215-30 Hillside Avenue, Queens Village, NY 11427
Phone: 718-740-1701 Fax: 718-740-1901 Website: nymultimedical.com
Appendix E: Molloy College Approval Letter

Institutional Review Board
1000 Hempstead Avenue
Rockville Centre, NY 11571
www.molloy.edu
Tel. 516.323.3711

Date: April 11, 2019
To: Dr. Veronica Feeg and Ms. Camille Charles
From: Patricia A. Eckardt, Ph.D., RN, FAAN
Chair, Molloy College Institutional Review Board

SUBJECT: MOLLOY IRB REVIEW AND DETERMINATION OF EXEMPT STATUS
Study Title: The Relationship Between Health Behaviors Of Women And Health Locus Of Control Among Black Caribbean Women And Black American Women With Hypertension
Approved: April 11, 2019 – April 11, 2020
Approval No: 03090001-0411

Dear Dr. Feeg and Ms. Charles:

The Institutional Review Board (IRB) of Molloy College has reviewed the above-mentioned research proposal and determined that this proposal is approved by the committee.

It is considered an EXEMPT review per the requirements of Department of Health and Human Services (DHHS) regulations for the protection of human subjects 45 CFR 46.101 (2)(2). Please note that as Principal Investigator (PI), it is your responsibility to be CITI Certified in both the Responsible Conduct of Research and Human Subjects Research and to submit the evidence in order to conduct your research.

You may proceed with your research. Please submit a report to the committee at the conclusion of your project. Your project is approved for ONE YEAR.

Changes to the Research: It is the responsibility of the Principal Investigator to inform the Molloy College IRB of any changes to this research.

A change in the research may change the project from EXEMPT status that would require communication with the IRB.

Sincerely,

[Signature]
Patricia Eckardt, Ph.D., RN, FAAN
Appendix F: Quality of Life Instruments for Chronic Diseases – Hypertension Scale

QLICD-HY (V1.0)

Instruction: This questionnaire helps doctors know your feelings about your health condition in the past week. Your answers will help them choose the appropriate treatment and rehabilitation strategy. There is no right or wrong answer. Please read the following questions carefully, and circle the number most relevant how you’re feeling. You may choose the answer closest to your true feeling in case you are not sure how to answer the question. The information that you provide will remain strictly confidential.

### Physical Function

<table>
<thead>
<tr>
<th>Question</th>
<th>Not at all</th>
<th>A little</th>
<th>Moderately</th>
<th>Very much</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>PH1 Could you take care of your daily life? (e.g., eating, dressing, washing, using toilet)?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>PH2 Have you felt fatigue easily?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>PH3 Do you have any trouble walking 800 m or more?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>PH4 Do you have any trouble going up and down stairs?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>PH5 Have you needed to take medications to maintain daily activities?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>PH6 Have you had a good appetite?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>PH7 Were you satisfied with your sleep?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>PH8 Have you felt pain or uncomfortable?</td>
<td>1</td>
<td>2</td>
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</table>

### Psychological Function

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<thead>
<tr>
<th>Question</th>
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<th>A little</th>
<th>Moderately</th>
<th>Very much</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS1 Has your memory and concentration been affected by the disease?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>PS2 Have you felt mentally miserable because of the disease?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>PS3 Have you felt lonely and helpless?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>PS4 Have you felt pessimism and despair?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>PS5 Have you been worried about your disease?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>PS6 Have you felt fretful or irritable?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>PS7 Have you felt nervous and anxious?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>PS8 Is there any possibility for you to stop taking the drug because of its side effects?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>PS9 Have you thought of yourself as a burden to your family?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>PS10 Have you felt self-abasement because of your disease?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>PS11 Have you covered the emotions, but could not forget?</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>5</td>
</tr>
</tbody>
</table>
### Social Function

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<th>Moderately</th>
<th>Very much</th>
<th>Extremely</th>
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<tbody>
<tr>
<td>SO1 Has the disease or treatments interfered with your work or housework?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>SO2 Could you undertake appropriate family roles (such as parent, husband, wife)?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>SO3 Have you decreased your caring and attentions to your family because of the disease?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>SO4 Have you had good relations with your families?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>SO5 Could you acquire material and emotional help and support from your family when you need?</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>SO6 Has the disease affected your participation in leisure activities which you like?</td>
<td>1</td>
<td>2</td>
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<td>5</td>
</tr>
<tr>
<td>SO7 Could you treat the illness positively and optimistically?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>SO8 Have you thought that the treatments you received was good for curing the disease?</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>5</td>
</tr>
<tr>
<td>SO9 Have economic problems caused by your illness or treatment affected your life?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>SO10 Could you get care and support from your friends and relatives?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>SO11 Has the disease or treatment affected your sexual activities?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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</tbody>
</table>

### Specific Module

<table>
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<tr>
<th>Question</th>
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<th>A little</th>
<th>Moderately</th>
<th>Very much</th>
<th>Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>HY1 Did you have headache?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>HY2 Did you feel dizzy?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>HY3 Did you have tinnitus?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>HY4 Did you have heart palpitations?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>HY5 Did you have shortness of breath?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>HY6 Did you have swelling in your ankle or legs?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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</tr>
<tr>
<td>HY7 Did you have increased urination in the night?</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<tr>
<td>HY8 Did you feel dry mouth?</td>
<td>1</td>
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<td>5</td>
</tr>
<tr>
<td>HY9 Did you have irritable cough?</td>
<td>1</td>
<td>2</td>
<td>3</td>
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</tr>
<tr>
<td>HY10 Did you have blurred vision?</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>HY11 Did you feel slow reaction or slow movement?</td>
<td>1</td>
<td>2</td>
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<tr>
<td>HY12 Were you able to control your negative emotions?</td>
<td>1</td>
<td>2</td>
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<tr>
<td>HY13 Did you feel unhappy about your weight?</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>5</td>
</tr>
<tr>
<td>HY14 Did you feel uncomfortable about taking medicine for the disease?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>HY15 Were you bothered by sexual problem caused by disease?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>HY16 How often do you worry about further damage to your health caused by the disease?</td>
<td>1</td>
<td>2</td>
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</tr>
<tr>
<td>HY17 Were you able to adapt to life style change such as low-salt diet and quit smoking?</td>
<td>1</td>
<td>2</td>
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</table>
## Appendix G: Multidimensional Health Locus of Control (MHLC) Scale - (Form C)

**Instructions:** Each item below is a brief statement about your medical condition with which you may agree or disagree. Beside each statement is a scale which ranges from strongly disagree (1) to strongly agree (6). For each item I would like you to circle the number that represents the extent to which you agree or disagree with that statement. The more you agree with the statement, the higher will be the number you circle. The more you disagree with the statement, the lower will be the number you circle. Please make sure that you answer **EVERY ITEM** and that you circle **ONLY ONE** number per item. This is a measure of your personal beliefs; obviously, there is no wrong answers.

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</thead>
<tbody>
<tr>
<td>1</td>
<td>STRONGLY DISAGREE (SD)</td>
<td>4</td>
<td>SLIGHTLY AGREE (A)</td>
<td></td>
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</tr>
<tr>
<td>2</td>
<td>MODERATELY DISAGREE (MD)</td>
<td>5</td>
<td>MODERATELY AGREE (MA)</td>
<td></td>
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</tr>
<tr>
<td>3</td>
<td>SLIGHTLY DISAGREE (D)</td>
<td>6</td>
<td>STRONGLY AGREE (SA)</td>
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</tbody>
</table>

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<th></th>
<th>SD</th>
<th>MD</th>
<th>D</th>
<th>A</th>
<th>MA</th>
<th>SA</th>
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<td>1</td>
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<td>4</td>
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<td>6</td>
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<td>10</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
11 Whatever improvement occurs with my condition is largely a matter of good fortune.

12 The main thing which affects my condition is what I myself do.

13 I deserve the credit when my condition improves and the blame when it gets worse.

14 Following doctor’s orders to the letter is the best way to keep my condition from getting worse.

15 If my condition worsens, it is a matter of fate.

16 If I am lucky, my condition will get better.

17 If my condition takes a turn for the worse, it is because I have not been taking proper care of myself.

18 The type of help I receive from other people determines how soon my condition improves.
Appendix H: The God Locus of Health Control (GLHC) Scale

Instructions: The response scale for the GLHC is the same as the MHLC scale, which is a six-point Likert scale “strongly disagree” (1), “moderately disagree” (2), “disagree” (3), “agree” (4), “moderately agree” (5), “strongly agree” (6). As with the MHLC subscale, all the items are keyed in the same direction; a high score represents belief in God as a locus of control. Please circle your response below.

GLHC Items:

<table>
<thead>
<tr>
<th></th>
<th>SD</th>
<th>MD</th>
<th>D</th>
<th>A</th>
<th>MA</th>
<th>SA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>If my hypertension worsens, it is up to God to determine whether I will feel better again.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>Most things that affect my (hypertension) happen because of God.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>3</td>
<td>God is directly responsible for my (hypertension) getting better or worse.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>4</td>
<td>Whatever happens to my (hypertension) is God’s will?</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>Whether or not my (hypertension) improves is up to God.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>6</td>
<td>God is in control of my (hypertension).</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
ARE YOU OR A LOVED ONE SUFFERING FROM HIGH BLOOD PRESSURE?

SEEKING VOLUNTEERS, BOTH BLACK CARIBBEAN AND BLACK AMERICANS WOMEN TO PARTICIPATE IN A RESEARCH STUDY

THIS STUDY WILL FOCUS ON THE COMPARISON BETWEEN THESE TWO GROUPS OF WOMEN WITH HYPERTENSION

To participate in this study, you must:
• Be 18 years of age or older
• Be English speaking
• Be living in the New York Tri-state area

Participants will be asked to complete a questionnaire for this research study, which can be done over the phone or on paper and mail in.

Participants will be compensated by entering a raffle for $100 at completion of surveys.

For information please contact
Camelle Charles, RN, BSN, MSN, PhD.C
Molloy College
1000 Hempstead Avenue
Rockville Center
New York 11517
Phone: (640) 283-9272
Email: ccharles@lions.molloy.edu