Understanding African Americans’ beliefs, knowledge, attitudes and behaviors regarding high blood pressure and their use of home remedies as treatment

by

Elisa E. Douglas

Dissertation Committee:

Dr. Deborah DeLuca, JD, MS (Chair)

Dr. Paul Franco, Ph.D., MBS

Dr. Fortunato Battaglia, MD, Ph.D.

Submitted in partial fulfillment of the requirements for the degree of

Doctor of Philosophy in Health Sciences

Seton Hall University

2021
SETON HALL UNIVERSITY
School of Health and Medical Sciences

APPROVAL FOR SUCCESSFUL DEFENSE

Doctoral Candidate, Elisa Douglas, has successfully defended and made required modifications to the text of the doctoral dissertation for the Ph.D. during the Spring Semester 2021.

DISSERTATION COMMITTEE
(please sign and date using the oral defense date beside your name)

Chair: Deborah A. DeLuca
(enter signature and date) ____________________________

Committee Member: Paul Franco
(enter signature and date) ____________________________

Committee Member: Fortunato Battaglia
(enter signature and date) ____________________________

Note: The chair and any other committee members who wish to review revisions will sign this document only when revisions have been completed. Please return this form to the Office of Graduate Studies (program department secretary) where it will be placed in the candidate’s file and submit a copy with your final dissertation to be bound as page number two.
ABSTRACT

Understanding African Americans’ Beliefs, Knowledge, Attitudes and Behaviors Regarding High Blood Pressure and Their Use of Home Remedies as Treatment

Elisa E. Douglas
Seton Hall University, 2021
Dissertation Chair: Dr. Deborah DeLuca, J.D., MS

Background and Purpose of the Study: African Americans have the highest prevalence of high blood pressure (HBP) in the United States but the lowest blood pressure (BP) control rates of any major race/ethnic group. Only about 45% of those who use drugs to treat the condition have been able to attain BP control. Over 40% of African Americans are affected by HBP. African Americans are more likely to use home remedies as a complement to prescription medicine, with an estimated complementary and alternative medicine (CAM) use of 67.6%-71.3%. The purposes of this study were to examine the beliefs, knowledge, attitudes and behaviors of African Americans regarding HBP and their use of home remedies as treatment using a novel survey instrument and to test the reliability of the instrument in the population of interest.

Participants completed the Beliefs about Hypertension Survey (BHS), which has 47 items, via SurveyMonkey. Validity and reliability of the BHS were established using the Delphi Technique, Cronbach’s Alpha, and Exploratory Factor Analysis. Participants were solicited via Facebook and WhatsApp. The results were analyzed using Multivariate Analysis of Variance
(MANOVA), follow-up univariate Analyses of Variance (ANOVAs), Pearson’s and Spearman’s correlation, and using the inductive approach to create themes for the qualitative data.

**Methods:** This was a mixed-methods study that utilized a descriptive, exploratory, cross-sectional and correlational research design. A sample of 254 African Americans with and without HBP participated in this study.

**Results:** Reliability for the BHS representing all four dependent variables was good (Cronbach’s alpha $\alpha = .848$). Individually, for each factor of the BHS, the reliability ranged from poor to good: **Attitudes** ($\alpha = .503$), **Knowledge** ($\alpha = .608$), **Behaviors** ($\alpha = .678$) and **Beliefs** ($\alpha = .824$). It was found that African Americans with HBP were more willing to use home remedies as treatment than as a preventative measure against diagnosis. However, 77% of participants stated that they would use home remedies to treat their HBP if their doctors recommended it, while 58% of participants who have HBP said they currently use home remedies to treat the condition. The results indicated that 91% of participants were somewhat knowledgeable about HBP, however, over 71% believed that HBP can be cured. Results of the MANOVA test indicated statistical significance ($p = .000$) only for the behavior variable ($\alpha = .05$), with no significant differences found between African Americans with HBP and those without the condition with respect to knowledge, beliefs and attitudes.

**Conclusion:** The results indicate that diagnosis of HBP increases African Americans’ willingness to use home remedies. The results indicate that more focus is needed on educating African Americans in general about the effects of HBP and what they can do to lower their risk of diagnosis. It is recommended that health care professionals receive formal education about holistic approaches to treating HBP during medical training. Further evidence-based studies will also help to increase knowledge and acceptance of home remedies as a treatment option for HBP.
Keywords: African Americans, Beliefs about Hypertension Survey (BHS), chronic illnesses/diseases, complementary and alternative medicine (CAM), cultural competency, Health Belief Model (HBM), high blood pressure, home remedies.
ACKNOWLEDGEMENTS

Many individuals have played a significant role in my journey toward a doctoral degree and the completion of this dissertation work.

First, I would like to acknowledge the members of my dissertation committee.

Dr. DeLuca, my academic advisor and committee chair, who accepted and welcomed me into the Seton Hall University’s School of Health and Medical Sciences doctoral program and has helped me improve my critical thinking skills by challenging me to analyze and evaluate each area of my study from all angles. I thank you for your guidance and support and for the many hours you put into working with me on this body of work. Your commitment to seeing me through to the end of this journey really motivated me to keep going. I admire your tenacity and thoroughness in the research process and your willingness to go above and beyond to see your students succeed. I am so grateful that you were my primary academic source of guidance and support throughout my doctoral journey.

Dr. Franco, I thank you for helping me to think differently and for all the time and effort you put into guiding me through this dissertation process. Your commitment and your constant encouragement were truly a beam of light for me on this journey. Your advice and invaluable comments significantly contributed to the successful completion of this study, and I will forever appreciate your contemporary vision that guided me through this process.

Dr. Battaglia, I appreciate your contribution to this dissertation project. Thank you for sharing your knowledge that was so vital to the successful completion of this dissertation.

I would also like to thank Dr. Cahill, who served on my committee for most of my dissertation journey. I am grateful for your guidance, leadership, and support, and for all that you contributed to this research.
The foundation of this research was built by the expert panelists who worked with me to successfully create and validate the novel survey instrument that was used to collect data for this study. I would also like to acknowledge all the participants of my dissertation study, who made this research possible.

I would like to thank my colleagues within this doctoral program. There are not many people who truly understand the doctoral process that we have endured, and I am happy that I was able to go on this journey with you all. I would also like to give a special thank you to Mrs. Joann DeBerto for all the assistance she provided throughout this process.

To all the many relatives and friends who have supported me along this journey, I thank you for your support and encouragement. It was your words that uplifted me and allowed me to remain focused and balanced along the way.

More importantly, I am grateful for the love and support of my family members. To my parents and siblings, you have guided and supported me since preschool, and who were the steady sources of strength and motivation that remained with me throughout my entire educational journey. To my parents, Canute and Enid Gordon, who demonstrated the importance of education to me through their own love and appreciation of higher education, and who instilled in me a drive to succeed and to never give up on my dreams. Thank you for being excellent role models. I am particularly appreciative of my sister, Princess, who stayed up with me on so many nights throughout this process, and who has been pushing me since we were children to do my best at all times. Most especially, I thank my children, Aliana and Adriana Douglas, who were very understanding and caring throughout this process, and who inspired me to overcome the many challenges I faced to successfully complete my doctoral journey.
Last, and most importantly, I would also like to thank the Lord God Almighty for His blessings and mercies in helping me to reach the end of this challenging but rewarding journey.
DEDICATION

This dissertation is dedicated in memory of my dad, Canute Gordon, who died suddenly in 2005 from complications due to high blood pressure. It was this devastating experience for my family and I that inspired me to pursue my dissertation research on the topic of high blood pressure in African Americans and their use of home remedies as treatment. My dad’s passing from this chronic disease after he took his high blood pressure medication on the day of his passing forced me to acknowledge that conventional medicine alone is not an effective method of treating the condition in this population. His loss also instilled in me a burning desire to conduct research on the use of home remedies as treatment, whether it is being used as a complement or as an alternative to conventional medicine, to determine the extent of such use as well as its efficacy as an effective treatment option for HBP.
“Americans have a 90 percent lifetime probability of developing high blood pressure –

So even if your blood pressure is normal now,

If you continue to eat the typical American diet,

You will be at risk.” - Joel Fuhrman

“Becoming a vegan gave me another opportunity to live a healthy life. I was so congested from all the drugs and bad cocaine, I could hardly breathe, [I had] high blood pressure, [was] almost dying [and had] arthritis. And once I became a vegan all that stuff diminished.” — Mike Tyson

“They had never been to the doctor. They had a lot of home remedies.” – Joanne Thompson
TABLE OF CONTENTS

ABSTRACT........................................................................................................................................ iv

ACKNOWLEDGMENTS...................................................................................................................... vii

DEDICATION.......................................................................................................................................... x

LIST OF TABLES..................................................................................................................................... xviii

LIST OF FIGURES................................................................................................................................. xxii

I. INTRODUCTION.................................................................................................................................. 1
   Background of the Problem................................................................................................................. 2
   Importance of Focusing on African Americans................................................................................. 3
   Categories of High Blood Pressure................................................................................................... 6
   Statement of the Problem................................................................................................................... 7
   Risk Factors for High Blood Pressure............................................................................................... 8
   Purpose of the Study.......................................................................................................................... 8
   Variables........................................................................................................................................... 9
   Research Questions and Hypotheses................................................................................................. 10
   Significance of the Study.................................................................................................................... 13
   Operational Definitions.................................................................................................................... 15
   Conceptual Framework: The Health Belief Model.......................................................................... 17
   Summary.......................................................................................................................................... 25

II. LITERATURE REVIEW...................................................................................................................... 26
   Introduction....................................................................................................................................... 26
   Chronic Diseases in the United States.............................................................................................. 26
   High Blood Pressure in African Americans.................................................................................... 27
<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connection Between COVID-19 and High Blood Pressure</td>
<td>31</td>
</tr>
<tr>
<td>Types of Beliefs</td>
<td>32</td>
</tr>
<tr>
<td>Importance of Health Beliefs</td>
<td>32</td>
</tr>
<tr>
<td>Factors That Affect Beliefs</td>
<td>33</td>
</tr>
<tr>
<td>Advantages and Disadvantages of CAM</td>
<td>34</td>
</tr>
<tr>
<td>How Beliefs Affect the Use of CAM</td>
<td>35</td>
</tr>
<tr>
<td>CAM Use by African Americans</td>
<td>36</td>
</tr>
<tr>
<td>Perspectives of CAM in Healthcare</td>
<td>42</td>
</tr>
<tr>
<td>Emerging Themes from the Literature Review</td>
<td>43</td>
</tr>
<tr>
<td>The Integrated Behavioral Model</td>
<td>47</td>
</tr>
<tr>
<td>Prochaska’s Transtheoretical Model of Behavior Change</td>
<td>49</td>
</tr>
<tr>
<td>Standardized Surveys/Tools Relevant to the Topic</td>
<td>52</td>
</tr>
<tr>
<td>Revised Illness Perception Questionnaire</td>
<td>52</td>
</tr>
<tr>
<td>The Holistic Complementary and Alternative Medicine/Health Questionnaire</td>
<td>57</td>
</tr>
<tr>
<td>HBP Self-Care Profile Questionnaire</td>
<td>60</td>
</tr>
<tr>
<td>What is Known</td>
<td>64</td>
</tr>
<tr>
<td>Gaps in the Literature</td>
<td>65</td>
</tr>
<tr>
<td>Summary</td>
<td>65</td>
</tr>
</tbody>
</table>

**III. METHODOLOGY**

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>67</td>
</tr>
<tr>
<td>Study Design</td>
<td>67</td>
</tr>
<tr>
<td>Instrument Development: Delphi Technique</td>
<td>68</td>
</tr>
</tbody>
</table>
Assessing Validity of the Survey Instrument........................................ 70
Summary of Delphi Process................................................................. 72
Survey Instrument: Beliefs About Hypertension Survey (BHS)............. 73
Inclusion/Exclusion Criteria.................................................................... 88
Participant Recruitment........................................................................... 89
Data Coding & Analysis........................................................................... 97
_A Priori_ G*Power Analysis................................................................. 109
Summary of Study Process ..................................................................... 113
Summary................................................................................................. 114

IV. RESULTS........................................................................................ 115
Introduction............................................................................................ 115
Reliability Assessment of the Tool......................................................... 115
Cronbach’s Alpha.................................................................................... 116
Exploratory Factor Analysis................................................................. 128
Characteristics of the Sample............................................................... 130
Gender of Participants............................................................................ 132
Age Range of Participants...................................................................... 133
Education Level of Participants............................................................ 134
Marital Status of Participants............................................................... 135
Religious Affiliation of Participants...................................................... 136
U.S. Geographical Locations of Participants........................................ 137
Participants’ Generational Status as an American............................... 139
High Blood Pressure Statistics Among Participants............................. 140
Theme IV: Use of Home Remedies as a Complement to Prescription Medicine

Theme V: Need for More Education Regarding the Use of Home Remedies

Clinical/Practical Implications

Study Limitations

VI. CONCLUSION

Introduction

Future Research

Dissertation Significance and Conclusion

REFERENCES

APPENDICES

Appendix A1. IRB Response Letter to Conduct Delphi Process

Appendix A2. SHU IRB Letter of Approval to Conduct Research Study

Appendix B. Letter of Solicitation for Delphi Expert Panelist

Appendix C. Delphi Round 1 Survey Worksheet

Appendix D. Delphi Round 2 Survey Worksheet

Appendix E. Survey Tool: Beliefs about Hypertension Survey (BHS)

Appendix F. Demographic Survey Questions

Appendix G. Approval to Use HBM Diagram for Dissertation Study

Appendix H. Solicitation to Facebook Closed Groups Administrators

Appendix I. Approval from Facebook Closed Group Administrators to Solicit Group Members
Appendix J. WhatsApp Terms of Service Disclaimers ............................. 264
Appendix K. ResearchGate Intellectual Property Policy ............................ 265
Appendix L. Social Media Announcement About Survey ............................. 266
Appendix M. Letter of Solicitation to Survey Participants ............................ 267
Appendix N. Proposal Hearing Sign-Off Sheet ........................................ 270
Appendix O. Dissertation Oral Defense Form ......................................... 271
Appendix P. Dissertation Defense Approval Form ..................................... 272
### LIST OF TABLES

<table>
<thead>
<tr>
<th>Table</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 1</td>
<td>Categories of High Blood Pressure</td>
<td>6</td>
</tr>
<tr>
<td>Table 2</td>
<td>Blood Pressure Levels in the U.S. by Race and Ethnicity</td>
<td>15</td>
</tr>
<tr>
<td>Table 3</td>
<td>Comparative Findings of a Previous Study by Hypertensive State</td>
<td>41</td>
</tr>
<tr>
<td>Table 4</td>
<td>Comparative Findings of Previous Studies by Gender</td>
<td>42</td>
</tr>
<tr>
<td>Table 5</td>
<td>Theme I: Health Beliefs of African Americans Regarding HBP</td>
<td>44</td>
</tr>
<tr>
<td>Table 6</td>
<td>Theme II: CAM Use as Treatment</td>
<td>44</td>
</tr>
<tr>
<td>Table 7</td>
<td>Theme III: Inadequate Blood Pressure Control in African Americans</td>
<td>45</td>
</tr>
<tr>
<td>Table 8</td>
<td>Theme IV: Socio-Economic Status/Access to Healthcare</td>
<td>46</td>
</tr>
<tr>
<td>Table 9</td>
<td>Theme V: Need for Future Research</td>
<td>46</td>
</tr>
<tr>
<td>Table 10</td>
<td>Demographic Questions on the BHS</td>
<td>74</td>
</tr>
<tr>
<td>Table 11</td>
<td>Questions Related to the Beliefs Variable on the BHS</td>
<td>75</td>
</tr>
<tr>
<td>Table 12</td>
<td>Questions Related to the Knowledge Variable on the BHS</td>
<td>76</td>
</tr>
<tr>
<td>Table 13</td>
<td>Questions Related to the Attitudes Variable on the BHS</td>
<td>76</td>
</tr>
<tr>
<td>Table 14</td>
<td>Questions Related to the Behaviors Variable on the BHS</td>
<td>78</td>
</tr>
<tr>
<td>Table 15</td>
<td>Questions Related to Perceived Susceptibility on the BHS</td>
<td>79</td>
</tr>
<tr>
<td>Table 16</td>
<td>Questions Related to Perceived Benefits on the BHS</td>
<td>80</td>
</tr>
<tr>
<td>Table 17</td>
<td>Questions Related to Perceived Barriers on the BHS</td>
<td>81</td>
</tr>
<tr>
<td>Table 18</td>
<td>Questions Related to Perceived Severity on the BHS</td>
<td>81</td>
</tr>
<tr>
<td>Table 19</td>
<td>Questions Related to Cues to Action on the BHS</td>
<td>82</td>
</tr>
<tr>
<td>Table 20</td>
<td>Questions Related to Self-Efficacy on the BHS</td>
<td>82</td>
</tr>
<tr>
<td>Table 21</td>
<td>Alignment Chart of Research and Research Questions</td>
<td>83</td>
</tr>
<tr>
<td>Table 22</td>
<td>Inclusion and Exclusion Criteria for Study Participants</td>
<td>89</td>
</tr>
</tbody>
</table>
Table 23. Determining the Strength of the Association Between Variables……… 102
Table 24. Cronbach’s Alpha Reliability for the BHS (All Variables) …………… 116
Table 25. Item-Total Statistics for All Variables Showing Cronbach’s Alpha if An Item is Deleted................................................................. 117
Table 26. Cronbach’s Alpha Reliability Statistics for the BHS: Beliefs Variable 118
Table 27. Item-Total Statistics for the BHS: Beliefs Variable…………………… 119
Table 28. Cronbach’s Alpha Reliability Statistics for the BHS:
Knowledge Variable........................................................................... 120
Table 29. Item-Total Statistics for the BHS: Knowledge Variable…………….. 121
Table 30. Cronbach’s Alpha Reliability Statistics for the BHS: Attitudes Variable 122
Table 31. Item-Total Statistics for the BHS: Attitudes Variable……………… 123
Table 32. Cronbach’s Alpha Reliability Statistics for the BHS: Behaviors Variable 124
Table 33. Item-Total Statistics for the BHS: Behavior Variable……………… 125
Table 34. Cronbach’s Alpha Coefficient Scores for All Four Variables……… 126
Table 35. KMO and Bartlett’s Test for Exploratory Factor Analysis (EFA)…… 128
Table 36. Correlation Matrix Between the Variables (EFA).......................... 129
Table 37. Gender of Study Participants................................................... 132
Table 38. Age Range of Participants....................................................... 133
Table 39. Education Levels of Participants.............................................. 135
Table 40. Marital Status of Study Participants........................................... 135
Table 41. Religious Affiliation of Study Participants................................... 137
Table 42. Number of Participants by U.S. State.......................................... 138
Table 43. Participants’ Generational Status as an American....................... 139
Table 44. Frequencies and Percentages of Total of the Independent Variables… 141
Table 45. Number of Participants with and without High Blood Pressure……… 142
Table 46. Participants with High Blood Pressure for More Than One Year…….. 143
Table 47. Use of Home Remedies by Participants to Treat High Blood Pressure 145
Table 48. Use of Prescription Medicine to Treat High Blood Pressure……….. 145
Table 49. Participants Whose Blood Pressure Has Been Above 130/80 mm Hg
When Checked…………………………………………………………… 147
Table 50. Participants with a Blood Relative Who Has High Blood Pressure.. 148
Table 51. Participants Who Have or Have Not Been Diagnosed with High Blood
Pressure by Gender…………………………………………………… 150
Table 52. How Study Participants Manage Their High Blood Pressure……….. 152
Table 53. Techniques Used to Treat High Blood Pressure…………………… 156
Table 54. Descriptive Statistics Table Highlighting Means per Group for the Beliefs Variable……………………………………………………… 158
Table 55. Descriptive Statistics Table Highlighting Means per Group for the Knowledge Variable……………………………………………… 159
Table 56. Descriptive Statistics Table Highlighting Means per Group for the Attitudes Variable………………………………………………….. 160
Table 57. Descriptive Statistics Table Highlighting Means per Group for the Behaviors Variable……………………………………………… 161
Table 58. Parametric Test: Pearson Correlation…………………………….. 162
Table 59. Non-Parametric Test: Spearman’s Correlation………………….. 164
Table 60. Box’s Test of Equality of Covariance…………………………….. 175
Table 61. Multivariate Tests Indicating Pillai’s Trace and Wilk’s Lambda Values ......................................................... 176
Table 62. MANOVA for All Four Dependent Variables................................. 178
Table 63. Descriptive Statistics Indicating Means and Standard Deviations of the Variables............................................................... 179
Table 64. Follow-Up Univariate Test (ANOVA) for the Beliefs Variable......... 180
Table 65. Follow-Up Univariate Test (ANOVA) for the Knowledge Variable… 181
Table 66. Follow-Up Univariate Test (ANOVA) for the Attitudes Variable….. 182
Table 67. Follow-Up Univariate Test (ANOVA) for the Behaviors Variable….. 183
Table 68. Summary Table- Reject/Fail to Reject Hypotheses for Research Questions 1-4................................................................. 191
Table 69. Summary Table- Reject/Fail to Reject Hypotheses for Research Questions 5-8................................................................. 192
LIST OF FIGURES

Figure 1. The Parameters and Constructs of the Health Belief Model.......................... 24
Figure 2. Factors that Influence the Pathophysiology of HBP in African Americans… 38
Figure 3. Flowchart Summary of the Delphi Process.............................................. 72
Figure 4. Sample of Solicitation Letter as Seen on SurveyMonkey.......................... 84
Figure 5. Sample of Qualifier Questions as Seen on SurveyMonkey........................ 85
Figure 6. Sample of Demographic Questions as Seen on SurveyMonkey............... 86
Figure 7. Sample of Likert Scale Questions as Seen on SurveyMonkey............... 87
Figure 8. Sample of Multiple-Choice Questions as Seen on SurveyMonkey........... 88
Figure 9. Request to Facebook Closed Group Administrators................................. 92
Figure 10. Discussion Post on ResearchGate to Solicit Members............................. 94
Figure 11. Discussion Post on Facebook Closed Groups to Solicit Group Members..... 95
Figure 12. Reminder Message Posted on Facebook Closed Groups........................ 96
Figure 13. Message Posted on Facebook Closed Groups Discussion Pages to Thank Study Participants................................................................. 97
Figure 14. Main Database Spreadsheet Before Coding......................................... 104
Figure 15. Main Database Spreadsheet After Coding........................................... 105
Figure 16. Variable View of Coded Data.............................................................. 106
Figure 17. Coded Data: Final Abridged Database................................................. 107
Figure 18. Summary of Data Analysis Procedure............................................... 109
Figure 19. A Priori G*Power Analysis to Determine Sample Size......................... 112
Figure 20. Study Process After Final IRB Approval from Seton Hall University...... 113
Figure 21. Scree Plot Indicating the Eigenvalues of Each Component (EFA)........... 130
Figure 22.  Total Recruitment and Sample Size  .............................................. 131
Figure 23.  Bar Graph Indicating the Number of Participants by Gender .......... 132
Figure 24.  Bar Graph Indicating the Age Range of Study Participants .......... 134
Figure 25.  Bar Graph Indicating the Marital Status of Study Participants ...... 136
Figure 26.  Pie Chart Indicating the Number of Participants Who Self-Reported that They Have or Do Not Have High Blood Pressure ................................. 142
Figure 27.  Participants Who Have Been Diagnosed with HBP for More than One Year 144
Figure 28.  Bar Graph Indicating Participants’ Use of Home Remedies to Treat HBP 145
Figure 29.  Bar Graph Indicating the Use of Prescription Medicine by Participants to Treat High Blood Pressure ................................................................. 146
Figure 30.  Bar Graph Indicating Participants Whose Blood Pressure Has Been Above 130/80 mm Hg When Checked ......................................................... 147
Figure 31.  Pie Chart Indicating Number of Participants with a Blood Relative Who Has High Blood Pressure ................................................................. 149
Figure 32.  Bar Graph Indicating Participants Who Have or Have Not Been Diagnosed With HBP by Gender ................................................................. 150
Figure 33.  Bar Graph Indicating How HBP Has Affected Participants’ Lives ....... 153
Figure 34.  Bar Graph Showing Participants’ Current Use of Home Remedies and Prescription Medicine ................................................................. 154
Figure 35.  Scatter Plot Indicating Correlation Between Beliefs and Behaviors ...... 166
Figure 36.  Scatter Plot Indicating Correlation Between Beliefs and Attitudes ...... 167
Figure 37.  Scatter Plot Indicating Correlation Between Knowledge and Beliefs ... 168
Figure 38.  Scatter Plot Indicating Correlation Between Behaviors and Knowledge ...... 168
Figure 39. Scatter Plot Indicating Correlation Between Attitudes and Knowledge……. 169
Figure 40. Scatter Plot Indicating Correlation Between Attitudes and Behaviors……. 170
Figure 41. Scatter Plot Indicating Correlation Between Behaviors and Current Use
of Home Remedies to Treat HBP……………………………………………. 171
Figure 42. Scatter Plot Indicating Correlation Between Behaviors and Use of Home Remedies in the Last 12 Months……………………………………………. 172
Figure 43. Scatter Plot Indicating Correlation Between Beliefs and Use of Home Remedies to Treat HBP……………………………………………..………. 173
Figure 44. Post-Hoc G*Power Analysis…………………………………………. 185
Figure 45. How the Theoretical Frame Guided this Study…………………………… 209
Figure 46. Qualitative Statements from Participants Regarding the Effectiveness of Home Remedies to Treat HBP…………………………………………….. 212
Figure 47. Qualitative Statements from Participants Regarding the Importance of Lifestyle Changes to Control HBP……………………………………………. 213
Figure 48. Qualitative Statements from Participants Regarding Their Unwillingness to Take Prescription Medicine to Treat HBP……………………………… 214
Figure 49. Qualitative Statements from Participants Regarding the Use of Home Remedies as a Complement to Prescription Medicine………………….. 216
Figure 50. Qualitative Statements from Participants Regarding the Need for More Education Regarding Treatment Options for High Blood Pressure……….. 218
CHAPTER I
INTRODUCTION

According to the Centers for Disease Control and Prevention/CDC (2020), about 75 million American adults (29%), or one in every three adults, have HBP, and it is controlled in only about 54% of Americans who have been diagnosed with this chronic disease. Almost one in every three American adults have pre-hypertension, where the blood pressure levels are above normal but not yet in the HBP range. The CDC (2020) further stated that the U.S. spends an average of $46 billion each year on HBP that includes the cost of health care services, medications to treat the condition and missed days of work as a result of the condition.

According to the World Health Organization/WHO (2019), an estimated 1.13 billion people worldwide have HBP, and the prevalence is expected to increase to 29% by 2025, driven largely by increases in economically developing nations. The high prevalence of HBP exacts a tremendous public health burden. As a primary contributor to heart disease and stroke, the first and third leading causes of death worldwide, respectively, HBP was the top modifiable risk factor for disability adjusted life-years lost worldwide in 2013 (Alexander, 2019).

In 2015, 1 in 4 men and 1 in 5 women had HBP, and fewer than 1 in 5 people with HBP have the problem under control (WHO, 2019). HBP is a major cause of premature death worldwide. One of the global targets for noncommunicable diseases is to reduce the prevalence of HBP by 25% by 2025 (baseline 2010) (WHO, 2019). The causes/ risk factors for HBP are age, race/ ethnicity, overweight or obese, gender, lifestyle habits and family history or genetic makeup (Barner, Bohman, Brown, & Richards, 2010).

According to Barner et al. (2010), the use of CAM to treat HBP has been steadily increasing in recent years. Ernst and Cassileth (1998) stated that 25-30% of the general
population of industrialized nations uses CAM. There are complex reasons why the use of CAM has become so popular over the past several years and those reasons are related to social and cultural matters and an individual’s desire to try all possible treatment measures when it comes to illnesses (Ernst & Cassileth, 1998). The literature review will further explore the use of CAM by African Americans to treat HBP.

This study was intended to explore the extent of such use among African Americans, as well as how the use of CAM is affected by the beliefs, knowledge, attitudes and behaviors of the people of this race. Since previous studies have indicated that home remedies are the most common type of CAM that is used by African Americans to treat various health problems, this study focused specifically on the use of home remedies and not on other types of CAM that may also be used as treatment for HBP.

**Background to the Problem**

For many years, African Americans have been perceived to have one of the highest rates of HBP in the world and, as such, HBP in this population remains a major public health concern (Flack, Nasser, & Levy, 2011). According to Do et al. (2016), “African Americans have the highest prevalence of HBP in the United States” (p.121). The American Heart Association/AHA (2021a) also stated that, “the prevalence of high blood pressure in African Americans living in the United States is among the highest in the world” (para. 1). As such, this chronic disease is a major clinical and public health problem among African Americans.

African Americans also have the lowest blood pressure (BP) control rates than any other major race/ethnic group and out of those who use drugs to treat the condition, "only 45% have been reported to attain BP control" (Flack et al., 2011). The AHA (2021a) further stated that in
addition to this condition being more prevalent in African Americans than in any other race, the effects of HBP on African Americans are also usually more severe than in any other race.

Complementary and alternative medicine (CAM) is used substantially among African Americans to treat specific conditions and this population is more likely to use traditional medicine such as folk medicine and home remedies as an alternative to mainstream medicine (Barner et al., 2010). Barner et al. (2010) further posited that a recent nationally representative estimate of CAM use among African Americans was 67.6-71.3%.

Several researchers have found that HBP is not effectively controlled in African Americans by conventional medicine alone (Barner et al., 2010; Do et al., 2016; Marshall et al., 2012). African Americans tend to develop HBP at younger ages than other races in the U.S., and some medications for HBP may not work as well in African Americans as they do in other racial groups (National Institutes of Health/NIH, 2020). Flack et al. (2011) stated that HBP results in 30% and 20% of all deaths in African American men and women respectively and that improving BP control rates will improve health status and reduce pressure-related racial health disparities. There is therefore the need to further explore the use of home remedies as treatment for HBP among African Americans and how such use is affected by their beliefs, knowledge, attitudes and behaviors.

The Importance of Conducting this Study on African Americans and Not on Hispanics

This research will be conducted on African Americans and not on Hispanics even though HBP is also prevalent among Hispanics. This is because HBP is more prevalent among African Americans and as such, this population is more susceptible to the condition and its effects than Hispanics. Additionally, more studies have been conducted on HBP in Hispanics than on HBP in
African Americans and so the focus of this research will be on further exploring this condition in African Americans and providing recommendations on effective control measures based on the findings.

The AHA (2021b, 2021c) reported that data from 2015 to 2018 indicate that 60.1% of non-Hispanic males and 58.8% of non-Hispanic females ages 20 years and older had cardiovascular disease (CVD), versus 52.3% of Hispanic males and 42.7% of Hispanic females over the same time period. Moreover, among all ages, CVD caused the deaths of 56,945 non-Hispanic Black males and 53,641 non-Hispanic Black females in 2018, while this disease caused the deaths of 30,584 Hispanic males and 25,983 Hispanic females in the same time period. In 2018, coronary heart disease caused the deaths of 22,699 Black males and 18,118 Black females, versus the deaths of 14,755 and 10,105 Hispanic males and females, respectively (AHA, 2021b, 2021c).

According to data from 2015 to 2018, 4.1% of non-Hispanic Black males and 4.9% of non-Hispanic Black females ages 20 years and older have had a stroke, as opposed to 2.4% of Hispanic males and 1.7% of Hispanic females in the same age group and in the same time period (AHA, 2021b, 2021c). The AHA (2021b, 2021c) further reported that in 2018, stroke resulted in the deaths of 8,851 Non-Hispanic Black males and 10,622 NH Black females, while this condition resulted in the deaths of 5,260 Hispanic males and 5,986 Hispanic females in the same year. The mortality rate as a result of cardiovascular disease was highest among non-Hispanic black people in 2016, when compared to other racial and ethnic groups.

The AHA (2021b) further posited that within one year after a first heart attack, at 45 to 64 years of age, 9% of black males and 10% of black females will die and at 65-74 years old, 22% of black males and 21% of black females will die (AHA, 2021b). At 75 years old and older, 19%
of Black males and 31% of Black females will die within a year of having a first heart attack. Among Non-Hispanic Black adults age 20 years and older, 58.3% of males and 57.6% of females had HBP from 2015 to 2018 (AHA, 2021b). On the other hand, the rates of HBP among Hispanic adults age 20 years and older from 2015 to 2018 were 50.6% for males and 40.8% for females. According to 2014 data, non-Hispanic black adults were 33.0% more likely to be told that they have HBP by a physician more than twice in comparison to White adults (23.5%), Hispanic or Latino adults (22.9%), American Indian/Alaska Native adults (26.4%), or Asian adults, who had a rate of 19.5% (AHA, 2021b).

According to the AHA (2021b), in 2017, watching television three or more hours daily was highest among Blacks (37.8% of males and 32.8% of females), followed by Hispanics (21.9% males and 19.5% females), and White females and males (18.4% and 16.9%, respectively). Inactivity for high school students was most prevalent among Black and Hispanic girls (26.6% and 20.0%, respectively) followed by White girls (16.7%), Black boys (12.7%), Hispanic boys (12.3%), and White boys (10.2%), as reported by the AHA (2021b). The AHA (2021b, 2021c) further posited that 69.9% of non-Hispanic Black males and 78.4% of non-Hispanic Black females were overweight or obese between 2015 and 2018, while 84.8% of Hispanic adult males and 77.8% of Hispanic adult females were overweight or obese in the same time period. Almost 20% (19.9%) of non-Hispanic Black adults age 18 and older met both the 2018 Federal Aerobic and Strengthening Physical Activity Guidelines for Adults in that year, in comparison to 21.4% of Hispanic or Latino adults age 18 years and older who met both the 2018 Federal Aerobic and Strengthening Physical Activity Guidelines for Adults in the same year (AHA, 2021b, 2021c).
**Categories of High Blood Pressure**

High blood pressure is measured in millimeters of mercury, or mm Hg, and this test is conducted using an instrument called the sphygmomanometer. The upper number is the systolic reading, and the lower number is the diastolic reading (AHA, 2021d). According to the AHA (2021d), normal blood pressure (BP) is less than 120 systolic and less than 80 diastolic and elevated blood pressure is 120-129 systolic and less than 80 diastolic. Stage 1 HBP is 130-139 systolic and 80-89 diastolic, stage 2 HBP is 140 or higher systolic and 90 or higher diastolic, while hypertensive crisis occurs when the systolic reading is higher than 180 and/or the diastolic reading is higher than 120 (AHA, 2021d).

Table 1

**Categories of High Blood Pressure**

<table>
<thead>
<tr>
<th>High Blood Pressure Category</th>
<th>Systolic mm Hg (upper number)</th>
<th>and/or</th>
<th>Diastolic mm Hg (lower number)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal</td>
<td>Less than 120</td>
<td>and</td>
<td>Less than 80</td>
</tr>
<tr>
<td>Elevated</td>
<td>120-129</td>
<td>and</td>
<td>Less than 80</td>
</tr>
<tr>
<td>High Blood Pressure/Hypertension (Stage 1)</td>
<td>130-139</td>
<td>or</td>
<td>80-89</td>
</tr>
<tr>
<td>High Blood Pressure/Hypertension (Stage 2)</td>
<td>140 or higher</td>
<td>or</td>
<td>90 or higher</td>
</tr>
<tr>
<td>Hypertensive Crisis (a doctor should be consulted immediately)</td>
<td>Higher than 180</td>
<td>and/or</td>
<td>Higher than 120</td>
</tr>
</tbody>
</table>

*Note. Adapted from the American Heart Association (2017).*
Statement of the Problem

Previous studies indicate that 67.6-71.3% of African Americans use CAM to treat specific conditions, particularly those with chronic conditions (Barner et al., 2010). However, studies also indicate that patients usually do not inform their health care providers of their CAM use, and health care providers usually do not inquire about CAM use. Flack et al. (2011) stated that African Americans tend to mistrust the health system and that culturally based beliefs (such as non-biomedical beliefs) about illness can negatively impact African Americans seeking treatment for their illnesses and adhering to treatment over the long term once treatment is prescribed.

Over 40% of African Americans living in the United States have HBP and with the low control rate of this condition among this population, it is imperative that an effective alternative to conventional medicine be determined to treat HBP in this population. Since previous studies indicate that home remedies are already being used by African Americans to treat chronic conditions, it is also important to determine the extent to which these remedies are being used in this population and whether or not they are more effective in controlling the condition than conventional medicine, when used either as a complement or an alternative to conventional medicine.

It is important to understand the use of CAM to treat HBP as a result of health beliefs because recent studies indicate that more and more African Americans are using some form of CAM to treat their HBP as a complement to the traditional medicines prescribed by their physicians to treat the condition. Furthermore, prescription medications have proven to be an ineffective treatment of HBP in this population, so exploring alternative treatment options may be worthwhile.
Risk Factors for High Blood Pressure

According to the NIH (2020), the primary risk factors for high blood pressure are the following:

- **Age** - Blood pressure usually gets higher as we get older. However, it can affect many young people as well.
- **Genetics** - High blood pressure often runs in families, from one generation to the next.
- **Lifestyle Habits** - Having poor lifestyle habits, such as drinking too much alcohol, eating too much salt, smoking, overweight/obesity, and lack of exercise can also increase blood pressure.
- **Gender** - More men are diagnosed with HBP before age 60 than women. However, after age 60, more women than men are diagnosed with the condition.
- **Race or ethnicity** - While anyone can have HBP, African Americans tend to be diagnosed at a younger age and the condition is more prevalent in the people of this race than in any other race. Among Hispanic adults, people of Cuban, Puerto Rican and Dominican backgrounds are at higher risk of diagnosis.

Purpose of the Study

The purpose of this study was three-fold:

1. To determine the extent to which African Americans use home remedies to treat HBP.
2. To examine the beliefs, knowledge, attitudes and behaviors of African Americans regarding HBP and their use of home remedies as treatment using a novel survey instrument.
3. To test the reliability of the Beliefs about Hypertension Survey (BHS) in the population of interest.

This instrument addresses four domains (beliefs, knowledge, attitudes and behaviors) and the six key constructs of the Health Belief Model (HBM) with a focus on HBP.

**Variables**

The independent variables of this study are the two groups that were the focus of this study:

1. African Americans with high blood pressure
2. African Americans without high blood pressure

These two groups of African Americans were determined to be the independent variables of this study because the African Americans perceptions of the domains that serve as the dependent variables of this study were manipulated or affected by whether or not the study participants had HBP or not. It was expected that the experiences that study participants have had with HBP would affect how they perceive each of the dependent variables.

The dependent variables of this study are the four domains that were used as a guide for this study, and are as follows:

1. Beliefs
2. Knowledge
3. Attitudes
4. Behaviors

It was determined that these four primary domains that were tested/examined in this research were the dependent variables of the study because they would be affected by the study
participants perception of each based on whether or not those participants have HBP. As such, it was determined that the beliefs, knowledge, attitudes and behaviors of African Americans regarding HBP and their use of home remedies would be affected to some extent by whether or not these participants have high blood pressure.

The possible confounding variables of this study were found to be socio-economic status, marital status, education level, religion/denomination, gender and age. It is possible that these variables were confounding factors in this study because the results of the study indicated that these factors may affect how African Americans perceive each of the four dependent variables.

**Research Questions and Hypotheses**

The overarching research question framing this dissertation study is as follows:

What are African Americans' beliefs, knowledge, attitudes, and behaviors regarding HBP and their use of home remedies to as treatment?

Even though the descriptive statistics of participants will be addressed in the results of this study, the research questions are all inferential questions.

**Inferential Research Questions:**

- **RQ1.** Is there a relationship between the beliefs of African Americans regarding high blood pressure and their use of home remedies as treatment?

  **H1 a:** There is a relationship between the beliefs of African Americans regarding high blood pressure and their use of home remedies as treatment.

  **H0:** There is no relationship between the beliefs of African Americans regarding high blood pressure and their use of home remedies as treatment.
• **RQ2.** Is there a relationship between African Americans’ **knowledge** of high blood pressure and their use of home remedies as treatment?

   **H₂₀:** There is a relationship between African Americans’ **knowledge** of high blood pressure and their use of home remedies as treatment.

   **H₀:** There is no relationship between African Americans’ **knowledge** of high blood pressure and their use of home remedies as treatment.

• **RQ3.** Is there a relationship between the **attitudes** of African Americans regarding high blood pressure and their use of home remedies as treatment?

   **H₃₀:** There is a relationship between the **attitudes** of African Americans regarding high blood pressure and their use of home remedies as treatment.

   **H₀:** There is no relationship between the **attitudes** of African Americans regarding high blood pressure and their use of home remedies as treatment.

• **RQ4:** Is there a relationship between the **behaviors** of African Americans regarding high blood pressure and their use of home remedies as treatment?

   **H₄₀:** There is a relationship between the **behaviors** of African Americans regarding high blood pressure and their use of home remedies as treatment.

   **H₀:** There is no relationship between the **behaviors** of African Americans regarding high blood pressure and their use of home remedies as treatment.

• **RQ5.** Is there a difference between the **beliefs** of **African Americans with HBP** and those **without HBP** regarding the use of home remedies as treatment?
H5a: There is a difference between the beliefs of African Americans with HBP and those without HBP regarding the use of home remedies as treatment.

H0: There is no difference between the beliefs of African Americans with HBP and those without HBP regarding the use of home remedies as treatment.

- RQ6. Is there a difference between African Americans with HBP and those without HBP regarding knowledge of the condition?

H6a: There is a difference between African Americans with HBP and those without HBP regarding knowledge of the condition.

H0: There is no difference between African Americans with HBP and those without HBP regarding knowledge of the condition.

- RQ7. Is there a difference between the attitudes of African Americans with HBP and those without HBP regarding the use of home remedies as treatment?

H7a: There is a difference between the attitudes of African Americans with HBP and those without HBP regarding the use of home remedies as treatment.

H0: There is no difference between the attitudes of African Americans with HBP and those without HBP regarding the use of home remedies as treatment.

- RQ8. Is there a difference between the behaviors of African Americans with HBP and those without HBP regarding the use of home remedies as treatment or prevention?

H8a: There is a difference between the behaviors of African Americans with HBP and those without HBP regarding the use of home remedies as treatment or prevention.
**H₀:** There is no difference between the behaviors of African Americans with HBP and those without HBP regarding the use of home remedies as treatment or prevention.

**Significance of the Study**

The main challenge that we face regarding HBP in African Americans is that the condition is not adequately controlled among the people of this race.

The inadequate blood pressure (BP) control in African Americans may be the result of the excessive and disproportionate prevalence of HBP and the high frequency of conditions that occur and/or re-occur at the same time such as diabetes and chronic kidney disease (Flack et al., 2010). The lack of effective conventional medicine as treatment may also be a factor. Flack et al. (2010) further stated that blacks do not appear to take HBP seriously despite the lower rate of BP control among their population. African Americans also tend to mistrust the health system and those who reported being repeatedly discriminated against delayed seeking medical care and did not adhere well to prescribed medications (Flack et al., 2010).

The excessive and disproportionate prevalence of HBP and inadequate blood pressure control over the long-term is also a major public health concern in the United States. Perceptions of discrimination often causes African Americans to delay seeking medical care and to not adhere well to prescribed medications, which further affect the control of HBP among this population. Flack et al. (2010) stated that non-biomedical beliefs (culturally based beliefs about illness) can negatively impact African Americans seeking treatment for their illnesses and adhering to treatment over the long-term once treatment is prescribed. Patient-provider interactions is also a factor because blacks are more likely to be non-adherent to therapeutic regimens, unable to read and follow prescription instructions (Flack et al., 2010).
Marshall et al. (2012) stated that HBP is a primary health concern in both developed and developing countries and that even though there have been national and international initiatives and guidelines regarding HBP, studies have found that two-thirds of people with the condition are left either untreated or it is not adequately controlled, and many people remain undiagnosed. Marshall et al. (2012) also posited that the WHO stated that the primary factor that is affecting the control of HBP is poor adherence to medication. The causes of poor adherence include drug costs, complicated drug regimens, old age and forgetfulness, depression, inadequate social support, lack of health insurance, the cost of appointments and healthy foods, and cognitive problems (Marshall et al., 2012). In this study, Marshall and his colleagues found that their participants did not like their medications, the side effects of these medications, and feared addiction to these drugs (Marshall et al., 2012).

Understanding more about the beliefs of African Americans regarding HBP and their use of home remedies as treatment may help to reduce the morbidity and mortality rates among this population due to HBP and provide more insight into effective preventative measures to reduce the incidence and prevalence rates in African Americans.

If it is determined that home remedies are an effective CAM treatment for HBP in African Americans, then these remedies can be made known on a wide scale to the general public and be promoted for use by the Federal, State and local government agencies, as well as by the health care professionals who provide health services to the people of this population. This could also indicate to the Federal government the importance of funding CAM through the Patient Protection and Affordable Care Act (ACA).
Table 2

Blood Pressure Levels in the U.S. by Race and Ethnicity

<table>
<thead>
<tr>
<th>Race or Ethnic Group</th>
<th>Men (%)</th>
<th>Women (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>African Americans</td>
<td>43.0</td>
<td>45.7</td>
</tr>
<tr>
<td>Mexican Americans</td>
<td>27.8</td>
<td>28.9</td>
</tr>
<tr>
<td>Whites</td>
<td>33.9</td>
<td>31.3</td>
</tr>
<tr>
<td>All</td>
<td>34.1</td>
<td>32.7</td>
</tr>
</tbody>
</table>

Note. Adapted from “High Blood Pressure Facts,” by the Centers for Disease Control and Prevention, 2016.

Operational Definitions of Key Terms

Black or African American: “A person having origin in any of the Black racial groups of Africa” (U.S. Census Bureau, 2018, para. 1).

Complementary and Alternative Medicine (CAM): “A group of diverse medical and health care systems, practices, and products that are used in place of or in conjunction with traditional allopathic approaches and are not presently considered to be part of conventional medicine” (Fouladbakhsh & Stommel, 2007, p. 2). According to Ernst and Cassileth (1998), CAM can be defined as a diagnosis, treatment and/or prevention that is used to complement mainstream medicine by contributing to a common whole, satisfying a demand that needs to be met, or by making the conceptual frameworks of medicine more diverse. This definition was adopted by the Cochrane Field in Complementary Medicine (Ernst & Cassileth, 1998).

a. Complementary Medicine: A group of diverse medical and health care systems, practices, and products that are used to supplement conventional medicine (Fouladbakhsh & Stommel, 2007).
b. **Alternative Medicine:** A group of diverse medical and health care systems, practices, and products that are used to replace conventional medicine (Fouladbakhsh & Stommel, 2007).

**High Blood Pressure:**

a) A common disease in which blood flows through blood vessels (arteries) at higher-than-normal pressures (NIH, 2020a).

b) **Systolic pressure of 130 mm Hg or higher or diastolic pressure of 80 mm Hg or higher** (AHA, 2021d). **Also, taking antihypertensive medicine or being told twice by a physician or other medical professional that you have HBP** (AHA, 2021d).

c) A common condition in which the long-term force of the blood against the walls of the artery is high enough that it can lead to health problems, such as heart disease (Mayo Clinic, 2016).

For the purpose of this research, the highlighted definition by the AHA will be used to define HBP because it is much more detailed than the other two definitions and it explains more than one way in which a patient can know that he or she is hypertensive.

**Home Remedy:** A simply prepared medication or tonic often of unproven effectiveness administered without prescription or professional supervision (Merriam-Webster Dictionary, 2020a, para. 1).

**Definitions of Major Domains**

**Attitude:** 1. “A mental condition with regard to a fact or state. 2. A feeling or emotion toward a fact or state” (Merriam-Webster Dictionary, 2020b, para. 1).
**Behavior:** 1. “Anything that an organism does involving action and response to stimulation.
2. The response of an individual, group, or species to its environment” (Merriam-Webster Dictionary, 2020c, para. 1).

**Belief:**

1. Defined by Psychology Today (2011) as “an idea or principle that we judge to be true” (p. 3).
2. “An idea that is believed to be true or valid without positive knowledge; something that is accepted, considered to be true, or held as an opinion” (Merriam-Webster Dictionary, 2020d, para. 1).

The highlighted definition of belief from the Merriam-Webster Dictionary (2020d) will be used in this research because it is the most suitable definition based on the purpose of this research.

**Knowledge:** 1. “The fact or condition of knowing something with familiarity gained through experience or association. 2. The range of one's information or understanding” (Merriam-Webster Dictionary, 2020e, para. 1).

**Conceptual Framework: The Health Belief Model**

Based on the parameters of the Health Belief Model (HBM) and its six constructs, this model was found to be the most important and relevant to this study, and as such, was the conceptual framework that was used to guide this research. The constructs of the HBM also influenced the design of the PI-created novel survey instrument as well and, as such, it also influenced the information that the survey sought to glean from study participants. The HBM was therefore fundamental to the success of this research in terms of fulfilling its purposes.
The HBM was first developed in the 1950s by social psychologists of the U.S. Public Health Service in an attempt to explain why individuals were not participating in programs established with the aim of detecting and preventing diseases, which was, at the time, a matter of concern (Glanz et al., 2002). The model later incorporated the responses of others in regard to adhering to certain regimens according to their individual diagnosed illness (Glanz et al., 2002). The constructs of the HBM are perceived susceptibility, perceived benefits, perceived barriers, perceived severity, cues to action and self-efficacy (Redding, Rossi, Rossi, Velicer, & Prochaska, 2000) (see Figure 1).

The HBM was used in this study to examine the beliefs of African Americans regarding HBP and to determine any association between those beliefs and their use of CAM to treat the condition. The hope is that the questions on the survey that were based on the constructs of this model helped the study participants to better understand the importance of engaging in healthy lifestyle behaviors such as engaging in physical activities daily and eating healthy foods on a consistent basis to prevent the onset of HBP in the first place. The HBM was a good model to use in this study because it aims to predict health-related behaviors about a certain condition, in this case, HBP, based on the perceptions or beliefs regarding that condition (Glanz et al., 2002).

The first five constructs of this model are perceived susceptibility, perceived severity, perceived benefits, and perceived barriers and, cues to action. In 1988, Rosenstock et al. developed the sixth and final concept of this model, self-efficacy “to help the HBM better fit the challenges of changing habitual unhealthy behaviors” (Green, 2014, p. 3). This concept was added by Rosenstock et al. in 1988 when “they argued that enhancement of self-efficacy will usually be required… in the acquisition or modification of complex lifestyle practices, including
those related to smoking, alcohol consumption and substance abuse, physical activity, and
dietary habits” (Koch, Roberts, & Cannon, 2005, p. 84; Rosenstock et al., 1988, p. 182).

The six concepts of this model are defined as follows:

**Perceived susceptibility:** This concept is a person’s belief he or she is vulnerable to disease and is an indicator of whether or not a person will commence healthy lifestyle choices (Redding et al., 2000).

**Perceived benefits:** These are the things that act as a motivation to prevent disease (Redding et al., 2000).

**Perceived barriers:** These are the costs of change and if the benefits are greater than the costs, change is likely to occur (Redding et al., 2000).

**Perceived severity:** This is the establishment of supposed consequences (Redding et al., 2000).

**Cues to action:** According to Champion and Skinner (2008), these are the cues that influence an individual to take action and can either be internal or external (as cited in Jones, Jensen, Scherr, Brown, Christy, & Weaver, 2014).

**Self-efficacy:** This term is defined as the confidence of individuals in making a decision and committing to adherence to the desired change in lifestyle. Demographic factors such as social influences, education level, and structural support are all confounders of the HBM and can affect a person’s willingness to take action against a disease (Redding et al., 2000).

According to Green (2014), the HBM “Attempted to explain and predict a given health-related behavior from certain patterns of belief about the recommended health behavior and the health problems that the behavior was intended to prevent or control” (p. 2). Based on the theory of this model, the four conditions that are used to explain and predict health behaviors are: an individual believes that he or she is at risk of developing a health-related condition; the
individual considers how serious the condition may be and the effects the condition may have on his or her life and/or health, such as pain and the inability to go to work or school; the individual believes that the benefits of the action that he or she will have to take to reduce the risks of developing the condition or will reduce the effects of the condition outweigh the barriers or inconvenience of taking the action and; the individual is influenced by a motivating factor that causes him or her to want to take the action (Green, 2014). According to Green, the HBM theorizes that perceived benefits are the ‘anticipated’ benefits and costs of taking the action or the predisposing factors of taking the action, which serves as a motivating factor by influencing the individual to want to take the action (Green, 2014).

The concept of self-efficacy was first introduced by psychologist Albert Bandura, who defined the term as “the belief in one’s capabilities to organize and execute the courses of action required to manage prospective situations” (Bandura, 1994, p. 71). How an individual view self-efficacy helps to determine how that individual approaches goals, tasks, and challenges, and is based on attitudes and beliefs. Self-efficacy is a major factor in one’s self-system, which is made up of our attitudes, abilities, and cognitive skills, and so this system helps to determine how we perceive situations and how we react to different situations (Bandura, 1994).

The concept of self-efficacy is a predominant part of Bandura’s social cognitive theory. This theory focuses on how one’s personality is developed with the help of learning through observation and social experience. This theory emphasizes the belief that individuals with a high self-efficacy will take on difficult tasks with more optimism of completing it successfully (Bandura, 1994). Van Wagner (2008) stated that after the publication of Bandura’s seminal paper in 1977, entitled Self-Efficacy: Toward a Unifying Theory of Behavioral Change, the subject is one of the most studied in psychology and educators because “self-efficacy can have an impact
Bandura (1992) stated that self-efficacy begins during childhood as new experiences, tasks, and situations are dealt with by children, and that the concept serves as a way for people to learn new skills and experiences (Bandura, 1992).

Bandura (1994) stated that one of the four sources of self-efficacy occurs when individuals successfully complete tasks. Social modeling is also identified as a source of self-efficacy because “Seeing people similar to one-self succeed by sustained effort raises observers' beliefs that they too possess the capabilities master comparable activities to succeed” (Bandura, 1994, p. 72). Encouraging and positive statements can also be a motivating factor of self-efficacy because others will believe in their ability to complete a seemingly difficult task because they will know that someone else also believes in them. The fourth source of self-efficacy according to Bandura is our psychological responses to different situations. “Moods, emotional states, physical reactions, and stress levels can all impact how a person feels about their personal abilities in a particular situation” (Van Wagner, 2008, p. 2).

The University of Twente (2017) explained that the HBM has been applied to studies on many different health behaviors and subject populations such as “health-promoting and health-risk behaviors, compliance with recommended medical regimens after being professionally diagnosed with an illness and, clinic use for different reasons” (p. 2) This indicated that the scope of the use of this model has been extensive.

The model has been known to change its form based on the problem that it is being applied to, such as “immunizations and the various responses of people to public health measures and their uses of health services” (Green, 2014, p. 1). In such broad applications, “perceived
susceptibility assumes that an individual may have a disease without knowing it” (Green, 2008, p. 1).

“The HBM relates largely to the cognitive factors predisposing a person to a health behavior, concluding with a belief in one’s self-efficacy for the behavior” (Green, 2008, p. 1). Since its development, the HBM has been used extensively and in the 1990s, was “the most frequently used model in published descriptions of programs and studies in health education and health behavior” (Green, 2014, p. 1).

According to Galloway (2003) and as can be seen in Figure 1 below, there are three parameters of this model: modifying factors, individual perceptions and likelihood of action. Modifying factors include demographics such as age, gender, race and ethnicity, structural variables such as one’s previous knowledge about and experience with a disease, and cues to action which include media advertisements and motivation from others to act (Galloway, 2003). Individual perceptions focus on perceived susceptibility, perceived severity and perceived threat while likelihood of action involves perceived benefits and perceived barriers (Galloway, 2003).

Galloway (2003) further stated that a review of 46 studies which used the HBM as their health behavior framework examined the model based on sick-role behavior, clinic utilization and preventive health behaviors. It was found that perceived susceptibility was the strongest predictor for preventive health behaviors while perceived benefits was found to be the strongest predictor for sick-role behavior (Galloway, 2003).

Two weaknesses of this model are that it needs to better explain the factors that enables and reinforces individuals’ behaviors (Harrison, Mullen, & Green, 1992). Harrison et al. (1992) also found that the HBM “lacks consistent predictive power for many behaviors, probably because its scope is limited to predisposing factors” (p. 162).
The Resource Center for Adolescent Pregnancy Prevention/ReCAPP (2007) posited some other shortcomings of this model, including the fact that since the HBM places focus on beliefs and attitudes, it may not effectively address habitual behaviors and that this model cannot address economic and environmental factors because these are factors that are not usually controlled by a single individual. ReCAPP (2007) also mentioned that the HBM is more effective with short-term intervention change and that it is more effective when applied with other learning theories such as the Social Learning Theory.
Figure 1. The Parameters and Constructs of the Health Belief Model. Adapted from “Chapter 4: Health Belief Model” from Stretcher V., & Rosenstock, I.M. (1997). The Health Belief Model. In Glanz, K., Lewis, F.M. & Rimer, B.K. (Eds.). Health Behavior and Health Education: Theory, Research and Practice. San Francisco, CA: Jossey-Bass. Copyright by Jones and Bartlett Publishers. Approval for the use of this diagram was granted and can be found in Appendix G.
Summary

This chapter introduced the topic of HBP in African Americans and indicated the severity of the condition among this population. The major concepts/domains that were used to direct the data that were gleaned from this research were highlighted as well as the theoretical framework that was used to guide this research.
CHAPTER II
LITERATURE REVIEW

Introduction

There are many studies that have been conducted over the years on the topic of HBP in the United States. However, much less studies have been conducted regarding this chronic disease in African Americans. Furthermore, there are even fewer studies that have been conducted on African Americans’ use of home remedies as treatment for HBP. This literature review addressed previous research that have been conducted on the topic of HBP in African Americans, the conceptual frameworks and research designs that were used in those studies, and the findings of those studies. From this data, the knowns and gaps regarding the topic were determined. A comparison will also be made between previous research and this study.

Chronic Diseases in the United States

The Centers for Disease Control and Prevention/CDC (2017) stated that cardiovascular disease (CVD), commonly called heart disease, is the leading cause of death for people of most ethnicities in the United States, with about 610,000 dying from the disease in the U.S. annually, which is equivalent to one in every four deaths. Men are usually affected more by the disease than women, regardless of ethnicity (CDC, 2017). A cardiovascular disease is defined as “a condition that involves narrowed or blocked blood vessels that can lead to a heart attack, chest pain or angina, or stroke” (Mayo Clinic, 2016).

The CDC (2017) further posited that the most common type of heart disease is coronary heart disease (CHD), which causes about 370,000 deaths annually. Other types of CVD include congestive heart failure (where the heart does not pump blood as well as it should), arrhythmia
(an abnormal rhythm of the heart), heart valve problems, heart attack, and stroke (CDC, 2017). About 735,000 Americans have a first or second heart attack each year (CDC, 2017).

As previously mentioned, some of the primary risk factors for heart disease are HBP, high cholesterol, and smoking (CDC, 2017). Other factors that can also increase one’s susceptibility to heart disease are diabetes, overweight or obesity, poor diet, physical inactivity, and excessive alcohol use, which are also major risk factors for HBP (CDC, 2017).

**High Blood Pressure in African Americans**

The NIH (2020a) has cited that the risk factors for HBP include age, race/ethnicity, overweight, gender, lifestyle habits and family history. Blood pressure usually rises with age and about 65% of Americans age 60 years and older have HBP. African Americans, as previously stated, are more susceptible to HBP than any other race (NIH, 2020a). Before age 55, men are more likely to develop HBP while after 55, women are more likely to develop the condition than men (NIH, 2020a). Regarding lifestyle habits, eating too much salt, too little potassium, lack of physical activity, stress, and too much alcohol consumption can lead to HBP (NIH, 2020a). Flack et al. (2011) stated that almost one in every six African American women suffer from obesity, which is almost four times higher than that of White and Hispanic women.

According to WebMD (2017), researchers believe that one reason for the high rate of HBP in African Americans is their genetic makeup, which is evident in the fact that blacks respond differently to HBP drugs in the U.S. than other races (conventional medicines do not control HBP in African Americans as well as it does in people of other races), and this group also seem to be more sensitive to salt. The other factor cited by researchers is environmental, such as social and economic factors including economic inequality. African Americans in the U.S. often reside in poorer neighborhoods, where they do not have as much access to gyms
where they can engage in physical activities. Additionally, blacks in the U.S. often have lower paying jobs and may not be able to eat as healthy as other races. According to WebMD (2017), 41% of blacks have HBP compared to 27% of whites.

In this study, Flack et al. (2010) stated that the factors affecting BP control in blacks are non-physiologic (non-biomedical beliefs and provider-patient interactions) and pathophysiologic considerations such as obesity, vascular abnormalities, and salt sensitivity. However, for the purposes of this review, only the non-physiologic factors will be discussed.

The inadequate BP control in African Americans may be the result of excessive and disproportionate prevalence of HBP, inadequate BP control over the long term, and the high frequency of conditions that occur and/or re-occur at the same time such as diabetes and chronic kidney disease (Flack et al., 2010). Flack et al. (2010) further stated that blacks do not appear to take HBP seriously despite the lower rate of BP control among their population. They also posited that African Americans tend to mistrust the health system and that those who reported being repeatedly discriminated against delayed seeking medical care and did not adhere well to prescribed medications (Flack et al., 2010).

Non-biomedical beliefs are culturally based beliefs about illness and Flack et al. (2010) believe that these beliefs can negatively impact African Americans seeking treatment for their illnesses and adhering to treatment over the long term once treatment is prescribed.

Marshall et al. (2012) stated that HBP is a primary health concern in both developed and developing countries and that even though there have been national and international initiatives and guidelines regarding HBP, studies have found that two-thirds of people with the condition are left either untreated or it is not adequately controlled, and many people remain undiagnosed. The World Health Organization (WHO) has stated that the primary factor that is affecting the
control of HBP is poor adherence to medication (Marshall et al., 2012). The causes of poor adherence include drug costs, complicated drug regimens, old age and forgetfulness, depression, inadequate social support, lack of health insurance, the cost of appointments and healthy foods, and cognitive problems (Marshall et al., 2012). In this study, Marshall and his colleagues, found that their participants did not like their medications, the side effects of these medications, and feared addiction to these drugs (Marshall et al., 2012).

The NIH (2020a) posited that the risk factors for HBP include age, race/ethnicity, overweight, gender, lifestyle habits, and a family history. The causes of HBP are primarily genetic and environmental factors (WebMD, 2017).

According to Flack et al. (2010), the inadequate BP control in African Americans is caused primarily by non-biomedical or culturally based beliefs and patient-provider interactions. Blacks are more likely to be non-adherent to therapeutic regimens, unable to read and follow prescription instructions (Flack et al., 2010). In a study of 93 blacks with HBP in open-ended interviews during clinic visits, 38% believed that HBP could be cured and that lifelong medication was unnecessary, while 23% believed that anti-hypertensive meds should be taken only when having symptoms (Flack et al., 2010).

Pickett, Allen, Franklin, and Peters (2013) stated that the HBP beliefs of African Americans differ based on gender, educational level and stress-related causal attributions. Patients who are non-adherent to HBP self-care recommendations may have HBP beliefs that differ from medical endorsed views (Pickett et al., 2013). Pickett et al. (2013) recommended that providers assess their African American patients’ HBP beliefs to better treat and control BP in this group.
The American Heart Association (2017) found that HBP affects more than 40% of African Americans and that it develops earlier in life in African Americans than in Whites and its effects are usually more severe. According to the NIH (2020a), African Americans develop HBP at younger ages than any other group in the U.S. and are more likely to develop complications associated with HBP.

High blood pressure occurs in African Americans eight to ten years earlier than in the general population (Saunders & Johnson, 2009).

The incidence and prevalence of HBP in African Americans is 40-100% greater than in whites. Complications of HBP in African Americans lead to an 80% higher stroke mortality rate, a 50% higher heart disease mortality rate, and a 320% higher rate of HBP-related end-stage renal disease than in the general population (Saunders & Johnson, 2009). Therapy for African Americans may be complicated by socio-economic and educational factors such as decreased access to care, disparities in health care delivery, and delay in seeking health care (Saunders & Johnson, 2009). African Americans also have a higher prevalence of risk factors associated with HBP such as obesity, type II diabetes, undiagnosed dyslipidemias, unhealthy diets and an inactive lifestyle (Saunders & Johnson, 2009). The high uncontrolled rates of HBP in African Americans may be caused by both perceived and possibly real differences in response to prescription medication.

Uncontrolled HBP in the U.S. is especially prevalent and devastating among African Americans who suffer the consequences of this condition to a greater extent that people of other racial/ethnic groups (Maraboto & Ferdinand, 2020). African Americans are also usually underrepresented in cardiovascular clinical trials, which limits the ability to apply the results from many outcome studies to this population (Maraboto & Ferdinand, 2020).
Epidemiologic data from 2011-2016 indicated that the age-adjusted prevalence of HBP, Defined as systolic blood pressure ≥ 140 mm Hg or diastolic BP ≥ 90 mm Hg, in non-Hispanic blacks was 57.6% for males and 53.2% for females, and the current prevalence is believed to be higher today because of the most recent definition of HBP, which now classifies stage 1 HBP in adults as BP ≥130/80 mm Hg (Maraboto & Ferdinand, 2020).

The factors that are believed to affect HBP in African Americans include genetic predisposition, obesity, higher salt sensitivity, low levels of plasma renin, abnormal vascular function, attenuated nocturnal decrease in BP, greater comorbidity, inactivity and positive family history (Maraboto & Ferdinand, 2020).

**Connection Between COVID-19 and High Blood Pressure**

According to the U.S. Census Bureau (2020), there were 44.1 million African Americans living in the U.S. in 2019. Around 20% of COVID-19 deaths in the U.S. have been among non-Hispanic Black or African Americans, as of October 28, 2020, many of whom had pre-existing conditions such as HBP, diabetes and obesity (Elflein, 2020).

According to the National Institutes of Health (2020b), African Americans are more likely to suffer from chronic diseases that increases their risk of mortality from COVID-19, with 32.2% and 38% of African Americans being diagnosed with HBP and obesity in 2018, respectively, versus 23.9% and 31% of Whites being diagnosed with the same conditions in the same period.
Types of Beliefs- Lay and Traditional

The term lay is defined as “not trained in a certain profession; not having a lot of knowledge about a certain thing” (Merriam-Webster Dictionary, 2020f, para. 1). The definition from Merriam-Webster Dictionary (2020g) of tradition that will be used for the purpose of this study is “The handing down of information, beliefs, and customs by word of mouth or by example from one generation to another without written instruction” (para. 1). From the definitions of these terms provided by Merriam-Webster Dictionary (2020), the following terms can be defined as follows:

**Lay beliefs**: An idea that is believed to be true or valid without positive knowledge by someone who is not trained in the field the idea is related to.

**Traditional beliefs**: An idea that is believed to be true or valid without positive knowledge which has been handed down by word of mouth or by example from one generation to another without written instruction.

Both lay and traditional beliefs regarding HBP will be explored in this research to help to help determine whether or not there is an association between the HBP beliefs among African Americans and their use of CAM to treat the condition.

Importance of Health Beliefs

- Provide insight into the interactions between health care professionals and their patients.
- Provide an understanding of people’s ideas regarding health maintenance and disease prevention.
- Help to increase knowledge of informal health care.
- Provide an insight for professionals into the traditional and cultural practices of their patients.
Factors that Affect Beliefs

According to the American Academy of Pediatrics (2021), some of the factors that affect patients’ and families’ health beliefs, and practices include culture, socioeconomic factors, current trends and generational practices. Africa Americans have differences regarding access to health care based on education, age, and place of birth because they represent many different nationalities, cultures and religions (Robinson, 2016). Robinson (2016) further stated that slavery has significantly influenced many different aspects of life for African Americans, including their beliefs, traditions, nutrition, and their health and wellbeing as a whole, which has resulted in culture having a significant impact on the lives of African Americans. There are also some beliefs from Africa that survived the slave trade and carryover of how illnesses were explained in the Western hemisphere during slavery (Robinson, 2016). Modern medical theories and practices have also affected beliefs to some extent.

According to Merriam-Webster Dictionary (2020h), culture is defined as “the customary beliefs, social forms, and material traits of a racial, religious, or social group” (para. 1). Cultural norms are concerned with the differences between people from one country or culture and people from another culture (Sieck, 2020). Cultural norms can either exist in small groups or cultures, or in larger societies (Sieck, 2020). Cultural norms help people establish order and control in their lives as well as give them a sense of safety and help them feel like they belong (National Academies Press, 2018). Cultural norms can be explicit as in the case of legal codes or implicit as in the case of conventional practices and rituals (National Academies Press, 2018). Cultural norms affect many aspects of life, including communication style, whom to marry and when, child-rearing practices, and interaction between generations (National Academies Press, 2018).
While complementary medicine is combined with conventional medicine as a health service for patients, alternative medicine is used in place of conventional medicine to treat patients, that is, these medicines replace mainstream medicines in treating health-related conditions (Fouladbakhsh & Stommel, 2007). Ernst and Cassileth (1998) stated that alternative medicines are unproved, are considered to be unpromising by oncologists and are usually invasive and costly.

According to Fouladbakhsh and Stommel (2007), the National Center for Complementary and Alternative Medicine (NCCAM) has categorized CAM in four categories and one overarching domain of alternative medical systems. The categories are mind-body therapies, biologically based therapies, manipulative and body-based systems, and energy therapies (Fouladbakhsh & Stommel, 2007). Biologically based therapies are "natural and biologically-based products, practices, and interventions such as herbs, supplements, and diet therapy" (Fouladbakhsh & Stommel, 2007). Alternative medical systems are the complete systems of theory and practice that were developed from "a western, conventional biomedical approach to health and illness which may include therapies from the other four areas" (Fouladbakhsh & Stommel, 2007), such as homeopathy.

**Advantages and Disadvantages of CAM**

According to Okoronkwo, Onyia-pat, Okpala, Agbo, and Ndu (2014), the advantages of CAM are that it helps to treat and prevent diseases, improved quality of life, and promote and maintain health. On the other hand, the disadvantages of CAM are that herbal products often cause chemical burns after applying to the skin, anorexia, loss of weight, nausea and vomiting, general malaise, and diarrhea (Okoronkwo et al., 2014).
The factors associated with the use of CAM were found to be graduate education, smaller family size, higher income, region (Northwest, Midwest, West), depression/ anxiety, more doctor visits, less likely to use preventative care, more regular exercise activities, more limitations on activities of daily living (ADL), and neck pain (Barner et al., 2010).

How Beliefs Affect the Use of CAM

Both lay and traditional health beliefs often play an integral role in determining whether or not people decide to use CAM as a way of treating a particular disease or health condition. These beliefs are usually passed down from one generation to the next in families or among the people of a particular race or culture. The use of CAM to treat a particular health condition is often referred to as home remedies.

Research indicates that the use of traditional medicine alone is not effective in controlling HBP in the people of this race and as such, there is a need for research into how much CAM is used to treat HBP based on the lay and traditional beliefs among this race as well as the effectiveness of CAM alone versus the use of CAM in conjunction with the use of traditional medicine to treat the condition.

Both lay and traditional health beliefs are therefore important to understand because these beliefs often play an integral role in how people of different races and ethnicities treat a condition, preventive measures taken relating to specific illnesses and/ or diseases, and African Americans in particular are known to rely on their cultural beliefs and family traditions when it comes to treating many illnesses of which HBP is one.
CAM Use by African Americans

It is important to understand the use of home remedies to treat HBP as a result of lay and traditional health beliefs because recent studies have indicated that more and more African Americans are using some form of CAM to treat their HBP as a complement to the traditional medicines prescribed by their physicians to treat the condition.

This research focused more on the use of home remedies as a complementary medicine to treat HBP versus as an alternative medicine to treat the condition. Studies have shown that African Americans rarely use an alternative medicine from that which was prescribed by their primary doctor as the only method of treatment. Rather, studies indicate that a large number of African Americans use complementary medicines, many of which are based on their lay health beliefs, in addition to traditional medicines to treat HBP. Prior research therefore indicates that African Americans tend to use both non-traditional as well as traditional medicines to treat HBP versus one or the other. For the purposes of this review, biologically based therapies and alternative medical systems will be discussed since they are the two treatment regimens that African Americans are most likely to use to treat HBP.

Common forms of CAM used by both African Americans and the general population are prayer for health reasons, herbal medicines, and deep breathing exercises, regardless of the health condition (Barner et al., 2010). The literature reviewed indicate that in recent years, more and more people, including African Americans, have been more accepting of and using CAM. Previous studies also indicate that the use of CAM by African Americans is affected to a great extent by the lay health beliefs of the people of this race, many of which are passed down from one generation to the next (Barner et al., 2010). Other factors that may affect the use of CAM by
African Americans include current geographic location, culture from country of origin, education level, and socio-economic status (Barner et al., 2010).

Most of the studies mentioned in this review recommend that medicines that are considered to be CAM to be used only as a complement, and not as an alternative to mainstream medicine, when they are being used to treat HBP. Prior research indicates that CAM is most often used as a complement rather than as an alternative to mainstream medicine and African Americans tend to use CAM for treatment rather than for prevention (Barner et al., 2010).

Barner et al. (2010) conducted a multivariate analysis regarding the use of CAM for treatment among a nationally representative sample of African Americans (aged 18 and older). This study utilized the 2002 National Health Interview Survey (NHIS) and had a sample of 16,113,651 weighted and 2,952 unweighted individuals. The independent variables included predisposing factors such as age and gender, enabling factors such as income and access to care, need such as physician visits and prescribed medication use, and disease state (that is, the most prevalent conditions among African Americans). It was found that 20% of African Americans who used CAM in the past 12 months did so to treat a specific condition. Barner et al. (2010) further posited that “CAM use is common among people with chronic conditions, and African Americans with chronic conditions are at least three times more likely to use CAM than not” (p. 198).

Barner et al. (2010) further stated that patients usually do not inform their health care providers that they are using CAM, and health care providers usually do not ask their patients about the use of CAM. Barner et al. (2010) also stated that there have been some previous studies done that have indicated that CAM was more likely to be used by African Americans
with lower education, which is in contrast to what more recent studies (conducted in the past five years or so) have shown based on the literature that was reviewed for this research.

It is important to note though that these studies utilized convenience samples, which could possibly account for these results, which are contradictory to the findings of more recent studies, which indicate that African Americans with higher education and higher income are more likely to use CAM to treat specific health conditions (such as Barner et al., 2010).

![Figure 2. Factors that influence the pathophysiology of high blood pressure in African Americans. Adapted from Maraboto, C., & Ferdinand, K.C. (2020). Update on hypertension in African Americans. Progress in Cardiovascular Diseases, 63(1), 33-39.](image)

The factors that influence the pathophysiology of HBP in African Americans are shown in Figure 2 above. These factors include genetics (genetic polymorphism), comorbidities (obesity, diabetes, heart disease), psychosocial factors (low education level, perceived discrimination, low socioeconomic status), and environmental factors (unhealthy dietary habits, sedentary lifestyle).
Flack et al. (2011) stated that HBP results in 30% and 20% respectively of all deaths in African American men and women. During this study, it was also found that if BP control rates are enhanced, then health status will also be improved and BP-related racial health disparities such as heart failure, stroke, and retinopathy, will be reduced.

For these reasons, Do et al. (2016) believes that it is critical to effectively control BP in this ethnic group as this will consequently reduce the number of cardiovascular disease-related morbidity and mortality in this group of people. Using a sample of 1131 African American treatment-naïve participants from the Genetics of Hypertension Associated Treatment Study, variants in 35 candidate genes were examined. The results of the study indicated that genetic factors do not contribute to BP response to treatment. However, several suggestive loci were identified which indicates that further research is needed on genetics in this group to improve treatment response (Do et al., 2016).

According to Dolezsar, McGrath, Herzig, and Miller (2014), there is a possible relationship between racial discrimination and BP (including systolic, diastolic, and ambulatory blood pressure). Ambulatory blood pressure is elevated BP levels during the examination of a patient due to his or her nervousness and anxiety as a result of being in a clinical setting (O’Brien et al., 2013). For this research, forty-four articles were used to quantitatively evaluate the relationship between perceived racial discrimination with HBP and systolic, diastolic, and ambulatory blood pressure. The results indicated that there is an association between perceived racial discrimination and hypertensive status but not with resting BP and that this relationship is strengthened with sex (male), race (Black), age (older), education (lower), and hypertensive status (O’Brien et al., 2013).
As a part of the Framingham Heart Study, Lieb, Enserro, Sullivan, and Vasan (2015) conducted a study on the cardiovascular risk in individuals on blood pressure-lowering treatment and stated that individuals with HBP who are taking medication and whose BP is in the normal or high-normal range have a higher risk of cardiovascular disease than individuals who are untreated and whose BP is in the same range. For this study, 3024 Framingham Offspring Cohort participants were assigned to five categories based on systolic BP (SBP) and diastolic BP (DBP) and use of BP-lowering treatment (Lieb et al., 2015). A composite clinical disease score was constructed, and it was found that the prevalence of subclinical diseases rose across the different BP groups as well as the incidence of cardiovascular disease with 449 events, median follow-up of 11 years (Lieb et al., 2015).

Table 3 below indicates the comparative findings between participants of a previous study based on their hypertensive state (participants who had HBP versus those who did not have HBP), while Table 4 indicates the comparative findings of previous studies based on the gender of participants.
**Table 3**

*Comparative Findings of a Previous Study by Hypertensive State*

<table>
<thead>
<tr>
<th>Study Participants</th>
<th>Health Beliefs (Factors: culture and cultural norms, tradition, trust and genetics)</th>
<th>CAM Use/ Use of Home Remedies (Factors: Education, income, region- Barner, et al., 2010)</th>
<th>Use of Conventional Medicine</th>
<th>Socio-economic Status/Access to Health Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertensive</td>
<td>Most believe that both conventional medicine and CAM should be used as treatment (Barner, et al., 2010).</td>
<td>“African Americans with chronic conditions are at least three times more likely to use CAM than not” (Barner, et al., 2010, p. 2).</td>
<td>Tend to mistrust the health care system and physicians; low-adherence rate to prescription medicine (Barner, et al., 2010).</td>
<td>Graduate education, higher income and region (Northwest, Midwest, West) will result in greater use of CAM (Barner, et al., 2010).</td>
</tr>
<tr>
<td>Non-hypertensive</td>
<td>Most believe that both conventional medicine and CAM should be used together as treatment (Barner, et al., 2010).</td>
<td>Many would try CAM if diagnosed; may be less likely to adopt healthy lifestyle habits as a preventative measure.</td>
<td>Would use if diagnosed based on socio-economic status and relationship with physician (Barner, et al., 2010).</td>
<td>Those with a high socio-economic status are more likely to use CAM (Barner, et al., 2010).</td>
</tr>
</tbody>
</table>
### Table 4

**Comparative Findings of Previous Studies by Gender**

<table>
<thead>
<tr>
<th>Study Participants</th>
<th>Health Beliefs (Factors: culture and cultural norms, tradition, trust and genetics)</th>
<th>CAM Use/ Use of Home Remedies (Factors: Education, income, region- Barner, et al., 2010)</th>
<th>Use of Conventional Medicine</th>
<th>Socio-economic Status/Access to Health Care</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Males</strong></td>
<td>Most believe that HBP is caused by stress and is not a serious condition.</td>
<td>Most believe that home remedies should be used first and then conventional medicine if home remedies fail.</td>
<td>High rate of non-adherence (Barner et al., 2010).</td>
<td>Graduate education, higher income and region (Northwest, Midwest, West) will result in greater use of CAM (Barner et al., 2010).</td>
</tr>
<tr>
<td><strong>Females</strong></td>
<td>Beliefs are based mostly on family traditions and cultural norms (Robinson, 2016).</td>
<td>Graduate education, higher income and region (Northwest, Midwest, West) will result in greater use of CAM (Barner et al., 2010).</td>
<td>Are more likely to use conventional medicine as prescribed.</td>
<td>Graduate education, higher income and region (Northwest, Midwest, West) will result in greater use of CAM (Barner et al., 2010).</td>
</tr>
</tbody>
</table>

### Perspectives of CAM in Healthcare

The policies and regulations of the Patient Protection and Affordable Care Act (ACA) has ensured that this health care bill is an integral part of this study because, in part, it states that, “insurance companies ‘shall not discriminate’ against any state-licensed health provider” (Rao, 2013, para. 1). This could result in better coverage of health care professionals who are involved in CAM therapies such as chiropractic, homeopathic and naturopathic care. The ACA therefore
has the potential to significantly increase the number of people in the United States who are able to utilize a method of CAM to treat their health conditions.

The ACA was established and implemented with the intention that it would take American medical care in a new direction by focusing on preventive medicine and wellness treatment where individuals would take measures to prevent a condition from occurring instead of treating the condition after it occurs. However, with continual attempts to repeal the ACA and the volatility and uncertainty surrounding the health care industry in the U.S., it is uncertain what changes will be made to the Bill that may possibly affect the coverage of professionals regarding CAM therapies over the next few months or years.

Emerging Themes from the Literature Review

There are five main themes that emerged from my literature review on this topic. These themes are:

1. Health beliefs regarding high blood pressure (see summary in Table 5 below)
2. CAM use as treatment (see summary in Table 6 below)
3. High blood pressure control in African Americans (see summary in Table 7 below)
4. Socio-economic status/access to health care (see summary in Table 8 below)
5. Need for future research (see summary in Table 9 below)

The following five tables (Tables 5-9 below) give a summary of the findings related to each of the five topics that emerged from the literature review.
### Table 5

**Theme I- Health Beliefs of African Americans Regarding High Blood Pressure**

<table>
<thead>
<tr>
<th>Authors</th>
<th>Key Ideas</th>
<th>Relevance to this Study</th>
</tr>
</thead>
</table>
| Barner et al., 2010; Flack et al., 2010; Flack et al., 2011; Marshall et al., 2012; Pickett et al., 2013 | - Culturally-based beliefs about illness can affect AAs seeking treatment and adhering to treatment long-term (Flack et al., 2010; Flack et al., 2011).  
- Health beliefs of AAs are affected by socio-economic status, culture, tradition, genetics, trust and country of origin (Barner et al., 2010).  
- Beliefs differ based on gender, educational level, and stress-related causal attributions (Marshall et al., 2012).  
- Recommend that providers assess patients’ beliefs about HBP to better treat and control the condition in this group (Pickett et al., 2013). | - Give insight into the factors that affect AAs health beliefs regarding HBP.  
- Address adherence to medication by AAs.  
- Address the factors that affect health beliefs.  
- Explain how understanding patients’ beliefs can help to better treat and control HBP in AAs. |

### Table 6

**Theme II- CAM Use as Treatment**

<table>
<thead>
<tr>
<th>Authors</th>
<th>Key Ideas</th>
<th>Relevance to this Study</th>
</tr>
</thead>
</table>
| Ernst & Cassileth, 1998; Fouladbachsh & Stommel, 2007; Barner et al., 2010; Okoronkwo et al., 2014; Maraboto & Ferdinand, 2020. | - AAs with chronic conditions are at least 3 times more likely to use CAM than not (Barner et al., 2010).  
- The factors associated with the use of CAM were found to include graduate education, smaller family size, higher income and region (Northwest, Midwest, West)- (Barner et al., 2010).  
- CAM is most often used as a complement rather than as an alternative to mainstream medicine & AAs tend to use CAM for treatment rather than for prevention; use is affected by AAs’ lay health beliefs (Ernst & Cassileth, 1998; Barner et al., 2010; Maraboto & Ferdinand, 2020).  
- Most common types of CAM are prayer, herbal medicines and deep breathing exercises (regardless of the health condition)- (Fouladbachsh & Stommel, 2007; Barner et al., 2010; Okoronkwo et al., 2014). | - Focus on the problem  
- Highlight factors affecting CAM use.  
- Explain the common forms of CAM used to treat HBP.  
- Highlight how CAM is used to treat health conditions. |
Table 7

**Theme III- Inadequate BP Control in African Americans**

<table>
<thead>
<tr>
<th>Authors</th>
<th>Key Ideas</th>
<th>Relevance to this Study</th>
</tr>
</thead>
</table>
| Saunders & Johnson, 2009; Flack et al., 2010; Flack et al., 2011; Marshall et al., 2012; O’Brien et al., 2013; Dolezsar et al., 2014; Lieb et al., 2015; Do et al., 2016; Maraboto & Ferdinand, 2020. | - HBP is more prevalent and its effects are more severe in AAs than in any other racial/ethnic group (Do et al., 2016).  
- Of all AAs who use prescription medicine to treat HBP, only 45% attain BP control (Flack et al., 2011).  
- AAs develop HBP at younger ages than any other racial group in the U.S., and are more likely to develop complications associated with HBP (Saunders & Johnson, 2009).  
- People with HBP who take meds and whose BP is above normal have a higher risk of cardiovascular disease than people with untreated HBP whose BP is in the same range (Lieb et al., 2015).  
- One factor affecting the control of HBP in AAs is poor adherence to medication (Flack et al., 2010; Flack et al., 2011; Marshall et al., 2012; Pickett et al., 2013). | - Explain why we should look at HBP in this group.  
- Focus on the problem  
- Highlight prevalence of HBP in AAs.  
- Indicate the effects of HBP in AAs.  
- Highlight the need for more effective medication. |
Table 8

Theme IV- Socio-Economic Status/ Access to Health Care

<table>
<thead>
<tr>
<th>Authors</th>
<th>Key Ideas</th>
<th>Relevance to this Study</th>
</tr>
</thead>
</table>
| Saunders & Johnson, 2009; Barner et al., 2010; Flack et al., 2010; Flack et al., 2011; Marshall et al., 2012; O’Brien et al., 2013; Do et al., 2016 | - The causes of poor adherence include drug costs, complicated drug regimens, old age and forgetfulness, depression, inadequate social support, lack of health insurance, the cost of appointments and healthy foods, and cognitive problems (Barner et al., 2010; Flack et al., 2010; Flack et al., 2011; Marshall et al., 2012).  
- Other factors: income, country of origin, geographic location, education, gender, age, health insurance, number of doctor visits and use of prescription medicine (Saunders & Johnson, 2009; O’Brien et al., 2013; Do et al., 2016).  
- One study found that AAs with lower education are more likely to use CAM (Barner et al., 2010), but more recent studies (Marshall et al., 2012; Do et al., 2016) state that AAs with higher income are more likely to use CAM. | - Address the primary factors affecting HBP control in AAs.  
- Explain the high rate of non-adherence to HBP medication in AAs.  
- Highlight the factors that affect the use of home remedies as treatment. |

Table 9

Theme V- Need for Future Research

<table>
<thead>
<tr>
<th>Authors</th>
<th>Key Ideas</th>
<th>Relevance to this Study</th>
</tr>
</thead>
</table>
| Saunders & Johnson, 2009; Barner et al., 2010; Flack et al., 2010; Flack et al., 2011; Marshall et al., 2012; Lieb et al., 2015; Do et al., 2016; Maraboto & Ferdinand, 2020. | - Further research on the extent of CAM use & its effectiveness to treat health conditions in AAs (Barner et al., 2010; Flack et al., 2010; Flack et al., 2011).  
- More research on the characteristics of AAs who use CAM to treat specific health conditions (Marshall et al., 2012).  
- More effective treatment methods need to be found to control HBP in AAs (Saunders & Johnson, 2009; Barner et al., 2010, Flack et al., 2011; Do et al., 2016). | - Highlight where future research is needed  
- Indicate the significance of this study  
- Indicate that there are no studies to date that have addressed the beliefs, knowledge, attitudes and behaviors of AAs re: HBP and the use of home remedies as treatment. |
The Integrated Behavioral Model

According to Glanz, Rimer, and Vaswanath (2008), the Integrated Behavioral Model (IBM) was created due to several limitations of the Theory of Reasoned Action (TRA) and the Theory of Planned Behavior (TPB). These limitations included the fact that stated these theories do not give a clear distinction between a goal intention and a behavioral intention because they were developed to focus on behaviors and not on the outcomes or events caused by those behaviors (Sheppard, 1988). These theories also address only those behaviors that are under an individual’s volitional control and do not seem to address cases in which an individual may fail to achieve his or her goals and what the consequences of such failure would be (Sheppard, 1988).

This model combined parts of the TRA, the TPB and other behavioral models. According to Montano and Kasprzyk (2015), the TRA used the beliefs about behavior and the evaluation of behavior to determine an individual’s attitude about the behavior. It also determines one’s perception of the subjective norms about the behavior with attitude and subjective norms identifying one’s intention to perform the act. This had the effect of being the most crucial determinant of behavior adoption (Montano & Kasprzyk, 2015). The external variables would likely include demographics, personal traits, attitudes, and other individual norms (Glanz et al., 2008). In the case of the TPB, control is a major determinant of behavior (the idea that one’s ability to control beliefs and perceived power determine their perceived authority of the situation). This, along with perceived control as well as attitude and subjective norms, are the constructs that one performs the behavior, and behavior itself.

The intention is that this model would focus primarily on the determinants of behavioral intention. The Integrated Behavioral Model was not integrated until the early 2000s and is a
general theory that predicts behavior, and it is believed that it can be applied to any given situation (Montano & Kasprzyk, 2015).

As is the case with the TRA/TPB, this model considers the most important determinant to be motivation/ intention. An individual is less likely to carry out a behavior if he or she has no motivation/ intention. An individual need to know the knowledge, as well as have the skills to act (Montano & Kasprzyk, 2015).

The IBM has four additional factors that directly affect whether or not behavior can be carried out:

1. Knowledge and skills to perform the behavior
2. Salience of the behavior
3. Environmental constraints
4. Habit

All these factors should be considered for an intervention that is promoting behavior change.

According to this model, attitude, norms perceived behavioral control and beliefs together lead to intention which then leads to the planned behavior. According to Ajzen (1991), one’s attitude toward a behavior, subjective or personal norm, and one’s perception of behavioral control together will result in a behavioral intention. In a summary of the Theory of Planned Behavior, Ajzen (1991) stated that this theory predicts deliberate and/ or planned behavior and gives an understanding of how some people can change or influence the behavior of others. This theory states that there are three kinds of considerations that guide human actions: behavioral beliefs, which are one’s beliefs about the likely consequences of his or her behavior; normative beliefs, which are one’s beliefs about the normative expectations of others and; control beliefs,
which are one’s beliefs regarding the factors that may influence or affect the performance of the behavior (Ajzen, 1991).

According to Glanz et al. (2008), perceived behavioral control is the extent to which a person feels he or she is able to enact a behavior and is a function of an individual’s control beliefs and perceived power in regard to those beliefs. Control beliefs are described as the beliefs about the presence of factors that may facilitate or impede performance of the behavior and contributes to perceived behavioral control along with perceived power (Glanz et al., 2008). Perceived power refers to the beliefs about the power of situational and internal factors to contribute to the performance of the behavior and contributes to perceived behavioral control along with control beliefs (Glanz et al., 2008).

Based on its components and how well they align with the domains that were examined in this study, the IBM could have been used to guide this study. However, this conceptual framework was not used to guide this study because its constructs are less comprehensive than those of the HBM in relation to the purposes of this study and, as such, it was determined that this model was not the best conceptual framework to use for this study.

**Prochaska’s Transtheoretical Model of Behavior Change**

The Transtheoretical Model was first developed by James Prochaska and C. DiClemente in 1983, and was revised by Prochaska, DiClemente and Norcross in 1992 (Prochaska, Das, & Young-Wolff, 2017). This model can be described as “an integrative, bio-psychosocial model to conceptualize the process of intentional behavior change” (Prochaska et al., 2017, p. 165). Unlike other models of behavior change that focus only on specific dimensions of change, this theoretical model focuses on including and integrating the key constructs of other theories into a comprehensive theory of behavior change to many different populations, settings, and behaviors.
According to Prochaska, DiClemente and Norcross (1992), this model considers behavior change as a gradual and intentional process, which involves progress through a series of six stages of change. The six stages of change of this model are pre-contemplation, contemplation, preparation, action, maintenance, and relapse (Prochaska et al., 1992). These stages can help patients and their caregivers to make decisions regarding different approaches to take to treat their condition such as CAM (Prochaska et al., 1992). This model therefore focuses on the decision making of the individual and involves emotions, cognition, and behavior.

The Transtheoretical Model has been applied to a wide variety of problem behaviors in the past including smoking cessation, exercise, low fat diet, radon testing, alcohol abuse, weight control, condom use for HIV protection, organizational change, drug abuse, medical compliance, and stress management” (University of Rhode Island, 2016). The Transtheoretical Model views change as a process that involves progress through a series of five stages (University of Rhode Island). The five stages of this model, in order of occurrence, are pre-contemplation, contemplation, preparation, action, and maintenance.

The first stage is pre-contemplation where people do not intend to take action in the foreseeable future, usually measured as the next six months. People are often in this stage because they are uninformed or under-informed about the consequences of their behavior or may have tried a number of times and believe that they are not able to change (University of Rhode Island, 2016).

The next stage in the model is contemplation is the stage in which people are intending to change in the next six months and are now aware of the advantages and disadvantages of changing the behavior. The balance between the costs of benefits of changing the behavior can
result in people being in this stage for long periods of time (University of Rhode Island, 2016). The third stage is preparation where people intend to take action in the immediate future, often in the next month and have taken some significant action in the past year. “These individuals have a plan of action, such as joining a health education class, consulting a counselor, talking to their physician, buying a self-help book or relying on a self-change approach” (University of Rhode Island, 2016, p. 219).

Action is the fourth stage and is where people have made very specific modifications in their lifestyles over the past six months. It is important in this stage that people remain vigilant to prevent a relapse (University of Rhode Island, 2016). “Maintenance is the fifth stage, and this is where people work to prevent relapse but do not utilize or apply change processes as often as do people in action (University of Rhode Island, 2016, p. 219). People are less tempted to relapse at this stage and are confident that they can continue with the change (University of Rhode Island, 2016).

There is sometimes a sixth stage called relapse or regression and this stage occurs when individuals return to an earlier stage of change. Relapse is one form of regression and people can regress from any stage to an earlier stage. Unfortunately, relapse tends to occur when action is taken for most health behavior problems, however, the relapse rarely goes all the way back to the first stage of pre-contemplation (University of Rhode Island, 2016).

According to LaMorte (2019), there are several limitations of the Transtheoretical Model and these include the fact that this theory ignores the changes that occurs within certain social contexts, such as income and gives no explicit information regarding how much time is needed for a particular stage or how long a person can remain in a stage. This model also gives no set criteria to ascertain the stage of change that a person is at any given time, and the assumption
that individuals always make coherent and logical plans in their decision-making process, when this is not always the case.

Even though Prochaska’s Transtheoretical Model of Behavior Change could also have been used as a conceptual framework for this study, the PI decided to use the Health Belief Model (HBM) instead because the focus of this study was primarily on beliefs and how those beliefs affect behaviors with respect to health and lifestyle habits, so the HBM was therefore the most suitable framework to use to guide this study.

**Standardized Surveys/ Tools Relevant to the Topic**

1. Revised Illness Perception Questionnaire (IPQ-R)
2. Holistic Complementary and Alternative Medicine Questionnaire (HCAMQ)
3. Hypertension Self-Care Profile Questionnaire (HBP SCP)

**Revised Illness Perception Questionnaire**

The Revised Illness Perception Questionnaire (IPQ-R) was developed by John Weinman, Rona Moss-Morris, and their colleagues in 1996 in an attempt to quantitatively assess the five components of the illness representation in Levanthals’s Self-Regulatory Model, which are identity, consequences, timeline, control/cure and cause (Moss-Morris, Weinman, Petrie, Horne, Cameron, & Buick, 2002). This revised version was developed to satisfy the need to deal with minor problems with the subscales of cure/control and timeline, which was regarding internal consistency. There was also the need to include additional subscales, assess cyclical timeline perceptions, illness coherence, and emotional representations, none of which were represented in the Levanthals’s Self-Regulatory Model and as such were overlooked in the original IPQ (Moss-Morris et al., 2002).
Using factor analyses, it was found that the items on the cure/control subscale loaded onto two different factors, one component was focused on personal control and self-efficacy beliefs, while the other component was focused on belief in the treatment or recommended advice or outcome expectancies (Moss-Morris et al., 2002). This led to the creation of two separate subscales (Moss-Morris et al., 2002). The seven subscales of this revised questionnaire are timeline acute/chronic, timeline cyclical, consequences, personal control, treatment control, illness coherence (how coherent is the patient’s understanding of their illness) and emotional representations (Brink, Alsen, & Cliffordson, 2011). This questionnaire has been widely used in many countries to determine people’s perceptions of certain illnesses that they have. While the original IPQ was concerned with only the cognitive components of patients’ representations, the IPQ-R also assess the emotional responses of patients caused by their illness (Moss-Morris et al., 2002). Investigating only the cognitive components of patients’ representations was seen as a limitation because the original IPQ was not able to accurately assess patients’ responses to their illnesses.

To validate the IPQ-R, eight illness groups were used, seven of the samples from New Zealand and one HIV patient group from the United Kingdom. According to Moss-Morris et al. (2002), a total of 711 participants with illnesses such as asthma, diabetes, rheumatoid arthritis (RA), chronic pain, acute pain, myocardial infarction (MI), multiple sclerosis (MS) and HIV were used to collect the necessary data to determine instrument reliability and validity. All of the seven subscales were assessed on the IPQ-R and were rated on a 5-point Likert type scale, ranging from strongly disagree to strongly agree, with some of the items having reverse scores (Moss-Morris et al., 2002). All the original IPQ items were included as well as feedback from studies that previously used the IPQ. The items retained in the final version of the IPQ-R were
about 57 in total, and included the following questions: My illness will last a short time (timeline acute/chronic scale), my symptoms come and go in cycle (timeline cyclical scale), my illness is a serious condition (consequences scale), my actions will have no effect on the outcome of my illness (personal control scale), my treatment can control my illness (treatment control scale), I don’t understand my illness (illness coherence scale), and emotional representations (I get depressed when I think about my illness (emotional representations scale) (Moss-Morris et al., 2002).

Discriminant validity of this questionnaire was determined using the Positive and Negative Affect Scale (PANAS), which was created by Watson and colleagues in 1988 (Moss-Morris et al., 2002). The Positive Affect (PA) scale measures the extent to which a person feels enthusiastic, active and, alert, while the Negative Affect (NA) scale measures personal distress and discomfort (Moss-Morris et al., 2002). Both scales are uncorrelated and have a high internal consistency (Moss-Morris et al., 2002). The Ambulatory Index (a test for observes that is used to measure how mobile patients are), Sickness Impact Profile (SIP, a self-reported method of measuring sickness-related disability), and Fatigue Severity Scale (a 14-item scale that measures physical and mental fatigue) were used to determine the predictive validity of the IPQ-R (Moss-Morris et al., 2002). Some of the questions of the IPQ-R Hypertension questionnaire are 1. My HBP will improve in time, 2. My HBP has major consequences on my life, 3. My HBP will last a long time, 4. My treatment can control my HBP, and 5. My treatment will be effective in curing my HBP.

One group was retested six months later again using the IPQ-R and test-retest reliability was of the instrument was confirmed (Moss-Morris et al., 2002). Using Cronbach’s alpha, all
seven subscales indicated good internal reliability and known group validity was also demonstrated (Moss-Morris et al., 2002).

In a cross-sectional study that investigated the factor structure and internal consistency reliability of the IPQ-R, 221 adults of African descent with type 2 diabetes completed the IPQ-R (Abubakari, A.R., Jones, M.C., Lauder, W., Kirk, A., Devendra, D., & Anderson, J., 2012). Participants were patients attending diabetes and retinal screening clinics in London, England (Abubakari et al., 2012). Confirmatory Factor Analysis based on the covariance matrix assessed the factorial validity for the components of Timeline-acute/chronic, Consequences, Personal control, Treatment control, Illness coherence, Timeline-cyclical, Emotional representation as well as three causal subscales of the IPQ-R (Abubakari et al., 2012).

Cronbach's alpha coefficients were used to determine the internal consistency reliability for the individual subscales of the instrument (Abubakari et al., 2012). After three items were eliminated and six error covariances were re-specified, it was determined that the covariance of African and Caribbean patients' responses to items of the IPQ-R was adequately explained by the model used and the composite reliability coefficients of all measured subscales were acceptable (Abubakari et al., 2012). Inter-correlations between subscales were in accordance with those reported from other population groups (Abubakari et al., 2012). The results of the study therefore suggested that the IPQ-R is likely valid and reliable across different cultures and ethnicities but, moving forward, researchers may need to reword some of the items of this instrument taking into account any linguistic origins of their populations of study (Abubakari et al., 2012). Abubakari, et al. (2012) recommended that IPQ-R be evaluated in larger samples of African-origin populations.
The Revised Illness Perception Questionnaire (IPQ-R) has been used extensively in many different patient populations to measure how people perceive their illnesses (Abubakari et al., 2012). Even though the instrument has been used primarily in studies using participants of mainly European-origin, it has also been used in populations of African-origin, Arabic populations, and people from Greece, Turkey, and Sweden. The English version of this instrument has been translated in the appropriate language for use in the different populations mentioned above. The reliability and validity of the IPQ-R has been assessed in all the populations mentioned above exploratory and confirmatory factor analysis, and Cronbach’s alpha coefficient (Aberkane, 2017). This instrument has also been used primarily in studies using patients with chronic illnesses. While the new subscales of the IPQ-R may vary in how applicable they are to different patient groups, “the IPQ-R provides a more comprehensive and psychometrically acceptable assessment of the key components of patients’ perceptions of illness” (Moss-Morris et al., 2002, p. 1).

The advantages of the IPQ-R to this study are that it addresses most of the constructs of the HBM with the exception of perceived susceptibility and perceived barriers, it has been used extensively in many different studies, so it has established validity and reliability, and it has been used in studies with people of many different ethnicities, including people of African descent. The disadvantages of the IPQ-R to this study are that it does not address the constructs of perceived susceptibility and perceived barriers of the HBM. For this reason, this survey instrument was not found suitable for use in this study as a data collection tool.
The Holistic Complementary and Alternative Medicines/Health Questionnaire

The Holistic Complementary and Alternative Health Questionnaire (HCAMQ) was developed by Michael Hyland, George Lewith and Caroline Westby in 2003 to help researchers measure the variables of attitudes to CAM and holistic health beliefs (Hyland, 2017). It consists of 11 items and is a self-complete questionnaire (Hyland, 2017).

According to Hyland, Lewith, and Westby (2003), this questionnaire was originally created with 12 items: six items related to people’s beliefs about the scientific validity of CAM and six items related to people’s beliefs about holistic health. Six of the questions were taken from the Attitudes Toward Alternative Medicine Scale (AAMS) and six from the Holistic Health Beliefs Questionnaire. The questions for the holistic health section of the questionnaire were selected to examine patients’ health beliefs in relation to their internal/external control of health issues, especially in terms of how their lifestyles affect their overall health.

The HCAMQ was initially completed by 50 patients at a CAM clinic and 50 patients at a rheumatology outpatient clinic (Hyland et al., 2003). The patients at the CAM clinic completed the questionnaire twice. For this initial validation study, all items were scored in the pro-CAM and pro-holistic health path where lower scores meant a better attitude toward CAMs and holistic health (Kersten, White, & Tennant, 2009). A factor analysis was conducted on the total data set and the results indicated that the CAM and holistic health items had related constructs but were distinct from one another (Hyland et al., 2003). All six CAM questions loaded highly on the first factor, while five of the holistic health questions loaded above 0.03, one question had an unsatisfactory loading, which was also the case in the structure matrix (Hyland et al., 2003). As a result, that question which stated that, “Conflict with others has no effect on your health” was
removed from the questionnaire entirely. The questions/statements of the HCAMQ can be found at [https://www.psy.plymouth.ac.uk/research/mhyland/HCAMQ/HCAMQ.pdf](https://www.psy.plymouth.ac.uk/research/mhyland/HCAMQ/HCAMQ.pdf)

There are six questions that fall under the CAM subscale and five questions that falls under the holistic health subscale. A factor inter-correlation of 0.26 was found, which indicated the hierarchical structure of the HCAMQ and indicated the use of the oblique rotation method (Hyland et al., 2003). A total score of the scales can therefore be calculated and not just a score of the subscales by themselves (Hyland et al., 2003). Ninety percent of the participants of the CAM group returned the second postal questionnaire and the results indicated that the HCAMQ has good re-test reliability, with the total score being 0.86, the CAM subscale score being 0.82, and the holistic health subscale score reading 0.77 (Hyland et al., 2003). The HCAMQ was therefore found to have good internal validity (Hyland et al., 2003).

According to Hyland et al. (2003), a 6-point Likert scale is used for the responses of this questionnaire with the response options to each item being strongly agree (1), agree (2), mildly agree (3), mildly disagree (4), disagree (5), and strongly disagree (6). Seven of the 11 questions of this questionnaire have reversed scores, since some of the questions are worded positively while others are worded negatively (Hyland, et al., 2003).

According to Kersten et al. (2009), the construct validity of the HCAMQ was examined using 221 patients (mean age 66.8, SD 8.29, 58% females) in the United Kingdom (UK) with chronic stable pain and other osteoarthritis-related conditions. For this study, higher scores meant greater pro-CAM and pro-holistic health (HH) beliefs. Cronbach’s alpha coefficients, factor analysis, Mokken scaling and Rasch analysis were used to determine the validity of the HH subscale (five items) and the CAM subscale which has six items (Kersten et al., 2009). Rasch’s analysis was not supportive of the two-factor structure of the scale. Rasch model was found to be
a good fit for a five-item holistic health subscale and the four-item CAM subscale (worded in a negative direction) and were found to be unidimensional, while the two CAM items that were worded in the positive direction were a significant misfit (Kersten et al., 2009). It was found that while the original two-factor structure of the HCAMQ could not be used, “two valid shortened subscales can be used, one for Holistic Health Beliefs (four-item holistic health), and the other for CAM Beliefs (four-item CAM)” (Kersten et al., 2009, p. 1). Cronbach’s alpha coefficients were acceptable (CAM subscale 0.83, holistic health five-item subscale 0.75), which indicated internal consistency/reliability (Kersten et al., 2009). According to Kersten et al. (2009), two CAM questions (questions 8 and 11 of the HCAMQ) were found to be a misfit and so were removed from the questionnaire. Question 7, a holistic health beliefs question, was also removed from the questionnaire.

As a result of the correlation between the two subscales (holistic health and CAM) it is believed that there is a higher order construct at play and as such, the total HCAMQ can be used (Kersten et al., 2009). The CAM subscale discriminated between the two groups of patients, but not the holistic health subscale and as per the Intraclass Correlation Coefficient (ICC), the test-retest reliability of the scale was found to be satisfactory (CAM subscale 0.82, holistic health subscale 0.77), and discriminant validity was also indicated by the difference in scores in the two groups of patients (Kersten et al., 2009).

As stated by Kersten et al. (2009), convergent validity was also determined as measured by the ICC (CAM subscale 0.82, holistic health subscale 0.77). Discriminant validity for the CAM was demonstrated by a difference in scores in the two patient groups and Cronbach’s alpha of the subscales indicated that the HCAMQ was reliable and acceptable if > 0.70 (Kersten et al., 2009).
However, rewording the two positively worded CAM questions that were discarded was recommended to improve the construct validity of the questionnaire (Kersten et al., 2009).

The HCAMQ has therefore been used in several different populations with chronic illnesses, including people in the United Kingdom (UK) who had osteoarthritis and people who were seeking CAM treatment at a CAM clinic.

The advantages of the HCAMQ to this study are that is addresses some components of the three theoretical frameworks and not just CAM, it addresses most of the constructs, components, and/ or stages of the three theoretical frameworks, and has validity and reliability. One of the primary disadvantages of this tool is that it does not address alternative medicines at all; it addresses only complementary medicines. Therefore, using this tool will make it difficult to ascertain whether or not participants would use alternative medicines to treat their HBP or just complement their prescribed medications with something else, such as a home remedy. Other disadvantages of the HCAMQ to this study are that because it has not been used extensively in prior studies, its content validity has not yet been established and it does not address the modifying factors parameters of the HBM (except socio-psychologic variables and perceived susceptibility). This study also focuses specifically on the use of home remedies as a CAM treatment, and not on all different types of CAM. For these reasons, it was determined that this survey instrument was also not a suitable tool for use in this study as a data collection tool.

**High Blood Pressure Self-Care Profile Questionnaire (HBP SCP)**

This questionnaire was created with the goal of assessing the socio-demographic characteristics and medical histories of participants (Han et al., 2014). The questions for this questionnaire were taken from existing validated HBP self-care instruments such as the Hill-
Bone Adherence Scale and the Morisky Medication Scale as well as from pamphlets and brochures, which were created by the Centers for Disease Prevention and Control (CDC), the American Heart Association (AHA), and the National Heart, Lung, and Blood Institute, which is a division of the National Institutes of Health (NIH). The items focused on self-care behaviors in the areas critical to BP control such as taking prescription medication and factors that affect lifestyle such as physical activity, low-fat and low-sodium diet, limiting alcohol consumption, not smoking, frequent monitoring of BP, controlling weight, visiting the doctor for regular check-ups, and reducing stress (Han et al., 2014).

Content validity index was calculated where 80% of the items which were endorsed by experts were retained. A total of 20 items make up this questionnaire with each item being at the sixth-grade reading level and “higher scores indicating higher levels of HBP self-care behavior, motivation, and self-efficacy” (Han et al., 2014, p. 16). Examples of the questions of this questionnaire are “Take part in regular physical activity, limit use of high-salt condiments such as ketchup, limit total calorie intake from fat (less than 65 grams) daily and eat five or more servings of fruits and vegetables daily” (Han et al., 2014, p. 18).

The format for this instrument was based on the Orem’s Self-Care Model and Motivational Interviewing (Han et al., 2014). While Orem’s model explains how people make themselves able to engage in self-care and perform deliberate actions such as medication taking, Motivational Interviewing (MI) is related to encouraging a commitment to change (motivation) and developing the confidence that is needed to make a behavioral change (Galloway, 2003). The constructs of MI are similar to those of Social Cognitive Theory and the Health Belief Model (Han et al., 2014).
Since self-efficacy is a leading predictor of self-care practices such as weight control, diet and medication taking by people with HBP and heart failure, the HBP SCP-Behavior scale was used to create Motivation and Self-Efficacy scales by asking “How important is it for you to do the following?” and “How confident are you that you could do the following?” respectively, instead of “How often do you do the following?” (Han et al., 2014).

In an effort to validate the HBP SCP, a sample of 213 inner-city hypertensive residents who speak English were used (mean age = 68.6 years; 76.1% female; 81.7% African American (Han et al., 2014). Item analysis and Cronbach’s alpha coefficients were used to determine the reliability of the HBP SCP, with item-total correlations greater than 0.15 and alpha coefficients greater than 0.70 being considered acceptable (Han et al., 2014). Exploratory factor analysis was used to assess the underlying structure of the factors of the HBP SCP (items with factor loadings greater than 0.30 were deemed acceptable) to determine its validity (Han et al., 2014).

The design of the inter-correlations among the HBP SCP-Behavior, Hill-Bone Adherence Scale, and the Morisky Medication Scale-8 were used to demonstrate the concurrent validity of this questionnaire (Han et al., 2014). Discriminant validity was determined by the use of an independent sample t-test on the group with BP control and the group without BP control (Han et al., 2014). Construct validity of the HBP SCP was tested by examining the correlation between HBP self-care behaviors and the variables of motivation, depression, and self-efficacy (Han et al.). Han et al. (2014) further stated that all tests were considered to be statistically significant at P = 0.05. The HCP SCP was used in a study regarding inner-city hypertensive residents where 81.7% of the participants were African American. This tool has generally been used on African Americans with various health conditions.
The advantages of the HCP SCP as it relates to this study are that it is a reliable and valid tool that has been tested and used on previous studies on hypertensive African Americans, it addresses most of the components of the parameters of the HBM, all of the components of the TPB, and all but one of the stages of Prochaska’s Model. This theory has also combined questions from several different tools (such as Morisky Medication Scale-8 and Hill-Bone Adherence Scale) that are also reliable and valid tools. On the other hand, one of the disadvantages of this tool is that it is difficult to obtain all of its questions in one place, so it is hard to know how to arrange the questions for this tool. It also does not address the demographics, socio-psychologic variables, and perceived susceptibility construct of the HBM. As such, the HBP SCP was also found to be inadequate for use as a data collection tool for this study.

Even though these surveys/tools are standardized tools that have been used in previous studies and have proven to be both reliable and valid tools, it was determined that these tools were not suitable for use in this study based on the primary purpose of this study. The primary purpose of this dissertation study was to understand the beliefs, knowledge, attitudes and behaviors of African Americans regarding HBP and their use of home remedies as treatment. No records were found during the literature review of previous studies that have been conducted on HBP in African Americans and how their use of home remedies can be affected by these variables, and as such, none of these tools encompassed all the data that the PI needed to obtain to achieve the primary purpose of this study. As such, a novel survey instrument, called the Beliefs About Hypertension Survey (BHS), was created by the PI via the Delphi Technique to use for data collection in this study.
Knowns

- More African Americans have HBP than any other race.
- High blood pressure is not easily controlled in hypertensive African Americans.
- Adherence to mainstream medicine in poor among African Americans.
- Many African Americans (67.6-71.3%) use CAM to treat specific conditions, particularly those with chronic conditions.
- CAM is being used more globally and is gaining more acceptance worldwide.
- Prayer is one of the most common forms of CAM used by African Americans.
- Previous studies recommend the use of drug therapy together with CAM and lifestyle modification to effectively control HBP.
- CAM is more often used by African Americans as a complement rather than as an alternative to mainstream medicine.
- African Americans tend to mistrust the health care system.
- Herbal medicines are used often by African Americans to treat HBP.
- Patients usually do not inform their health care providers of their CAM use, and health care providers usually do not inquire about CAM use. The lack of communication between patients and their physicians is currently a barrier to BP control in African Americans.
Gaps in the Literature

- More effective treatment methods need to be found to control HBP in African Americans.
- The extent of use and the effectiveness of CAM to treat HBP among African Americans are unknown and these issues must be addressed in order to attain better control of BP in hypertensive African Americans.
- Little is still known regarding the benefits and adverse effects associated with the use of CAMs to facilitate their proof of efficacy and safety.
- Health care practitioners need to start monitoring the use of CAM among their patients more closely for quality control.
- More research is needed on the characteristics of African Americans who use CAM to treat specific health conditions.
- Little is known regarding how African Americans use prayer for treatment.

Further studies are therefore necessary to obtain the information to resolve these issues. The gaps that are bolded are those that were addressed in this research.

Summary

The literature that was reviewed indicated that HBP is not adequately controlled in African Americans, which highlights the need for more effective treatment options to treat this condition in this population. The literature review also suggested that in recent years, more and more people, including African Americans, have become more accepting of CAM and are using CAM more to treat a wide variety of health problems, especially chronic illnesses such as HBP. Previous studies also indicate that the use of CAM by African Americans is affected to a great extent.
extent by the health beliefs of the people of this race, many of which are passed down from one generation to the next. Other factors that may affect the use of CAM by African Americans include current geographic location, culture from their country of origin, education level, and socio-economic status.
CHAPTER III

METHODOLOGY

Introduction

This study took place in several steps. First, the creation and validation of a novel survey instrument took place through several rounds of the Delphi Technique by a panel of experts. Once approval was obtained from Seton Hall University’s Institutional Review Board (SHU IRB), participants were recruited through social media outlets and snowball sampling. Participants had to meet the inclusion criteria before they were allowed to participate in the study (participation in the study meant completing the survey). Validity of the survey instrument, as established via the Delphi Technique, will also be discussed herein. The data collection and data analysis procedures that were utilized for this study will also be discussed in this chapter.

Study Design

This study took place in several steps. First, the creation and validation of a novel survey instrument took place through several rounds of the Delphi Technique by a panel of experts. Once approval was obtained from SHU IRB, participants were recruited via social media outlets (Facebook®, WhatsApp® and ResearchGate®) and snowball sampling. Potential participants who met the inclusion criteria were solicited to participate in the study. Participants were successfully recruited only from Facebook® and WhatsApp®. The total sample size of this study was 254 participants.

This dissertation study, which focused on using the newly created and validated tool, the BHS, was non-experimental in nature because it was survey-based. This was also a mixed methods study, however, the self-developed survey instrument that was created by the Principal
Investigator (PI) contained only one open-ended question out of a total of 47 questions. The study was also descriptive, exploratory, cross-sectional and correlational in nature. Demographic characteristics of the sample were organized and summarized through a descriptive design. The study was exploratory because it examined a phenomenon of interest and explored its dimensions. The study was also cross-sectional because data were collected from participants at one specific point in time.

A correlational design was used to determine if a relationship exists between African Americans with HBP and those without the condition and their beliefs, knowledge, attitudes and behaviors regarding the use of home remedies as treatment for the condition.

Previous studies on the topic of HBP also utilized a similar research design and were primarily exploratory, cross-sectional and correlational in nature. The literature review indicated a mixture of qualitative, quantitative and mixed-methods studies that have been conducted on this topic in the past.

**Instrument Development: Delphi Technique**

The Delphi is a group facilitation technique which seeks to obtain consensus through expert opinions from a series of structured questionnaires that are completed anonymously by the panelists in order to establish validity of the tool (Hasson, 2000). An IRB application was submitted to SHU IRB for approval to conduct the Delphi Process to establish validity of the novel survey instrument. The letter of response from SHU can be found in Appendix A1. This Delphi study utilized the expertise of five experts. According to Armstrong (1985), five or more individuals is a reasonable number of participants to use in the Delphi Process. The selection of the experts involved non-probability sampling
techniques, specifically, purposive sampling. In purposive sampling, participants are not selected randomly, rather, they are selected for a purpose, to apply their knowledge to a certain problem (Palinkas, Horwitz, Green, Wisdom, Duan, & Hoagwood, 2015). Recruitment of participants who have knowledge and an interest in the topic of study help to increase the content validity of the Delphi (Linstone & Turoff, 1975). The purpose of the Delphi is to forecast whether or not the proposed questions will be appropriate for eventual implementation into a survey used within a sample of the population (Linstone & Turoff, 1975).

The Delphi technique is a series of rounds interspersed by controlled feedback, that seek to gain the most reliable consensus of opinion of a group of experts (Linstone & Turoff, 1975). Eighty percent (80%) consensus is generally required in order for the Delphi to be considered effective and for the tool to have established validity (Hasson, 2000). Once consensus was reached on the construct variables and survey questions and statements, the tool was considered to have validity. The technique is based on the assumption that it is less likely to make a wrong decision if a group of people are working together to come up with what that decision should be.

For this study, five individuals who were identified as experts in their respective fields as pertaining to the topic of the study were solicited to serve as a Delphi expert panelist for this study. The solicitation letter that was sent to each panelist can be found in Appendix B. The panelists were selected based on their publications, professions, knowledge and experience regarding HBP in African Americans and/ or CAM. All five individuals who were contacted to participate in the Delphi process met the inclusion criteria for participation as expert reviewers of the new survey tool (see Appendix B for letter of
solicitation that was sent to each expert panelist). The Delphi Process for this study consisted of a total of three rounds (see Appendix C- Round 1 & Appendix D- Round 2).

The panelists were representative of the population of interest or were experts in CAM research or in treating African Americans with HBP. The Delphi Panel that developed the novel survey instrument that was used to collect the data for this study consisted of one medical doctor who treats African Americans with HBP using both conventional medicine and CAM; one medical doctor who treats hypertensive patients, including African Americans, and uses only conventional medicine; one CAM research expert; one African American Member from the Community and one survey expert.

**Assessing Validity of the Survey Instrument**

This Delphi technique is intended to establish face and content validity of a novel survey instrument (Alreck & Settle, 2004). Construct validity was assessed using Exploratory Factor Analysis, since the BHS is a novel survey instrument (see Figure 20).

Face validity was used to determine if the test appears to measure what it is intended to measure (Alreck & Settle, 2004). The validity of the test was analyzed by the experts at face value by them looking to see whether the test appeared to measure the target variable. In Round 1 of the Delphi Process, a Survey Worksheet was created by the PI for the expert panelists, in which they were asked if each item/variable measures the concept, if it was clear or not, if it was double-barreled, and if it was biased through socially desirable responses (Appendix C). The initial Round 1 Survey Worksheet was sent to all experts on the Delphi Panel after they had consented to participate in the Delphi Process. All experts on the panel completed and provided their feedbacks on the Round 1 Survey Worksheet (see Appendix C).
Content validity is the estimate of how much a measure represented every element of a construct (Alreck & Settle, 2004). Content validity was also established through the Survey Worksheet, and the experts were asked to provide their feedback in the comments section regarding they thought each survey statement should be eliminated, amended or remain as is (Appendix C).

After the expert panelists completed the Round 1 Survey Worksheet (Appendix C) and their feedbacks were received, the responses and recommended changes were reviewed and the PI then prepared a condensed version of the initial Survey Worksheet, and this shortened version was used for Round 2 of the Delphi Process (Appendix D). This shortened worksheet only contained the survey items/variables that were shown to need correction or revision based upon the panelist responses from Round 1. This revised worksheet only contained the survey statements/questions that were shown to need correction or revision based upon the panelists’ responses from Round 1. Since 80% consensus was reached during Round 2, the Delphi Process was then considered to be complete. The third round of the Delphi Process therefore consisted of panelists obtaining and approving the final version of the survey instrument, with no additional changes made.

Construct validity is the appropriateness of inferences made on the basis of observations or measurements as to whether a test measures the intended construct (Anastasi, 1988). Construct validity was established through the Exploratory Factor Analysis (Figure 20). Reliability refers to the internal consistency of item scores in regard to whether the item responses are consistent across the constructs, stability of the instrument over time, and the level of consistency in test administration and scoring (Creswell, 2009). According to Cohen, Mermelstein, Kamarck, and Hoberman (1985), a Cronbach’s Alpha Analysis can be run in lieu
of a pilot test when a novel survey instrument is being used to collect data for a study. As such, reliability of the BHS was established through Cronbach’s Alpha Analysis in lieu of a pilot test. Figure 3 below indicates a flowchart summary of the Delphi process for this study.

Figure 3. Flowchart summary of the Delphi Process of this study. This is an original diagram that was created by the principal investigator of this study.
Survey Instrument: Beliefs About Hypertension Survey (BHS)

The BHS survey was created based on the four major domains of the study: beliefs, knowledge, attitudes and behaviors and the six constructs of the Health Belief Model (HBM): perceived susceptibility, perceived benefits, perceived barriers, perceived severity, cues to action and self-efficacy. Each question was categorized into one domain and one construct. A combination of qualifier and demographic questions, 5-point Likert-scale matrix questions (from strongly agree to strongly disagree), and questions with the answer options of “Yes, No and I don’t know/ I don’t have HBP” or “True, False, and I am not sure” were used. One question (question 7) was a matrix-format supporting question that did not represent any of the domains or HBM constructs (see Appendix E).

The BHS survey consists of a total of 47 questions, 8 of which are demographic questions, excluding the 3 qualifier questions, which can also be considered demographic questions, but will not be considered as such for the purpose of this study. Table 10 below indicates the demographic and qualifier questions. The breakdown of the questions by domain is as follows: 22 beliefs questions (Table 11), 10 knowledge questions (Table 12), 9 attitudes questions (see Table 13 below), and 27 behavior questions (see Table 14 below). The breakdown of the questions by HBM construct is as follows: perceived susceptibility- 17 questions (Table 15), perceived benefits- 27 questions (Table 16), perceived barriers- 6 questions (Table 17), perceived severity- 12 questions (Table 18), cues to action- 4 questions (Table 19), and self-efficacy- 4 questions (Table 20).
### Table 10

**Demographic and Qualifier Questions on the BHS**

<table>
<thead>
<tr>
<th>Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Are you Black/African American?</td>
</tr>
<tr>
<td>2. If you answered no to the question above, which of the following race or ethnicity do you most closely identify with?</td>
</tr>
<tr>
<td>3. Please indicate your age range:</td>
</tr>
<tr>
<td>4. Do you currently live in the U.S.?</td>
</tr>
<tr>
<td>5. Which of the following best represents you today?</td>
</tr>
<tr>
<td>6. Which gender do you most closely identify with?</td>
</tr>
<tr>
<td>44. What is the highest level of education that you have attained?</td>
</tr>
<tr>
<td>45. What is your marital status?</td>
</tr>
<tr>
<td>46. What generation American are you?</td>
</tr>
<tr>
<td>47. Which U.S. state do you live in?</td>
</tr>
<tr>
<td>48. What culture do you identify with?</td>
</tr>
</tbody>
</table>

The questions that are related to the beliefs variable on the BHS are indicated in Table 11, while the questions related to the knowledge variable are indicated in Table 12.
Table 11

Questions Related to the Beliefs Variable on the BHS

<table>
<thead>
<tr>
<th>Questions/Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I believe that high blood pressure can be passed on from parents to their children</td>
</tr>
<tr>
<td>2. I believe that diet plays a big role in a person developing high blood pressure.</td>
</tr>
<tr>
<td>3. I believe that exercise plays a big role in a person developing high blood pressure.</td>
</tr>
<tr>
<td>4. Eating healthy foods can reduce the effects of high blood pressure.</td>
</tr>
<tr>
<td>5. Exercising regularly can reduce the effects of high blood pressure.</td>
</tr>
<tr>
<td>6. I believe that exercise is a type of home remedy for high blood pressure.</td>
</tr>
<tr>
<td>7. I believe that the home remedies that people take to treat high blood pressure work better than prescription medicine.</td>
</tr>
<tr>
<td>8. I believe that stress increases the effects of high blood pressure.</td>
</tr>
<tr>
<td>9. I believe that home remedies build up the body’s own defenses to prevent high blood pressure.</td>
</tr>
<tr>
<td>10. I think it is safe to use home remedies and prescription medicine together to treat high blood pressure to treat high blood pressure.</td>
</tr>
<tr>
<td>11. I do not currently have high blood pressure, but I think I will eventually develop it.</td>
</tr>
<tr>
<td>12. In general, I believe that I have control over whether I develop high blood pressure.</td>
</tr>
<tr>
<td>13. In general, I believe that high blood pressure cannot be effectively managed without the use of home remedies.</td>
</tr>
<tr>
<td>14. In general, I believe that high blood pressure cannot be effectively managed without the use of prescription medicine.</td>
</tr>
<tr>
<td>15. In general, I believe that the home remedies I use effectively manage my high blood pressure.</td>
</tr>
<tr>
<td>16. In general, I believe that high blood pressure puts people at risk of getting a heart attack</td>
</tr>
<tr>
<td>17. In general, I believe that a person who has high blood pressure is more likely to get a stroke than someone who does not have this condition.</td>
</tr>
<tr>
<td>18. In general, I believe that diabetes is one effect of high blood pressure.</td>
</tr>
<tr>
<td>19. In general, I believe that heart failure can be caused by high blood pressure.</td>
</tr>
<tr>
<td>20. In general, I believe that a person with high blood pressure has a higher chance of getting kidney disease than someone without high blood pressure.</td>
</tr>
<tr>
<td>21. In general, I believe that high blood pressure can result in vision loss.</td>
</tr>
</tbody>
</table>
Table 12

**Questions Related to the Knowledge Variable on the BHS**

<table>
<thead>
<tr>
<th>Questions/Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Which of the following represents normal blood pressure? Please mark true for only one item.</td>
</tr>
<tr>
<td>2. Which of the following represents low blood pressure? Please mark true for only one item.</td>
</tr>
<tr>
<td>3. Which of the following represents high blood pressure? Please mark true for only one item.</td>
</tr>
<tr>
<td>4. To the best of your knowledge, which of the following are techniques used to treat high blood pressure? Please select all that apply.</td>
</tr>
<tr>
<td>5. I am more likely to develop high blood pressure because I am African American.</td>
</tr>
<tr>
<td>6. I am more likely to develop high blood pressure if one of my relatives have/had it.</td>
</tr>
<tr>
<td>7. A person can have high blood pressure without having any symptoms.</td>
</tr>
<tr>
<td>8. High blood pressure can lead to other diseases.</td>
</tr>
<tr>
<td>9. Which of the following causes high blood pressure? (genetics/heredity, race, age, poor diet/too much salt, lack of exercise, stress, drinking too much alcohol and/or caffeine, smoking, overweight/obesity)</td>
</tr>
<tr>
<td>10. Which of the following lifestyle changes can reduce the effects of high blood pressure? Select all that apply. (a. eating healthy foods, b. exercising, c. quit smoking, d. quit drinking alcohol, e. lost weight, f. I have not made any lifestyle changes since I have had high blood pressure, g. I do not have high blood pressure.</td>
</tr>
</tbody>
</table>

The questions that represent the attitudes variable on the BHS are indicated in Table 13 below.

Table 13

**Questions Related to the Attitudes Variable on the BHS**

<table>
<thead>
<tr>
<th>Questions/Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. High blood pressure cannot be cured.</td>
</tr>
<tr>
<td>2. People with high blood pressure should take home remedies to treat their condition.</td>
</tr>
<tr>
<td>3. People with high blood pressure should take prescription medicine to treat their condition.</td>
</tr>
<tr>
<td>4. Prayer can be used to effectively treat high blood pressure.</td>
</tr>
<tr>
<td>5. It is harmful to use home remedies to treat high blood pressure.</td>
</tr>
<tr>
<td>6. Home remedies should be used only as a last resort when prescription medicine does not control high blood pressure.</td>
</tr>
<tr>
<td>7. Home remedies can be used to permanently cure high blood pressure.</td>
</tr>
<tr>
<td>8. I feel stressed out when I think about my high blood pressure.</td>
</tr>
<tr>
<td>9. How has your high blood pressure affected your life? Select all that apply. (family life, intimate life, work life, general health, other (please state), I do not have HBP)</td>
</tr>
</tbody>
</table>
The questions that represent the behaviors variable on the BHS are indicated in Table 14 below.
The questions that represent the perceived susceptibility and perceived benefits constructs of the HBM on the BHS are indicated in Tables 15 and 16, respectively.
**Table 14**

*Questions Related to the Behaviors Variable on the BHS*

<table>
<thead>
<tr>
<th>Questions/Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I take home remedies instead of prescription medicine to treat my high blood pressure.</td>
</tr>
<tr>
<td>2. I take both home remedies and prescription medicine to treat my high blood pressure.</td>
</tr>
<tr>
<td>3. I visit my doctor regularly due to my high blood pressure.</td>
</tr>
<tr>
<td>4. How often do you check your blood pressure by yourself? Please select only one option.</td>
</tr>
<tr>
<td>5. How often do you have your high blood pressure checked by someone else? Please select only one option.</td>
</tr>
<tr>
<td>6. How do you manage your high blood pressure?</td>
</tr>
<tr>
<td>7. How often do you go to the doctor because of your high blood pressure? Please select only one option.</td>
</tr>
<tr>
<td>8. Have you used home remedies to treat your high blood pressure in the last 12 months?</td>
</tr>
<tr>
<td>9. Has anyone you know used home remedies to treat high blood pressure in the last 12 months?</td>
</tr>
<tr>
<td>10. Which of the following techniques do you use to treat your high blood pressure? Please select all that apply.</td>
</tr>
<tr>
<td>11. I use home remedies to treat my high blood pressure because they are cheaper than prescription medicine.</td>
</tr>
<tr>
<td>12. I use home remedies to treat my high blood pressure because they are more easily accessible than prescription medicine.</td>
</tr>
<tr>
<td>13. I use home remedies to treat my high blood pressure because it is a family tradition.</td>
</tr>
<tr>
<td>14. I use home remedies to treat my high blood pressure because people I know also use these remedies.</td>
</tr>
<tr>
<td>15. I use home remedies to treat my high blood pressure based on what I know about the condition.</td>
</tr>
<tr>
<td>16. When did you first use home remedies to treat your high blood pressure? Please select only one answer.</td>
</tr>
<tr>
<td>17. Do you currently take home remedies to treat your high blood pressure?</td>
</tr>
<tr>
<td>18. Do you currently take home remedies to treat other health problems?</td>
</tr>
<tr>
<td>19. Do you currently take prescription medicine to treat your high blood pressure?</td>
</tr>
<tr>
<td>20. Do you currently take prescription medicine to treat other health problems?</td>
</tr>
<tr>
<td>21. I have not made any lifestyle changes since I have had high blood pressure.</td>
</tr>
<tr>
<td>22. Would you use home remedies in an effort to reduce your risk of getting high blood pressure?</td>
</tr>
<tr>
<td>23. If you have high blood pressure but do not currently take home remedies, would you take them to treat your condition?</td>
</tr>
<tr>
<td>24. Would any of the following affect whether you use home remedies to treat your high blood pressure?</td>
</tr>
<tr>
<td>25. Are you taking home remedies to treat your high blood pressure because someone advised you to do so?</td>
</tr>
<tr>
<td>26. If you are not currently doing so, would you use home remedies to treat your high blood pressure?</td>
</tr>
<tr>
<td>27. Do you take one baby aspirin every day?</td>
</tr>
</tbody>
</table>
## Questions Related to Perceived Susceptibility on the BHS

<table>
<thead>
<tr>
<th>Questions/Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. If you have a blood relative who has high blood pressure, how are you related to the person(s)? Check all that apply.</td>
</tr>
<tr>
<td>2. Which of the following represents normal blood pressure? Please mark true for only one item.</td>
</tr>
<tr>
<td>3. Which of the following represents low blood pressure? Please mark true for only one item.</td>
</tr>
<tr>
<td>4. Which of the following represents high blood pressure? Please mark true for only one item.</td>
</tr>
<tr>
<td>5. I believe that high blood pressure can be passed on from parents to their children.</td>
</tr>
<tr>
<td>6. I believe that diet plays a big role in a person developing high blood pressure.</td>
</tr>
<tr>
<td>7. I believe that exercise plays a big role in a person developing high blood pressure.</td>
</tr>
<tr>
<td>8. How often do you check your blood pressure by yourself? Please select only one option.</td>
</tr>
<tr>
<td>9. How often do you have your blood pressure checked by someone else? Please select only one option.</td>
</tr>
<tr>
<td>10. I do not currently have high blood pressure, but I think I will eventually develop it.</td>
</tr>
<tr>
<td>11. I am more likely to develop high blood pressure because I am African American.</td>
</tr>
<tr>
<td>12. I am more likely to develop high blood pressure if one of my relatives have/had it.</td>
</tr>
<tr>
<td>13. In general, I believe that I have control over whether I develop high blood pressure.</td>
</tr>
<tr>
<td>14. Which of the following causes high blood pressure? Select all that apply.</td>
</tr>
</tbody>
</table>
Table 16

*Questions Related to Perceived Benefits on the BHS*

<table>
<thead>
<tr>
<th>Questions/Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I take home remedies instead of prescription medicine to treat my high blood pressure.</td>
</tr>
<tr>
<td>2. I take both home remedies and prescription medicine to treat my high blood pressure.</td>
</tr>
<tr>
<td>3. Eating healthy foods can reduce the effects of high blood pressure.</td>
</tr>
<tr>
<td>4. Exercising regularly can reduce the effects of high blood pressure.</td>
</tr>
<tr>
<td>5. I believe that eating healthy foods is a type of home remedy for high blood pressure.</td>
</tr>
<tr>
<td>6. I believe that exercise is a type of home remedy for high blood pressure.</td>
</tr>
<tr>
<td>7. I believe that the home remedies that people take to treat high blood pressure work better than prescription medicine.</td>
</tr>
<tr>
<td>8. People with high blood pressure should take home remedies to treat their condition.</td>
</tr>
<tr>
<td>9. People with high blood pressure should take prescription medicine to treat their condition.</td>
</tr>
<tr>
<td>10. Have you used home remedies to treat your high blood pressure in the last 12 months?</td>
</tr>
<tr>
<td>11. Has anyone you know used home remedies to treat high blood pressure in the last 12 months?</td>
</tr>
<tr>
<td>12. To the best of your knowledge, which of the following are techniques used to treat high blood pressure? Please select all that apply.</td>
</tr>
<tr>
<td>13. Which of the following techniques do you use to treat your high blood pressure? Please select all that apply.</td>
</tr>
<tr>
<td>14. I use home remedies to treat my high blood pressure based on what I know about the condition.</td>
</tr>
<tr>
<td>15. Prayer can be used to effectively treat high blood pressure.</td>
</tr>
<tr>
<td>16. I believe that home remedies build up that the body’s own defenses to prevent high blood pressure.</td>
</tr>
<tr>
<td>17. Home remedies can be used to permanently cure high blood pressure.</td>
</tr>
<tr>
<td>18. I think it is safe to use home remedies and prescription together to treat high blood pressure.</td>
</tr>
<tr>
<td>19. Do you currently take home remedies to treat your high blood pressure?</td>
</tr>
<tr>
<td>20. Do you currently take home remedies to treat other health conditions?</td>
</tr>
<tr>
<td>21. Do you currently take prescription medicine to treat your high blood pressure?</td>
</tr>
<tr>
<td>22. Do you currently take prescription medicine to treat other health conditions?</td>
</tr>
<tr>
<td>23. In general, I believe that high blood pressure cannot be effectively managed without the use of home remedies.</td>
</tr>
<tr>
<td>24. In general, I believe that high blood pressure cannot be effectively managed without the use of prescription medicine.</td>
</tr>
<tr>
<td>25. In general, I believe that the home remedies I use effectively manage my high blood pressure.</td>
</tr>
<tr>
<td>26. Which of the following lifestyle changes can reduce the effects of high blood pressure?</td>
</tr>
<tr>
<td>27. I have not made any lifestyle changes since I have had high blood pressure.</td>
</tr>
<tr>
<td>28. If you have high blood pressure but do not currently take home remedies, would you take them to treat your condition?</td>
</tr>
<tr>
<td>29. Are you taking home remedies to treat your high blood pressure because someone advised you to do so?</td>
</tr>
<tr>
<td>30. Do you take one baby aspirin every day?</td>
</tr>
</tbody>
</table>
The questions that represent the perceived barriers construct of the HBM on the BHS are indicated in Table 17 below, while the questions that represent the perceived severity construct of the HBM on the BHS are indicated in Table 18.

Table 17

*Questions Related to Perceived Barriers on the BHS*

<table>
<thead>
<tr>
<th>Questions/Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I use home remedies to treat my high blood pressure because they are cheaper than prescription medicine.</td>
</tr>
<tr>
<td>2. I use home remedies to treat my high blood pressure because they are more easily accessible than prescription medicine.</td>
</tr>
<tr>
<td>3. I use home remedies to treat my high blood pressure because it is a family tradition.</td>
</tr>
<tr>
<td>4. I use home remedies to treat my high blood pressure because people I know also use these remedies.</td>
</tr>
<tr>
<td>5. It is harmful to use home remedies to treat high blood pressure.</td>
</tr>
<tr>
<td>6. A person can have high blood pressure without having any symptoms.</td>
</tr>
</tbody>
</table>

Table 18

*Questions Related to Perceived Severity on the BHS*

<table>
<thead>
<tr>
<th>Questions/Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. High blood pressure cannot be cured.</td>
</tr>
<tr>
<td>2. High blood pressure is a serious condition.</td>
</tr>
<tr>
<td>3. How often do you go to the doctor because of your high blood pressure? Please select only one option.</td>
</tr>
<tr>
<td>4. I believe that stress increases the effects of high blood pressure.</td>
</tr>
<tr>
<td>5. I feel stressed out when I think about my high blood pressure.</td>
</tr>
<tr>
<td>6. High blood pressure can lead to other diseases.</td>
</tr>
<tr>
<td>7. How has your high blood pressure affected your life? Select all that apply.</td>
</tr>
<tr>
<td>8. In general, I believe that high blood pressure puts people at risk of getting a heart attack.</td>
</tr>
<tr>
<td>9. In general, I believe that a person who has high blood pressure is more likely to get a stroke than someone who does not have this condition.</td>
</tr>
<tr>
<td>10. In general, I believe that diabetes is one effect of high blood pressure.</td>
</tr>
<tr>
<td>11. In general, I believe that heart failure can be caused by high blood pressure.</td>
</tr>
<tr>
<td>12. In general, I believe that a person with high blood pressure has a higher chance of getting kidney disease than someone without high blood pressure.</td>
</tr>
<tr>
<td>13. In general, I believe that high blood pressure can result in vision loss.</td>
</tr>
</tbody>
</table>
The questions that represent the cues to action and self-efficacy constructs of the HBM on the BHS are indicated in Tables 19 and 20, respectively.

Table 19

*Questions Related to Cues to Action on the BHS*

<table>
<thead>
<tr>
<th>Questions/Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Home remedies should be used only as a last resort when prescription medicines do not control high blood pressure.</td>
</tr>
<tr>
<td>2. When did you first use home remedies to treat your high blood pressure? Please select only one answer.</td>
</tr>
<tr>
<td>3. Which of the following led you to use home remedies to treat your high blood pressure? Select all that apply</td>
</tr>
<tr>
<td>4. Would any of the following affect whether you use home remedies to treat your high blood pressure?</td>
</tr>
</tbody>
</table>

Table 20

*Questions Related to Self-Efficacy on the BHS*

<table>
<thead>
<tr>
<th>Questions/Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I visit my doctor regularly due to my high blood pressure. Please select only one option.</td>
</tr>
<tr>
<td>2. How do you manage your high blood pressure? Please check all that apply.</td>
</tr>
<tr>
<td>3. If you are not currently doing so, would you use home remedies to treat your high blood pressure?</td>
</tr>
<tr>
<td>4. Would you use home remedies in an effort to reduce your risk of getting high blood pressure?</td>
</tr>
</tbody>
</table>

Table 21 below shows how the research and survey questions align with the four domains and six HBM constructs.
Table 21

*Alignment Chart of Research & Survey Questions, Domains & HBM Constructs*

<table>
<thead>
<tr>
<th>Research Question/ HBM Construct</th>
<th>Corresponding Survey Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>RQ1 and RQ5 Beliefs</td>
<td>12e-l, 21f, 21j, 21l, 21m, 32a-d, 36</td>
</tr>
<tr>
<td>RQ2 and RQ6- Knowledge</td>
<td>9-11, 19, 27-30, 33, 35</td>
</tr>
<tr>
<td>RQ3 and RQ7- Attitudes</td>
<td>12a-b, 12m-n, 21g-i, 21k, 21n, 34</td>
</tr>
<tr>
<td>RQ4 and RQ8- Behaviors</td>
<td>7, 12, 12o, 13-18, 20, 21a-e, 21g-l, 22-32, 37-42</td>
</tr>
<tr>
<td>Perceived Susceptibility</td>
<td>8-11, 12e-h, 13, 14, 21m, 27, 28, 32a, 33</td>
</tr>
<tr>
<td>Perceived Benefits</td>
<td>132c-d, 12i-n, 17-20, 21e, 21j-l, 23-26, 32b-d, 38, 40, 42</td>
</tr>
<tr>
<td>Perceived Barriers</td>
<td>21a-d, 21h, 29</td>
</tr>
<tr>
<td>Perceived Severity</td>
<td>12a, 16, 21f, 21n, 20, 34, 36</td>
</tr>
<tr>
<td>Cues to Action</td>
<td>21i, 22, 31, 35, 39</td>
</tr>
<tr>
<td>Self-Efficacy</td>
<td>12o, 15, 37, 41</td>
</tr>
</tbody>
</table>
Beliefs about Hypertension Survey (BHS)

Letter of Solicitation

July 2020

Dear Participant,

My name is Elisa Douglas. I am a Ph.D. student in the School of Health and Medical Sciences at Seton Hall University (SHU) in New Jersey. I am conducting this research study as part of my doctoral dissertation.

Purpose of the study
You have been invited to participate in this research study because you may satisfy the requirements to complete the survey. I am conducting a study on high blood pressure in Blacks/African Americans. The purpose of this study is to understand the differences, if any, between the beliefs, knowledge, attitudes, and behaviors of African Americans with and without high blood pressure in regard to their use of home remedies as treatment.

Figure 4. Sample of solicitation letter as seen on SurveyMonkey.

Figure 4 above indicates a portion of the letter of solicitation as seen on SurveyMonkey. The complete letter of solicitation can be found in Appendix M. Figure 5 indicates a sample of the qualifier questions on the BHS as seen on SurveyMonkey®. Figure 6 shows a sample of the demographic questions as seen on SurveyMonkey® (Appendix F), while Figure 7 indicates a sample of the Likert scale questions as seen on SurveyMonkey®. Figure 8 indicates a sample of multiple-choice questions as seen on SurveyMonkey®. Page 1 of the BHS can be found in Appendix E.
* 3. Please indicate your age range:

- Under 18
- 18-29
- 30-39
- 40-49
- 50-59
- 60+

* 4. Do you currently live in the U.S.?

- Yes
- No

*Figure 5. Sample of qualifier questions as seen on SurveyMonkey.*
* 41. What is the highest level of education that you have attained?

- Less than high school
- Completed high school
- Technical/Trade School
- Bachelor’s
- Master’s
- Ph.D. or other doctoral degree

42. What is your marital status?

- Single
- Married
- Separated/Divorced
- Prefer Not to Say

Figure 6. Sample of demographic questions as seen on SurveyMonkey.
* 12. Please place a checkmark in the box for the word or phrase that is closest to your opinion about each statement.

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Agree</th>
<th>Agree</th>
<th>Neither Agree or Disagree</th>
<th>Disagree</th>
<th>Strongly Disagree</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>High blood pressure cannot be cured.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>High blood pressure is a serious condition.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I take home remedies instead of prescription medicine to treat my high blood pressure.</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
<tr>
<td>I take both home remedies and prescription medicine to treat</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
<td>○</td>
</tr>
</tbody>
</table>

*Figure 7. Sample of Likert scale questions as seen on SurveyMonkey.*
In order to be included in the research study, participants had to meet several eligibility criteria (see Table 22 below). Participants were required to be Black/African American, they had to be at least 18 years old, they had to reside in the United States and, they had to be able to read and understand English.

Participants were excluded from participating in the research study if they did not meet the inclusion criteria.
### Inclusion and Exclusion Criteria for Eligibility of Study Participants

<table>
<thead>
<tr>
<th>Inclusion Criteria</th>
<th>Exclusion Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>Must be Black/African American</td>
<td>Not Black/African American</td>
</tr>
<tr>
<td>Must be 18 years old or older</td>
<td>Under 18 years old</td>
</tr>
<tr>
<td>Must currently reside in the United States</td>
<td>Does not currently reside in the United States</td>
</tr>
<tr>
<td>Must be able to read and understand English</td>
<td>Cannot read and/or understand English</td>
</tr>
</tbody>
</table>

### Participant Recruitment

Upon approval by the Seton Hall University Institutional Review Board/IRB (Appendix A2) potential participants who met the inclusion criteria were recruited through the use of Facebook® closed groups, WhatsApp®, and ResearchGate®. The solicitation notice that was sent to Facebook® closed groups administrators can be found in Appendix H, while the approval from those administrators can be found in Appendix I. The terms of service disclaimers for WhatsApp® can be found in Appendix J. The intellectual property policy for ResearchGate® can be found in Appendix K.

Participants were also recruited through snowball sampling. According to Hek and Moule (2006), snowball sampling assumes that people with like characteristics, behaviors or interests, form associations. As such, snowball sampling took place via social media outlets, such as Facebook®, which has many closed groups that are closely monitored and that are exclusive to the African American population, with specific and common interests.

Even though more than one social media outlet were used to recruit participants for this research, the survey responses were anonymous and so participants will not be required.
to give their names or any other personally identifying information. As such, it is not known specifically how many responses are received from each social media outlet.

**Social Media.** African Americans are known to use social media platforms quite frequently. In fact, social media is used by African Americans as a news source and as a means to convey their thoughts and feelings on certain subject areas to a great extent. According to Watson (2020), a March 2020 survey that was conducted in the U.S. found that African Americans used social media as a news source more frequently than any other race or ethnic group, with 57% reporting daily use of these platforms. Many African Americans are also active members of Facebook closed groups. Young, college-educated, and higher-income African Americans are as likely as their white counterparts to use the internet and to have broadband service at home, while only 45% of black seniors use the internet and only 30% have broadband at home (Smith, 2014). On the other hand, 88% of African American college graduates and 91% of African Americans with an annual household income of $75,000 or more use broadband at home (Smith, 2014). Smith (2014) further posited that 73% of African Americans who use the internet, and 96% of those in the 18-29 age range, use a social media platform of some kind.

As a result, social media served as a direct conduit to recruit African American participants for this study. Facebook® closed groups, WhatsApp® and ResearchGate® were utilized to recruit study participants (see Appendices I, J, and K, respectively for Facebook® closed group administrators’ approvals, WhatsApp® disclaimers, and ResearchGate® intellectual property policy).

**Facebook.** For use of Facebook® as a recruitment tool, the PI had to be request approval to become a member of closed groups that are geared toward African Americans from the
administrators of these groups. In most cases, the PI was required to answer several questions, regarding reasons for wanting to join the group. The PI was granted approval to join these groups without difficulty because the PI is also African American. Once approved, the PI joined the groups and became an active member of those groups, so that participants would become familiar with the PI. Once IRB approval was received from Seton Hall University (Appendix A2), the PI requested approval from the Facebook closed groups’ administrators to solicit members to participate in the study (see Figure 9 and Appendix H). From there, some members of these groups completed the survey and/or forwarded the link to others who they thought were qualified to participate in the study, and from there the survey link snowballed to achieve the required sample size for the study (see Appendix M for the letter of solicitation).
WhatsApp. The PI also solicited acquaintances who were qualified to participate in the study via WhatsApp® and requested that those acquaintances also forward the link to anyone who they thought were qualified to participate in the study.

ResearchGate. According to ResearchGate (2021), it is a professional network for scientists and researchers, who use the platform to share, discover and discuss research. There are currently over 19 million members from around the world who use the platform (ResearchGate, 2021). It has been a reliable platform since it was created in 2008, and with a constantly growing number
of individuals who use the platform, it was also used in an attempt to solicit study participants. However, the PI was not successful in soliciting study participants from this platform. Figure 10 below indicates the text that was posted on ResearchGate® to solicit potential study participants on that platform.

Participants completed the survey electronically via the online survey tool, SurveyMonkey®. SurveyMonkey® is an online survey development cloud-based software service company that was founded in 1999 (SurveyMonkey, 2020). The company provides surveys and a suite of paid back-end programs (SurveyMonkey, 2020).

All potential participants were required to read the solicitation letter and agree to participate in the study after reading the letter before they were allowed to begin the survey. Participants were informed that completing and submitting the survey was an indication that they have waived their right to informed consent. Participants were also required to answer the three qualifier questions before moving on to the rest of the survey. Participants submitted the survey on SurveyMonkey® upon completion.
Figure 10. Discussion post on ResearchGate to solicit potential study participants.

Figure 11 below indicates the post that was posted on Facebook® closed groups’ discussion pages to solicit group members (see Appendix L). The reminder message that was posted on Facebook® closed groups’ discussion pages to remind group members to complete the survey can be seen in Figure 12, while Figure 13 indicates the message that was posted on these discussion pages to thank group members for participating in my study.
Travel Sister: A Melanated Sisterhood Of Travelers

Elisa Douglas shared a link.
July 12, 2020 · 😊

Hi Everyone! I am a Ph.D. student at Seton Hall University in New Jersey. I am seeking participants for my dissertation study on high blood pressure in Blacks/African Americans and their use of home remedies as treatment. This survey is not only for people with high blood pressure. It is for all black people. You must be at least 18 years old to take the survey. This survey will take about 10 minutes to complete. Your participation is voluntary. No personal information that can identify you will be collected. All data collected will be kept private and will be destroyed after three years. You will not be compensated for participating in the study. If you have any questions, please send me a direct message. If you would like to take this survey, please click this link: https://www.surveymonkey.com/r/3V283PK. Thank you all! I appreciate your support!

SURVEYMONKEY.COM
Can you spare a few moments to take my survey?
Please take the survey titled "Beliefs about Hypertension Survey (BHS)". Your feedback is important!

Love

Figure 11. Discussion post on Facebook closed groups to solicit group members.
Elisa Douglas
Thank you so much to everyone who has completed my survey! I appreciate the support you have shown by giving your feedback. If you haven't taken the survey yet, please click on the link above and share your thoughts on this important topic! It will just take you a few minutes to complete. Remember that this is a survey for all black people, regardless of whether or not you have high blood pressure! Thanks a lot, guys!

Figure 12. Reminder message posted on Facebook closed groups.
Travel Sister: A Melanated Sisterhood Of Travelers

Data Coding and Analysis

After the survey was closed out on SurveyMonkey®, the raw data were exported from SurveyMonkey® into Microsoft Excel®. Column variables and cases were then created, and the data were eventually exported into the SPSS® software version 26 (IBM, 2020) for analysis (Figure 14). The data were changed from string variables into numeric variables (Figure 15).
Each column variable was given a label by the PI using the first few words of each survey question or statement, to facilitate easy viewing. A few demographic variables were coded as nominal measures, while the Likert scale data were recoded into scale measures. Based on each variable, the data were then coded numerically (Figure 15). The group variable was coded as 1 for African Americans without HBP and 2 for African Americans with HBP. Likert scale statements were coded on a scale from 1 to 5, representing the following: Strongly Disagree (1), Disagree (2), Neutral (3), Agree (4), and Strongly Agree (5). These values were assigned based on participants’ responses to each statement. No reverse coding was necessary because there are no negative Likert scale items on the BHS.

Finally, the dependent variables were computed to obtain summations, which resulted in a more efficient way to analyze each variable (Figure 15). This process consisted of calculating the sum of the scores of each of the statements based on the variable that they fell under. For example, the sum of each of the 21 items that represented the Beliefs variable was calculated to determine the overall Beliefs score for each study participant. Summations were calculated using the Transform→Compute function in SPSS®. A new variable was created with a label (for example, Beliefs_v) and each of the statements under the initial variable were summed through a numeric expression. This therefore provided the new variable with the total score for each of the initial variables. The statistical analyses were then conducted using each of these new variables (Figure 16).

As a result of these summations, the data was condensed into the groups (African Americans with and African Americans without HBP) versus one overall score for each dependent variable per participant, for a total of 254 participants, each being in one of the two
groups and having one total score for each dependent variable (beliefs, knowledge, attitudes and behaviors). This resulted in the final abridged database (Figure 17).

The final abridged database contained the group independent variables (African Americans with and African Americans without HBP), as well as the four dependent variables that were summed before based on their respective Likert statement scores (Figure 17). Demographic survey questions were analyzed using descriptive statistics- numerical and categorical data (example mean, mode and inferences).

IBM® SPSS® Statistics is a powerful statistical software platform that provides a robust set of features that allows individuals to analyze and better understand their data and solve complex research problems (IBM, 2020). SPSS® Statistics also allows individuals to quickly and easily understand large data sets with its advanced statistical procedures that assist in ensuring a high level of accuracy and quality decision-making.

All eight research questions in this study are inferential questions. These inferential research questions are both parametric and non-parametric in nature. The beliefs and attitudes questions are continuous and parametric and made assumptions regarding whether the data had a normal or “bell-shaped” distribution. On the other hand, the knowledge and behaviors questions are categorical and non-parametric in nature and made no strict assumptions in regard to the distribution of the data.

This was a mixed methods study and, as such, the data analysis process consisted of both qualitative and qualitative analysis.

The quantitative data were analyzed using descriptive statistics, Pearson and Spearman’s correlation, Multiple Analysis of Variance (MANOVA), and univariate Analyses of Variance (ANOVAs) as follow-up tests to the MANOVA test for each variable.
The descriptive statistics, which described the basic features of the data in the study and provide summaries about the sample and the measures, were analyzed by finding frequencies such as the mean, mode and standard deviation of the data. The demographic data will be presented using tables, bar graphs and pie charts.

According to Statistics Solutions (2021a), Pearson correlation \((r)\) is the most frequent parametric test that is used to assess the strength of the relationship between two continuous variables. Pearson correlation has a non-parametric equivalent, Spearman correlation \((\rho)\), and it should be used when at least one of the variables is measured on an ordinal scale, as is the case with Likert-scale questions (Statistics Solutions, 2021a). As such, both Pearson and Spearman’s correlation were used to analyze the data that were used to measure the domains to determine whether or not any correlations existed between African Americans’ use of home remedies to treat or prevent HBP and each domain, as well as to determine any correlations between the domains themselves. MANOVA and univariate ANOVAs were also used to analyze the inferential statistics. MANOVA was used to test for differences between the two independent groups with respect to the four dependent variables/domain, while follow-up univariate ANOVAs were used to analyze the four domains individually.

Correlation is a bivariate analysis that measures the strength of the association between two variables and the direction of that relationship. The value of the correlation coefficient ranges from +1 and -1, where the + sign indicates a positive relationship and the – sign indicates a negative relationship between the variables (Statistics Solutions, 2021a). A value of ± 1 indicates that there is a perfect association between the two variables and the closer the correlation coefficient value is towards 0, the weaker is the relationship between the two variables (Statistics Solutions, 2021a).
Pearson correlation is a statistical test that measures the association between two continuous variables (Statistics Solutions, 2021a). Due to the fact that it is based on the method of covariance, it is considered the best method to measure the relationship between variables of interest (Statistics Solutions, 2021a). It also gives information about the strength and direction of the relationship between the variables and assumes that the variables are normally distributed, the cases are independent of each other, there is a linear relationship between the variables, there is an absence of outliers in either variable, and that there is homoscedasticity (having equal statistical variances) between the variables (Statistics Solutions, 2021a).

According to Cohen (1992), correlation coefficients between .10 and .29 indicate a small positive association between the variables, coefficients between .30 and .49 indicate a medium or moderate positive relationship and coefficients of .50 and above indicate a large or strong positive association between the variables (see Table 23). The correlation coefficient values (r) are considered the effect sizes of those associations.

Spearman’s correlation coefficient is also called a Spearman rank correlation or Spearman’s rho. Spearman’s correlation measures the strength of the association between two variables. The assumptions for Spearman correlation coefficient are that the data must be at least ordinal and the scores on one variable must be monotonically related to the other variable, there must be normality of the variables, there must be linearity between the variables, and there must be homoscedasticity between the variables (Statistics Solutions, 2021a).

The Spearman’s correlation is different from Pearson correlation because it does not require continuous-level data (interval or ratio) since it uses ranks and not assumptions regarding the distributions of the two variables (Statistics Solutions, 2021a). Spearman correlation can therefore be used to analyze the relationship between variables with ordinal measurement levels.
and is usually used to measure the strength of the association between categorical variables (Statistics Solutions, 2021a). This correlation also does not assume normal distribution of the variables (Statistics Solutions, 2021a). Therefore, Spearman’s correlation analysis can be used when the assumptions of Pearson correlation are not met.

According to Field (2015), the correlations between the variables should be between small (0.3) and medium (0.7). As is evident by the Pearson and Spearman’s Correlations in each column of each dependent variable in the output tables, the correlations between the variables were small.

A correlation coefficient of zero indicates that there is no relationship between the variables for both Pearson and Spearman’s correlation. However, since both correlations assume a linear relationship between the variables, even if the correlation coefficient is zero, there may be a non-linear relationship between the variables.

Table 23

Determining the Strength of the Association Between Variables

<table>
<thead>
<tr>
<th>Strength of Relationship</th>
<th>Positive Correlation Coefficient (r)</th>
<th>Negative Correlation Coefficient (r)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small</td>
<td>0.1 to 0.3</td>
<td>-0.1 to -0.3</td>
</tr>
<tr>
<td>Medium</td>
<td>0.3 to 0.5</td>
<td>-0.3 to -0.5</td>
</tr>
<tr>
<td>Large</td>
<td>0.5 to 1.0</td>
<td>-0.5 to -1.0</td>
</tr>
</tbody>
</table>

A Multivariate Analysis of Variance (MANOVA) is a procedure for comparing multivariate sample means (Statistics Solutions, 2021b). As a multivariate procedure, it is used when there are two or more dependent variables, and is often followed by significance tests involving individual dependent variables separately (Statistics Solutions, 2021b). A MANOVA
MANOVA was therefore used to describe the data and to explain the differences, if any, between African Americans with HBP and those without HBP regarding their beliefs, attitudes, knowledge and behaviors with respect to the use of home remedies as treatment. Univariate ANOVAs were then conducted as follow-up tests for each dependent variable to ensure that the results obtained were similar to those from the MANOVA test. Follow-up univariate ANOVA tests were also conducted for each variable to confirm that the results of the MANOVA test were accurate.

An analysis of variance (ANOVA) is a parametric statistical test that is used to compare the means and relative variance between two or more groups or datasets (Statistics Solutions, 2021b). This technique was invented by R.A. Fisher and is sometimes called Fisher’s ANOVA. The assumptions of this technique are that the subjects must be independently sampled, the data must be normally distributed and there must be homogeneity of variance where the variance between the groups must be the same (Pennsylvania State University, 2021). The homogeneity of variance between the groups is tested using the Levene’s Test (Statistics Solutions, 2021b). In addition to the use of tables, bar graphs and pie charts, scatter plots were also used to present the
data that were obtained from this study. A post-hoc G*Power analysis was conducted to compute the power of the collected sample. The post-hoc G*Power analysis can be found in Chapter IV, Figure 44.

*Figure 14.* Main database spreadsheet before coding. A snapshot of the main database spreadsheet after exporting the data from SurveyMonkey® into Microsoft Excel®, then into SPSS Version 26.
Figure 15. Main database spreadsheet after coding. For all Likert-scale questions shown, coding ranged from 1 (strongly disagree) to 5 (strongly agree).

(IBM, 2020)
Figure 16. Variable view of coded data. Data coded by PI from string variables into numeric variables for statistical analysis.
**Figure 17.** Coded data: Final abridged database. This is the final database that was coded by the PI representing the groups/independent variables (African Americans with HBP and African Americans without HBP) against the recoded 4 dependent variables (Beliefs, Knowledge, Attitudes and Behaviors). Under the group category, a code of 1 represents African Americans without HBP and a code of 2 represents African Americans with HBP.

<table>
<thead>
<tr>
<th>Groups</th>
<th>Knowledge</th>
<th>Attitudes</th>
<th>Beliefs</th>
<th>Behaviors</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>55.00</td>
<td>20.00</td>
<td>59.00</td>
<td>36.00</td>
</tr>
<tr>
<td>1</td>
<td>57.00</td>
<td>23.00</td>
<td>51.00</td>
<td>32.00</td>
</tr>
<tr>
<td>1</td>
<td>53.00</td>
<td>20.00</td>
<td>62.00</td>
<td>30.00</td>
</tr>
<tr>
<td>2</td>
<td>57.00</td>
<td>31.00</td>
<td>67.00</td>
<td>66.00</td>
</tr>
<tr>
<td>2</td>
<td>55.00</td>
<td>26.00</td>
<td>62.00</td>
<td>64.00</td>
</tr>
<tr>
<td>1</td>
<td>56.00</td>
<td>23.00</td>
<td>49.00</td>
<td>36.00</td>
</tr>
<tr>
<td>2</td>
<td>57.00</td>
<td>21.00</td>
<td>52.00</td>
<td>59.00</td>
</tr>
<tr>
<td>1</td>
<td>56.00</td>
<td>19.00</td>
<td>50.00</td>
<td>40.00</td>
</tr>
<tr>
<td>2</td>
<td>55.00</td>
<td>20.00</td>
<td>54.00</td>
<td>57.00</td>
</tr>
<tr>
<td>1</td>
<td>56.00</td>
<td>37.00</td>
<td>65.00</td>
<td>34.00</td>
</tr>
<tr>
<td>2</td>
<td>57.00</td>
<td>29.00</td>
<td>54.00</td>
<td>59.00</td>
</tr>
<tr>
<td>2</td>
<td>56.00</td>
<td>27.00</td>
<td>57.00</td>
<td>69.00</td>
</tr>
<tr>
<td>2</td>
<td>51.00</td>
<td>12.00</td>
<td>56.00</td>
<td>58.00</td>
</tr>
<tr>
<td>2</td>
<td>53.00</td>
<td>18.00</td>
<td>66.00</td>
<td>56.00</td>
</tr>
<tr>
<td>2</td>
<td>55.00</td>
<td>27.00</td>
<td>51.00</td>
<td>54.00</td>
</tr>
<tr>
<td>2</td>
<td>57.00</td>
<td>22.00</td>
<td>32.00</td>
<td>57.00</td>
</tr>
<tr>
<td>1</td>
<td>56.00</td>
<td>34.00</td>
<td>48.00</td>
<td>37.00</td>
</tr>
<tr>
<td>1</td>
<td>55.00</td>
<td>28.00</td>
<td>59.00</td>
<td>32.00</td>
</tr>
<tr>
<td>2</td>
<td>53.00</td>
<td>30.00</td>
<td>67.00</td>
<td>54.00</td>
</tr>
<tr>
<td>1</td>
<td>54.00</td>
<td>21.00</td>
<td>77.00</td>
<td>39.00</td>
</tr>
<tr>
<td>2</td>
<td>54.00</td>
<td>19.00</td>
<td>57.00</td>
<td>52.00</td>
</tr>
<tr>
<td>1</td>
<td>54.00</td>
<td>28.00</td>
<td>46.00</td>
<td>38.00</td>
</tr>
<tr>
<td>2</td>
<td>57.00</td>
<td>39.00</td>
<td>85.00</td>
<td>59.00</td>
</tr>
<tr>
<td>2</td>
<td>54.00</td>
<td>24.00</td>
<td>68.00</td>
<td>56.00</td>
</tr>
</tbody>
</table>
Inter-rater reliability was used to code the data for the open-ended question of the survey where the PI and another researcher who has years of experience conducting qualitative research each independently coded the data. Inter-rater reliability of coding or intercoder agreement for qualitative data is recommended by Creswell (2009). It is recommended that there is an agreement in the consistency of the coding at least 80% of the time (Creswell, 2009). According to Tinsley and Weiss (2012), inter-rater coding is needed in content analysis because it only measures "the extent to which the different judges tend to assign exactly the same rating to each object" (p. 98). For this study, consistency of the coding was achieved 99% of the time.

The qualitative data were analyzed by first reading and understanding the data from the open-ended question, analyzing the data inductively to determine patterns, followed by initial and focused coding of the data by the PI and another researcher with qualitative research experience. The coded data were then placed into categories containing related codes, and then the categories were grouped together to create themes (Creswell, 2009). According to Creswell (2009), coded data should be categorized based on related codes, then the categories should be grouped together to create themes.

Since a novel survey instrument was used for this study, the inductive approach, which led to emergent codes, was used. There were five themes that emerged from those categories (effectiveness of home remedies, importance of lifestyle changes, unwillingness to take prescription medicine, use of home remedies as a complement to prescription medicine and the need for more education regarding the use of home remedies).

Figure 18 shows the summary of the data analysis procedure that was used in this study.
Figure 18. Summary of data analysis procedure. This is an original diagram that was created by the principal investigator of this study.

For the purposes of this dissertation study, a Multivariate Analysis of Variance (MANOVA) was employed (see Tables 61 and 62). Univariate Analyses of Variance (ANOVA) were used as follow-up tests (see Tables 64-67). The goal was to have the new tool be considered valid (through the Delphi Panel of experts) and then accurate and precise which yields reliability (by using it in a sample of the population). Therefore, it is crucial that the tool measures what it is intended to measure and be consistent each time it is used.

According to De Souza, Guirardello, & Alexandre (2017), there are four options that represent how validity and reliability of a tool can vary independently and any of the
following four combinations are possible: reliable but not valid, valid but not reliable, neither reliable nor valid and both reliable and valid.

**A Priori G*Power Analysis**

An *A Priori* G*Power Analysis for F-Test MANOVA Global Effects was calculated to determine the required sample size (Figure 19). Even though this study attempted to determine whether or not there is a relationship between the independent and dependent variables and whether there is any difference between the two independent groups with respect to the four dependent variables, the MANOVA was used for the G*Power Analysis because it is more robust than multiple regression, which is the test that is often used to determine sample size when a study is trying to determine whether or not there is a relationship between the variables. The G*Power Analysis indicated that this study required a total sample size of 204 African American participants. Fifteen percent additional participants were added to this number to account for attrition, which resulted in a total required sample size of 235 participants for this study.

A MANOVA is a procedure for comparing multivariate sample means. As a multivariate procedure, it is used when there are two or more dependent variables, and is often followed by significance tests involving individual dependent variables separately. A MANOVA has two or more independent variables and two or more dependent variables (Statistics Solutions, 2021b). A MANOVA is the most rigorous of all the tests that can be used to determine the appropriate sample size for this research, and it is the best time for determining differences between two or more groups. Significance tests involving each individual dependent variable were also conducted separately during data analysis, with the utilization of univariate analysis of variance (ANOVAs).
The effect size chosen was 0.06, which is the medium effect that is appropriate for a MANOVA test. The effect size is an indication of the strength of the relationship between the independent variables and the dependent variables. The alpha was set at 0.05. Alpha represents the level of significance of the results, which is the probability of detecting a Type I error or false positive (Field, 2015). The Power was set at .80, which is the probability of detecting a true relationship or group difference (Field, 2015). Statistical power is the likelihood that a study will detect an effect when there is in fact an effect to be detected. Therefore, the higher statistical power is, the lower the probability of making a Type II error, concluding that there is no statistical significance between the variables when in fact there is such significance (Ellis, 2010). A Type II error is also called a false negative and occurs when the researcher fails to reject the null hypothesis, which is really false (Field, 2015).

It is important to determine an appropriate sample size when conducting a study because the sample size directly affects the statistical power of the study, which determines the probability of detecting a true relationship or group difference between the variables (Polit & Beck, 2010; Portney & Watkins, 2009). A power analysis can reduce the risk for Type II errors (a false negative) by estimating in advance how big the sample that is needed should be.

Figure 19 below shows the *A Priori* G*Power analysis to determine the total required sample size for this study. The statistical test that was utilized for this analysis was the MONOVA: Global Effects from the F-tests family.
Figure 19. *A Priori* G*Power* analysis to determine sample size. With an effect size of .06 appropriate for MANOVA, an alpha level set at .05, power of .80, two groups (African Americans with HBP and African Americans without HBP) and four dependent variables (beliefs, knowledge, attitudes and behaviors), the calculated total sample size is 204 participants for the survey instrument. Fifteen percent was added to allocate attrition for a total required sample size of 235 participants.
Summary of Study Process

Figure 20 below indicates the study process after final IRB approval up to and including coding and analysis of the data that was obtained from the study.

Figure 20. Study process after final IRB approval from Seton Hall University.

The proposal hearing sign-off sheet that the PI received following the successful proposal of this research study by means of a verbal presentation can be found in Appendix N. Upon the successful defense of the dissertation, the PI also received a dissertation oral defense form and a dissertation defense approval form, both of which were signed by the PI’s dissertation committee and can also be found in the appendices section of this manuscript. The dissertation oral defense form can be found in Appendix O, while the dissertation defense approval form can be found in Appendix P.
Summary

This chapter focused on the methodology that was used in this study, including the research design as well as the platforms that were used to solicit individuals who met the inclusion criteria to participate in this study. The data collection methods that were utilized to collect data were also highlighted in this chapter. Diagrams were used to illustrate the data analysis procedures that were utilized to analyze the collected data as well as to show the study process following the final IRB approval from Seton Hall University.
CHAPTER IV

RESULTS

Introduction

The results of this study will be presented in alignment with the purpose of the study. As such, the first section of this chapter will focus on the reliability assessment of the BHS that was determined by utilizing Cronbach’s Alpha coefficient and Exploratory Factor Analysis (EFA). The second half of this chapter will focus on the results of the statistical tests that were conducted to analyze the data that was obtained from this dissertation study.

Reliability Assessment of the Tool

To establish reliability and validity of the BHS, the Delphi Technique, Cronbach’s Alpha and factor analysis were utilized. For the demographic characteristics, the means, standard deviations and frequencies are the descriptive statistics that were obtained.

Face and content validity of the BHS were established using the Delphi Technique while internal reliability was established using Cronbach’s Alpha Coefficient for all four dependent variables. Construct validity was established by utilizing EFA (Figure 21). It was determined that an EFA would be conducted to determine construct validity instead of a confirmatory factor analysis since the BHS is a novel survey instrument and not a standardized tool that has been previously used and has already established some amount of validity.
Cronbach’s Alpha Coefficient

Table 24

*Cronbach’s Alpha Reliability Test for All Variables*

<table>
<thead>
<tr>
<th>Cronbach's Alpha Based on Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.848</td>
<td>.838</td>
</tr>
</tbody>
</table>

Note. The Cronbach’s Alpha score for all the variables is .848. According to George & Mallery (2011), this is a good Cronbach’s Alpha score, which indicates that the survey instrument used (BHS) was a reliable tool to use for this study.

The Cronbach’s Alpha score for all the variables (with a total of 50 items) is .848 (Table 24). According to George and Mallery (2011), this is a good Cronbach’s Alpha score, and this indicates that the survey instrument used (BHS) was a reliable tool to use in this study.
Table 25

Item–Total statistics for all variables showing Cronbach’s Alpha if item deleted

<table>
<thead>
<tr>
<th>Item</th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item–Total Correlation</th>
<th>Squared Multiple Correlation</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you ever taken prescription medicine to treat your high blood pressure?</td>
<td>147.06</td>
<td>566.546</td>
<td>.146</td>
<td>.636</td>
<td>.847</td>
</tr>
<tr>
<td>Have you ever taken home remedies to treat your high blood pressure?</td>
<td>146.80</td>
<td>562.234</td>
<td>.160</td>
<td>.655</td>
<td>.847</td>
</tr>
<tr>
<td>I take both home remedies and prescription medicine to treat my high blood pressure.</td>
<td>146.29</td>
<td>551.776</td>
<td>.286</td>
<td>.333</td>
<td>.845</td>
</tr>
<tr>
<td>I take home remedies instead of prescription medicine to treat my high blood pressure.</td>
<td>145.85</td>
<td>552.851</td>
<td>.265</td>
<td>.341</td>
<td>.845</td>
</tr>
<tr>
<td>I visit my doctor regularly due to my high blood pressure.</td>
<td>146.34</td>
<td>549.993</td>
<td>.320</td>
<td>.336</td>
<td>.844</td>
</tr>
<tr>
<td>I use home remedies to treat my high blood pressure because they are cheaper than prescription medicine.</td>
<td>145.96</td>
<td>545.178</td>
<td>.449</td>
<td>.681</td>
<td>.842</td>
</tr>
<tr>
<td>I use home remedies to treat my high blood pressure because they are more easily accessible than prescription medicine.</td>
<td>146.07</td>
<td>547.262</td>
<td>.411</td>
<td>.662</td>
<td>.843</td>
</tr>
<tr>
<td>I use home remedies to treat my high blood pressure because it is a family tradition.</td>
<td>146.08</td>
<td>543.511</td>
<td>.470</td>
<td>.657</td>
<td>.842</td>
</tr>
</tbody>
</table>

The Cronbach’s alpha coefficient score for all the variables is .848, which is considered a good reliability score (George & Mallery, 2011). Since Cronbach's alpha is a measure of internal consistency, this shows that the 50 Likert-scale items in the survey are closely related as a group.
This scale is therefore reliable because as the average inter-item correlation increases, Cronbach's alpha increases as well (holding the number of items constant). As shown in Table 25 above, if an item is deleted, there would be no major change in the reliability score of the survey instrument (BHS).

**Reliability of the BHS: Beliefs Variable**

The Cronbach’s Alpha for the BHS for the Beliefs variable is $\alpha = .824$ (Table 26), which is considered good by George and Mallery (2011). There were 21 items that represented this variable for this reliability test.

For the BHS: Beliefs Variable, there would be no major fluctuation in the Cronbach’s alpha score if any of the survey items were deleted (Table 27). Therefore, the Cronbach’s alpha score would not change dramatically if one of the individual item statements was deleted from the survey as a whole. If the Cronbach’s alpha score changed dramatically after the deletion of an item, this would indicate that the item may be weighted differently from the others. This would further indicate that the survey statements that represented this variable were not consistent throughout the survey instrument.

Table 26

*Cronbach’s Alpha Reliability Statistics for the BHS: Beliefs Variable*

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>Cronbach's Alpha Based on Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.824</td>
<td>.830</td>
<td>21</td>
</tr>
</tbody>
</table>
Table 27

*Item-Total Statistics for the BHS: Beliefs Variable*

<table>
<thead>
<tr>
<th>Item</th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item–Total Correlation</th>
<th>Squared Multiple Correlation</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>I believe that high blood pressure can be passed on from parents to their children</td>
<td>63.52</td>
<td>222.322</td>
<td>.277</td>
<td>.187</td>
<td>.823</td>
</tr>
<tr>
<td>I believe that diet plays a big role in a person developing high blood pressure.</td>
<td>63.30</td>
<td>219.761</td>
<td>.492</td>
<td>.474</td>
<td>.813</td>
</tr>
<tr>
<td>I believe that exercise plays a big role in a person developing high blood pressure.</td>
<td>63.54</td>
<td>222.273</td>
<td>.385</td>
<td>.319</td>
<td>.817</td>
</tr>
<tr>
<td>Eating healthy foods can reduce the effects of high blood pressure.</td>
<td>63.50</td>
<td>218.757</td>
<td>.483</td>
<td>.679</td>
<td>.813</td>
</tr>
<tr>
<td>Exercising regularly can reduce the effects of high blood pressure.</td>
<td>62.84</td>
<td>210.505</td>
<td>.494</td>
<td>.705</td>
<td>.811</td>
</tr>
<tr>
<td>I believe that eating healthy foods is a type of home remedy for high blood pressure.</td>
<td>63.69</td>
<td>215.565</td>
<td>.571</td>
<td>.735</td>
<td>.809</td>
</tr>
<tr>
<td>I believe that exercise is a type of home remedy for high blood pressure.</td>
<td>63.76</td>
<td>215.788</td>
<td>.556</td>
<td>.735</td>
<td>.809</td>
</tr>
<tr>
<td>I believe that the home remedies that people take to treat high blood pressure work better than prescription medicine.</td>
<td>62.92</td>
<td>226.479</td>
<td>.286</td>
<td>.191</td>
<td>.821</td>
</tr>
<tr>
<td>I believe that home remedies build up the body’s own defenses to prevent high blood pressure.</td>
<td>63.58</td>
<td>227.398</td>
<td>.209</td>
<td>.227</td>
<td>.826</td>
</tr>
<tr>
<td>I think it is safe to use</td>
<td>63.48</td>
<td>224.266</td>
<td>.248</td>
<td>.107</td>
<td>.825</td>
</tr>
</tbody>
</table>
Reliability of the BHS: Knowledge Variable

The Cronbach’s Alpha for the BHS for the Knowledge variable is \( \alpha = .608 \) (Table 28), which is considered questionable by George and Mallery (2011). There were only 5 items that represented this variable for this reliability test.

For the BHS: Knowledge Variable, there would be some fluctuation in the Cronbach’s alpha score if some of the survey items that represent this variable were to be deleted (Table 29). The Cronbach’s alpha would not change drastically if one of the individual item statements is deleted from the survey as a whole. However, since there would be a dramatic change in the Cronbach’s alpha score if some items were to be deleted, this would indicate that some of the items may have been weighted differently from the others. This further indicates that the survey statements that represented this variable were not consistent throughout the survey instrument, in terms of how the questions were framed.

Table 28

Cronbach’s Alpha Reliability Statistics for the BHS: Knowledge Variable

<table>
<thead>
<tr>
<th>Cronbach’s Alpha</th>
<th>Cronbach's Alpha Based on Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.608</td>
<td>.611</td>
<td>5</td>
</tr>
</tbody>
</table>
Table 29

*Item-Total Statistics for the BHS: Knowledge Variable*

<table>
<thead>
<tr>
<th>Item Total Statistics</th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item–Total Correlation</th>
<th>Squared Multiple Correlation</th>
<th>Cronbach's Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>I am more likely to develop high blood pressure because I am African American.</td>
<td>12.18</td>
<td>1.580</td>
<td>.500</td>
<td>.319</td>
<td>.470</td>
</tr>
<tr>
<td>I am more likely to develop high blood pressure if one of my relatives have/ had it.</td>
<td>12.03</td>
<td>1.861</td>
<td>.483</td>
<td>.309</td>
<td>.484</td>
</tr>
<tr>
<td>A person can have high blood pressure without having any symptoms.</td>
<td>12.07</td>
<td>2.125</td>
<td>.314</td>
<td>.115</td>
<td>.581</td>
</tr>
<tr>
<td>Do you have a blood relative who has high blood pressure?</td>
<td>10.89</td>
<td>2.367</td>
<td>.277</td>
<td>.113</td>
<td>.594</td>
</tr>
<tr>
<td>High blood pressure can lead to other diseases.</td>
<td>11.82</td>
<td>2.647</td>
<td>.303</td>
<td>.110</td>
<td>.596</td>
</tr>
</tbody>
</table>

**Reliability of the BHS: Attitudes Variable**

The Cronbach’s Alpha for the BHS for the Attitudes variable is $\alpha = .503$ (Table 30), which is considered poor by George and Mallery (2011). There were eight items that represented this variable for this reliability test.

For the BHS: Attitudes Variable, there would be no major fluctuation in the Cronbach’s alpha score if any of the items were to be deleted (Table 31). The Cronbach’s alpha score would not change dramatically if one of the individual item statements was deleted from the survey as a
whole. If the Cronbach’s alpha changes dramatically after an item is deleted, this would indicate that the item in question may have been weighted differently from the others. This would further indicate that the survey statements that represented this variable were not consistent throughout the survey instrument.

Table 30

*Cronbach’s Alpha Reliability Statistics for the BHS: Attitudes Variable*

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>Cronbach's Alpha Based on Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.503</td>
<td>.513</td>
<td>8</td>
</tr>
</tbody>
</table>
Table 31

Item-Total Statistics for the BHS: Attitudes Variable

<table>
<thead>
<tr>
<th>Item Description</th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item–Total Correlation</th>
<th>Squared Multiple Correlation</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>People with high blood pressure should take home remedies to treat their condition.</td>
<td>21.78</td>
<td>32.602</td>
<td>.254</td>
<td>.130</td>
<td>.468</td>
</tr>
<tr>
<td>People with high blood pressure should take prescription medicine to treat their condition.</td>
<td>21.54</td>
<td>30.440</td>
<td>.198</td>
<td>.110</td>
<td>.483</td>
</tr>
<tr>
<td>Home remedies should be used only as a last resort when prescription medicine does not control high blood pressure.</td>
<td>20.97</td>
<td>28.273</td>
<td>.355</td>
<td>.175</td>
<td>.419</td>
</tr>
<tr>
<td>It is harmful to use home remedies to treat high blood pressure.</td>
<td>21.13</td>
<td>31.228</td>
<td>.228</td>
<td>.102</td>
<td>.471</td>
</tr>
<tr>
<td>Prayer can be used to effectively treat high blood pressure.</td>
<td>21.21</td>
<td>29.494</td>
<td>.243</td>
<td>.101</td>
<td>.465</td>
</tr>
<tr>
<td>Home remedies can be used to permanently cure high blood pressure.</td>
<td>21.23</td>
<td>28.902</td>
<td>.321</td>
<td>.150</td>
<td>.434</td>
</tr>
<tr>
<td>I feel stressed out when I think about my high blood pressure.</td>
<td>21.40</td>
<td>32.353</td>
<td>.155</td>
<td>.061</td>
<td>.496</td>
</tr>
<tr>
<td>High blood pressure cannot be cured.</td>
<td>20.83</td>
<td>30.652</td>
<td>.132</td>
<td>.056</td>
<td>.516</td>
</tr>
</tbody>
</table>

Reliability of the BHS: Behaviors Variable

The Cronbach’s Alpha for the BHS for the Behaviors variable is $\alpha = .678$ (Table 32), which is considered questionable by George and Mallery (2011). There were 16 items that represented this variable for this reliability test.

For the BHS: Behaviors Variable, there would be no major fluctuation in the Cronbach’s alpha score if any of the survey items were to be deleted (Table 33). The Cronbach’s alpha score
would not change dramatically if one of the individual item statements was deleted from the survey as a whole. If the Cronbach’s alpha changed dramatically after the deletion of an item, this would indicate that the item may have been weighted differently from the others. This would further indicate that the survey statements that represented this variable were not consistent throughout the survey instrument.

Table 32

*Cronbach’s Alpha Reliability Statistics for the BHS: Behaviors Variable*

<table>
<thead>
<tr>
<th>Cronbach's Alpha</th>
<th>Cronbach's Alpha Based on Standardized Items</th>
<th>N of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>.678</td>
<td>.645</td>
<td>16</td>
</tr>
</tbody>
</table>
**Table 33**

*Item-Total Statistics for the BHS: Behaviors Variable*

<table>
<thead>
<tr>
<th>Item</th>
<th>Scale Mean if Item Deleted</th>
<th>Scale Variance if Item Deleted</th>
<th>Corrected Item–Total Correlation</th>
<th>Squared Multiple Correlation</th>
<th>Cronbach’s Alpha if Item Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you ever taken prescription medicine to treat your high blood pressure?</td>
<td>41.61</td>
<td>59.064</td>
<td>.227</td>
<td>.599</td>
<td>.670</td>
</tr>
<tr>
<td>Have you ever taken home remedies to treat your high blood pressure?</td>
<td>41.35</td>
<td>57.672</td>
<td>.189</td>
<td>.590</td>
<td>.675</td>
</tr>
<tr>
<td>I take both home remedies and prescription medicine to treat my high blood pressure.</td>
<td>40.83</td>
<td>54.763</td>
<td>.277</td>
<td>.231</td>
<td>.665</td>
</tr>
<tr>
<td>I take home remedies instead of prescription medicine to treat my high blood pressure.</td>
<td>40.39</td>
<td>53.287</td>
<td>.343</td>
<td>.203</td>
<td>.655</td>
</tr>
<tr>
<td>I visit my doctor regularly due to my high blood pressure.</td>
<td>40.87</td>
<td>55.032</td>
<td>.272</td>
<td>.242</td>
<td>.666</td>
</tr>
<tr>
<td>I use home remedies to treat my high blood pressure because they are cheaper than prescription medicine.</td>
<td>40.51</td>
<td>50.259</td>
<td>.614</td>
<td>.609</td>
<td>.617</td>
</tr>
<tr>
<td>I use home remedies to treat my high blood pressure because they are more easily accessible than prescription medicine.</td>
<td>40.62</td>
<td>50.967</td>
<td>.567</td>
<td>.598</td>
<td>.624</td>
</tr>
<tr>
<td>I use home remedies to treat my high blood pressure because it is a family tradition.</td>
<td>40.63</td>
<td>50.313</td>
<td>.599</td>
<td>.602</td>
<td>.619</td>
</tr>
<tr>
<td>I use home remedies to treat my high blood pressure because</td>
<td>40.82</td>
<td>52.012</td>
<td>.465</td>
<td>.491</td>
<td>.637</td>
</tr>
</tbody>
</table>
Table 34

Cronbach’s Alpha Coefficient Scores for All Four Variables

<table>
<thead>
<tr>
<th>Domain/Variables</th>
<th>Number of Likert Statements</th>
<th>Cronbach’s Alpha Score</th>
<th>George &amp; Mallery (2011) Interpretation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beliefs</td>
<td>21</td>
<td>0.824</td>
<td>Good</td>
</tr>
<tr>
<td>Knowledge</td>
<td>5</td>
<td>0.608</td>
<td>Questionable</td>
</tr>
<tr>
<td>Attitudes</td>
<td>8</td>
<td>0.503</td>
<td>Poor</td>
</tr>
<tr>
<td>Behaviors</td>
<td>16</td>
<td>0.678</td>
<td>Questionable</td>
</tr>
<tr>
<td>All 4 Variables</td>
<td>50</td>
<td>0.848</td>
<td>Good</td>
</tr>
</tbody>
</table>

Table 34 indicates the Cronbach’s Alpha coefficient scores for each of the four variables as well as for the survey as a whole. The Cronbach’s Alpha score for the knowledge variable is .608, which, as per George and Mallery (2011), is a questionable Cronbach’s Alpha score which indicates low reliability of the items measured. This low score may be due to the low number of items measured for the knowledge variable (5) which may have resulted in those items being sensitive and vulnerable to outliers (other factors that were not addressed in this study).
The Cronbach’s Alpha score for the belief variable is .824, which according to George and Mallory (2011) is a good score, and which indicates reliability of the items measured for this domain. The difference in reliability scores between beliefs and the other variables measured may be due to the fact that beliefs had the highest number of items measured and, as such, the items are less sensitive and are less vulnerable to any outliers.

The Cronbach’s Alpha score for the attitude variable is .503, which George and Mallery (2011) refer to as a poor score. This indicates a very low reliability of the items measured for this variable. This low score may be due to the small number of items (8) that were measured for this domain.

The Cronbach’s Alpha score of the behavior variable is .678, which is questionable as per George and Mallory (2003), which in turn indicates a questionable reliability for the 16 items measured for this domain.

This score may also be due to the number of items measured and their sensitivity to possible outliers. However, more questions/statements were measured for these variables than those that were measured for the knowledge and attitudes variables. Therefore, the more items per variable, the more each item will be diluted and so the less sensitive each item will be to outliers.

If this novel survey instrument will be used again in the future, it may be worthwhile to first add more questions for the three variables with Cronbach’s Alpha scores that George and Mallery (2011) describes as either questionable or poor, since more questions would decrease the sensitivity of each item for those variables. Subsequently, more questions on the BHS that represent each of these variables would possibly result in an increase in the reliability scores of these three variables.
The Cronbach’s Alpha score for the survey as a whole, which represents all four variables together, is .848 which, according to George and Mallery (2011), is a good reliability score. This indicates that the survey as a whole is a reliable tool.

**Exploratory Factor Analysis (EFA)**

The results of the Kaiser-Meyer-Olkin (KMO) and Bartlett’s Test in Table 35 below indicate a value of .511 and a significance level of $p = .000$. According to Kaiser (1974), a KMO and Bartlett’s Test value of 0.50 or greater is acceptable and is an indication that the factors are adequate for data collection.

Table 35

*KMO and Bartlett’s Test for Exploratory Factor Analysis*

<table>
<thead>
<tr>
<th>KMO and Bartlett’s Test</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaiser-Meyer-Olkin Measure of Sampling Adequacy.</td>
<td>.511</td>
</tr>
<tr>
<td>Bartlett’s Test of Sphericity</td>
<td></td>
</tr>
<tr>
<td>Approx. Chi-Square df</td>
<td>576.154</td>
</tr>
<tr>
<td>Sig.</td>
<td>.000</td>
</tr>
</tbody>
</table>

Note. The KMO and Bartlett’s Test has a value of .511 and a significance level of $p = .000$. According to Kaiser (1974), a KMO and Bartlett’s Test value of 0.50 or greater is acceptable and is an indication that the factors are adequate for data collection.
An EFA was conducted in an attempt to establish construct validity of the survey instrument. The PI conducted an EFA instead of a confirmatory factor analysis (CFA) because a novel survey instrument was used to collect the study data and not a standardized tool that has already established validity.

Table 36

*Correlation Matrix Between the Variables*

<table>
<thead>
<tr>
<th>Correlation Matrix</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you ever been told by a doctor that you have high blood pressure?</td>
</tr>
<tr>
<td>Sig. (1-tailed)</td>
</tr>
<tr>
<td>Knowledge_v</td>
</tr>
<tr>
<td>Attitudes_v</td>
</tr>
<tr>
<td>Beliefs_v</td>
</tr>
<tr>
<td>Behaviors_v</td>
</tr>
</tbody>
</table>

Note. This correlation matrix indicates a significant relationship between having high blood pressure and behaviors, as well as a significant relationship between beliefs and attitudes regarding use of home remedies as treatment.

For the correlation matrix between the variables shown in Table 36 above, the five factors that were analyzed were as follows: diagnosis of HBP by a doctor, beliefs, knowledge, attitudes and behaviors. The correlation matrix indicates a significant relationship between having high blood pressure and behaviors, as well as a significant relationship between beliefs and attitudes regarding the use of home remedies as treatment.
Figure 21. Scree plot indicating the eigenvalues of each component. In this case, four of the five factors will be retained because latent variables may have affected the eigenvalues of beliefs and behaviors, resulting in low eigenvalues.

From the scree plot in Figure 21 above, it can be seen that two of the five variables fell below the value of 1, while one variable has a value of 1. According to Field (2015), it is recommended that all factors with eigenvalues greater than 1 be retained since an eigenvalue of 1 suggests a substantial amount of variation. However, in this case, four of the five factors will be retained because confounding variables may have affected the eigenvalues of beliefs and behaviors, which could have resulted in low eigenvalues for these variables.

Characteristics of the Sample

The original sample size for this study was 258 participants, however four participants reported that they do not live in the United States and, as such, the data from those four participants were excluded from the results. There were therefore 254 participants in total who participated in this study (Figure 22). The sample consisted of both groups: African Americans
with high blood pressure and African Americans without high blood pressure. One hundred thirty-five participants had high blood pressure and 119 participants did not have high blood pressure.

![Total Recruitment N = 258](image)

*Figure 22.* Total recruitment and sample size. 258 participants completed the survey, however, 4 participants reported that they do not live in the United States and, as such, the data for those participants were excluded from my results. Therefore, the total sample size for this study was 254 participants.

As previously mentioned, the *A Priori G*Power analysis required 204 participants, but 15% was added to allow for attrition, which resulted in a total required sample size of 235 participants. Of the 254 African Americans who participated in this study, 252 identified as Black/African American and two identified as both Black/African American and Hispanic.
Gender of Study Participants. The sample consisted of 203 females and 51 males, for a total of 254 study participants (see Table 37 and Figure 23).

Table 37

Gender of Study Participants

<table>
<thead>
<tr>
<th>Gender</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Female</td>
<td>203</td>
</tr>
<tr>
<td>Male</td>
<td>51</td>
</tr>
<tr>
<td>Total</td>
<td>254</td>
</tr>
</tbody>
</table>

Figure 23. Bar graph indicating the number of participants by gender
Age Range of Study Participants

Most of the study participants were in the 30-39 age group with 79 participants, followed by those in the 40-49 age group (77), followed by those in the 50-59 age group (57), then those in the 18-29 age group (22) (see Table 38 and Figure 24 below). There were 19 participants in the 60+ age group (Table 38 and Figure 24).

Table 38

Age Range of Study Participants

<table>
<thead>
<tr>
<th>Age Range</th>
<th>Number of Participants</th>
<th>% of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>18-29</td>
<td>22</td>
<td>8.66</td>
</tr>
<tr>
<td>30-39</td>
<td>79</td>
<td>31.10</td>
</tr>
<tr>
<td>40-49</td>
<td>77</td>
<td>30.31</td>
</tr>
<tr>
<td>50-59</td>
<td>57</td>
<td>22.44</td>
</tr>
<tr>
<td>60+</td>
<td>19</td>
<td>7.48</td>
</tr>
<tr>
<td>Total</td>
<td>254</td>
<td>100</td>
</tr>
</tbody>
</table>
Education Level of Study Participants

Of the 254 participants of this study, 114 reported that they have completed a master’s degree, 70 reported that they have a Ph.D. or other doctoral degree, and 40 reported having a bachelor’s degree (see Table 39 below). Fourteen participants reported that they completed high school, 15 participants stated that they attended a technical/trade school, and only one study participant reported having less than a high school level education. These results indicate that there was an education gap between study participants.
Table 39

*Education Levels of Participants*

*What is the highest level of education that you have attained?*

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelor’s</td>
<td>40</td>
<td>15.7</td>
<td>15.7</td>
<td>15.7</td>
</tr>
<tr>
<td>Completed high school</td>
<td>14</td>
<td>5.5</td>
<td>5.5</td>
<td>21.3</td>
</tr>
<tr>
<td>Less than high school</td>
<td>1</td>
<td>.4</td>
<td>.4</td>
<td>21.7</td>
</tr>
<tr>
<td>Master’s</td>
<td>114</td>
<td>44.9</td>
<td>44.9</td>
<td>66.5</td>
</tr>
<tr>
<td>Ph.D. or other doctoral degree</td>
<td>70</td>
<td>27.6</td>
<td>27.6</td>
<td>94.1</td>
</tr>
<tr>
<td>Technical/Trade School</td>
<td>15</td>
<td>5.9</td>
<td>5.9</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>254</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

**Marital Status of Study Participants.** In regard to the marital status of study participants, 127 (50%) stated that they are married, 92 stated that they are single, and 28 stated that they are separated or divorced (see Table 40). Seven participants stated that they prefer not to answer the question (Figure 25).

Table 40

*Marital Status of Study Participants*

*What is your marital status?*

<table>
<thead>
<tr>
<th></th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>127</td>
<td>50.0</td>
<td>50.0</td>
<td>50.0</td>
</tr>
<tr>
<td>Prefer Not to Say</td>
<td>7</td>
<td>2.8</td>
<td>2.8</td>
<td>52.8</td>
</tr>
<tr>
<td>Separated/Divorced</td>
<td>28</td>
<td>11.0</td>
<td>11.0</td>
<td>63.8</td>
</tr>
<tr>
<td>Single</td>
<td>92</td>
<td>36.2</td>
<td>36.2</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>254</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>
Religious Affiliation of Study Participants. In regard to religion, participants were given a list of 28 different religions/denominations and were asked to select which one they practice. Most of the participants reported that they are Baptist (80), 40 reported that they are Seventh-Day Adventists, 27 are Pentecostal, 20 are non-denominational, 14 are Methodist, and 11 stated that they are Catholic (see Table 41 below). There were 26 participants who reported that they do not practice any religion at all. Other religions/denominations that participants reported that they practice include Buddhist (4), Jehovah’s Witness (4), African Methodist Episcopal/AME (3), Seventh-Day Church of God (1), New Thought Ministry (1), Spiritual Baptist (2), Charismatic (1), Church of Christ (1), Apostolic (1) and Full Gospel (1).
Table 41

Religion of Study Participants

<table>
<thead>
<tr>
<th>What is your religion? (Please select only one answer).</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>Any other Religion or Christian denomination (please specify).</td>
<td>44</td>
<td>17.3</td>
<td>17.3</td>
</tr>
<tr>
<td>Baptist</td>
<td>80</td>
<td>31.5</td>
<td>31.5</td>
<td>48.8</td>
</tr>
<tr>
<td>Buddhist</td>
<td>4</td>
<td>1.6</td>
<td>1.6</td>
<td>50.4</td>
</tr>
<tr>
<td>Catholic</td>
<td>11</td>
<td>4.3</td>
<td>4.3</td>
<td>54.7</td>
</tr>
<tr>
<td>Congregationalist</td>
<td>2</td>
<td>.8</td>
<td>.8</td>
<td>55.5</td>
</tr>
<tr>
<td>Episcopal</td>
<td>1</td>
<td>.4</td>
<td>.4</td>
<td>55.9</td>
</tr>
<tr>
<td>Jehovah’s Witness</td>
<td>4</td>
<td>1.6</td>
<td>1.6</td>
<td>57.5</td>
</tr>
<tr>
<td>Methodist</td>
<td>14</td>
<td>5.5</td>
<td>5.5</td>
<td>63.0</td>
</tr>
<tr>
<td>No religion</td>
<td>26</td>
<td>10.2</td>
<td>10.2</td>
<td>73.2</td>
</tr>
<tr>
<td>Pentecostal</td>
<td>27</td>
<td>10.6</td>
<td>10.6</td>
<td>83.9</td>
</tr>
<tr>
<td>Presbyterian</td>
<td>1</td>
<td>.4</td>
<td>.4</td>
<td>84.3</td>
</tr>
<tr>
<td>Seventh-Day Adventist</td>
<td>40</td>
<td>15.7</td>
<td>15.7</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>254</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

U.S. Geographical Location of Participants. Participants of this study were well dispersed across the United States, with thirty-five (35) states represented by the participants of this study (Table 42). This indicates that it is possible to obtain adequate national data via online survey tools. One of the demographic questions on the BHS survey (Appendix F) asked participants to indicate which state they currently live in. Two hundred forty-nine (249) participants answered the question, however, one participant stated that he/she preferred not to answer the question. The states of residence that most participants reported were New Jersey (31), Georgia (27), New
York (21), and Texas (19). There were 14 participants each from Maryland, North Carolina and Florida.

Table 42

**Number of Participants by U.S. State**

<table>
<thead>
<tr>
<th>State</th>
<th>Number of Participants by State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>7</td>
</tr>
<tr>
<td>Arkansas</td>
<td>1</td>
</tr>
<tr>
<td>California</td>
<td>8</td>
</tr>
<tr>
<td>Colorado</td>
<td>1</td>
</tr>
<tr>
<td>Connecticut</td>
<td>6</td>
</tr>
<tr>
<td>Delaware</td>
<td>1</td>
</tr>
<tr>
<td>Florida</td>
<td>14</td>
</tr>
<tr>
<td>Georgia</td>
<td>27</td>
</tr>
<tr>
<td>Hawaii</td>
<td>2</td>
</tr>
<tr>
<td>Illinois</td>
<td>7</td>
</tr>
<tr>
<td>Indiana</td>
<td>4</td>
</tr>
<tr>
<td>Iowa</td>
<td>1</td>
</tr>
<tr>
<td>Kansas</td>
<td>1</td>
</tr>
<tr>
<td>Kentucky</td>
<td>5</td>
</tr>
<tr>
<td>Louisiana</td>
<td>5</td>
</tr>
<tr>
<td>Maryland</td>
<td>14</td>
</tr>
<tr>
<td>Massachusetts</td>
<td>4</td>
</tr>
<tr>
<td>Michigan</td>
<td>5</td>
</tr>
<tr>
<td>Minnesota</td>
<td>1</td>
</tr>
<tr>
<td>Mississippi</td>
<td>4</td>
</tr>
<tr>
<td>Missouri</td>
<td>1</td>
</tr>
<tr>
<td>New Jersey</td>
<td>31</td>
</tr>
<tr>
<td>New Mexico</td>
<td>1</td>
</tr>
<tr>
<td>New York</td>
<td>21</td>
</tr>
<tr>
<td>North Carolina</td>
<td>14</td>
</tr>
<tr>
<td>Ohio</td>
<td>8</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>7</td>
</tr>
<tr>
<td>South Carolina</td>
<td>6</td>
</tr>
<tr>
<td>Tennessee</td>
<td>7</td>
</tr>
<tr>
<td>Texas</td>
<td>19</td>
</tr>
<tr>
<td>Utah</td>
<td>1</td>
</tr>
<tr>
<td>Virginia</td>
<td>9</td>
</tr>
<tr>
<td>Washington</td>
<td>2</td>
</tr>
<tr>
<td>Washington District of Columbia (D.C.)</td>
<td>2</td>
</tr>
<tr>
<td>Wisconsin</td>
<td>1</td>
</tr>
<tr>
<td>Prefer not to answer</td>
<td>1</td>
</tr>
<tr>
<td><strong>Total Participants</strong></td>
<td><strong>254</strong></td>
</tr>
</tbody>
</table>

Note. States that were represented by 20 or more study participants are highlighted.
**Number of Generations as Americans and Culture.** In response to the question, “What generation American are you?”, 52.8% of participants reported that they were fourth or more generation American, while only 5.9% reported that they are not U.S. citizens (see Table 43 below). Regarding the question, “What culture do you identify with?”, 236 participants responded and 18 skipped the question. Some of the cultures that participants identified with included African American, Southern Black, Caribbean, West Indian, African, Jamaican, Haitian American, Creole, Trinidadian-American, African Diaspora, Afro-Caribbean, Black, African American Native American, and Canadian-Jamaican. One participant stated that he/she was not sure how to answer the question, while another stated that the question was too broad in considering culture.

**Table 43**

*Generation as an American for Study Participants*

<table>
<thead>
<tr>
<th>What generation American are you?</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>First</td>
<td>41</td>
<td>16.1</td>
<td>16.3</td>
<td>16.3</td>
</tr>
<tr>
<td>Fourth or more</td>
<td>134</td>
<td>52.8</td>
<td>53.2</td>
<td>69.4</td>
</tr>
<tr>
<td>Not a U.S. citizen</td>
<td>15</td>
<td>5.9</td>
<td>6.0</td>
<td>75.4</td>
</tr>
<tr>
<td>Prefer not to Answer</td>
<td>20</td>
<td>7.9</td>
<td>7.9</td>
<td>83.3</td>
</tr>
<tr>
<td>Second</td>
<td>19</td>
<td>7.5</td>
<td>7.5</td>
<td>90.9</td>
</tr>
<tr>
<td>Third</td>
<td>23</td>
<td>9.1</td>
<td>9.1</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>252</td>
<td>99.2</td>
<td>100.0</td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>7</td>
<td>2</td>
<td>.8</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>254</td>
<td>100.0</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
High Blood Pressure Statistics Among Participants

One hundred thirty-five (135) participants self-reported that they have been diagnosed with HBP in the past. One hundred seventeen (117) participants said they have never been diagnosed with HBP by a doctor, and two participants said they were unsure if they have ever been told by a doctor that they have HBP. The two participants who were unsure were added to those who said they have never been diagnosed with HBP (see Table 44). Since HBP is a chronic disease and as such cannot be cured, these two groups were used for the independent variables, since a doctor’s diagnosis is credible data to indicate that an individual has HBP. These two groups were the independent variables of this study: African Americans with HBP and African Americans without HBP.

One hundred eleven (111) participants self-reported that they have HBP, while 143 said that they do not have HBP (Table 45). On the other hand, as mentioned above, 135 participants reported that they had previously been diagnosed with HBP by a doctor and 119 reported that they have never been diagnosed with HBP by a doctor. This indicates a discrepancy between the number of participants who said they currently have HBP and those who said they have been diagnosed with HBP in the past by a doctor. This discrepancy may be due in part to participants’ response to the Likert statement, “High blood pressure cannot be cured.” In response to that statement, 181 participants (71.25%) either disagreed or strongly disagreed with this statement, while only 45 participants (17.7%) either agreed or strongly agreed with the statement. According to the American Heart Association/AHA (2017), HBP is a chronic disease and as such, it can be treated, but it cannot be cured. Therefore, once an individual is diagnosed with this condition, that person will always have the condition. Even though there are both conventional medicine and CAM that are available to help individuals effectively control the
condition, the literature review indicated that this condition is not as easily controlled in African Americans as it is in other races.

Table 44

*Frequencies and Percentages of Total of the Two Independent Group Variables: African Americans with HBP and African Americans without HBP*

<table>
<thead>
<tr>
<th>Have you ever been told by a doctor that you have high blood pressure?</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valid</td>
<td>No (Do not have high blood pressure)</td>
<td>119</td>
<td>46.9</td>
<td>46.9</td>
</tr>
<tr>
<td></td>
<td>Yes (Have high blood pressure)</td>
<td>135</td>
<td>53.1</td>
<td>53.1</td>
</tr>
<tr>
<td>Total</td>
<td>254</td>
<td>100.0</td>
<td>100.0</td>
<td></td>
</tr>
</tbody>
</table>

Note. 117 participants said no, they have never been diagnosed with HBP by a doctor and 2 participants who said they were unsure if they have every been told by a doctor that they have high blood pressure were added to those who said no since there were two groups.

As can be seen in Table 44, there were 119 participants with HBP and 135 participants without HBP. These two groups were the independent variables of this study. On the other hand, Table 45 and Figure 26 indicate the number of participants who reported that they had or did not have HBP, regardless of whether or not they had been previously diagnosed with the condition by a doctor.
Table 45

Number of Participants With and Without HBP

<table>
<thead>
<tr>
<th>Which of the following represents you?</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have high blood pressure</td>
<td>111</td>
</tr>
<tr>
<td>I do not have high blood pressure/I’m not sure if I have high blood pressure</td>
<td>143</td>
</tr>
<tr>
<td><strong>Total Participants</strong></td>
<td><strong>254</strong></td>
</tr>
</tbody>
</table>

**Figure 26.** Pie chart indicating the number of participants who self-reported that they have or do not have high blood pressure.

**Frequencies of Participants.** The rule of thumb is that groups are considered generally equal as long as the larger group is not 1.5 times greater than the smallest group (Stevens, 1999). For this study, the larger group was African Americans with high blood pressure, and it was only 1.1
times greater than the smallest group, so the groups can be generally considered equal. As mentioned previously, the *A Priori* G*Power* analysis required 235 participants for this study (see Figure 19). However, there were 254 participants of the study.

As can be seen in Table 46 and Figure 27 below, 117 participants stated that they were told that they have HBP more than a year ago, 21 stated that they were told less than a year ago, one participant was unsure when he/she was diagnosed with HBP, and 115 stated that the question does not apply to them, implying that they have never been diagnosed with HBP.

Table 46

*Participants with HBP for More than One Year*

<table>
<thead>
<tr>
<th>If you have HBP, were you first told that you have the condition more than a year ago?</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>117</td>
</tr>
<tr>
<td>No</td>
<td>21</td>
</tr>
<tr>
<td>Unsure</td>
<td>1</td>
</tr>
<tr>
<td>Does not apply to me</td>
<td>115</td>
</tr>
</tbody>
</table>
Table 47 and Figure 28 below indicate that 92 participants stated that they have taken home remedies before to treat their HBP, 81 participants stated that they have never used home remedies to treat HBP, while 3 participants said they were unsure if they have ever used home remedies to treat their HBP. On the other hand, 122 participants stated that they have used prescription medicine to treat their HBP and 52 said no, they have never used prescription medicine to treat their condition (see Table 48 and Figure 29). This indicates that more participants have taken prescription medicine as treatment for their HBP than those who have used home remedies to treat the same condition.
Table 47

Use of Home Remedies by Participants to Treat HBP

<table>
<thead>
<tr>
<th>Have you ever taken home remedies to treat your HBP?</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>92</td>
</tr>
<tr>
<td>No/Unsure</td>
<td>84</td>
</tr>
<tr>
<td>Does not apply to me</td>
<td>78</td>
</tr>
</tbody>
</table>

Note. 81 participants stated that they have never used home remedies to treat high blood pressure, while 3 participants said they were unsure if they have ever used home remedies to treat high blood pressure.

Figure 28. Bar graph indicating participants’ use of home remedies to treat high blood pressure.
Table 48

Use of Prescription Medicine to Treat High Blood Pressure

<table>
<thead>
<tr>
<th>Have you ever taken prescription medicine to treat your HBP?</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>122</td>
</tr>
<tr>
<td>No</td>
<td>52</td>
</tr>
<tr>
<td>Unsure</td>
<td>0</td>
</tr>
<tr>
<td>Does not apply to me</td>
<td>80</td>
</tr>
</tbody>
</table>

Figure 29. Bar graph indicating the use of prescription medicine by participants to treat high blood pressure.
Table 49

*Participants Whose Blood Pressure Has Been Above 130/80 mm Hg when Checked*

<table>
<thead>
<tr>
<th>Has your blood pressure ever been above 130/80 mm Hg when checked?</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>154</td>
</tr>
<tr>
<td>No/Unsure</td>
<td>73</td>
</tr>
<tr>
<td>Does Not Apply to Me</td>
<td>27</td>
</tr>
</tbody>
</table>

Note. There were 61 participants who reported that their high blood pressure has never been above 130/88 mm Hg when checked, while 12 participants said they were unsure.

*Figure 30.* Bar graph indicating participants whose blood pressure has been above 130/80 mm Hg when checked.

Table 49 and Figure 30 indicate those participants whose blood pressure has been above 130/80 mm Hg when checked. One hundred fifty-four (154) participants said yes, their blood pressure has been above 130/80 mm Hg when checked, while 61 participants who reported that
their HBP has never been above 130/88 mm Hg when checked, while 12 participants said they were unsure. Twenty-seven participants stated that the question does not apply to them, which suggests that they have never had their blood pressure checked before. It must be noted also that even though 130/80 millimeter of Mercury (mm Hg) is the current reading that the AHA has given to indicate stage 1 HBP (as was redefined in 2017), participants were not asked to state if they had had that blood pressure reading before, during or after 2017.

Table 50

Participants with a Blood Relative Who Has HBP

<table>
<thead>
<tr>
<th>Do you have a blood relative who has HBP?</th>
<th>Number of Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>231</td>
</tr>
<tr>
<td>No</td>
<td>11</td>
</tr>
<tr>
<td>Unsure/Does not apply to me</td>
<td>12</td>
</tr>
</tbody>
</table>

Note. 231 is highlighted because this number indicates the high number of study participants who reported having at least one blood relative who has HBP (231 out of 254 participants). There were 11 participants who said they were unsure if they have a blood relative who has high blood pressure and 1 said the question does not apply, which implies that the person has no living blood relatives.

Table 50 indicates that there were 231 participants who reported that they have at least one blood relative who has HBP. There were 11 participants who said they were unsure if they have a blood relative who has HBP and 1 said the question does not apply, which implies that the person has no living blood relatives (see Figure 31 below). Additionally, 94% of study participants reported that they know other people apart from their blood relatives who have HBP. These numbers indicate how prevalent HBP is in this population.
Figure 31. Pie chart indicating number of participants with a blood relative who has high blood pressure. There were 11 participants who said they were unsure if they have a blood relative who has high blood pressure and 1 said the question does not apply, which implies that the person has no living blood relatives.

Table 51 and Figure 32 below indicate the breakdown of study participants by gender in terms of who have and who have not been diagnosed with HBP by a doctor. Of the participants who have HBP, 121 were females and 28 were males. Of the participants who do not have HBP, 82 were females and 23 were males. There was one male and one female who indicated that he and she, respectively, was unsure whether or not he/she had been previously diagnosed with HBP. As previously mentioned, since these two groups were the independent variables of this study, those individuals who said they were unsure about a previous diagnosis were placed in the group that had not been previously diagnosed.
Table 51

Participants Who Have or Have Not Been Diagnosed with High Blood Pressure by Gender

<table>
<thead>
<tr>
<th>Gender of Participants</th>
<th>Number of Study Participants</th>
<th>Have Been Diagnosed With HBP</th>
<th>Have Not Been Diagnosed With HBP</th>
<th>Unsure About Previous HBP Diagnosis</th>
</tr>
</thead>
<tbody>
<tr>
<td>Males</td>
<td>51</td>
<td>28</td>
<td>22</td>
<td>1</td>
</tr>
<tr>
<td>Females</td>
<td>203</td>
<td>121</td>
<td>81</td>
<td>1</td>
</tr>
<tr>
<td>Total</td>
<td>254</td>
<td>149</td>
<td>103</td>
<td>2</td>
</tr>
</tbody>
</table>

Figure 32. Bar graph indicating participants who have and who have not been diagnosed with high blood pressure by gender.
Study participants were asked, “How do you manage your high blood pressure?” on the survey. They were asked to check all options that applied to how they manage the condition. Seventy-one participants stated that they use home remedies as treatment, 95 stated that they use prescription medicine, 96 said they eat healthy foods and 74 said that they eat regularly (see Table 52 below). Twelve participants stated that they have not changed their lifestyle habits since they were diagnosed with HBP. Some of the responses in the “other” category were as follows:

- “Irregular exercise and diet.”
- “I no longer have the condition. I was diagnosed once but I took the medications and some home remedies, and it has been normal since.”
- “I do what is generally required for good health with eating, exercise and controlling environment. Nothing specifically to reduce blood pressure.”
Table 52

*How Study Participants Manage Their High Blood Pressure*

<table>
<thead>
<tr>
<th>Answer Choices</th>
<th>Responses (Number of Participants)</th>
<th>Responses (Percentage of Participants)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I take home remedies</td>
<td>71</td>
<td>27.95%</td>
</tr>
<tr>
<td>I take prescription medicine</td>
<td>95</td>
<td>37.40%</td>
</tr>
<tr>
<td>I eat healthy foods</td>
<td>96</td>
<td>37.80%</td>
</tr>
<tr>
<td>I exercise regularly</td>
<td>74</td>
<td>29.13%</td>
</tr>
<tr>
<td>All of the above apply to me</td>
<td>32</td>
<td>12.60%</td>
</tr>
<tr>
<td>I do not take any medication</td>
<td>19</td>
<td>7.48%</td>
</tr>
<tr>
<td>I have not changed my lifestyle habits</td>
<td>12</td>
<td>4.72%</td>
</tr>
<tr>
<td>I do not have high blood pressure</td>
<td>116</td>
<td>46.67%</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td>12</td>
<td>4.72%</td>
</tr>
</tbody>
</table>

Note. Study participants were asked: “How do you manage your high blood pressure?” The total may be more than 254 because participants had the option to select more than one answer.

Participants were also asked in which of the areas has HBP affected their lives. Thirty-two participants stated that their HBP has affected their family life, 24 said intimate life, 32 said work life, 94 said general health, and 20 said HBP has affected them in other ways (see Figure 33 below). The results indicate that most of the study participants who reported that they have HBP also reported that HBP has affected at least one area of their life. Other ways that participants reported that HBP has affected their lives were as follows:
• “My son was diagnosed with hypertension at 7 years old. It is what alerted us to his kidney disease. We changed things in our life to manage his condition.”

• “I was diagnosed once and took both home remedies and prescription. I was diagnosed again this year but was not convinced I went home had it checked and it was normal, so I just continue to use home remedies just in case.”

• “Stroke survivor, limits ability to work out prior to stroke due to delay in 1 leg and arm.”

Figure 33. Bar graph indicating how HBP has affected participants’ lives.
As indicated in Figure 34 above, 75 participants stated that they currently use home remedies to treat their HBP, 98 participants said they currently take prescription medicine to treat their HBP, 120 stated that they currently use home remedies to treat other health problems, and 128 participants stated that they currently take prescription medicine to treat other health problems.

With respect to the question, “Have you used home remedies in the last 12 months to treat your high blood pressure?”, 86 participants (33.86%) reported yes, they have used home remedies in the last 12 months to treat their HBP, 54 participants (21.26%) reported no, they have not used home remedies in the past 12 months to treat their HBP, and 116 participants (45.67%) reported that they do not have HBP. Two other the questions that study participants were asked on the BHS were the following:

1. Which of the following are techniques used to treat high blood pressure?
2. Which of the following techniques do you use to treat your high blood pressure?

For both questions, participants were given the same list of 28 different techniques that may be used by some individuals to treat the condition. The most common items/techniques that participants selected are indicated in Table 53 below.
Table 53

*Techniques Used to Treat High Blood Pressure*

<table>
<thead>
<tr>
<th>Item</th>
<th>Which of the following are techniques used to treat HBP? (# of Participants who selected each item) (N = 252)</th>
<th>Which of the following techniques do you use to treat your HBP? (# of Participants who selected each item) (N = 248)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lifestyle &amp; Nutritional Counseling</td>
<td>167</td>
<td>48</td>
</tr>
<tr>
<td>Garlic and Herbs</td>
<td>154</td>
<td>51</td>
</tr>
<tr>
<td>Herbal Tea</td>
<td>127</td>
<td>45</td>
</tr>
<tr>
<td>Leafy Green Vegetables</td>
<td>133</td>
<td>58</td>
</tr>
<tr>
<td>Prayer</td>
<td>115</td>
<td>55</td>
</tr>
<tr>
<td>Meditation</td>
<td>132</td>
<td>51</td>
</tr>
<tr>
<td>Yoga</td>
<td>117</td>
<td>23</td>
</tr>
<tr>
<td>Oatmeal</td>
<td>56</td>
<td>23</td>
</tr>
<tr>
<td>Ginger</td>
<td>97</td>
<td>31</td>
</tr>
<tr>
<td>Massage</td>
<td>69</td>
<td>33</td>
</tr>
<tr>
<td>Music</td>
<td>64</td>
<td>33</td>
</tr>
<tr>
<td>Bananas</td>
<td>37</td>
<td>26</td>
</tr>
<tr>
<td>Cucumbers</td>
<td>45</td>
<td>20</td>
</tr>
<tr>
<td>Berries</td>
<td>39</td>
<td>19</td>
</tr>
<tr>
<td>Red Beets</td>
<td>42</td>
<td>11</td>
</tr>
</tbody>
</table>

Note. The totals may be greater than the number of participants who answered each question because they had the option to select more than one item for both questions. The other techniques were onions, dried seeds, skim milk and/or yogurt, pomegranates, cannabis, dark chocolate, olive oil, cinnamon, alcohol, scallions, seafood, and pistachios. For the second question, 125 participants (of the 248) reported that they do not have HBP.
As mentioned above, participants had the option to select up to 28 different techniques for both of these questions. The highest number of responses were for the following techniques: lifestyle and nutritional counseling, garlic and herbs, herbal tea, leafy green vegetables, prayer, meditation, yoga, oatmeal, ginger, massage, music, bananas, cucumbers, berries and red beets.

The totals may be greater than the number of participants who answered each question because participants had the option to select more than one item for both questions. The other techniques given were onions, dried seeds, skim milk and/or yogurt, pomegranates, cannabis, dark chocolate, olive oil, cinnamon, alcohol, scallions, seafood, and pistachios. For the second question, 125 participants (of the 248) reported that they do not have HBP.

**Descriptive Statistics for the Dependent Variables**

For the beliefs variable, participants with HBP had a higher mean of 59.2741 than participants who do not have HBP and who had a mean of 57.0168 (see Table 54). Even though there is a difference in the means between the two groups, the level of significance of this difference cannot be determined until the multivariate tests are conducted.
Table 54

Descriptive Statistics Table Highlighting Means Per Group for the Beliefs Variable

<table>
<thead>
<tr>
<th>Dependent Variable:</th>
<th>Beliefs_v</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have you ever been told by a doctor that you have high blood pressure?</td>
<td>Mean</td>
</tr>
<tr>
<td>No (Do not have high blood pressure)</td>
<td>57.0168</td>
</tr>
<tr>
<td>Yes (Have high blood pressure)</td>
<td>59.2741</td>
</tr>
<tr>
<td>Total</td>
<td>58.2165</td>
</tr>
</tbody>
</table>

For the knowledge variable, participants with HBP had a slightly higher mean of 55.6741 than participants who do not have HBP and who had a mean of 55.4034 (see Table 55 below).

Even though there does not appear to be much difference in the means between the two groups, whether or not there is some level of significance between the difference that does exist cannot be determined until the multivariate tests are conducted.
For the attitudes variable, participants with HBP had a higher mean of 27.3704 than participants who do not have HBP and who had a mean of 26.4622 (see Table 56). Even though there is a difference in the means between the two groups, the level of significance regarding this difference cannot be determined until the multivariate tests are conducted.
For the behaviors variable, participants with HBP had a higher mean of 62.2963 than participants who do not have HBP and who had a mean of 37.1008 (see Table 57). Even though there is an apparent difference in the means between the two groups, the level of significance of this difference cannot be ascertained until the multivariate tests are conducted.
Correlation Tests: Pearson and Spearman’s Correlation Coefficient

Pearson and Spearman’s correlation were conducted for research questions 1 to 4. However, scatter plots were also created to indicate the relationships between the variables. Pearson’s correlation is a standardized test that measures the strength of the relationship between two variables (Statistics Solutions, 2021a). The major assumptions for Pearson correlation coefficient that must be met are that the variables must be continuous (that is, they must be measured on an interval or ratio scale) and there must be a linear relationship between two or more variables (Statistics Solutions, 2021a).

On the other hand, Spearman’s correlation is a standardized test that measures the strength of the relationship between two variables, but it does not rely on the assumptions of a parametric test (Field, 2015).
Table 58

**Parametric Test- Pearson Correlation**

<table>
<thead>
<tr>
<th></th>
<th>Pearson Correlation</th>
<th>Sig. (2-tailed)</th>
<th>N</th>
<th>Beliefs_v</th>
<th>Knowledge_v</th>
<th>Attitudes_v</th>
<th>Behaviors_v</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Do you currently take home remedies to treat your high blood pressure?</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1</td>
<td>.910*</td>
<td>.016</td>
<td>.025</td>
<td>.017</td>
<td>.092</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
<td></td>
<td>.795</td>
<td>.697</td>
<td>.787</td>
<td>.145</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td></td>
<td></td>
<td>254</td>
<td>254</td>
<td>254</td>
<td>254</td>
</tr>
<tr>
<td><strong>Have you used home remedies to treat your high blood pressure in the last 12 months?</strong></td>
<td></td>
<td></td>
<td></td>
<td>.049</td>
<td>.016</td>
<td>.011</td>
<td>.142</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td></td>
<td></td>
<td>.439</td>
<td>.805</td>
<td>.861</td>
<td>.023</td>
</tr>
<tr>
<td></td>
<td>N</td>
<td></td>
<td></td>
<td>254</td>
<td>254</td>
<td>254</td>
<td>254</td>
</tr>
<tr>
<td><strong>Beliefs_v</strong></td>
<td></td>
<td>.016</td>
<td>.049</td>
<td>1</td>
<td>.009</td>
<td>.285*</td>
<td>.110</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.795</td>
<td>.439</td>
<td>.887</td>
<td>.000</td>
<td>.081</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>254</td>
<td>254</td>
<td>254</td>
<td>254</td>
<td>254</td>
<td>254</td>
</tr>
<tr>
<td><strong>Knowledge_v</strong></td>
<td></td>
<td>.025</td>
<td>.016</td>
<td>.009</td>
<td>1</td>
<td>.003</td>
<td>.098</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.697</td>
<td>.805</td>
<td>.887</td>
<td>.962</td>
<td>.118</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>254</td>
<td>254</td>
<td>254</td>
<td>254</td>
<td>254</td>
<td>254</td>
</tr>
<tr>
<td><strong>Attitudes_v</strong></td>
<td></td>
<td>.017</td>
<td>.011</td>
<td>.285*</td>
<td>.003</td>
<td>1</td>
<td>.083</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.787</td>
<td>.861</td>
<td>.000</td>
<td>.962</td>
<td>.189</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>254</td>
<td>254</td>
<td>254</td>
<td>254</td>
<td>254</td>
<td>254</td>
</tr>
<tr>
<td><strong>Behaviors_v</strong></td>
<td></td>
<td>.092</td>
<td>.142</td>
<td>.110</td>
<td>.098</td>
<td>.083</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Sig. (2-tailed)</td>
<td>.145</td>
<td>.023</td>
<td>.081</td>
<td>.118</td>
<td>.189</td>
<td></td>
</tr>
<tr>
<td></td>
<td>N</td>
<td>254</td>
<td>254</td>
<td>254</td>
<td>254</td>
<td>254</td>
<td>254</td>
</tr>
</tbody>
</table>

* Correlation is significant at the 0.01 level (2-tailed).

** Correlation is significant at the 0.05 level (2-tailed).

The results in Table 58 above indicate a small positive linear relationship between attitudes and beliefs, r = .285, and a small positive linear relationship between behaviors and use of home remedies to treat HBP in the last 12 months, r = .142 (Cohen, 1992). A strong positive
linear correlation was found between current use of home remedies to treat HBP and use of home remedies to treat HBP in the last 12 months, $r = .910$ (Cohen, 1992).
Table 59

Non-Parametric Test: Spearman’s Correlation

<table>
<thead>
<tr>
<th></th>
<th>Do you currently take home remedies to treat your high blood pressure?</th>
<th>Have you used home remedies to treat your high blood pressure in the last 12 months?</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Beliefs_v</td>
<td>Knowledge_v</td>
</tr>
<tr>
<td><strong>Spearman's rho</strong></td>
<td><strong>Correlation Coefficient</strong></td>
<td><strong>Sig. (2-tailed)</strong></td>
</tr>
<tr>
<td>Do you currently take home remedies to treat your high blood pressure?</td>
<td>1</td>
<td>.916**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.893</td>
</tr>
<tr>
<td>N</td>
<td>254</td>
<td>254</td>
</tr>
<tr>
<td>Have you used home remedies to treat your high blood pressure in the last 12 months?</td>
<td>.916**</td>
<td>1</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.000</td>
<td>.382</td>
</tr>
<tr>
<td>N</td>
<td>254</td>
<td>254</td>
</tr>
<tr>
<td>Beliefs_v</td>
<td>.008</td>
<td>.015</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.393</td>
<td>.382</td>
</tr>
<tr>
<td>N</td>
<td>254</td>
<td>254</td>
</tr>
<tr>
<td>Knowledge_v</td>
<td>-.046</td>
<td>-.059</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.466</td>
<td>.350</td>
</tr>
<tr>
<td>N</td>
<td>254</td>
<td>254</td>
</tr>
<tr>
<td>Attitudes_v</td>
<td>.009</td>
<td>.016</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.887</td>
<td>.797</td>
</tr>
<tr>
<td>N</td>
<td>254</td>
<td>254</td>
</tr>
<tr>
<td>Behaviors_v</td>
<td>.108</td>
<td>.150**</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.085</td>
<td>.017</td>
</tr>
<tr>
<td>N</td>
<td>254</td>
<td>254</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed).**

*Correlation is significant at the 0.05 level (2-tailed).
The results in Table 59 indicate a small positive linear relationship \((r = .150)\) between the behaviors of study participants regarding HBP and their use of home remedies as treatment for the condition in the last 12 months. The results also indicate a small positive linear relationship \((r = .225)\) between participants’ beliefs and attitudes toward the use of home remedies as treatment for HBP. There is also a small positive linear association between the other variables. However, a significance relationship was found between current use of home remedies to treat HBP and the use of home remedies to treat the condition in the last 12 months \((r = .916)\).

Since no significant relationship was found between current or recent use of home remedies to treat high blood pressure and the variables beliefs, knowledge and attitudes, the alternative hypotheses for the research questions related to these variables (research questions 1, 2 and 3) will be rejected in favor of the null hypotheses. However, for research question 4, the alternative hypotheses will not be rejected because the data indicate that there is a relationship between African Americans’ behaviors and their use of home remedies to treat HBP. The scatter plots will be used to confirm the strength of this relationship.

As is evident by the Pearson and Spearman’s Correlations in each column of each dependent variable in Tables 58 and 59, the correlations between the variables were very small, and so to ensure accuracy of these results, scatter plots were also graphed to confirm the correlation between the variables.

The small positive linear relationship between African Americans’ beliefs about HBP and their attitude toward use of home remedies as treatment for the condition indicates that the more favorable African Americans’ beliefs regarding the effectiveness of home remedies as treatment, the more favorable their attitudes will be toward using home remedies as treatment and, subsequently, the more likely they will be to use home remedies as treatment for the condition.
The results also indicate that African Americans behave differently after they are diagnosed with HBP because the results suggest that they are more willing to take action to control the condition after diagnosis than they are to taking action to lower their risk before diagnosis. These results therefore indicate that diagnosis of HBP is a gamechanger for African Americans because they are more likely to take action to control their HBP, such as adopting healthier lifestyle habits after they are diagnosed with the condition.

**Scatter Plots Indicating the Correlation Between Variables**

The scatter plot in Figure 35 below shows a trend toward a positive linear relationship between beliefs and behaviors. Pearson’s correlation coefficient value (r) is close to 0.

![Simple Scatter with Fit Line of Beliefs_v by Behaviors_v](image)

*Figure 35. Scatter plot indicating correlation between beliefs and behaviors with line of best fit. Pearson’s r value is close to 0.*
The scatter plot in Figure 36 below indicates that there is a moderate positive linear relationship between attitudes and beliefs. Pearson’s correlation coefficient has a value of 0.4.

![Simple Scatter with Fit Line of Beliefs_v by Attitudes_v](image)

*Figure 36. Scatter plot indicating correlation between beliefs and attitudes with line of best fit. Pearson’s r = 0.4.*

The scatter plot in Figure 37 below indicates that there is no linear relationship between knowledge and beliefs. Pearson’s r is close to 0, while the scatter plot in Figure 38 shows that there is a moderate positive linear relationship between knowledge and behaviors. Pearson’s r = 0.4.
Figure 37. Scatter plot indicating correlation between knowledge and beliefs with line of best fit. Pearson’s $r$ is close to 0.

Figure 38. Scatter plot indicating correlation between behaviors and knowledge with line of best fit. Pearson’s $r = 0.4$. 
The scatter plot in Figure 39 below indicates that there is no linear relationship between attitudes and beliefs. Pearson’s r is close to 0.

*Figure 39. Scatter plot indicating correlation between attitudes and knowledge with line of best fit.*

The scatter plot in Figure 40 below indicates that there is a trend toward a positive linear relationship between attitudes and behaviors.
Figure 40. Scatter plot indicating correlation between attitudes and behaviors with line of best fit.

In Figure 41 below, the line of best fit on the scatter plot indicate that there is a trend toward a positive linear relationship between behaviors and current use of home remedies to treat HBP.
Figure 41. Scatter plot indicating correlation between behaviors and current use of home remedies to treat HBP with line of best fit.

Figure 42 below indicates the line of best fit on the scatter plot. Based on the direction of the line of best fit, it can be seen that there is a moderate positive linear relationship between behaviors and the use of home remedies to treat HBP in the last 12 months.
Figure 42. Scatter plot indicating correlation between behaviors and use of home remedies to treat HBP in the last 12 months with line of best fit.

Since the scatter plots gave the same results as the Pearson and Spearman’s correlation coefficients, including the fact that there is indeed a positive linear correlation between behaviors and use of home remedies to treat HBP, the PI will fail to reject the alternative hypothesis for research question 4 and will reject the null hypothesis for that research question.

On the other hand, since no significant relationship was found between the other three variables (beliefs, knowledge and attitudes) and African Americans’ use of home remedies to treat HBP, the PI will reject the alternative hypotheses for research questions 1-3 and will fail to reject the null hypotheses for those questions.
Figure 43. Scatter plot indicating correlation between beliefs and use of home remedies to treat HBP with line of best fit.

The scatter plot in Figure 43 above indicates that there is a slight trend toward a positive linear relationship between beliefs and use of home remedies in the last 12 months.

The results indicate a moderate positive relationship between the behaviors of study participants regarding HBP and their use of home remedies as treatment for the condition in the last 12 months (see Figure 42 below). The results also indicate a moderate positive linear relationship between participants’ beliefs and attitudes toward the use of home remedies as treatment for HBP (Figure 36). Additionally, significance was found between participants’ current use of home remedies to treat their HBP and using home remedies to treat the condition in the last 12 months.

As previously mentioned, the results indicate that African Americans are more likely to use home remedies as a treatment for HBP than as a preventative measure to lower their risk of diagnosis.
Multivariate Analysis of Variance (MANOVA)

A MANOVA was conducted to test the hypotheses of research questions 5-8. These final four research questions focused on whether or not there were any differences between the two independent groups (African Americans with HBP and African Americans without HBP) with respect to the dependent variables/domains. The MANOVA was conducted because the following assumptions of the test were met: larger sample sizes, random sampling, independence of samples, observations are sampled randomly and independently from the population, each dependent variable is on an interval scale, dependent variables are multivariate normally distributed within each independent variable, independent variables are categorical and the population covariance matrices of each group must be equal, which is an extension of homogeneity of variances required for univariate ANOVA (Field, 2015).

Box’s Test is used to ascertain whether or not the population covariance between each pair of the dependent variables is the same across groups (Field, 2015) (see Table 60 below).
The Box’s Test of Covariance indicates a significant difference between all four dependent variables and the two independent variables, with a significance of \( p = .000 \).

As previously mentioned, all the assumptions of MANOVA were satisfied in this study (Field, 2015). Since the scores of participants for each dependent variable was independent of the scores of the other participants, the samples are independent of each other. As mentioned earlier, sample sizes are considered generally equal if the larger group is less than 1.5 times greater than the smallest group. Since this study had 135 participants in the larger group of African Americans with HBP and 119 participants in the smaller group of African Americans without HBP, this rule was satisfied, so this was not an issue.
Although Box’s Test is significant (p = .000), MANOVA is robust against violations of the homogeneity of variance assumption and, as such, the PI went on to conduct the multivariate tests and then followed-up with a univariate test for each dependent variable to confirm the results of the multivariate tests. Furthermore, the significance from the Box’s Test was may have been as a result of data that is not normally distributed. According to Field (2015), Box’s Test of Covariance is not a reliable test to use to determine the level of significance between variables.

Table 61

Multivariate Tests Indicating Pillai’s Trace and Wilk’s Lambda Values

<table>
<thead>
<tr>
<th>Effect</th>
<th>Test</th>
<th>Value</th>
<th>F Value</th>
<th>Hypothesis df</th>
<th>Error df</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
<th>Observed Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Groups</td>
<td>Pillai’s Trace</td>
<td>.888</td>
<td>494.255</td>
<td>4.000</td>
<td>249.000</td>
<td>.000</td>
<td>.888</td>
<td>1.000</td>
</tr>
<tr>
<td></td>
<td>Wilk’s Lambda</td>
<td>.112</td>
<td>494.255</td>
<td>4.000</td>
<td>249.000</td>
<td>.000</td>
<td>.888</td>
<td>1.000</td>
</tr>
<tr>
<td></td>
<td>Hotelling’s Trace</td>
<td>7.940</td>
<td>494.255</td>
<td>4.000</td>
<td>249.000</td>
<td>.000</td>
<td>.888</td>
<td>1.000</td>
</tr>
<tr>
<td></td>
<td>Roy’s Largest Root</td>
<td>7.940</td>
<td>494.255</td>
<td>4.000</td>
<td>249.000</td>
<td>.000</td>
<td>.888</td>
<td>1.000</td>
</tr>
</tbody>
</table>

Note. Both Pillai’s Trace and Wilk’s Lambda values indicate and F-value of 494.255, an observed power of 1.000 and a significance of .000, which indicates that the null hypotheses of all four research questions should be rejected in favor of the alternative hypotheses. Computed using alpha = .05

The PI used the multivariate measures, Pillai’s Trace and Wilk’s Lambda, for the analysis in this study (Table 61 above). Both Pillai’s Trace and Wilk’s Lambda indicate a significant difference between both groups, African Americans with high blood pressure and African Americans without high blood pressure, with respect to the dependent variables. For Pillai’s
Trace, this difference was indicated as follows: value = .888, F(4,249) = 494.255, p < .000.
Using Wilk’s Lambda, the results were as follows: value = .112, F(4,249) = 494.255, p = .000 (see Table 61). Therefore, there was a significant difference between both groups with respect to the dependent variables.

Wilks’ Lambda was used to calculate the effect size for the post-hoc analysis. The post-hoc analysis that was conducted will be discussed later in this chapter and can be seen in Figure 44. However, the PI also looked at Pillai’s Trace because this test is considered the most robust to violations of assumptions. Wilks’ Lambda is the product of the variance that is unexplained on each of the discriminant function variates, representing the ratio of error variance to total variance for each variate (Field, 2015). Pillai’s Trace is the sum of the proportion of variance that is explained on the discriminant function variates of the data (Field, 2015).
All four of the multivariate tests (Pillai’s Trace, Wilks’ Lambda, Hotelling’s Trace and Roy’s Largest Root) showed significance for the multivariate (Table 61).
Effect size (used for post-hoc analysis) was calculated as follows:
\[ \eta^2 = 1 - \frac{1}{s} \lambda \]
\[ 1 - .112^{(.33)} \]
\[ 1 - .49 = .51 \]

In this calculation, ‘s’ represents the number of levels of the factor minus 1, that is 4 - 1 = 3. The index of variance explained (1 – \( \lambda \)) is the amount of variance in the dependent variables that is accounted for by the independent variables. Therefore, the effect size that was used for the post-hoc analysis was .51 (see Figure 44). Table 62 below indicates the level of significance of each dependent variable, as highlighted.
Table 62

**MANOVA for All Four Dependent Variables**

<table>
<thead>
<tr>
<th>Source</th>
<th>Dependent Variable</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
<th>Noncent. Parameter</th>
<th>Observed Power^a</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>Knowledge_v</td>
<td>4.635^a</td>
<td>1</td>
<td>4.635</td>
<td>1.379</td>
<td>.243</td>
<td>.005</td>
<td>1.370</td>
<td>.215</td>
</tr>
<tr>
<td></td>
<td>Attitudes_v</td>
<td>52.167^b</td>
<td>1</td>
<td>52.167</td>
<td>1.367</td>
<td>.243</td>
<td>.005</td>
<td>1.370</td>
<td>.214</td>
</tr>
<tr>
<td></td>
<td>Beliefs_v</td>
<td>322.265^c</td>
<td>1</td>
<td>322.265</td>
<td>3.242</td>
<td>.073</td>
<td>.013</td>
<td>3.242</td>
<td>.434</td>
</tr>
<tr>
<td></td>
<td>Behaviors_v</td>
<td>40150.546^d</td>
<td>1</td>
<td>40150.546</td>
<td>1990.569</td>
<td>.000</td>
<td>.888</td>
<td>1990.569</td>
<td>1.000</td>
</tr>
<tr>
<td>Intercept</td>
<td>Knowledge_v</td>
<td>780366.651</td>
<td>1</td>
<td>780366.651</td>
<td>230731.992</td>
<td>.000</td>
<td>.999</td>
<td>230731.992</td>
<td>1.000</td>
</tr>
<tr>
<td></td>
<td>Attitudes_v</td>
<td>183289.254</td>
<td>1</td>
<td>183289.254</td>
<td>4802.807</td>
<td>.000</td>
<td>.950</td>
<td>4802.807</td>
<td>1.000</td>
</tr>
<tr>
<td></td>
<td>Beliefs_v</td>
<td>855339.115</td>
<td>1</td>
<td>855339.115</td>
<td>8605.709</td>
<td>.000</td>
<td>.972</td>
<td>8605.709</td>
<td>1.000</td>
</tr>
<tr>
<td></td>
<td>Behaviors_v</td>
<td>624877.318</td>
<td>1</td>
<td>624877.318</td>
<td>30979.934</td>
<td>.000</td>
<td>.992</td>
<td>30979.934</td>
<td>1.000</td>
</tr>
<tr>
<td>Groups</td>
<td>Knowledge_v</td>
<td>4.635</td>
<td>1</td>
<td>4.635</td>
<td>1.379</td>
<td>.243</td>
<td>.005</td>
<td>1.370</td>
<td>.215</td>
</tr>
<tr>
<td></td>
<td>Attitudes_v</td>
<td>52.167</td>
<td>1</td>
<td>52.167</td>
<td>1.367</td>
<td>.243</td>
<td>.005</td>
<td>1.370</td>
<td>.214</td>
</tr>
<tr>
<td></td>
<td>Beliefs_v</td>
<td>322.265</td>
<td>1</td>
<td>322.265</td>
<td>3.242</td>
<td>.073</td>
<td>.013</td>
<td>3.242</td>
<td>.434</td>
</tr>
<tr>
<td></td>
<td>Behaviors_v</td>
<td>40150.546</td>
<td>1</td>
<td>40150.546</td>
<td>1990.569</td>
<td>.000</td>
<td>.888</td>
<td>1990.569</td>
<td>1.000</td>
</tr>
<tr>
<td>Error</td>
<td>Knowledge_v</td>
<td>852.298</td>
<td>252</td>
<td>3.382</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attitudes_v</td>
<td>9617.061</td>
<td>252</td>
<td>38.163</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Beliefs_v</td>
<td>25046.826</td>
<td>252</td>
<td>99.392</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Behaviors_v</td>
<td>5982.938</td>
<td>252</td>
<td>20.170</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Knowledge_v</td>
<td>784573.000</td>
<td>254</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attitudes_v</td>
<td>194080.000</td>
<td>254</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Beliefs_v</td>
<td>886217.000</td>
<td>254</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Behaviors_v</td>
<td>692796.000</td>
<td>254</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>Knowledge_v</td>
<td>856.933</td>
<td>253</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Attitudes_v</td>
<td>9696.228</td>
<td>253</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Beliefs_v</td>
<td>25369.901</td>
<td>253</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Behaviors_v</td>
<td>45233.484</td>
<td>253</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note. A significant difference is indicated only between the behaviors of the two groups: African Americans with HBP and African Americans without HBP. No significant difference was found between the groups with respect to the other three dependent variables – beliefs, knowledge and attitudes.

In Table 62 above, it can be seen that the MANOVA showed significance only for the dependent variable, behavior, where p = .000, while the other variables had a p-value greater than .05, which indicate that there was no significance was found for the other three variables (beliefs, knowledge and attitudes). Table 63 below indicates the means and standard deviations of the independent variables in relation to each dependent variable. Significance was found.
between the two independent groups only in relation to the dependent variable, behaviors, and as such, the mean values are highlighted in the table for that variable.

Table 63

*Descriptive Statistics Indicating the Means and Standard Deviations of the Variables*

<table>
<thead>
<tr>
<th>Descriptive Statistics</th>
<th>Have you ever been told by a doctor that you have high blood pressure?</th>
<th>Mean</th>
<th>Std. Deviation</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knowledge_v</td>
<td>No (Do not have high blood pressure)</td>
<td>55.4034</td>
<td>1.81481</td>
<td>119</td>
</tr>
<tr>
<td></td>
<td>Yes (Have high blood pressure)</td>
<td>55.6741</td>
<td>1.86015</td>
<td>135</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>55.5472</td>
<td>1.84040</td>
<td>254</td>
</tr>
<tr>
<td>Attitudes_v</td>
<td>No (Do not have high blood pressure)</td>
<td>26.4622</td>
<td>5.76046</td>
<td>119</td>
</tr>
<tr>
<td></td>
<td>Yes (Have high blood pressure)</td>
<td>27.3704</td>
<td>6.52291</td>
<td>135</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>26.9449</td>
<td>6.18209</td>
<td>254</td>
</tr>
<tr>
<td>Beliefs_v</td>
<td>No (Do not have high blood pressure)</td>
<td>57.0158</td>
<td>8.84229</td>
<td>119</td>
</tr>
<tr>
<td></td>
<td>Yes (Have high blood pressure)</td>
<td>59.2741</td>
<td>10.86582</td>
<td>135</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>58.2165</td>
<td>10.01364</td>
<td>254</td>
</tr>
<tr>
<td>Behaviors_v</td>
<td>No (Do not have high blood pressure)</td>
<td>37.1008</td>
<td>3.24532</td>
<td>119</td>
</tr>
<tr>
<td></td>
<td>Yes (Have high blood pressure)</td>
<td>62.2963</td>
<td>5.35330</td>
<td>135</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>50.4921</td>
<td>13.37118</td>
<td>254</td>
</tr>
</tbody>
</table>

Note. The descriptive statistics indicate that the behavior variable was the only variable where there existed a significant difference in mean values between the two groups: participants who have HBP and participants who do not have HBP.
The descriptive statistics in Table 63 above indicate that the behavior means between participants who have HBP and participants who do not have HBP are significantly different in values. There were no significant differences found between the groups with respect to the other three variables—beliefs, knowledge and attitudes.

**Follow-Up Univariate Analysis of Variance Tests (ANOVAs)**

Table 64

*Follow-Up Univariate Test (ANOVA) for the Beliefs Variable*

<table>
<thead>
<tr>
<th>Tests of Between-Subjects Effects</th>
<th></th>
<th></th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
<th>Noncent. Parameter</th>
<th>Observed Power^b</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Dependent Variable: Beliefs_v</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Source</td>
<td>Type III Sum of Squares</td>
<td>df</td>
<td>Mean Square</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Model</td>
<td>322.265^a</td>
<td>1</td>
<td>322.265</td>
<td>3.242</td>
<td>.073</td>
<td>.013</td>
<td>3.242</td>
</tr>
<tr>
<td>Intercept</td>
<td>855339.115</td>
<td>1</td>
<td>855339.115</td>
<td>8605.700</td>
<td>.000</td>
<td>.972</td>
<td>8605.700</td>
</tr>
<tr>
<td>Groups</td>
<td>322.265</td>
<td>1</td>
<td>322.265</td>
<td>3.242</td>
<td>.073</td>
<td>.013</td>
<td>3.242</td>
</tr>
<tr>
<td>Error</td>
<td>25046.826</td>
<td>252</td>
<td>99.392</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>886217.000</td>
<td>254</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>25369.091</td>
<td>253</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. R Squared = .013 (Adjusted R Squared = .009)
b. Computed using alpha = .05

As can be seen in Table 64 above, for the dependent variable, beliefs, the Test of Between-Subjects Effects indicates that there are no significant differences between the beliefs of participants with HBP and those without HBP regarding the use of home remedies as treatment. F (1,252) = 3.242, p = 0.073. This reflects the same result that was derived from the MANOVA test.
Comparing against a significance level of .05, the results in Table 65 above indicate that there were no significant differences found between the two groups with respect to the dependent variable, knowledge. \( F(1,252) = 1.370, p = 0.243 \)

Also, comparing against a significance level of .05, the results in Table 66 below indicate that there were also no significant differences found between the two groups with respect to the dependent variable, attitudes. \( F(1,252) = 1.367, p = 0.243 \)
Table 66

Follow-Up Univariate Test (ANOVA) for the Attitudes Variable

<table>
<thead>
<tr>
<th>Tests of Between-Subjects Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dependent Variable: Attitudes_v</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
<th>Noncent. Parameter</th>
<th>Observed Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>52.167</td>
<td>1</td>
<td>52.167</td>
<td>1.367</td>
<td>.243</td>
<td>.005</td>
<td>1.367</td>
<td>.214</td>
</tr>
<tr>
<td>Intercept</td>
<td>183289.254</td>
<td>1</td>
<td>183289.254</td>
<td>4802.807</td>
<td>.000</td>
<td>.950</td>
<td>4802.807</td>
<td>1.000</td>
</tr>
<tr>
<td>Groups</td>
<td>52.167</td>
<td>1</td>
<td>52.167</td>
<td>1.367</td>
<td>.243</td>
<td>.005</td>
<td>1.367</td>
<td>.214</td>
</tr>
<tr>
<td>Error</td>
<td>9617.061</td>
<td>252</td>
<td>38.163</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>194080.000</td>
<td>254</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>9669.228</td>
<td>253</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. R Squared = .005 (Adjusted R Squared = .001)
b. Computed using alpha = .05

The results in Table 67 below indicate that when comparing against a significance level of 0.05, participants with HBP and those without HBP differed significantly with respect to the dependent variable, behaviors. All tests indicate that the behavior variable has a significance of 0.000. \( F (1,252) = 1990.569, p = 0.000 \)
Table 67

Follow-Up Univariate Test (ANOVA) for the Behaviors Variable

<table>
<thead>
<tr>
<th>Source</th>
<th>Type III Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F</th>
<th>Sig.</th>
<th>Partial Eta Squared</th>
<th>Noncent. Parameter</th>
<th>Observed Power^b</th>
</tr>
</thead>
<tbody>
<tr>
<td>Corrected Model</td>
<td>40150.546^a</td>
<td>1</td>
<td>40150.546</td>
<td>1990.569</td>
<td>.000</td>
<td>.888</td>
<td>1990.569</td>
<td>1.000</td>
</tr>
<tr>
<td>Intercept</td>
<td>624877.318</td>
<td>1</td>
<td>624877.318</td>
<td>30979.934</td>
<td>.000</td>
<td>.992</td>
<td>30979.934</td>
<td>1.000</td>
</tr>
<tr>
<td>Groups</td>
<td>40150.546</td>
<td>1</td>
<td>40150.546</td>
<td>1990.569</td>
<td>.000</td>
<td>.888</td>
<td>1990.569</td>
<td>1.000</td>
</tr>
<tr>
<td>Error</td>
<td>5082.938</td>
<td>252</td>
<td>20.170</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>692795.000</td>
<td>254</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corrected Total</td>
<td>45233.484</td>
<td>253</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

a. $R^2$ Squared = .888 (Adjusted $R^2$ Squared = .887)

b. Computed using alpha = .05

Note. The results above indicate that when comparing against a significance level of 0.05, participants with high blood pressure and those without high blood pressure differed significantly with respect to the dependent variable, behaviors. All tests indicate that the variable behavior has a significance of 0.000. $F(1, 252) = 1990.569$, $p = 0.000$

As can be seen in Table 64-67 above, the results from the follow-up univariate tests support both the significant and the non-significant differences between the two groups and each dependent variable that were indicated by the results of the MANOVA test. The follow-up univariate tests therefore confirmed that there were no significant differences between the two groups with respect to the knowledge, attitudes and beliefs variables, but in Table 67, it can be seen that there is definitively a significant difference between the two groups with respect to the behaviors variable. Therefore, participants who have HBP behaved differently from participants who do not have HBP with respect to the use of home remedies because participants who have the condition are more likely to use home remedies to treat HBP than are participants who do not have the condition to use home remedies as a preventative measure against diagnosis.
Post-Hoc G*Power Analysis

The post-hoc G*Power Analysis for F-Test MANOVA Global Effects resulted in a power of 1.000, using an effect size of .51 that was calculated from the value of the Wilk’s Lambda test as shown in Table 61, with an alpha level of .05, two groups (the two independent variables) and the four dependent variables (Faul, Erdfelder, Buchner, & Lang (2009) (see Figure 44).

Statistical power is the probability that a study will detect an effect when there is an effect to be detected. As such, if the statistical power is high, the likelihood of making a Type II error (concluding there is no effect when there is in fact one) goes down (Ellis, 2010). Therefore, with a power of 1.000, this study was highly powered.
**Post-Hoc G*Power Analysis**

- Post-hoc G*Power Analysis was conducted to determine the power of the sample size
- MANOVA: Global Effects
- Alpha level = 0.05
- Effect Size: 0.51 (calculated)
- Total sample size n = 254
- # of Groups = 2
- # of Variables = 4
- **Calculated Power = 1.000**

*Figure 4.4. Post-Hoc G*Power Analysis. With an effect size of 0.51, an alpha level set at .05, total sample size of 254 with 2 groups and 4 dependent variables, the power = 1.000.*
Summary of Findings

To summarize, a good internal reliability of the BHS tool was established ($\alpha = .848$) according to George and Mallery (2011) (Table 24).

The differences of the means between the two groups were presented for each of the four dependent variables. Across the dependent variables, participants with HBP reported higher means across the dependent variables than participants without HBP.

For the beliefs variables, participants with HBP had a mean score of 59.27 and a standard deviation of 10.87. For beliefs, participants without HBP had a mean score of 57.02 and a standard deviation of 8.84.

For the knowledge variable, participants with HBP had a mean score of 55.67 and a standard deviation of 1.86. For knowledge, participants without HBP had a mean score of 55.40 and a standard deviation of 1.81.

For the attitudes variable, participants with HBP had a mean score of 27.37 and a standard deviation of 6.52. For attitudes, participants without HBP had a mean score of 26.46 and a standard deviation of 5.76.

For the behaviors variable, participants with HBP had a mean score of 62.30 and a standard deviation of 5.35. For behaviors, participants without HBP had a mean score of 37.10 and a standard deviation of 3.25.

Based on the correlation values obtained from the Pearson’s and Spearman’s correlation coefficients, as well as from the results of the scatter plots, a significant correlation/relationship was found between the behaviors of African Americans with respect to HBP and their use of home remedies as treatment ($p = .000$).
There was no significant relationship found between the beliefs, knowledge and/or attitudes of African Americans regarding HBP and their use of home remedies as treatment. However, the scatter plots with the lines of best fit indicate that there is a moderate positive relationship between behaviors and knowledge, and between beliefs and attitudes. There was also a trend toward a positive linear relationship between behaviors and attitudes, and between beliefs and behaviors.

Based on the MANOVA values for the dependent variables, a significant difference, where p = .000, was found only for one variable, behaviors. The univariate ANOVA follow-up test also confirmed that a significant difference between the groups (p = .000) was evident only for the behaviors variable as well. Therefore, the null hypothesis will be rejected in favor of the alternative hypothesis for research question 8.

There were no significant differences found between the two groups with respect to the beliefs, knowledge and attitudes variables regarding the use of home remedies as treatment for HBP. As such, the PI will fail to reject the null hypotheses for research questions 5, 6 and 7. As indicated in the post-hoc analysis found in Figure 44 above, the power of the sample size obtained was 1.000, which indicates that a high power was achieved.

Research Questions: Reject or Fail to Reject Hypotheses

Research Question 1 and Null Hypothesis. For the following, the alternative hypothesis was rejected:

RQ1: Is there a relationship between the beliefs of African Americans regarding high blood pressure and their use of home remedies as treatment? (Table 68)
H₀: There is no relationship between the beliefs of African Americans regarding high blood pressure and their use of home remedies as treatment.

**Research Question 2 and Null Hypothesis.** For the following, the alternative hypothesis was rejected:

RQ2: Is there a relationship between African American’s knowledge of high blood pressure and their use of home remedies as treatment? (Table 68)

H₀: There is no relationship between African Americans’ knowledge of high blood pressure and their use of home remedies as treatment.

**Research Question 3 and Null Hypothesis.** For the following, the alternative hypothesis was rejected:

RQ3: Is there a relationship between the attitudes of African Americans regarding high blood pressure and their use of home remedies as treatment? (Table 68)

H₀: There is no relationship between the attitudes of African Americans regarding high blood pressure and their use of home remedies as treatment.

**Research Question 4 and Alternative Hypothesis.** For the following research question, the PI failed to reject the alternative hypothesis:

RQ4. Is there a relationship between the behaviors of African Americans regarding high blood pressure and their use of home remedies as treatment? (Table 68)

H₄a. There is a relationship between the behaviors of African Americans regarding high blood pressure and their use of home remedies as treatment.
Research Question 5 and Null Hypothesis. For the following, the alternative hypothesis was rejected:
RQ5. Is there a difference between the beliefs of African Americans with high blood pressure and those without high blood pressure and their use of home remedies as treatment? (Table 69)
H₀: There is no difference between the beliefs of African Americans with high blood pressure and those without high blood pressure regarding the use of home remedies as treatment.

Research Question 6 and Null Hypothesis. For the following, the alternative hypothesis was rejected:
RQ6. Is there a difference between African Americans with high blood pressure and those without high blood pressure regarding knowledge of the condition? (Table 69)
H₀: There is no difference between African Americans with high blood pressure and those without high blood pressure regarding knowledge of the condition.

Research Question 7 and Null Hypothesis. For the following, the alternative hypothesis was rejected:
RQ7. Is there a difference between the attitudes of African Americans with high blood pressure and those without high blood pressure regarding the use of home remedies as treatment or prevention? (Table 69)
H₀: There is no difference between the attitudes of African Americans with high blood pressure and those without high blood pressure regarding the use of home remedies as treatment.
**Research Question 8 and Alternative Hypothesis.** For the following research question, the PI failed to reject the alternative hypothesis:

RQ8. Is there a difference between the behaviors of African Americans with high blood pressure and those without high blood pressure regarding the use of home remedies as treatment or prevention? (Table 69)

H8a. There is a difference between the behaviors of African Americans with high blood pressure and those without high blood pressure regarding the use of home remedies as treatment or prevention.
### Table 68

**Summary Table- Reject or Fail to Reject Hypotheses for Research Questions 1-4**

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Reject or Fail to Reject Alternative Hypothesis?</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>RQ1.</strong> Is there a relationship between the beliefs of African Americans regarding high blood pressure and their use of home remedies as treatment?</td>
<td>Reject the Alternative &amp; Fail to Reject the Null Hypothesis</td>
</tr>
<tr>
<td>$H_{1a}$: There is a relationship between the beliefs of African Americans regarding high blood pressure and their use of home remedies as treatment.</td>
<td></td>
</tr>
<tr>
<td>$H_{0a}$: There is no relationship between the beliefs of African Americans regarding high blood pressure and their use of home remedies as treatment.</td>
<td></td>
</tr>
<tr>
<td><strong>RQ2.</strong> Is there a relationship between African American’s knowledge of high blood pressure and their use of home remedies as treatment?</td>
<td>Reject the Alternative &amp; Fail to Reject the Null Hypothesis</td>
</tr>
<tr>
<td>$H_{2a}$: There is a relationship between African Americans’ knowledge of high blood pressure and their use of home remedies as treatment.</td>
<td></td>
</tr>
<tr>
<td>$H_{0a}$: There is no relationship between African Americans’ knowledge of high blood pressure and their use of home remedies as treatment.</td>
<td></td>
</tr>
<tr>
<td><strong>RQ3.</strong> Is there a relationship between the attitudes of African Americans regarding high blood pressure and their use of home remedies as treatment?</td>
<td>Reject the Alternative &amp; Fail to Reject the Null Hypothesis</td>
</tr>
<tr>
<td>$H_{3a}$: There is a relationship between the attitudes of African Americans regarding high blood pressure and their use of home remedies as treatment.</td>
<td></td>
</tr>
<tr>
<td>$H_{0a}$: There is no relationship between the attitudes of African Americans regarding high blood pressure and their use of home remedies as treatment.</td>
<td></td>
</tr>
<tr>
<td><strong>RQ4.</strong> Is there a relationship between the behaviors of African Americans regarding high blood pressure and their use of home remedies as treatment?</td>
<td>Fail to Reject the Alternative &amp; Reject the Null Hypothesis</td>
</tr>
<tr>
<td>$H_{4a}$: There is a relationship between the behaviors of African Americans regarding high blood pressure and their use of home remedies as treatment.</td>
<td></td>
</tr>
<tr>
<td>$H_{0a}$: There is no relationship between the behaviors of African Americans regarding high blood pressure and their use of home remedies as treatment.</td>
<td></td>
</tr>
<tr>
<td>Research Question</td>
<td>Reject or Fail to Reject Alternative Hypothesis?</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------------</td>
<td>-------------------------------------------------------------------------</td>
</tr>
<tr>
<td><strong>RQ5.</strong> Is there a difference between the beliefs of African Americans with high blood pressure and those without high blood pressure and their use of home remedies as treatment?</td>
<td>Reject the Alternative &amp; Fail to Reject the Null Hypothesis</td>
</tr>
<tr>
<td>- $H_5$: There is a difference between the beliefs of African Americans with HBP and those without HBP regarding the use of home remedies as treatment.</td>
<td></td>
</tr>
<tr>
<td>- $H_6$: There is no difference between the beliefs of African Americans with HBP and those without HBP regarding the use of home remedies as treatment.</td>
<td></td>
</tr>
<tr>
<td><strong>RQ6.</strong> Is there a difference between African Americans with high blood pressure and those without high blood pressure regarding knowledge of the condition?</td>
<td>Reject the Alternative &amp; Fail to Reject the Null Hypothesis</td>
</tr>
<tr>
<td>- $H_6$: There is a difference between African Americans with HBP and those without HBP regarding knowledge of the condition.</td>
<td></td>
</tr>
<tr>
<td>- $H_6$: There is no difference between African Americans with HBP and those without HBP regarding knowledge of the condition.</td>
<td></td>
</tr>
<tr>
<td><strong>RQ7.</strong> Is there a difference between the attitudes of African Americans with high blood pressure and those without high blood pressure regarding the use of home remedies as treatment or prevention?</td>
<td>Reject the Alternative &amp; Fail to Reject the Null Hypothesis</td>
</tr>
<tr>
<td>- $H_7$: There is a difference between the attitudes of African Americans with HBP and those without HBP regarding the use of home remedies as treatment.</td>
<td></td>
</tr>
<tr>
<td>- $H_7$: There is no difference between the attitudes of African Americans with HBP and those without HBP regarding the use of home remedies as treatment.</td>
<td></td>
</tr>
<tr>
<td><strong>RQ8.</strong> Is there a difference between the behaviors of African Americans with high blood pressure and those without high blood pressure regarding the use of home remedies as treatment or prevention?</td>
<td>Fail to Reject the Alternative &amp; Reject the Null Hypothesis</td>
</tr>
<tr>
<td>- $H_8$: There is a difference between the behaviors of African Americans with HBP and those without HBP regarding the use of home remedies as treatment or prevention.</td>
<td></td>
</tr>
<tr>
<td>- $H_8$: There is no difference between the behaviors of African Americans with HBP and those without HBP regarding the use of home remedies as treatment or prevention.</td>
<td></td>
</tr>
</tbody>
</table>
CHAPTER V
DISCUSSION

Introduction

The process that was used to conduct this study will be addressed in this chapter, as well as an evaluation of the results, including the results that were based on the four domains/dependent variables. Any gaps that were found in the study based on the results will also be discussed herein. Possible influences that may have affected the study results will also be addressed in this chapter, as well as the themes that emerged from the qualitative data and an assessment of how the conceptual framework informed the study. Finally, the study limitations will be discussed herein, as well as the clinical/practical implications of the study findings.

General Discussion of Study Findings

The results of the study indicate that behavior was the only variable that affected African Americans’ use of home remedies to treat HBP. There was no significant correlation found between African Americans’ beliefs, knowledge and attitudes and their use of home remedies as treatment. A significant difference was found between the behaviors of African Americans who have been diagnosed with HBP and those who have not been diagnosed by a doctor with the condition. Participants with HBP were more likely to use home remedies than those without the condition. This suggests that African Americans are more likely to use home remedies as a treatment for HBP after diagnosis, than as a preventative measure to reduce the risk of diagnosis of the condition before such diagnosis. This further suggests that HBP diagnosis is a game-changer when it comes to a behavior change among African Americans.
There were 133 participants who commented on the open-ended question to share further thoughts about the topic and many of those participants commented that it would be beneficial for the African American community to be educated on the use of home remedies as treatment for HBP. This indeed may be a good way to help the people of this race learn and understand more about the benefits and risks of home remedies as well as those remedies that are appropriate to use as treatment options for HBP. This would enable more African Americans to talk more openly with their doctors and work with their doctors to decide whether or not this would be a good option for them, especially for those who have been unable to gain control of this HBP with the use of prescription medication alone. Educating African Americans about HBP and home remedies that they can use to effectively treat the condition may also help to reduce some of the mistrust in the health care system that the literature review indicated that many African Americans have. This mistrust in the health care system have resulted in many African Americans not taking their HBP medications at all when they are prescribed by their healthcare providers because they do not trust their health care providers and they do not know how those medications will affect them.

It is also recommended that physicians and other health care providers receive formal training on home remedies and the efficacy of their use to treat different health conditions during their initial medical training or during refresher courses throughout their medical careers. Educating health care professionals on the potential benefits and risks on different home remedies so that they understand enough about these remedies to talk about them with their patients can also help to improve the level of cultural competency among healthcare providers. This recommendation will be discussed in further detail under the section entitled clinical/practical implications of the study.
Overview of Discussion

Most of the study participants (184) were highly educated with either a master’s or doctoral degree, however, there were some discrepancies between the answers given on the survey. For instance, there was a discrepancy between participants who said they currently have HBP and those who said they have been diagnosed with the condition by a doctor. On the other hand, the high level of education among participants may account for why most participants were very knowledgeable about the basics of HBP.

There was a gender gap between study participants as well, with 203 females and 51 males who participated in the study. Two hundred thirty-one (231) participants reported that they have at least one blood relative who has HBP. This number indicates the high number of African Americans in the U.S. who suffer from this chronic condition, which further implies that there is a need for effective ways to treat HBP in this population, as well as the need for more ways to educate this population in a way that will lead to a mindset shift so that this group of people can start taking proactive steps to reduce their risk of HBP diagnosis.

A moderate positive relationship was found between beliefs and attitudes. This indicates that the more favorable participants’ beliefs were regarding the benefits of using home remedies to treat HBP, the more favorable were their attitudes toward such use. A moderate positive relationship was also found between behaviors and knowledge. This indicates that the more knowledge participants had of HBP, the more likely they were to change their behaviors to reduce their risk of diagnosis and the more likely they were to use home remedies to treat the condition for those who already have the condition. In fact, 78% of the study participants who do not have HBP stated that they would be willing to take home remedies to reduce their risk of diagnosis. There was also a trend toward a positive linear relationship between behaviors and
attitudes, and between beliefs and behaviors, which indicate that the more favorable the attitudes and beliefs of African Americans regarding home remedies, the more likely they are to use these remedies to treat or help prevent HBP diagnosis.

Based on the correlation values from Pearson and Spearman’s correlation coefficients, a significant correlation was found between the behaviors of African Americans regarding HBP and their use of home remedies as treatment (p = .000). This indicates that African Americans are likely to use home remedies to treat their HBP, either as a complement or as an alternative to prescription medicine. However, the results of the study also indicate that African Americans are more likely to use home remedies as a complement rather than as an alternative to prescription/conventional medicine, which supports previous literature on this topic. There were no significant relationships found between the beliefs, knowledge and attitudes of African Americans regarding HBP and their use of home remedies as treatment.

Based on the MANOVA values for the dependent variables, a significant difference between the independent groups (African Americans with HBP and African Americans without the condition), where p = .000, was found only for the variable, behaviors, so the null hypothesis was rejected in favor of the alternative hypothesis in this case. No significant differences were found between both groups with respect to their beliefs, knowledge and attitudes regarding the use of home remedies as treatment for HBP. Therefore, these results further indicate that African Americans’ knowledge of HBP, as well as their beliefs and attitudes are not affected by diagnosis of the condition.

There was a significant difference between the behaviors of participants who had HBP and those who did not have the condition. This indicates that participants were more likely to take home remedies as a treatment for HBP after diagnosis rather than to prevent diagnosis of the
condition. As mentioned before, the results of this study therefore indicate that HBP diagnosis is a game-changer that affects African Americans behavior regarding the use of home remedies and lifestyle habits to treat the condition and limit its effects. According to Barner et al. (2010), “African Americans with chronic conditions are at least three times more likely to use CAM than not” (p. 198). Many African Americans without HBP would try CAM if diagnosed, and they may also be more likely to engage in healthy lifestyle habits as a preventative measure (Barner, et al., 2010, p. 203).

Based on the monolithic perspective, there should be total uniformity between the variables that were explored in this study with respect to how they affect both groups (participants who had HBP and those who did not), that is, this perspective suggests that all the variables should affect both groups in the same way. However, the results of this study refute this perspective because a significant difference was found only between the behaviors of both groups, while no difference was found between both groups with respect to the other three variables - beliefs, knowledge and attitudes.

**Discussion of the Dependent Variables**

The four dependent variables that were used in the study will now be discussed. These four variables (beliefs, knowledge, attitudes, and behaviors) were specifically chosen for this study because, based on the literature review, these factors have never been explored before in previous studies on this topic or in similar studies relating to African Americans. As was previously discussed, the four main constructs of this study had a dual nature. Knowledge could be high/good or low/poor. Beliefs, attitudes and behaviors could be either favorable or unfavorable in nature.
Due to the fact that the dependent variables are separate factors, it is important that they each be discussed in further detail with respect to how they relate to the results of this study.

Beliefs. As previously mentioned, beliefs can be defined as “Something that is accepted, considered to be true, or held as an opinion” (Merriam-Webster Dictionary, 2020d, para. 1).

In this research study, beliefs were categorized as either favorable or unfavorable. Beliefs was one of the two major domains of this study and was the domain with the highest number of questions on the BHS. The parameters of the study were within the bounds that beliefs may vary depending on the type of home remedies being used, as well as what different African Americans consider to be home remedies. For example, some African Americans consider prayer to be a home remedy, while others do not.

The results of the study indicated that most of the study participants believe that HBP is a serious condition and that both prescription medicine and home remedies should be used together to treat the condition. These results are aligned with the knowledge discussion because participants were quite knowledgeable about HBP, which indicates that they understand its severity and the potential effects of this condition. Furthermore, several participants were of the belief that HBP can be cured, which is not the case since it is a chronic condition and there is no cure for chronic diseases.

The results of this research study further indicate that beliefs do not significantly affect African Americans’ use of home remedies as treatment for HBP. However, most of the participants believed that home remedies are effective ways to treat the condition, especially when it is used to complement prescription medicine.

Knowledge. As previously mentioned, knowledge is defined as “the fact or condition of knowing something with familiarity gained through experience or association” (Merriam-
Webster Dictionary, 2020e, para. 1). In this study, knowledge was categorized as either high/good or low/poor.

There was no significant difference between the two groups with respect to the dependent variable, knowledge, which indicates that African Americans’ knowledge of HBP is not affected by diagnosis of the condition. Most participants of this study had a good knowledge of HBP. For instance, more than 90% of participants correctly identified which blood pressure readings indicate high, low and normal blood pressure. Most participants also had good knowledge with respect to the causes and effects of HBP.

This high level of knowledge may be due to the fact that most of the participants had a post-graduate degree, so most were highly educated. Another possible reason for this high level of knowledge about HBP may also be the fact that most participants reported that they have at least one blood relative who has HBP (231 of the 254 who participated in this study). Only 11 participants reported that they do not have a blood relative with the condition, which indicates just how prevalent HBP is in the African American population. However, as mentioned previously, even though participants were generally knowledgeable about HBP, many of them believed that the condition can be cured, which is not the case, as previously mentioned, because chronic diseases such as HBP can be treated, but they cannot be cured.

Many of the participants also indicated on the open-ended question that they need more education regarding the use of home remedies as treatment for HBP. Some of the statements from participants were as follows:

“More education is needed on the impact of not take [sic] prescribed medication and the potential of home remedies.” (Participant #104)

“I think more education should be provided especially to minorities.” (Participant #107)
“I have never been advised of any home remedies other than diet and exercise. If more options existed, I would surely want to know about them.” (Participant #61)

The knowledge of health care providers can also be increased so that they can be better equipped to provide advice to their patients regarding the use of home remedies if prescription medicine is not working for those patients, which is often the case with African American hypertensive patients. A health care provider’s knowledge on different treatment options usually comes from previous education, experiences and may also be obtained through sources such as lectures, medical literature, and conversations with peers. Fortunately, there are also herbal doctors who specialize in treating patients using CAM/naturopathic medicine.

The results of this research study indicate that knowledge was not a factor that affected African Americans’ use of home remedies to treat HBP. However, most participants were favorable to the use of home remedies as treatment for the condition.

**Attitudes.** As mentioned previously, attitude is defined as “a feeling or emotion toward a fact or state; a mental condition with regard to a fact or state” (Merriam-Webster Dictionary, 2020b, para. 1).

In this research study, attitudes were categorized as either favorable or unfavorable. The parameters of the study were within the bounds that attitudes may vary depending on the type of home remedies. For example, African Americans may have a favorable attitude toward the use of nutritional and lifestyle counseling or massage as home remedies but may have an unfavorable attitude toward the use of meditation and yoga as home remedies.

The results indicate that there is a positive linear relationship between attitudes and beliefs. This means that the more favorable the beliefs of African Americans are regarding the
use of home remedies to treat HBP, the more favorable their attitudes will be toward such use as well.

The results of this research study indicate that attitude was not a factor that affected African Americans’ use of home remedies to treat HBP. However, most participants had a favorable attitude toward the use of home remedies as treatment for the condition, and most indicated that they are more likely to use both prescription medicine and home remedies together as treatment, than they are to use either prescription medicine or home remedies alone to treat the condition.

**Behaviors.** As previously mentioned, behavior is defined as “anything that an organism does involving action and response to stimulation” (Merriam-Webster Dictionary, 2020c, para. 1). In this research study, behaviors were categorized as either favorable or unfavorable. The results of the study indicate that African Americans are more likely to use home remedies as treatment for HBP after diagnosis than they are to using home remedies as a preventative measure against HBP diagnosis. However, 78% of study participants who do not have HBP indicated that they are willing to start using home remedies as a preventative measure to reduce their risk of diagnosis.

The results of this research study indicate that there is a moderately positive linear relationship between behaviors and the use of home remedies as treatment for HBP. There was also a moderate linear relationship between behaviors and knowledge, which indicates that the more knowledgeable African Americans are about HBP, the more favorable they will be to using home remedies to treat the condition as well as to use these remedies as a preventative measure against diagnosis.
It was surprising to note that only a few participants reported that they take one baby aspirin per day, since there have been widespread reports from health care professionals and medical organizations (including the American Heart Association/AHA) that taking one baby or low-dose aspirin (81 milligrams) daily can reduce the effects of HBP in people, especially regarding heart attack and stroke. In this study, 25 participants reported that they take one baby aspirin every day, 47 said they do not take it every day, and 182 reported that they do not take one baby aspirin at all. On the other hand, 135 participants reported that they had previously been diagnosed with HBP. Previous studies (Castro, 2020; University of Michigan, 2020) indicate that aspirin can significantly reduce the risk of heart attack and stroke, which are two of the primary effects of HBP. According to DeNoon (2002), taking one baby aspirin can also help lower HBP, but only if it is taken at bedtime.

These results further tie into the notion that there is the need for African Americans to receive further education on the different ways of treating HBP. According to Mayo Clinic (2019), daily low-dose aspirin intake can lower the risk of a heart attack, but individuals should first talk to their doctors before taking aspirin daily because it can also cause internal bleeding, especially if it is not low-dose (81 milligrams) aspirin.

**The Gender Gap**

In this research, 203 of the study participants were females, and 51 were males. This means that there were 152 more female participants in this study than their male counterparts. This result reflects the findings of several studies in recent years that have explored the reasons why more females tend to participate in research studies that are conducted online than males, regardless of the topic of the study.
The results of a study that was conducted by Smith (2008) to examine the relationship between online survey non-response and various demographic factors, including gender, found that females are much more likely to respond to online surveys than males. Smith (2008) also inferred that this result was due to females spending much more time online than their male counterparts and cautioned that the results of such studies may therefore not be free of gender bias.

The Education Gap

As mentioned before, 184 of the study participants were highly educated with either a master’s or doctoral degree. In fact, 70 participants self-reported that they have completed a Ph.D. or other doctoral degree, while 114 participants have completed a master’s degree. There was only one study participant who had less than a high school level education. This study therefore did not have equal representation of different education levels. The Journal of Blacks in Higher Education (2009) reported that only 19.6% of African Americans over the age of 25 years old in the United States held any type of college degree in 2008, with 58% of those being African American women. There was therefore an education gap between most of the African Americans who participated in this study and the general African American population in the United States.

The fact that most of the study participants were highly educated may account for why most participants were very knowledgeable about HBP. The literature review also indicated that individuals with a high level of education are more likely to use home remedies than individuals who are less educated and have a low socio-economic status. Therefore, the education levels of participants of this study may account for why most participants who do not currently use home
remedies to treat HBP or other health problems, or who have not been diagnosed with HBP, stated that they are willing to start using home remedies either as a treatment or as a preventative measure against HBP diagnosis.

Most of the participants of this study were highly educated because two of the closed Facebook groups where participants were solicited from are groups for African Americans who have either completed a doctoral degree or are currently enrolled in a doctoral program. Based on the education levels of participants, it can be seen that most of the participants of this study were from those groups. As such, future studies on the topic may indicate a different result if the education levels of participants are more equal across the board in those studies.

**Evaluation of Results**

This section will further evaluate the results of this study and the possible reasons for those results.

Why was behavior the only dependent variable that was found to have a correlation with African Americans’ use of home remedies as treatment? One possible reason for this link between behaviors regarding HBP and the use of home remedies as treatment is that African Americans have long been known to be favorable to the use of naturopathic or herbal medicines as treatment for many of their health problems. This may further be due to the fact that when African Americans were slaves, they did not have access to professional health care or prescription medicine, so they had to come up with their own remedies for the health problems they faced during that time. These natural remedies developed, tested and used by slaves were given the name ‘slave medicine’ (Fitzgerald, 2016). Therefore, this tendency of African
Americans to use home remedies as an alternative or as a complement to prescription medicine is likely a tradition that has been passed down from generation to generation over the years.

A possible reason why there was no correlation between the other dependent variables and African Americans’ use of home remedies as treatment is that most of the participants of the study were highly educated, which may account for their similar beliefs, knowledge and attitudes and may be the reason why these variables would not affect their use of home remedies as treatment. Furthermore, as mentioned previously, the literature suggested that African Americans are more likely to use home remedies than other racial/ethnic groups, so it was unlikely that these dependent variables (beliefs, knowledge and attitudes) would affect their decision to use home remedies as treatment for HBP and other health conditions.

Why was behavior also the only dependent variable where there was a significant difference between the two independent variables (African Americans with HBP and African Americans without HBP)? According to the literature that was reviewed in preparation for this study, some researchers have found that many African Americans do not consider HBP to be a serious condition. As such, many African Americans may think it is unnecessary to take preventative measures to lower their risk of HBP diagnosis, especially if they do not consider themselves to be susceptible to the condition. However, once these individuals are diagnosed with the condition and start suffering from its effects, it is likely that they then realize its severity and so they then become more likely to change their behaviors to reduce the effects they experience from the condition.

One possible reason why there were no differences between the two groups with respect to the other three dependent variables is that most of the participants were highly educated, which may have resulted in them having similar knowledge, beliefs and attitudes regarding the
condition, as suggested by the literature review. Beliefs and attitudes can also be affected by culture, and African Americans in general tend to have similar cultures, regardless of where in the world they originate from.

**Influence of Social Media**

In this section, the influence of social media on this research and its results will be discussed.

As an African American who is a member of several Facebook closed/private groups that were created specifically for African Americans, the PI was aware that African Americans have a very large presence on social media platforms, especially Facebook®. As such, the PI was also aware that the opportunity would be available to solicit the required sample size from Facebook® and WhatsApp®, both of which are used by this population to share new information about their culture, to keep connected with relatives and friends and share old memories, and to offer support to other African Americans who have similar likes, dislikes, hobbies, lifestyle habits, dreams and aspirations, health challenges, careers, and as well as with those who have similar cultural, political and religious views.

However, once the PI submitted a request to the administrators of many of these groups for permission to solicit participants for this study from many of those groups, the PI discovered that due to recent changes in the rules of Facebook® that were necessary to protect the privacy and data of its users, many of these groups no longer allow links to be posted on their discussion pages. As such, many administrators denied the request to solicit the members of their closed/private groups to participate in the study because the link to the survey on SurveyMonkey® could not be posted on their pages. For this reason, only four closed Facebook® groups approved the PI’s request to post the link to the survey on their discussion
pages, and most of the participants of this study were members from only two of those groups, both of which were specifically created for African Americans with a master’s or doctoral degree. As mentioned earlier, this likely accounted for the education gap that existed between participants of this study and African Americans in the general U.S. population.

The PI was also aware that due to the nature of WhatsApp®, only solicitation of acquaintances and snowball sampling would garner participants for the study on that platform. As such, the primary focus for soliciting participants was therefore from the social media platform, Facebook®. Even though participants were also solicited from ResearchGate®, this is still a new platform that is not yet used widely to solicit participants for research studies, and so it was not surprising that the PI was unsuccessful in soliciting participants for this study via that platform.

**Influence of Religion**

As mentioned previously, over 20 different religions were represented among the participants of this study, with many of the participants being either Baptist, Seventh-Day Adventist, Pentecostal, non-denominational Christian, Methodist or Catholic. Other religions/denominations that participants reported that they practice include African Methodist Episcopal/AME, Seventh-Day Church of God, New Thought Ministry, Spiritual, Charismatic, Church of Christ, Apostolic and Full Gospel. Twenty-six participants reported that they do not practice any religion at all.

Religion, particularly Christianity, has played a significant role in the lives of many African Americans for centuries, and today it is still believed to play a significant role in the lives of the people of this race. As such, religion may have been a confounding factor in this study that may have affected the beliefs, knowledge, attitudes and behaviors of many
participants, which in turn may have affected how they responded to the questions on the survey. According to Masci (2018), about eight out of every ten African Americans in the U.S., or 79% of the African American population, self-identify as Christian.

In a study conducted by Holt, Clark, Debnam and Roth (2014), it was found that religious beliefs were associated with several positive health behavior changes, including more vegetable consumption and less alcohol consumption.

**How the Conceptual Framework Informed the Study**

All six constructs of the Health Belief Model (HBM)- perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action and self-efficacy- were used as a guide to create the questions for the Beliefs about Hypertension Survey (BHS). Therefore, all six constructs of the HBM are represented on the survey.

The parameters of the HBM influenced the study in the following ways:

1. Individual Perceptions- Most of the participants believed that they were susceptible to HBP and considered this chronic disease to be a serious condition.

2. Modifying Factors- There was a connection between knowledge, perceived threat and cues to action because participants who do not currently have HBP but think they will eventually develop the condition reported that they are willing to use home remedies to reduce their risk of diagnosis.

3. Likelihood of Action- More participants thought that it would be beneficial to use home remedies to treat HBP than those who considered home remedies to be harmful. The results indicate that African Americans are more likely to use home remedies as a treatment for HBP after diagnosis than as a preventative measure before diagnosis. One hundred and twenty (120)
of the 135 participants who have HBP said they currently use home remedies either as a treatment for HBP or other health problems, while 105 of the 119 participants who do not have HBP said they would be willing to use home remedies to reduce their risk of diagnosis. Figure 45 below is an illustration of how the theoretical framework, the HBM, guided this study.

Figure 45. How the theoretical frame guided the study. Permission for the use of this diagram was granted and can be seen in Appendix G.
As mentioned before, most participants who do not have HBP indicated that they would be willing to use home remedies to reduce their risk of HBP diagnosis and are willing to change their behavior by adopting healthier lifestyle habits. If further education is provided to these individuals by their health care providers about the benefits of home remedies and lifestyle behavior change, their knowledge will also increase (see Figure 45 above). More knowledge regarding the benefits of home remedies and the different steps that individuals can take to reduce their risk of diagnosis will likely result in a change in their behavior.

Therefore, as can be seen in Figure 45, as the willingness to change behavior increases, education will also increase, which will lead to an increase in knowledge, which will further result in a behavior change. This relates to the HBM model because participants’ individual perceptions can lead to and affect modifying factors, which will ultimately lead to a positive change in behavior.

**Emerging Themes from the Qualitative Data**

Question 40 of the BHS is the only open-ended question/statement on the survey and so it is the only open-ended question that study participants were asked. The statement read, “Please share any additional thoughts you may have about high blood pressure and using home remedies.” One hundred and thirty-three participants responded to this question and shared additional thoughts and comments that they had about HBP and using home remedies, however, some of the responses included “none” and “not applicable”.

The responses from all 133 participants who answered the open-ended question were coded by the PI as well as by another researcher who has many years of experience conducting qualitative research. The data were coded and categorized using the inductive approach, since the
BHS is a novel survey instrument. The categories were then grouped together which led to the creation of emerging themes. A total of five themes emerged from this open-ended survey question. These emerging themes were as follows:

1. Effectiveness of home remedies
2. Importance of lifestyle changes
3. Unwillingness to take prescription medicine
4. Use of home remedies as a complement to prescription medicine
5. Need for more education regarding the use of home remedies

**Theme I: Effectiveness of Home Remedies**

This theme emerged because many of the participants stated that they believe that the use of home remedies is an effective method of treating HBP. Some of the statements from participants that relate to this theme are indicated in Figure 46 below. According to Barner et al. (2010), “African Americans with chronic conditions are at least three times more likely to use CAM than not” (p. 202).
Statements from participants regarding the effectiveness of home remedies to treat high blood pressure.

Some other statements from participants that relate to this theme were:

Participant #60: “I have used home remedies a very long time ago when I was borderline hypertensive. I have encouraged others to use home remedies to treat hypertension.”

Participant #85: “Some home remedies might be effective when treating high blood pressure.”

Participant #120: “It works.”

Participant #93: “Home remedies are natural remedies and natural remedies are always good.”

**Theme II: Importance of Lifestyle Changes**

This theme emerged because many of the participants stated that they believe that lifestyle changes is important to achieve blood pressure control. Some of the statements from participants that relate to this theme are shown in Figure 47 below.
Some other statements from participants that relate to this topic were:

Participant #16: “I feel natural remedies should also be accompanied by healthy lifestyle choices.”

Participant #57: “I believe home remedies can lower one’s chances of being diagnosed with HBP and if one does get diagnosed, I believe one should try to change their lifestyle before trying prescription.”

The belief of study participants that making healthy lifestyle changes can result in blood pressure control aligns with information that has been published by the AHA. According to the AHA (2021c), making healthy lifestyle changes can lower HBP, prevent or reduce the risk of development of the condition, help make HBP medications work better in the body, and can
lower an individual’s risk of the major effects of HBP, such as heart attack, stroke, kidney failure or vision loss.

**Theme III: Unwillingness to Take Prescription Medicine**

This theme emerged because some of the participants expressed their unwillingness to take prescription medicine to treat their HBP. Some of the statements from participants that relate to this theme are indicated in Figure 48 below.

![Figure 48. Statements from participants regarding their unwillingness to take prescription medicine to treat high blood pressure.](image)

Previous studies, such as Flack et al. (2010) and Marshall et al. (2012), also found that African Americans do not adhere well to taking prescription medicine to treat health conditions,
including prescription medicine for HBP. According to Flack et al. (2010), African Americans tend to mistrust the health care system and they tend to delay seeking medical care and do not adhere well to prescribed medications, especially if they feel like they are being discriminated against. According to Marshall et al. (2012), the primary factor affecting the control of HBP in African Americans is poor adherence to medication because the results of their study indicated that participants did not like their medicine or the side effects of those medications, and that they feared addiction to those drugs.

**Theme IV: Use of Home Remedies as a Complement to Prescription Medicine**

This theme emerged because many of the study participants stated that they use home remedies as a complement to prescription medicine to treat their HBP. Some of the statements from participants that relate to this theme are indicated in Figure 49. In a study conducted in 2010 on African Americans with and without HBP, Barner et al. (2010) found that most African Americans believe that both conventional medicine and CAM should be used together to treat HBP. The results of this study indicate that most of the participants of this study also felt this way, regardless of whether or not they had HBP.
Figure 49. Statements from participants regarding their use of home remedies as a complement to prescription medicine.

Other statements from participants that relate to this topic were:

Participant #39: “I believe that it is best to use home remedies and prescription medicine together to treat high blood pressure.”

Participant #37: “They should be used in conjunction.”

Participant #83: “I think home remedies help by taking them along with medication.”

Participant #92: “A combination of home remedies and prescribed medicines complement each other for efficacy.”
Theme V: Need for More Education Regarding the Use of Home Remedies

This theme emerged because many of the participants stated that there is the need for more education regarding the use of home remedies as a treatment for HBP. Some of the statements from participants that relate to this theme are indicated in Figure 50 below. According to Maraboto and Ferdinand (2020), the use of CAM by African Americans is affected by their lay health beliefs, which are the beliefs they have developed over the years from their social environment and which may or may not be based on facts. This suggests that African Americans may therefore benefit from receiving education about home remedies in a more formal setting, such as from their health care providers, where they may be more likely to receive more factual information. This, in turn, will allow them to make more informed decisions regarding the use of home remedies as treatment for their HBP.
Statements from participants regarding the need for more education on the use of home remedies to treat high blood pressure.

These statements from participants indicate that most participants, regardless of whether or not they have or do not have HBP, were primarily favorable toward the use of home remedies to treat the condition and also had a fairly good knowledge about HBP, though further education on some basic facts about the condition (such as the fact that it cannot be cured because it is a chronic disease) would also be beneficial to this population. These statements further suggest that if more African Americans are educated on the different home remedies that they can safely use to treat their HBP, then they would be willing to change their behavior and take the necessary steps to use these remedies as a treatment for the condition. These statements are even more encouraging because they further suggest that African Americans may also be willing to adopt healthier lifestyle habits to lower their risk of HBP diagnosis. As the saying goes, “Prevention is better than cure,” so making a change in their behavior to lower their risk of
diagnosis by using home remedies as a preventative measure would be considered a better option than using home remedies as a treatment after diagnosis, especially considering the fact that HBP is a chronic disease and so it cannot be cured, as previously mentioned.

**Clinical/Practical Implications**

The results of this study imply that health care providers should be formally educated on home remedies either during medical training or as a refresher course after they start practicing medicine, so that they can have enough knowledge about these remedies to possibly recommend them to their African American patients who have difficulty controlling their HBP with prescription medicine alone. According to Barner et al. (2010), African Americans tend to mistrust the health care system and many of them do not adhere to prescription medications for HBP due to this mistrust because they are fearful of the effects of these medications.

Many participants of this study also stated in the qualitative section of the survey that they believe that African Americans should be further educated on the benefits of home remedies to treat HBP and that they would be willing to use home remedies if they had more information on them. This supports the literature review which indicated that there is a lack of cultural competency in health care professionals with respect to providing medical care to this population, so African Americans tend to not open up to their health care providers to ask questions about alternative treatment options.

According to Barner et al. (2010), HBP is controlled in only about 40% of African Americans who have the condition in the United States. As stated previously, this indicates that HBP is not adequately controlled in this population and, even though there has been prescription medicine that have been made specifically to treat HBP in African Americas (such as the drug
BiDil®, which was first approved for use in 2005), these medications have proven to be ineffective in treating the condition in this population. As such, if health care providers are educated on alternative treatment options for HBP, such as home remedies, they would have enough information regarding the home remedies that are most likely to effectively treat the condition in African Americans, either as an alternative or as a complement to prescription medicine and then they would be better equipped to speak openly about these options with their African American patients. This way, African Americans would likely begin to start trusting the health care system because they would likely feel more comfortable using natural remedies that they are already familiar with than using ineffective prescription medicine with their numerous side effects. Providing refresher courses to health care providers as well updating them on new and/or evolving CAM treatments can also be beneficial to African Americans in effectively managing their HBP based on the recommendations of their health care providers.

Furthermore, like the results from previous studies conducted on similar topics, the results of this study suggest a lack of cultural competency in the health care industry. Therefore, providing formal education to healthcare professionals on CAM options that can be used to treat HBP as well as other health care conditions may also help to increase the level of cultural competency in the U.S. healthcare industry, which will afford healthcare professionals the opportunity to attract patients from a wide variety of cultural backgrounds who will feel comfortable and at ease visiting the offices of these healthcare professionals when they are in need of medical care and treatment. This would further ensure that minority populations, including African Americans, are able to get medical care more frequently because they would be more willing to seek such care when necessary, which will, in turn, reduce the mortality rates
from preventable and/or treatable illnesses and diseases that occur daily among minority populations.

The fact that the HBP medications have been created specifically for African Americans have not been effective in controlling the condition in this population indicates that there is still a need for prescription medicine that will effectively control this “silent killer” in this population, especially since the results of this study and the literature review indicate that most African Americans believe that home remedies and prescription medicine should be used together to effectively control HBP. The results of this study also indicate that African Americans are more likely to use home remedies as treatment after diagnosis versus as a preventative measure against diagnosis. This further suggests that African Americans need further education on the seriousness and severity of the condition so that they can better understand the necessity of taking steps to reduce their risk before progression toward diagnosis.

Even though the results of the study also suggest that many African Americans who have never been diagnosed with HBP would likely be willing to change their behaviors in an effort to reduce their risk of diagnosis and that those who have been diagnosed are also likely to change their behaviors following diagnosis, there is also the issue of educating this group of people about the condition in a way that will result in a mindset shift that will result in them being willing to accept that knowledge and actually translate it into taking proactive steps to change their lifestyle behaviors.

A positive mindset is also powerful tool that must be considered when it comes to changing one’s behaviors with the goal of ultimately improving one’s health and ultimately, their quality of life. While it is important for African Americans to know that HBP is a serious condition that can significantly impact their lives by causing a stroke, heart failure, kidney
failure, vision loss and even death, if that they do not have positive attitude and a mindset shift where they accept the changes that they will have to make to their lifestyles that will be necessary for them to live healthier to reduce their risk of suffering from any or all of these effects of the condition, then they will never make those changes that are necessary for them to reduce those risks. A positive attitude will result in a willingness to adopt healthier lifestyle habits because they will be more likely to understand and desire the benefits that they will receive from making those lifestyle changes.

Therefore, while it is imperative that African Americans be educated more about HBP, it is equally important for them to truly be committed to making the necessary changes to their lifestyles and start living in a way that shows that they truly understand what it means to live a healthy lifestyle and that they also truly accept what they must do to lower their risk of diagnosis of the condition and/or to reduce the effects that HBP will have on them when they make those changes. Only when the people of this race have truly made that shift in their minds and to ready to make the necessary changes will they become committed to adopting healthier lives. Furthermore, once they have truly made that mindset shift, this group of people will be determined to do to maintain a healthy lifestyle because those healthy habits will ultimately become a part of their lives until they no longer find those new habits challenging to maintain and at which point, they will be able to engage in seamlessly.

Despite the fact that the results of the study also indicate that African Americans are willing to use home remedies to treat their HBP as well as to reduce their risk of diagnosis of the condition, the information regarding the benefits and any potential risks of using home remedies must also be translated to this group of people in a way that it is easily understandable and such that they will be motivated and will want to use those home remedies as a form of CAM to treat
their condition. They people will need to be educated enough on the topic so that they will have enough knowledge to feel comfortable in the knowledge that the potential benefits of HBP will have enough significance and impact in their lives for them to want to make the necessary changes and for them to be willing to make those changes. They will then be more likely to act on that willingness and actually make those changes by using the home remedies that they believe will be the best treatment options based on the education they received from their health care professionals.

Likewise, health care professionals will also need to first have a good enough understanding of those home remedies and their efficacy as a type of CAM for these professionals to also become comfortable enough with the knowledge and understanding of the potential benefits of these remedies before they will be willing to recommend them to African American patients who may have difficulty controlling their HBP with prescription medicine alone.

There is therefore the need for health care providers to first be educated on the benefits of home remedies as treatment for HBP themselves. Once they receive this education and understand these remedies well, they should, in turn, take the time to educate their African American patients on the seriousness of this condition and guide them on how they can reduce their risk of diagnosis. These health care professionals should also provide the necessary resources to their African American patients who already have HBP so that they can be better equipped to take the necessary steps to further reduce the effects that the condition can have on their lives.
Study Limitations

There were several limitations to the study that were affected by the study design and the method that was used to collect data for this research.

The results of the study are not generalizable to all African Americans because this was just one cross-sectional study in time. Furthermore, 184 of the study participants either had a graduate or post-graduate degree, which is not representative of the general African American population in the United States. As previously mentioned, The Journal of Blacks in Higher Education (2009) reported that only 19.6% of all African Americans over the age of 25 years old held any type of college degree in 2008.

The results of some of the dependent variables may also have been affected by confounding variables, especially in regard to the Cronbach’s Alpha coefficient scores for some of the dependent variables which indicated poor or questionable reliability. Some of these confounding variables may include religion, age, socio-economic status, gender and marital status. The variables with low reliability scores had fewer questions than the variables with higher scores, which may have resulted in those low scores because those variables were more vulnerable to being affected by confounding factors. The higher the number of questions that represent a dependent variable on a survey tool, the lower the chance of the reliability of those variables being affected by confounding factors, because the less susceptible each item that represent that variable will be to those confounding variables.

Data provided by participants were inconsistent with respect to having or not having HBP. While 111 participants self-reported that they have HBP, 143 said that they do not have HBP. However, there were 135 participants who reported that they have been diagnosed with HBP by a doctor in the past, and 119 who reported that they have never been diagnosed with
HBP by a doctor. There was therefore a discrepancy between the number of participants who reported that they currently have HBP and those who reported that they have been diagnosed with the condition by a doctor in the past.

Some of the participants also commented that they had HBP in the past, but that they were cured and no longer have this chronic disease. Furthermore, in response to the Likert-scale item on the BHS which stated that “High blood pressure cannot be cured”, 104 participants disagreed with the statement, 77 strongly disagreed, and only 45 participants either agreed or strongly agreed that HBP cannot be cured. These results suggest that participants need to be further educated on this condition because as a chronic disease, HBP can be treated, but it cannot be cured. As such, once a person is diagnosed with the condition, that person will be able to manage their HBP, but they will never be cured from it. According to the American Heart Association (2021e), while there is no cure for HBP, making the necessary lifestyle changes and taking medications as prescribed can improve the quality of life of an individual with HBP and can lower their risk of heart attack, stroke and kidney failure. Having inaccurate information about HBP may therefore have resulted in the discrepancy in participants’ report that they had been diagnosed with the condition in the past, but also reporting that they no longer have HBP.

This was a survey-based research and, as such, the results of the study were based on the honesty of participants. While it is assumed that participants answered the questions as honestly as they could, there are several factors that could have affected the sincerity of participants in answering these questions. One such factor is social desirability. Social desirability may have affected the results of the study because the PI solicited participants via WhatsApp® and Facebook® closed groups that the PI is a member of. As such, some participants may have given
those responses that they thought were desirable on the survey, even though they were informed via the letter of solicitation that participation in the study would be 100% anonymous.

Some participants may also have experienced survey fatigue due of the length of the survey. The survey was completed by participants in an average of 15 minutes and 32 seconds. It is therefore possible that some participants were fatigued before the end of the survey and could have answered questions without reading or fully thinking through the questions before selecting their answers.

There is the possibility that there was also religious bias which may also have affected the results of the study. As previously mentioned, religion plays a significant role in the lives of the majority of African Americans and it often affects many decisions that they make, including treatment options that they find acceptable and are willing to use to treat different health problems, including chronic conditions like HBP. While study participants were asked to state which religion they practice on the survey, there were no specific religious questions on the BHS regarding how participants’ religion may affect their beliefs, knowledge, attitudes and behaviors with respect to how they manage different health conditions.

Sampling bias was also possible because the PI collected data for the study using an electronic survey, which may have resulted in the exclusion of potential participants who do not have access to technology or who do not know how to use a computer or the internet. According to Pew Research Center (2020), “People with lower incomes, less education, living in rural areas or those age 65 and older are underrepresented among internet users and those with high-speed internet access” (para. 2). This therefore may have resulted in some individuals who met the inclusion criteria not getting the opportunity to participate in the study.
CHAPTER VI

CONCLUSION

Introduction

In this chapter, several recommendations for future research will be given along with the supporting reasons for these recommendations. The significance of this dissertation study will also be addressed in further detail and a concluding statement will be given.

Future Research

There are several studies that are recommended to be conducted in the future based on the results and design of this study.

For future use of the BHS as a survey instrument, it is recommended that more knowledge, attitudes and behaviors questions be added to this tool to ascertain if the reliability of these three variables would increase since the current items/statements of these variables would be less sensitive and vulnerable to latent variables/outliers if more statements are added to the survey to represent each of these domains. Achieving reliability scores for these variables that George and Mallery (2011) consider to be good or excellent scores will be necessary to ensure that this survey instrument is a reliable and valid tool that can be utilized in future studies that will also focus on these variables.

It is recommended that the same study be conducted with a larger sample size and more diversity with respect to the education levels of participants. A similar study with a larger sample size and more educational diversity could ensure greater generalizability of the data. The results of such a study could also be used to solidify and increase the reliability of the results of this study.
A similar study can also be conducted using an international population. The results of such a study would provide data to conduct a comparative study between the U.S. and other countries to ascertain the similarities and differences between how HBP is treated among African Americans in the United States and how the condition is treated among other Black people in the rest of the world.

A comparative study can also be conducted between African American males and African American females to determine any differences between both genders regarding the four domains that were addressed in this study. Even though previous studies have been conducted on certain differences between males and females, those differences were based on other factors such as culture and cultural norms, socio-economic status (income and education) and region, but were not based on the four domains that were the focus of this research study- beliefs, knowledge, attitudes and behaviors.

A similar study can also be conducted on other racial and/or ethnic groups to ascertain any similarities and differences between how HBP is treated and controlled among other racial and ethnic groups, and how the condition is treated and controlled among African Americans. Such a study would be very important because based on the literature review, HBP is more prevalent in African Americans than in any other racial or ethnic group. The results of a study on different racial/ethnic groups may therefore help to determine why there is such a big difference in the incidence and prevalence rates of HBP in African Americans and these rates of the condition among other racial/ethnic groups.

A research that focuses only on behaviors is also recommended, with more behavior questions added to the BHS and using Prochaska’s Transtheoretical Model to guide the research. Prochaska’s Transtheoretical Model has been used in many studies regarding behaviors, but it
was not used in this study because the focus was not just on behaviors, since this research also addressed beliefs, knowledge and attitudes because the aim was to get a full picture of all four domains and to fulfill the purposes of this study.

It is also recommended that a study be conducted with a focus on physicians and other health care professionals who treat African Americans but who do not currently practice integrative medicine to determine how they feel about receiving formal training on the topic of CAM during their initial medical training or as a refresher course. This study could be used to determine whether or not these health care professionals would be willing to educate their patients on the different types of CAM that can be used to treat HBP as well as to ascertain if they would be willing to recommend CAM therapy to their patients as a complementary or alternative treatment option if prescription medications do not effectively control the condition in such patients.

Finally, a research can also be conducted on the possible correlation between religion and the dependent variables of this study (beliefs, knowledge, attitudes and behaviors) to determine any influence that religion may/may not have on these variables, since religion is important in the African American community.

**Dissertation Significance and Conclusion**

The main challenge here is that HBP is not adequately controlled in African Americans with the condition. There is therefore the need for treatment options that are effective in controlling the condition in this population. In addition to more effective prescription medications as treatment for HBP, different types of CAM should also be considered as a viable option for the effective treatment and control of this condition in African Americans. Treatment
options that are effective will likely result in the people of this race becoming more trusting of the U.S. Healthcare System because they will feel that their health matters to the leaders of the U.S. and to those who provide them with healthcare services daily.

The results of the study suggest that African Americans’ change their behaviors and adopt healthier lifestyle habits after they are diagnosed with HBP. This implies that more focus is needed on educating this group in general about the effects of HBP and what they can do to lower their risk of diagnosis. Some participants think that they were cured from HBP sometime after they were diagnosed and that they no longer have the condition, but as a chronic disease, while HBP can be treated, it cannot be cured. Further education may therefore help African Americans better understand HBP, the different treatment options that are available after diagnosis, as well as the different steps they can take to lower their risk of diagnosis for those who do not already have the condition. Such education efforts would likely result in lower morbidity and mortality rates among this population that result from this chronic disease. As the saying goes, “prevention is better than cure.”

The inadequate blood pressure control in African Americans may be the result of the excessive and disproportionate prevalence of HBP and the high frequency of conditions that occur and/ or re-occur at the same time among this population, such as diabetes and chronic kidney disease (Flack et al., 2010). The frequency of occurrence of these conditions could result in added stress to the individuals they affect, leading to a frequent spike in blood pressure.

The lack of effective conventional medicine as treatment may also be a factor. As was mentioned earlier, medications that have been made specifically to treat HBP in African Americans, such as the drug BiDil®, have not been effective in controlling the condition in this population and, as such, it is crucial that medications that are safer to use and are more effective
in treating the condition in African Americans be created and brought to the forefront in the healthcare system so that this population can be made aware of those treatment options. Moreover, perceptions of discrimination often cause African Americans to delay seeking medical care and to not adhere well to prescribed medications.

Flack et al. (2010) stated that the inadequate BP control in African Americans is caused primarily by non-biomedical or culturally based beliefs and patient-provider interactions. Blacks are more likely to be non-adherent to therapeutic regimens because they are more likely to be illiterate, which will result in them being unable to follow prescription instructions (Flack et al., 2010). Non-biomedical beliefs (culturally based beliefs about illness) can negatively impact African Americans seeking treatment for their illnesses and adhering to treatment over the long term once treatment is prescribed (Flack et al., 2010).

Therefore, it is crucial for health care providers and African American to receive more education on how to effectively treat this condition in this population. If health care providers have enough knowledge to educate their patients about effective home remedies that they can use to effectively treat HBP, then their patients would feel more comfortable with them and will be more likely to trust them enough to open up more about their various health challenges. This would also help to increase the level of cultural competency in health care providers. However, it must be noted that, even after this education about CAM is provided to health care providers, it may take a while before they start feeling comfortable enough and have enough confidence in the efficacy of home remedies to start recommending these treatments to their patients.

It is also imperative that African Americans receive education on general information about HBP such as its causes, effects, and the fact that this condition cannot be cured because it is a chronic disease. Since previous studies have found that African Americans do not adhere
well to prescription medicine and many of the participants of this study also indicated that they are unwilling to take these medications, it is unlikely to be harmful in any way for home remedies and other types of CAM to be championed by health care providers as a treatment option for HBP and other chronic conditions. Moreover, since many African Americans already use home remedies to treat different health conditions without their health care providers being made aware of such use, providing this population with the guidance they need to take the correct medications can only be beneficial all around.

It appears that the keys to the effective control of the incidence and prevalence rates of HBP in African Americans are healthy lifestyle habits such as eating healthy foods and exercising regularly, taking home remedies, taking conventional medicine as prescribed, and having a self-care routine. A positive mindset will also be required to ensure the efficacy of these healthy lifestyle habits that are necessary to reduce the incidence and prevalence rates of this condition in this population. This mindset shift will occur when these individuals are mentally ready and prepared to adopt these healthy lifestyle habits on a long-term basis after they receive the necessary education about the benefits of these habits and also understand the potential benefits of using home remedies as a treatment for HBP because they will gain more knowledge about HBP and using home remedies as a complementary or alternative treatment for the condition. A positive mindset will also improve their favorability with respect to their beliefs, attitudes and behaviors toward such use.

Since the results of this study have provided a better understanding about the beliefs, knowledge, attitudes and behaviors of African Americans regarding HBP and their use of home remedies as treatment, these results may subsequently help to reduce the morbidity and mortality rates among this population due to this chronic disease. This is because this study has provided a
lot more information regarding CAM, in the form of home remedies, that may be effective in reducing the incidence and prevalence rates of HBP in African Americans.
REFERENCES


pressure-is-a-silent-killer/high-blood-pressure-and-african-americans (Updated: March 18, 2021).


American Heart Association (2021e). Changes you can make to manage to high blood pressure. Retrieved from https://www.heart.org/en/health-topics/high-blood-pressure/changes-you-can-make-to-manage-high-blood-pressure.


(Updated: September 9, 2019).


monitoring. *Journal of Hypertension*, 31(9), 1731-1768. doi: 10.1097/HJH.0b013e328363e964


APPENDICES

Appendix A1

SHU IRB Response Letter Re: Application to Conduct Delphi Process

March 6, 2019

Elisa E. Douglas

Dear Ms. Douglas,

The IRB is in receipt of the application for your research entitled “Creating and Validating a New Survey Instrument to Explore the Relationship between the Health Beliefs of African Americans Regarding High Blood Pressure in the United States and Their Use of Home Remedies as Treatment.”

Your Application does not fall under the purview of the IRB, not even in exempt status, because use of the Delphi method to create a survey does not meet the criteria for generalizable research. Expert reviewers for the Delphi method are not subjects.

Mary F. Ruzicka, Ph.D.
Professor
Director, Institutional Review Board

Cc: Dr. Deborah DeLuca

Office of Institutional Review Board
Presidents Hall • 400 South Orange Avenue • South Orange, NJ 07079 • Tel: 973.313.6314 • Fax: 973.275.2365 • www.shu.edu
Appendix A2

SHU IRB Letter of Approval to Conduct Research Study

July 9, 2020

Elisa Douglas

Re: Study ID# 2020-109

Dear Ms. Douglas:

The Research Ethics Committee of the Seton Hall University Institutional Review Board reviewed and approved your research proposal entitled, “Understanding African Americans’ Beliefs, Knowledge, Attitudes, and Behaviors Regarding High Blood Pressure and Their Use of Home Remedies as Treatment” as resubmitted. This memo serves as official notice of the aforementioned study’s approval as exempt. If your study included an informed consent form, letter of solicitation or flyer, a stamped copy is included for your use.

The Institutional Review Board approval of your research is valid for a one-year period from the date of this letter. During this time, any changes to the research protocol, informed consent form or study team must be reviewed and approved by the IRB prior to their implementation.

You will receive a communication from the Institutional Review Board at least 1 month prior to your expiration date requesting that you submit an Annual Progress Report to keep the study active, or a Final Review of Human Subjects Research form to close the study. In all future correspondence with the Institutional Review Board, please reference the ID# listed above.

Thank you for your cooperation.

Sincerely,

[Signature]

Mara Podvey, PhD, OTRL
Associate Professor
Co-Chair, Institutional Review Board

Office of the Institutional Review Board
Presidents Hall · 400 South Orange Avenue · South Orange, New Jersey 07079 · Tel: 973.275.4654 · Fax 973.275.2978 · www.shu.edu

WHAT GREAT MINDS CAN DO
Appendix B

Letter of Solicitation- Delphi Panel of Experts

Date: March 13, 2019

Background and Purpose

Introduction. Hello everyone. My name is Elisa Douglas, and I am a PhD student in the School of Health and Medical Sciences at Seton Hall University in New Jersey.

Research Topic. I am conducting a research on the beliefs of African Americans about high blood pressure (HBP) and their use of home remedies and other non-prescription medication to treat the condition. This research will be conducted as a part of my dissertation study.

Purpose. As my panel of experts, I am seeking your opinion to gain consensus on a novel survey instrument that will be used to explore the use of complementary and alternative medicine (CAM) to treat HBP and the extent of CAM use among hypertensive African Americans, and to determine whether or not their health beliefs affect such use.

Background. Recent research suggests that African Americans have the highest number of high blood pressure cases in the United States than any other major race or ethnic group. However, only 45% of those who use prescription medicine to treat the condition are able to attain blood pressure control.

Survey length and format

Length. This first draft of the survey consists of 60 questions that are subject to revisions based on your opinion. I am asking that you spend some time thoroughly reviewing this instrument as I hope to create, assess, and validate this instrument based on your opinion. HBM Constructs. The survey has been divided into several different sections and the questions are based on
perceived susceptibility, perceived benefits, perceived barriers, perceived severity, cues to action and self-efficacy, the six constructs of the Health Belief Model (HBM).

**Categories.** The questions were divided into the categories of knowledge, attitude and behavior.

**Format.** This survey has been divided into four different sections. The sections are qualifier questions, African Americans’ beliefs about high blood pressure, the types of treatment African Americans use to manage their high blood pressure, and demographic questions.

**Potential advantages and disadvantages**

**Advantages.** This study may not be directly beneficial to you. However, it will help bring to the forefront alternative treatment methods that may be effective in treating and managing high blood pressure in African Americans.

**No risks.** There are no foreseeable anticipated risks or costs to study participants.

**No compensation.** You will not be compensated for your participation in this validation process.

**Confidentiality of information obtained**

**Data usage.** The data that are obtained from and about you will only be used in accordance with the purpose of the study as described above.

**Coded data.** All the information obtained will be processed without your name, ID number or any other type of information that can be used to directly recognize you as an expert panelist.

**Who to contact if you have any questions.**

**Questions? Concerns?** If you have any further questions about the research in general or about the survey in particular, please contact my dissertation committee chair, Dr. Deborah Deluca, at 973-275-2842, or via email at Deborah.Deluca@shu.edu, or the director of Seton Hall’s Review Board, Dr. Mary Ruzicka, at 973-275-2723, or via email at Mary.Ruzicka@shu.edu.
Appendix C

Delphi Round 1 Survey Worksheet

(If you wish to use this document, please contact the author)

BELIEFS ABOUT HYPERTENSION SURVEY (BHS)
WORKSHEET AND SURVEY QUESTIONS

NOTE: This survey will be administered to adult Blacks/African Americans both electronically and in paper format.

Instructions for Expert Panel:
Below please find the survey worksheet, with each question/variable separated based on the applicable constructs of the Health Belief Model (perceived susceptibility, perceived benefits, perceived barriers, perceived severity, cues to action and self-efficacy). Please provide your answers to the questions that are asked for each item in the cells below and indicate your comments, questions and suggestions of each question in the cell of the worksheet that is provided for comments. This survey consists of a total of 60 questions, including the demographic questions and 4 matrix questions. A matrix question has several different parts, and the matrix questions in this survey will be answered using a 7-point Likert scale, with the following options: Strongly Disagree (SD = 1 point), Disagree (D = 2 points), Slightly Disagree (SD = 3 points), Slightly Agree (SA = 4 points), Agree (A = 5 points), Strongly Agree (SA = 6 points), and Not Applicable (N/A = 0).
Please feel free to provide any comments, suggestions, or questions (please indicate the exact wording of any questions you suggest and where in the survey that you construct the question should be placed under) you believe will enhance the overall quality of this survey. Use as much space as needed. For each new question you suggest, please indicate your reasoning so that I may understand and be able to speak to this modification when I defend my dissertation work. To all panelists: where any such modifications may be involved, it is likely I may choose to either eliminate the question entirely or retain it despite the suggestion made and this may be shown in a subsequent round of the Delphi that will be sent to you. In the event that this happens, I will be certain to explain as clearly as possible why I made that decision so that the experts may make decisions accordingly toward consensus in the subsequent round.
Please also feel free to comment or indicate below in any section or by any question if you believe that the question should be ELIMINATED. If so, please indicate your reasoning why so that I may understand and be able to explain this modification when I defend my dissertation work. To all panelists: where an elimination may be involved, it is likely that I may choose to either eliminate the question entirely or retain it despite the suggestion made and this may be shown in a subsequent round of the Delphi sent to you. If this happens, I will be certainly to explain why so that the experts may make decisions toward consensus in the subsequent round.
**Construct No. 1 Definition: Perceived Susceptibility** is a person’s belief he or she is vulnerable to disease and is an indicator of whether or not a person will commence healthy lifestyle choices (Redding et al., 2000).

<table>
<thead>
<tr>
<th>Item/Variable</th>
<th>Does it measure the concept?</th>
<th>Is it clear?</th>
<th>Is it double-barreled?</th>
<th>Is it biased through socially desirable response?</th>
<th>Comments (Please provide your questions, comments and suggestions in this section)</th>
</tr>
</thead>
<tbody>
<tr>
<td>6. Do you think you have high blood pressure? (Attitude)</td>
<td>yes</td>
<td>yes</td>
<td>no</td>
<td>no</td>
<td>Good question to assess perception. You may require a follow up question that shows different BP ranges to qualify the answer given.</td>
</tr>
<tr>
<td>a) Yes</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) No</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) Unsure</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Please explain your answer to the question above.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| 7. If you have high blood pressure, when were you first diagnosed? (Attitude) | yes | yes | no | maybe | Answer given maybe affected by what a person perceives a diagnosis to be, some people may tell you they have be told that there blood pressure was high once or twice but |
| If you do not have high blood pressure, select N/A. | | | | | |
| N/A | | | | | |
8. Do you have a blood relative who has high blood pressure? **(Knowledge)**
   a) Yes  
   b) No  
   c) Unsure  
<table>
<thead>
<tr>
<th></th>
<th>yes</th>
<th>yes</th>
<th>no</th>
<th>yes</th>
</tr>
</thead>
</table>
| They were never diagnosed as being hypertensive. They may even deny a diagnosis because they had a plausible excuse for the BP at that time. Again, it depends on patients understanding of a high BP as well as their acceptance of a family members illness esp. if it's a close family member.

9. If you answered yes to the question above, how is the person related to you? **(Circle the answers that apply to you).**
   a) Father/Mother  
   b) Grandfather/Grandmother  
   c) Brother/Sister  
   d) Uncle/Aunt  
   e) Nephew/Niece  
   f) Cousin  
   g) Other (please specify)    
<table>
<thead>
<tr>
<th></th>
<th>yes</th>
<th>yes</th>
<th>no</th>
<th>no</th>
</tr>
</thead>
</table>
| Let patients know they can circle as many of the options that apply to them.
Appendix D

Delphi Round 2 Survey Worksheet

(If you wish to use this document, please contact the author)

Dear EXPERT PANEL: Thank you very much for your input on Round 1 of the survey.

In the second round of the Delphi process, you will find the following concerns/
recommendations made by at least (1) Expert Panel member. I am now proposing each
recommendation made about a given statement/question for your review to gain 80% consensus.
Please check or mark with an X whether the change should be made or if the original statement/
question should be left as is. This will suffice as Round 2 of the Delphi process. Please note that
if a simple grammatical change(s) was/ were recommended for more clarity to a statement/
question, that/those changes were made. If there is any recommendation that you believe I have
not captured appropriate where alternative suggestions are proposed, space is provided for you to
make corrections or comments accordingly. Thank you.

Please note: Round 2 worksheets were generated based only on the questions where there was
not at least 80% consensus among the experts.

The following comment/recommendation was made by an expert:

What is the justification for choosing this 6-point Likert scale? Normally Likert scales are 3, 5, 7
or 9. This is 6. Are the slightly disagrees and slightly agrees necessary? More importantly, you
MUST include a neutral area, which is neither agree or disagree in between SLD and SLA. The
N/A does not suffice for this. You do not want to force individuals into slightly agreeing or
slightly disagreeing if they are indeed neutral on the statement. Very important survey flaw to
address now in this Delphi…
Re: 6-point Likert scale: I chose a 6-point Likert scale for this survey because I wanted study participants to give a definitive answer to the questions instead of not taking a stand one way or the other by selecting ‘neutral’. After discussing the expert’s comment with my chair, the decision was made to change the Likert scale used for the following questions from a 6-point scale to a 5-point scale, with the following categories: Strongly disagree (SD), Disagree (D), Neither agree nor disagree (Neither A nor D), Agree (A), Strongly agree (SA).

New change: The answer options for the following questions were changed from a 6-point Likert scale to a 5-point Likert scale:

Questions 11(a), 11(b), 11(c), 11(d), 11(e), 11(f), 11(g), 11(h), 11(i), 19(a), 19(b), 19(c), 19(d), 19(e), 19(f), 19(g), 19(h), 19(i), 19(j), 28(a), 28(b), 28(c) and 28(d).

Make changes as per expert(s)’ recommendation

Leave this question as originally proposed

Additional Comments:

__________________________________________________________________________________________

One expert also recommended that I add a ‘Beliefs’ category to the worksheet and after discussing with my chair, the decision was made to add this category to represent all questions that are applicable to this category. As such, the definitions of beliefs and attitudes are given as follows:
Appendix E

Survey Tool: Beliefs About Hypertension Survey (BHS)

(If you wish to use this instrument, please contact the author)

Beliefs About Hypertension Survey (BHS)

Directions: Please answer the following questions as accurately as possible. If a question does not apply to you, please write ‘N/A’ beside it.

1. Are you Black/African American? Yes______
   No_______

2. If you answered no to the question above, which of the following race or ethnicity do you most closely identify with?
   a) Hispanic/Latino
   b) American Indian, Alaskan Native
   c) Asian
   d) Native Hawaiian or Other Pacific Islander
   e) White
   f) Other (please state)________________________

3. What is your age range?
   a) Under 18
   b) 18- 29
   c) 30- 39
   d) 40- 49
   e) 50- 59
   f) 60+

4. Do you currently live in the U.S.?
   a) Yes
   b) No

5. Which of the following best represents you today?
   a) I have high blood pressure
   b) I do not have high blood pressure
   c) I’m not sure if I have high blood pressure

6. Which gender do you most closely identify with?
   a) Male
   b) Female
   c) Prefer Not to Say
7. Please place a check mark for the word that best corresponds with your answer to each question.

<table>
<thead>
<tr>
<th>Item</th>
<th>Yes</th>
<th>No</th>
<th>Unsure</th>
<th>Does not apply to me</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Have you ever been told by a doctor that you have high blood pressure?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b) If you have not been told by a doctor that you have high blood pressure, do you think you have this condition?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c) If you have high blood pressure, were you first told that you have the condition more than a year ago?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d) Have you ever taken prescription medicine to treat your high blood pressure?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e) Have you ever taken home remedies to treat your high blood pressure?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g) Has your blood pressure ever been above 130/80 mm Hg when checked?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>h) Do you have a blood relative who has high blood pressure?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>i) Do you know anyone else who has high blood pressure?</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix F

Sample of Demographic Survey Questions

(If you wish to use this instrument, please contact the author)

1. Are you Black/African American? Yes ______ No ______

2. If you answered no to the question above, which of the following race or ethnicity do you most closely identify with?
   a) Hispanic/Latino
   b) American Indian, Alaskan Native
   c) Asian
   d) Native Hawaiian or other Pacific Islander
   e) White
   f) Other (please state) __________________________

3. Please indicate your age range:
   a) Under 18
   b) 18-29
   c) 30-39
   d) 40-49
   e) 50-59
   f) 60+

4. Do you currently live in the U.S.?
   a) Yes
   b) No

5. Which of the following best represents you today?
   a) I have high blood pressure
   b) I do not have high blood pressure
   c) I’m not sure if I have high blood pressure

6. Which gender do you most closely identify with?
   a) Male
   b) Female
   c) Prefer Not to Say

7. What is the highest level of education that you have attained?
   ____ Less than high school
   ____ Completed high school
   ____ Technical/Trade School
   ____ Bachelor’s
   ____ Master’s
   ____ PhD or other doctoral degree
Appendix G

Approval to Use Health Belief Model (HBM) Diagram for Dissertation Study

From: alan.shaw@strategic-planet.com <alan.shaw@strategic-planet.com>
Sent: Monday, January 4, 2021 3:35 PM
To: Elisa E Douglas <elisa.douglas@student.shu.edu>
Subject: RE: Strategic Planet "Permission for Use of HBM Diagram"

Elisa,

I am happy for you to use the diagram, good luck with your PhD.

Regards

Dr. Alan Shaw
Director
Strategic Planet

07587 174754
alan.shaw@strategic-planet.com

-----Original Message-----
From: Strategic Planet <wordpress@strategic-planet.com>
Sent: 04 January 2021 04:08
To: get.help@strategic-planet.com
Subject: Strategic Planet "Permission for Use of HBM Diagram"

From: ELISA E DOUGLAS <elisa.douglas@student.shu.edu>
Subject: Permission for Use of HBM Diagram

Message Body:
Hello,

My name is Elisa Douglas and I am a doctoral student at Seton Hall University in New Jersey. I am currently conducting my dissertation research on the topic "Understanding African Americans’ beliefs, knowledge, attitudes, and behaviors regarding high blood pressure and their use of home remedies as treatment," and I am using the Health Belief Model (HBM) as my theoretical framework. As such, I am seeking your permission to use your diagram of the HBM as available on https://nam05.safelinks.protection.outlook.com/?url=http%3A%2F%2Fwww.google.com%2F&amp;data=04%7C01%7CElisa.douglas%40student.shu.edu%7C6a772272ed0544ce557980dbb0f04818%7C5f07c2253b744dfbb97ca13261d7075%7C1%7C0%7C6374538936969818947%7CUnknown%7CTWFpbGZsb3d8eyJWIjoiMC4wLiAwMDAiLiLCQjoiV2luMzliLCBJTiI6Ik1haWwiLC1XVC16Mn0%3D%7C3000&amp;amp;data=5bmDMoscdXrOKOnUIYok6Eogd8SKHZGqPRCGN%2Fze3tbVo%3D&amp;amp;reserved=0, for use in my dissertation manuscript. I am anticipating your favorable response.

Best regards,
Elisa Douglas, MSPH, CHES
Ph.D. Candidate
Seton Hall University
Appendix H

Solicitation to Facebook Close Groups Administrators

Hi Stephanie, I hope you're doing well. I have been a member of African American Female Travel Sisters/Companion for the past year. I am a PhD student at Seton Hall University in New Jersey and am currently doing my dissertation study on high blood pressure in Blacks/African Americans and their use of home remedies to treat the condition. I am seeking your permission to post the link to the survey for my study on the group’s discussion page, once I receive approval from my university's Institutional Review Board (IRB), so that the other members of the group can share their views on this topic with me. Of course, all responses will be completely anonymous. Please let me know if this will be okay with you. Thanks much and have a great day!
Appendix I

Approval from Facebook Closed Group Administrators to Solicit Group Members

Hello! No problem Sis! Just give me a heads up so the post gets approved and not deleted. I have a moderator that helps with the group. Good luck on that PhD I love it! 😊

Stephanie, sent May 3, 2020
Hello! No problem Sis! Just give me a heads up so the post gets approved and not deleted. I have a moderator that helps with the group. Good luck on that PhD I love it! 😊

Doc Atwell, sent June 22, 2020
No prob! I know how the journey is! I graduated last May!! Best of luck to you! Feel free to reach out if you need any thing else even if it’s just a little moral support! The journey is still very fresh in my head lol

Danny Jean, sent July 10, 2020
Sure. #YouGotNext

Ashley Denise, sent September 22, 2020
I apologize for this late response. I didn’t get a notification; but sure! If it’s not too late
Appendix J

WhatsApp Terms of Service Disclaimers

Disclaimers

YOU USE OUR SERVICES AT YOUR OWN RISK AND SUBJECT TO THE FOLLOWING DISCLAIMERS. WE ARE PROVIDING OUR SERVICES ON AN “AS IS” BASIS WITHOUT ANY EXPRESS OR IMPLIED WARRANTIES, INCLUDING, BUT NOT LIMITED TO, WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, TITLE, NON-INFRINGEMENT, AND FREEDOM FROM COMPUTER VIRUS OR OTHER HARMFUL CODE. WE DO NOT WARRANT THAT ANY INFORMATION PROVIDED BY US IS ACCURATE, COMPLETE, OR USEFUL, THAT OUR SERVICES WILL BE OPERATIONAL, ERROR FREE, SECURE, OR SAFE, OR THAT OUR SERVICES WILL FUNCTION WITHOUT DISRUPTIONS, DELAYS, OR IMPERFECTIONS. WE DO NOT CONTROL, AND ARE NOT RESPONSIBLE FOR, CONTROLLING HOW OR WHEN OUR USERS USE OUR SERVICES OR THE FEATURES, SERVICES, AND INTERFACES OUR SERVICES PROVIDE. WE ARE NOT RESPONSIBLE FOR AND ARE NOT OBLIGATED TO CONTROL THE ACTIONS OR INFORMATION (INCLUDING CONTENT) OF OUR USERS OR OTHER THIRD PARTIES. YOU RELEASE US, OUR SUBSIDIARIES, AFFILIATES, AND OUR AND THEIR DIRECTORS, OFFICERS, EMPLOYEES, PARTNERS, AND AGENTS (TOGETHER, THE “WHATSAPP PARTIES”) FROM ANY CLAIM, COMPLAINT, CAUSE OF ACTION, CONTROVERSY, OR DISPUTE (TOGETHER, “CLAIM”) AND DAMAGES, KNOWN AND UNKNOWN, RELATING TO, ARISING OUT OF, OR IN ANY WAY CONNECTED WITH ANY SUCH CLAIM YOU HAVE AGAINST ANY THIRD PARTIES. YOU WAIVE ANY RIGHTS YOU MAY HAVE UNDER CALIFORNIA CIVIL CODE §1542, OR ANY OTHER SIMILAR APPLICABLE STATUTE OR LAW OF ANY OTHER JURISDICTION, WHICH SAYS THAT: A GENERAL RELEASE DOES NOT EXTEND TO CLAIMS WHICH THE CREDITOR DOES NOT KNOW OR SUSPECT TO EXIST IN HIS OR HER FAVOR AT THE TIME OF EXECUTING THE RELEASE, WHICH IF KNOWN BY HIM OR HER MUST HAVE MATERIALLY AFFECTED HIS OR HER SETTLEMENT WITH THE DEBTOR.

Appendix K

ResearchGate Intellectual Property Policy

Last updated: January 8, 2018

Intellectual Property Policy

ResearchGate was developed by scientists to enable collaboration, sharing of content and communication among scientists, researchers, authors, institutions and other professionals. We respect the intellectual property rights of others and ask that you do the same. We have a process for submitting complaints regarding content posted by our members. Our policy and procedures are described below.

Posting Content on ResearchGate

As a member, when you post full-text articles or supplementary materials on ResearchGate, you do not transfer or assign copyright to us. Rather, you make the content available to the public through ResearchGate. You retain the right to remove such content from ResearchGate at any time, or to archive your content so it is available only to you and your co-author(s). You may also remove content from appearing on your profile page.

Our platform enables the private archiving and public posting of various types of content. If you choose to privately archive or publicly post content, we encourage you to first confirm your rights before doing so. This applies to posting content to your own profile as well as other places on the platform, such as in a Q&A forum or a project. As we do not have any information about rights you may hold, or any license terms or other restrictions which might apply to such content, we necessarily rely on you to understand your rights and act accordingly. For this reason, we request that you fully investigate and confirm that you have sufficient rights to post particular content to ResearchGate before you do so. As a general matter, if you are an author publishing in a journal, you may be allowed to publish certain versions of your article, but not others, and privately share certain content with others. However, many journals restrict publication of final versions and impose limitations on private sharing.

Appendix L

Social Media Announcement About Survey

Hi Everyone! I am a Ph.D. student from the School of Health and Medical Sciences at Seton Hall University in New Jersey. I am seeking participants for my dissertation study. The study is about high blood pressure in Blacks/African Americans and their use of home remedies as treatment. You must be at least 18 years old to take the survey. This survey will take about 10 minutes to complete. Your participation is voluntary. No personal information that can identify you will be collected. All data collected will be kept private. The data will be stored on a USB drive. The drive will be kept in a locked safe for up to three years, and then it will be destroyed. You will not be compensated for participating in this study. Have questions? Concerns? Please contact Elisa Douglas via email at elisa.douglas@student.shu.edu. If you would like to take this survey, please click this link: (Survey Link). Thank you for your help!
Appendix M

Letter of Solicitation to Study Participants

Date: July 2020

Dear Participant,
My name is Elisa Douglas. I am a Ph.D. student in the School of Health and Medical Sciences at Seton Hall University in New Jersey. I am conducting this research study as part of my doctoral dissertation.

What is the purpose of the study?
You have been invited to participate in this research study because you may satisfy the requirements to complete the survey. I am conducting a research on high blood pressure in Blacks/African Americans. The purpose of this study is to understand the differences, if any, between the beliefs, knowledge, attitudes and behaviors of African Americans with and without high blood pressure in regard to their use of home remedies as treatment.

Background. Recent research suggests that Blacks/African Americans have the highest number of high blood pressure cases in the U.S., out of all races. However, only 45% of those who use prescribed medicine as treatment are able to control their blood pressure.

What is the study procedure?
You are being asked to complete the BHS survey if you meet the requirements. You must be Black/African American, be at least 18 years old, read and write English and must live in the U.S. to take this survey. You may complete the survey by clicking on the link at the end of this document. For this study, a technique called snowball sampling will be used to recruit participants. This means you are encouraged to forward this information to anyone who you think meets the requirements mentioned above. Anyone who meets these requirements may take the survey. They may also complete the survey, even if you choose not to, and the study will reach a greater audience. The attached link can be forwarded to anyone. No record will be kept regarding whether or not you completed the survey or of who you forwarded it to. Completing the survey will take about 10 minutes, but you can take as much time as you like to complete it.

Is participation voluntary?
Your participation in this research is completely voluntary. You may decide not to participate at any time. If you choose not to participate, you will not be penalized nor lose any benefits to
which you are otherwise entitled. By clicking the link below, you acknowledge that you are
giving your consent to participate in this study.

Is the survey anonymous?
No personal information that can identify you will be collected as part of this study. This
includes your name, address, telephone number or email address. The information that will be
collected is general demographic information. There will be no records that can identify you. All
of your answers will be recorded without linking them to you. If you forward the survey to
others, no specific information that can identify them will be collected. The research data may be
published but will not identify any individual.

What will happen to the study data?
The study data will be kept private to protect its integrity. The data will be stored on a USB
drive. The drive will be kept in a locked safe in the office of the principal investigator (PI). The
PI, Elisa Douglas, will have access to all the data for up to three years after the end of the study.
After that time, all the data will be destroyed.

Risks and Benefits of Participating
No Risk. No risk or discomfort is expected by your participation in this research study.
Benefits. This study may not benefit you directly. However, it will help bring different treatment
methods to the forefront. These methods may be effective in treating and managing high blood
pressure in African Americans.

Compensation
You will not be compensated in any way, monetary or otherwise, for taking the survey or
sending the link to others.

Ways to Participate in this Study
The survey is available via SurveyMonkey electronic survey. By accessing and completing the
BHS and demographic survey through the link listed at the end of this document, you are giving
your informed consent to participate in the study.
Please feel free to ask others who you think may meet the study requirements to also take this
survey. Please forward the survey link to them. I appreciate your time and effort involved in
doing so.

Can I request further information?
If you decide that you would like to receive further information on high blood pressure and/ or
the use of home remedies as treatment, please contact me through the office of my Dissertation
Chair, Dr. Deborah DeLuca, in the School of Health and Medical Sciences at Seton Hall
University, at (973) 275-2842. You may also contact Dr. Michael LaFountaine, Director of the
Institutional Review Board (IRB), in the Office of the IRB at Seton Hall University, at (973)
761-9334.
Questions? Concerns? You may send questions or concerns about the survey. You may also
request the correct answers to the knowledge questions.
Thank you for being a part of my research. Your participation will make a big difference. Your time and consideration are greatly appreciated.
Click the link to take the survey:
https://www.surveymonkey.com/r/3V283PK
Appendix N

Proposal Hearing Sign-Off Sheet

PROPOSAL HEARING SIGN OFF SHEET

DOCTORAL CANDIDATES NAME: Elisa Douglas

PROJECT TITLE: “Understanding African Americans' Beliefs, Knowledge, Attitudes and Behaviors Regarding High Blood Pressure and Their Use of Home Remedies as Treatment”

PROPOSAL HEARING DATE: April 16, 2020

I HAVE PARTICIPATED IN THE ABOVE NOTED PROPOSAL HEARING AND MY SIGNATURE PROVIDES SUPPORT OF THE PROPOSED METHODOLOGY.

DISSERT. COMMITTEE CHAIR: Deborah A. DeLuca

COMMITTEE MEMBER SIGNATURE: ______________________

DISSERT. COMMITTEE MEMBER: Terrence F. Cahill

COMMITTEE MEMBER SIGNATURE: ______________________

DISSERT. COMMITTEE MEMBER: Paul Franco

COMMITTEE MEMBER SIGNATURE: ______________________

School of Health and Medical Sciences
Department of Interprofessional Health Sciences and Health Administration
Interprofessional Health Sciences Campus (IIS)
340 Kingsland Street, Building 123, Nutley, NJ 07110
www.shmu.edu

What great minds can do.
Appendix O

Dissertation Oral Defense Form

Dissertation Oral Defense Form

DOCTORAL CANDIDATE’S NAME: Elisa Douglas

PROJECT TITLE: “Understanding African Americans’ Beliefs, Knowledge, Attitudes, and Behaviors Regarding High Blood Pressure and their use of Home Remedies as Treatment”

ORAL DEFENSE DATE: February 24, 2021

I HAVE PARTICIPATED IN THE ABOVE-NAMED STUDENT’S ORAL DEFENSE OF HIS/HER DISSERTATION STUDY AND MY EVALUATION IS AS FOLLOWS:

DISSERT. COMMITTEE CHAIR: Deborah A. DeLuca

I evaluate the student’s presentation as follows: PASS X FAIL____

COMMITTEE MEMBER SIGNATURE: __________________________

DISSERT. COMMITTEE MEMBER: Paul Franco

I evaluate the student’s presentation as follows: PASS X FAIL____

COMMITTEE MEMBER SIGNATURE: __________________________

DISSERT. COMMITTEE MEMBER: Fortunato Buttaglia

I evaluate the student’s presentation as follows: PASS X FAIL____

COMMITTEE MEMBER SIGNATURE: __________________________
Appendix P

Dissertation Defense Approval Form

DISPUTATION DEFENSE APPROVAL FORM

DOCTORAL CANDIDATE’S NAME: Elisa Douglas

PROJECT TITLE: “Understanding African Americans’ Beliefs, Knowledge, Attitudes, and Behaviors Regarding High Blood Pressure and their use of Home Remedies as Treatment”

I HAVE REVIEWED THE “NEAR FINAL” VERSION OF THE ABOVE-NAMED STUDENT’S DISSERTATION MANUSCRIPT AND MY SIGNATURE PROVIDES SUPPORT THAT THE STUDENT’S WORK IS SUFFICIENT TO PROCEED TO THE ORAL DEFENSE OF THE STUDY.

DISSERT. COMMITTEE CHAIR: Deborah A. DeLuca
COMMITTEE MEMBER SIGNATURE: ____________________________

DISSERT. COMMITTEE MEMBER: Paul Franco
COMMITTEE MEMBER SIGNATURE: ____________________________

DISSERT. COMMITTEE MEMBER: Fortunato Battaglia
COMMITTEE MEMBER SIGNATURE: ____________________________

School of Health and Medical Sciences
Department of Interprofessional Health Sciences
and Health Administration
Interprofessional Health Sciences Campus (IHS)
123 Metro Boulevard, Nutley, NJ 07110
www.shsu.edu

What great minds can do.