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Barriers and Perceptions of Black American Men About Prostate Cancer in Georgia

Martins M. Nnoko
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Martins Nnoko

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2017

Abstract

Barriers and Perceptions of Black American Men About Prostate Cancer in Georgia

by

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MBA, University of Phoenix, 2010

BS, Touro College, New York, 1994

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Healthcare Policy and Management

Walden University

August 2017

Abstract

In 2016, prostate cancer was the second leading cause of fatality in the United States. However, the population in this study—Black American men, ages 40 and older, in selected counties in Fulton, DeKalb, Gwinnett, Clayton and Atlanta metropolitan areas—tended to underutilize prostate cancer care. The purpose of this quantitative, nonexperimental descriptive study was to determine whether socio-economic barriers and perceptions of Black American men about prostate cancer reduce their ability to access quality care in this county in Georgia. The Health Belief Model (HBM) was used to inform the predictive validity of perceptions, attitudes, and belief on individual health behaviors. Data were collected from 303 men through online and mailed researcher-made surveys that had been piloted using the demographic/medical background instrument; data from these surveys were then analyzed using frequency distribution and analysis of variance, coupled with Tukey's honest significant difference test. According to the results, 90% of the respondents stated that early detection and treatment were a perceived benefit of undergoing prostate cancer screening, and respondents perceived early detection, early treatment, and the reduced chance of dying from prostate cancer as the main reasons for undergoing the screening. A potential social significance to this study is that it provides information to health care providers and policy makers to better understand the patterns of Black American men and their motivation to seek early prostate cancer screening. Early screening could reduce costs, both economically and socially, associated with late diagnosis of this disease.

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Dedication

I would like to thank, glorify, honor and praise my creator and the creator of the heavens and the earth with whom all things are possible. Without Him, this dissertation would not have been possible. I would like to dedicate this dissertation to my entire family: To my darling wife, Suzanne, for her moral support and words of encouragements during this period, to my daughters, Lecia and Julia, and sons, Victor and Caven, my sisters, Agnes and Julia, my brothers, Caven Mbele, Makia, Eyembe, Makia Mbone and Mbai, to my late parents, Pa Joseph Mbai and Ma. Christiana Njole Nnoko. I know you are both in heaven proud of my academic accomplishment.

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Table of Contents

List of Tables	vi
List of Figures	viii
Chapter 1: Introduction to the study	1
Background	1
Problem Statement	3
Research Questions	7
Purpose of the Study	9
Theoretical Framework	10
Application of the Health Belief Model.....	11
Nature of Study	13
Operational Definitions.....	14
Assumptions.....	15
Scope, Delimitation, and Limitations of the Study.....	15
Significance of the Study	16
Social Change Implication.....	17
Summary	18
Chapter 2: Literature Review	20
Introduction.....	20
Risk Factors for Prostate Cancer.....	20

Prostate Cancer Incidence	21
Prostate Cancer Mortality	22
Accessing the Healthcare System in the United States	29
Health Insurance Cost	30
Uninsured Citizens	31
Underinsured Citizens.....	32
Medicaid.....	32
Medicare.....	34
Age	35
Geographic Location.....	35
Race/Ethnicity.....	37
Family History	39
Summary	39
Chapter 3: Research Method.....	41
Introduction.....	41
Research Questions	41
Advantages and Disadvantages of Quantitative Study	43
Data Collection Methods in a Quantitative Research	44
Ethical Considerations	44
Informed Consent.....	45

Reasons for Informed Consent.....	45
Anonymity of Participants and Confidentiality of the Data	46
Limitations of the Study.....	46
Inclusion and Exclusion Criteria.....	47
Use of Primary Data.....	48
Sample Size and Sampling Process	48
Power Analysis for the Sample Size	49
Recruitment Process.....	50
Data Collection	51
Instruments.....	53
Follow-up Mailings.....	56
Data Analysis	56
Reliability and Validity Test.....	57
Summary	59
Chapter 4: Analysis and Discussion	60
Introduction.....	60
Pilot Study.....	61
Data Analysis	64
Demographic Characteristics	64
Data Preparation and Analysis	66

Analysis of the Responses of the Participants	67
Perceived Benefits.....	67
Perceived Barriers.....	71
Perceived Susceptibility.....	74
Perceived Severity.....	78
Self-Efficacy.....	82
Cues to Action.....	86
Relationship of Age and Existence of Health Insurance with the Themes	90
Summary.....	91
Chapter 5: Conclusions, Limitations and Recommendations	94
Importance of this Study.....	94
Conclusions.....	94
Study Implications	97
Social Change Implications	99
Study Limitations	100
Key Recommendations	100
Healthcare providers	102
Stakeholders	102
Legal Framework.....	103
Standardization of Insurance Services.....	103

Black American Men	104
Future Study	104
Appendix A: Health Belief Model Instrument.....	118
Appendix B: Demographic/Medical Background Instrument	121
Appendix C: Letter of Permission to use instruments	123

List of Tables

Table 1 Health Belief Model Concepts and Definitions	13
Table 2 Demographic Characteristics of the Pilot Study Participants	63
Table 3 Percentage Agreement and Correlation Coefficient for Pilot Samples	64
Table 4 Characteristics of the Participants	66
Table 5 Perception about Usefulness of Screening in Detecting Prostate Cancer	68
Table 6 Perception about the Chances of Dying due to Prostate Cancer	68
Table 7 Perception about the Sense of Good Feeling after Screening	69
Table 8 Perception about the Usefulness of Screening to get Early Treatment.....	70
Table 9 Perception about Sense of Uncomfortableness during Screening	72
Table 10 Perception about the Cost of Screening	72
Table 11 Sense of Positive Diagnosis	73
Table 12 Perception about the Length of Screening	74
Table 13 Perception about the Age as a Risk Factor	75
Table 14 Perception about the Ethnicity as a Risk Factor	76
Table 15 Perception about the Urban Areas as a Risk Factor.....	77
Table 16 Perception about the Rural Areas as a Risk Factor.....	77
Table 17 Perception about Difficulty in Urinating as a Prostate Cancer Symptom	79
Table 18 Perception about not Getting an Erection as a Prostate Cancer Symptom	80
Table 19 Perception about Death due to Prostate Cancer	80

Table 20 Perception about Sterilization due to Prostate Cancer	81
Table 21 Perception that prostate cancer is not Bad	83
Table 22 Perception about Diet Preventing Prostate Cancer	83
Table 23 Perception about Exercise Preventing Prostate Cancer	84
Table 24 Perception about Following Advices Preventing Prostate Cancer	85
Table 25 Perception about Seeking Medical Attention for Prostate Cancer	87
Table 26 Taking Action when Experiencing Swelling in Rectum	87
Table 27 Taking Action when Experiencing Pain while Urinating	88
Table 28 Taking Action when Experiencing Swelling in Penis	89
Table 29 Outcome of Correlation Analysis	91

List of Figures

Figure 1. Health belief model. From “The Health Belief Model in Predicting Health Behavior” by P. Sheeran, and C. Abraham 1995, M. Conner, & P. Norman (Eds.). Buckingham: Open University Press.	11
Figure 2. Box plot showing the distribution of responses to the four questions related to the perceived benefits.....	71
Figure 3. Box plot showing the distribution of responses to the four questions related to the perceived susceptibility.....	78
Figure 4. Box plot showing the distribution of responses to the four questions related to the perceived severity.....	82
Figure 5. Box plot showing the distribution of responses to the four questions related to the self-efficacy.....	86
Figure 6. Box plot showing the distribution of responses to the four questions related to the perceived susceptibility.....	90

Chapter 1: Introduction to the study

Background

According to Artiga and Duckett (2013), approximately 37 million Black Americans live in the United States, representing 10% of the U.S. population. However, most Black American men, who are blue-collar workers with low incomes, are less likely to have access to quality care. Additionally, approximately 594,600 Black Americans in Georgia, which represents more than 21% of the Black American in the state, do not have access to quality healthcare. The Georgia Health Equity Initiative (GHEI) was established to address the difficulties faced by Black Americans in Georgia to access care. In its 2008 report, the Georgia Department of Community Health (GDCH) and the Office of Health Improvement cited socio-economic barriers and difficulties Black Americans encounter in accessing quality care (GDCH, 2008).

The GDCH, in collaboration with the Georgia Minority Health Advisory Council (GMHAC), reported the difficulties in accessing care in some densely populated Black American counties in Georgia. For example, in Clayton County, where the Black American population of 166,439 constitutes 62% of its population, 11% of Black American population lives in poverty (GDCH, 2008). Approximately 7% of the population is unemployed. The mortality rate of Blacks is much higher than Whites in the same county (GDCH, 2008).

DeKalb County, which is densely populated by Black American, has a population of 377,038 Black Americans (56% of the total population), of which approximately 12%

are poor, 3% without a high school diploma and over 7% without employment (GDCH, 2008). According to the data, Black Americans may have developed perceptions about prostate cancer that can hinder its early detection and treatment. In a report on prostate cancer incidence rate by state and region published in 2012, the Center for Disease Control and Prevention (CDC) stated the following number of prostate cancer incidence per 100,000 for all races in the U.S.: all races - 105.3, Whites - 95.6, Blacks - 169.4, and Hispanics - 89.8 (CDC, 2012).

In the state of Georgia, prostate cancer incidence per 100,000 cases in 2012 was as follows: all races - 122.0, Whites - 102.5, Blacks - 193.3 and Hispanics - 84.4. In Atlanta metropolitan, the 2012 CDC report mentioned the following prostate cancer incidence rate per 100,000 cases: all races - 133.1, Whites - 111.1, Blacks - 191.8 and Hispanics - 118.6 (CDC, 2012). From these statistics, it is evident that the Black American prostate cancer incidence rate in Atlanta metropolitan and Georgia is generally higher than the national average for Black Americans (CDC, 2012). The CDC report mentioned in 2012 that Black Americans were more likely to die from prostate cancer than any other groups, followed by Whites, Hispanics, American Indian/Alaska Native, and Asian/Pacific Islanders.

According to The Healthy People 2020 report (2013), the United States health care delivery system is facing various problems because of its unreliability. As a result, individuals, including those living in Georgia, may not be receiving medical care at the appropriate time. However, with the new Affordable Healthcare Act, many Black

Americans may now be able to access the U.S. healthcare system (Healthy People, 2013). The situation is complex and problematic due to race, ethnicity, and socioeconomic status (SES) as reported by Ricciardi et al. (2016). The CDC statistics in 2012 pointed out a higher prostate cancer incidence rate among Black Americans in the United States and in Georgia. In this study, I explored the perceptions of Black American men in Georgia that prevented them from seeking prostate cancer screening and, if needed, early treatment in. This study is expected to provide the knowledge required for politicians, healthcare providers, healthcare managers, and policy makers to implement policies to improve the early detection and treatment of prostate cancer among Black American men in Georgia.

In the study, I used the health belief model (HBM) as part of the theoretical framework for exploring the perceptions of Black American men in Georgia about prostate cancer. The HBM helped guide this study because it explained and predicted the health behaviors of individuals by focusing on their perceptions, attitudes, and beliefs. The HBM constructs include perceived threat, perceived severity, perceived benefits and perceived susceptibility (Conner & Norman, 1996).

Problem Statement

Prostate cancer is one of the most critical health issues faced by the Black American men in the 21st century. Black American men die from prostate cancer at a higher rate than other ethnic groups. Therefore, it is imperative to properly educate Black American communities about the disease in order to ensure that the money spent to treat

the disease, and the fatality due to lack of education, can be reduced or eliminated (Healthy People, 2013).

According to the CDC, prostate cancer is the second greatest contributing factor to male fatality in the United States. In the CDC's 2015 report, 177,489 cases of prostate cancer were diagnosed between 1999 and 2012, with 27,244 deaths (CDC, 2015).

According to this report, Black American men are more likely to die from the disease than Whites, American Indian/Alaska Native, Asian/Pacific Islanders, and Hispanics (CDC, 2015).

In a 2015 CDC report on prostate cancer incidence rates according to race/ethnicity from 1999-2012, the agency reported that the propensity of Black American males to get prostate cancer is higher than Whites, Hispanics, American Indians/Alaskans, and Asian/Pacific Islanders. Additionally, the likelihood of death among Black American men due to prostate cancer is higher than that of Whites, Hispanics, American Indian/Alaskans, and Asian/Pacific Islanders (CDC, 2014).

The reasons for the high prevalence and mortality rate of prostate cancer among Black American men have not been addressed in detail. Thus, it is imperative to investigate the barriers to access prostate cancer screening and to understand the perceptions that hinder the early detection and treatment of prostate cancer among Black American men. Shi and Singh (2009) suggested that access to quality health care is lagging among Black Americans and other minorities groups, and to a certain extent, it does not exist (p. 428). Despite the improvement in the delivery of healthcare in the

United States over the past decades, Black American communities still lag in their ability to access and receive quality healthcare. Shi and Singh further stated that “Black Americans’ life expectancy rates are shorter than their White counterparts, and Black Americans are more likely to report fair or poor health status than Whites” (Shi & Singh 2009, p. 429).

Several other studies reported similar findings. Liao et al. (2011) conducted a study on racial/ethnic health disparities in 17 states, including Georgia. Using the survey method, they collected data through telephone, face-to-face interviews, and questionnaires from 900 participants aged 18 years and above. They compared the data collected from 28 communities in 17 states to obtain information from the Behavioral Risk Factor Surveillance System (BRFSS). In their findings, they suggested that Black Americans, living in these 17 states, including Georgia, lacked medical coverage and access to quality care. Thus, most participants in the study were unable to see a physician due to lower income, and lack of education. The susceptibility of Black American men in Georgia to prostate cancer screening, early detection, and early treatment is illustrated through these findings. The authors recommended increasing surveillance and monitoring activities in the Black American community in Georgia to improve access to care.

According to a 2014 report published by the United States Health and Human Services (HHS), approximately 500,000 Black Americans between the ages of 19 and 26 now have access to healthcare insurance due to the Affordable Care Act. Additionally, the HHS in 2014 reported that Black Americans between 18 and 64 years of age can

obtain health coverage as of June 2014, since the inception of the ACA. However, the impact of the ACA on the number of Black Americans getting screened for prostate cancer has yet to be determined.

An increase in the incidence of prostate cancer has been reported in the U.S. in the last two decades (Major et al., 2012). It is more prevalent in the Black American community, with an incidence rate of 233.8/100,000 in comparison with 149.5/100,000 for Whites (Major et al., 2012). Major et al. hypothesized that one of the reasons for this disparity is the inability of Black men to access timely care due to lack of early screening. Thus, additional studies are necessary to minimize the disparities in accessing care by Black American men diagnosed with prostate cancer in Georgia (Major et al., 2012).

Xiao, Tan and Goovaerts (2011) also agreed that more studies should be conducted to determine the reasons for the high prevalence of prostate cancer among Black American men in Georgia and the barriers associated with accessing care and screening. However, in the state of Georgia, prostate cancer studies have not been conducted among the predominantly Black population with its high prevalence. For example, prostate cancer studies have not been conducted in Fulton, DeKalb, Clayton, and Gwinnett counties nor in metropolitan Atlanta, where a high population of Black Americans diagnosed with prostate cancer reside. Due to this gap in knowledge, developing appropriate policy and practical guidelines to ensure early detection and treatment for prostate cancer among Black American men are restricted significantly. Thus, the aim of this study was to determine the barriers that are responsible for

inadequate access to screening and quality care for prostate cancer among Black American men in Georgia.

Research Questions

The objective of this study was to determine the barriers and perceptions that affect the ability of Black American men living in some counties such as Fulton, DeKalb, Clayton, Atlanta metropolitan and Gwinnett in Georgia to screen for prostate cancer in a timely manner for early detection and treatment. Questionnaires were distributed through mailing and emailing using the mailing list purchased from American Clearing House (ACH). In addition, questionnaires were distributed to Georgia Prostate Cancer Coalition (GPCC) officials. The following research questions (RQ) were investigated in this study:

Research Question 1: What perceived benefits do Black American men derive from prostate cancer screening?

H0: Early detection and treatment are the most significant perceived benefits that drive the Black American men to undergo prostate cancer screening.

Research Question 2: Why are Black American men not getting early screening for prostate cancer?

H0: Fear and cost are the most significant barriers that prevent Black American men from getting early screening for prostate cancer.

Research Question 3: What are the risk factors that contributes to the high prevalence of prostate cancer among Black American men?

H0: Geographical location and ethnicity are the most significant risk factors that are perceived by Black American men as the primary reasons for the high prevalence of prostate cancer.

Research Question 4: What do Black American men perceive as a severe case of prostate cancer?

H0: Difficult in urination and getting an erection are considered as the most significant symptoms by Black American men to be classified as the severe stage of prostate cancer.

Research Question 5: What lifestyle changes do Black American men need to make to avoid the diagnosis of prostate cancer?

H0: Diet and regular exercise are the most significant lifestyle changes that the Black American men need to make to avoid prostate cancer.

Research Question 6: When do Black American men seek medical attention to treat prostate cancer?

H0: Pain during urinating and swelling in the penis are the most significant symptoms that derive the Black American men to seek medical attention to treat prostate cancer.

Research Question 7: Do age and existence of health insurance directly correlate with the perceived benefits, barriers, susceptibility, severity, self-efficacy, and cues to action?

H0: Age and existence of health insurance have a direct correlation with the perceived benefits, barriers, susceptibility, severity, self-efficacy, and cues to action.

Purpose of the Study

The purpose of this study was to examine the socio-economic barriers and perceptions that prevent Black American men in Georgia from undergoing early screening and treatment for prostate cancer. In this study, I investigated whether there were barriers associated with screening for prostate cancer in predominantly Black American counties—Fulton, DeKalb, Clayton, Gwinnett, and the Atlanta metropolitan area—in Georgia. It is expected that the results of the study can provide the knowledge to understand how timely access to the U.S. healthcare delivery system through timely screening can reduce the high prevalence and mortality rate associated with prostate cancer among the Black American men in Georgia.

The HBM was used as a basis for investigating the effects of the perceived benefits, barriers, susceptibility, severity, self-efficacy and cues to actions on prostate cancer screening and treatment among Black American men in Georgia. This quantitative study explored the relationships among variables in a single group using cross-sectional analysis to evaluate the relationships between the barriers to Black American men getting screened and getting access to care for prostate cancer. The results were used to provide recommendations to Georgia health care policy makers, politicians, health care providers and management to enact positive health care policies that could improve (a) timely

screening of Black American men and (b) access to care for those diagnosed with prostate cancer.

Theoretical Framework

The theoretical framework used to guide this study was the HBM, which theorizes that individuals make healthcare decisions based on their perceived benefits and barriers associated with a potential illness and the consequences associated with it (Janz et al., 2002; Klier, 2004; Noar, 2005). In the 1950s, psychologists Hochbaum, Rosenstock, and Kegels introduced the HBM in the United States in order to help health care providers explain and predict the health behaviors, attitudes, and beliefs of individuals (Janz & Becker, 1984; Janz, Champion, & Strecher, 2002; Sheeran & Abraham, 1995).

The HBM (Figure 1) includes many components that can help healthcare providers address individuals' current health issues and the types of intervention programs available to deal with them. In the 1970s, Hochbaum, Rosenstock, and Kegels added the health motivation construct to the model; in the 1980s, the self-efficacy construct was added (Janz et al., 2002).

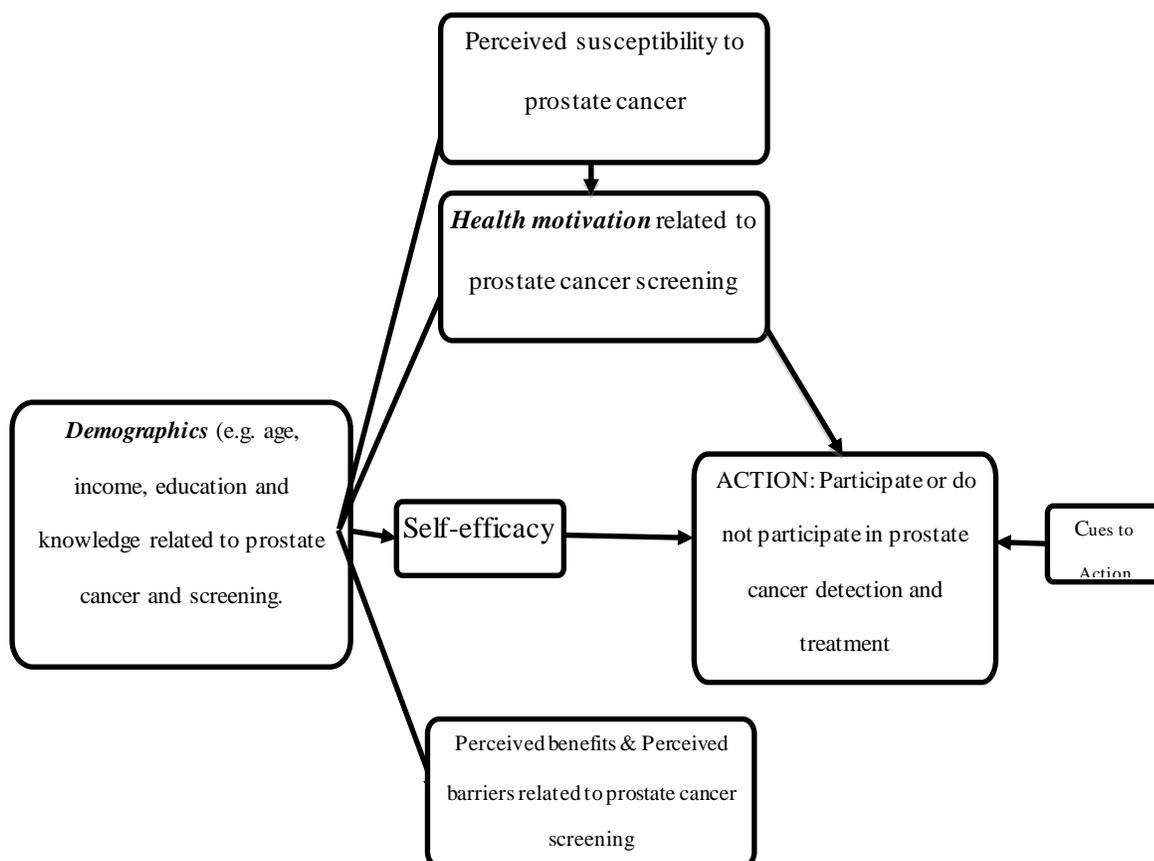


Figure 1. Health belief model. From “The Health Belief Model in Predicting Health Behavior” by P. Sheeran, and C. Abraham 1995, M. Conner, & P. Norman (Eds.). Buckingham: Open University Press.

Application of the Health Belief Model

The six HBM constructs address individuals’ perceptions about threats to their health, the advantages and disadvantages of avoiding such threats, and the motivating factors that influence their decisions to act. The HBM is based on the notion that an individual will take the necessary action if the individual (a) feels that an ailment can be prevented; (b) feels that the health condition can be avoided if positive actions or steps

are taken; and (c) believes that she or he can follow successfully their providers' recommendations (Oliver et al., 2011). The model was developed in order to predict an individual's health behavior. The model is based on the relationships among an individual's health behaviors, practices, and utilization of health services.

The six HBM constructs and definitions are listed in Table 1. The constructs are believed to influence an individual's decision about whether actions about their health should or should not be taken. The perceived susceptibility construct addresses individual beliefs to either act or not, for example, whether to get screened and whether to get timely treatment for prostate cancer. The perceived severity construct addresses an individual's perception about the possibility that prostate cancer can have negative consequences, for example, fatality. Other beliefs, such as perceived benefits and perceived barriers, address the beliefs that the individual's susceptibility to developing prostate cancer and its severity can be reduced, eliminated, or avoided if preventive measures are taken.

The self-efficacy construct suggests that individuals can develop the health behaviors needed, to reduce the possibility of developing prostate cancer or dying from the disease, for example, getting screened for prostate cancer (Janz et al., 2002; Klier, 2004; Noar, 2005). The last of the six constructs, cues to action, describes what might prompt someone to take necessary preventive action about their health, for example, the death of a close friend or family members from prostate cancer, television or radio advertisements, or encouragement from a physician or other health care provider (Janz et al., 2002).

Table 1

Health Belief Model Concepts and Definitions

Concepts	Definitions
Perceived susceptibility	Beliefs about the possibility of getting an illness
Perceived severity	Beliefs about how serious of an illness could be and the consequences
Perceived benefits	Beliefs about taking necessary actions that reduces the risks or consequences
Perceived barriers	Beliefs about the cost of taking necessary steps or actions
Cues to action	Factors that help with making necessary change
Self-efficacy	Individual's ability to take necessary actions

Note. From "Health Belief Model," by N. K. Janz, V. L. Champion, and V.J. Strecher, 2002, (K. Glanz, and F.M. Lewis, Eds. P.49). San Francisco, CA: Jossey-Bass

Nature of Study

The qualitative and quantitative methods are the two most used methods (Hancock et al., 2009). A qualitative study allows explanation of a concept that is at an initial stage of development and facilitates interpretation of the interviews based on his/her perception of the research topic investigator to (Barbour, 2010). In a quantitative method, statistics and numbers are used with the results for casual hypothesis testing. The quantitative method is used when an investigator is performing a larger study involving a survey, and assessing the needs of participants in the survey (Friedhoff et al., 2013).

Creswell (2014) mentioned that the research designs are plans and procedures for research that span decisions from broad assumptions to detailed methods of data collection and analysis (p.3). The quantitative method was used for this study after reviewing the pros and cons each method, because quantitative methods protect against bias, control for alternative explanation, and allow for the generalization and replication of the findings (Creswell, 2014, p. 4).

Operational Definitions

Black American: Black American is a term used by the United States Bureau of Census to identify United States citizens with Black descendants, and with dark skin. The term is also used to describe blacks from other parts of the world-including those born in the U.S. (Wesley, 1996).

Barriers to Care: The health care barriers are defined as an individual's inability to access care due to financial, structural and cognitive reasons, resulting in late presentation to care and lack of treatment, which in turn result in poor health outcomes and health disparities (Carrillo et al., 2011).

Access to care: Access to health care is the ability to gain access to, and being privy to all the rights pertaining to being able to use this information at will to enhance one's health condition and care. Anderson, Rice, and Kominski (2007) defined access to care as the use of healthcare services, including any obstacles and barriers that make its usage possible (p.3). On the other hand, Shi and Singh (2008) defined access to care as

the ability of individuals to obtain healthcare coverage at a reasonable and affordable cost in a timely and efficient manner (p.505).

Prostate cancer: The American Urologists Association (AUA) defined prostate cancer as the fast growth of abnormal cell in the body resulting in the diagnosis of the disease. The abnormal growing cells divide rapidly and form new cells that are not necessary in human body and form some mass tissue referred to as a tumor (AUA, 2015).

Prostate Cancer Screening: Prostate cancer screening is a test performed to detect prostate cancer early to improve individual's chances for cure and prevention of any complications from the disease (AUA, 2015).

Lifestyles: Lifestyles is defined as the ability of individuals to maintain a healthy balanced diet, have the right mindset, good healthy balanced diet and regular exercise (Jacobs et al., 2012).

Assumptions

In this study, it was assumed that the participants were truthful in responding to the survey questionnaires.

Scope, Delimitation, and Limitations of the Study

One of the limitations in this study is the limited amount of time that was available to conduct the research as the survey was expected to be completed within a specified and pre-determined time. In addition, the sample collection was restricted to residence from some counties, namely Fulton, DeKalb, Clayton, Gwinnet and Atlanta

metropolitan in Georgia. Questionnaires were distributed through ACH and GPCC. The results obtained from this study were based on the information obtained from the population from these counties and demographics. Therefore, the application of the findings to wider communities may be limited.

With the study limited to some counties in Georgia, the outcomes of the study cannot ascertain if Black Americans in other parts of the United States and to a certain extent Black Americans in other parts of the world would have the same problem of accessing prostate cancer care. Additionally, the sample size is not representative of the entire Black American population living in the United States. Since the survey sample size is small, the outcomes of the statistical analysis may have limited reliability. The study included 600 Black American men between 40 and 60 years of age, who were expected to speak, read, and write the English language. The study was restricted to four counties in Georgia —Fulton, DeKalb, Gwinnett, Clayton counties—and the Atlanta metropolitan area. Only paper based questionnaire was used in this study and I did not conduct any face-to-face interviews or web-based survey.

Significance of the Study

According to Consedine and Skamai (2009), researchers have been unable to determine if health behaviors, and the inability to access care in a timely manner, result in delayed diagnoses of prostate cancer and whether that led to a high prevalence of prostate cancer in Black American men. The aim of this study was to determine the effect of age, race/ethnicity, level of education, cultural/tradition, and income relationships on timely

screening [for prostate cancer] and accessing prostate cancer care, [as needed], by Black American men living in Fulton, DeKalb, Gwinnett, Clayton counties, and the Atlanta metropolitan area, in Georgia. Educating the Black American men about accessing timely care for prostate cancer treatment is important because it can reduce the current high rate of prostate cancer and consequent mortality. With the high prostate cancer prevalence and mortality rate among the Black American men, it is imperative to determine if there are barriers and delays in accessing the U.S. health delivery system for early screening for prostate cancer and the reasons for such delays.

Social Change Implication

A social change within the Black American community is necessary to break the difficulties and barriers that the Black American men face in screening and accessing prostate cancer care in Georgia. The contribution of this study to this social change is the identification of the barriers Black American men encounter in screening for prostate cancer care in a timely manner. The positive social change for this study was to educate the Black American community about the need and benefits of screening for prostate cancer in a timely manner to reduce the current mortality rate in the Black American community.

With effective collaborations among health care workers, managers and executives, the findings contained in this study can be used to improve the current high prevalence and mortality rate associated with prostate cancer within the Black American community through early screening. This research supports the social change because it

compares the relationship between barriers of accessing timely and quality care and prostate cancer and Black American men in Georgia.

Summary

According to a 2012 report by the American Cancer Society (ACS), various studies showed that possibilities exist for individuals diagnosed with prostate cancer to have a prolonged life. Despite the 2012 ACS report, in Georgia, there is an increase in prostate cancer incidence, especially among Black American men. In the 2012 ACS report, it was also mentioned that screening for prostate cancer at an early age and stage by accessing timely care can reduce mortality and prolong life. In this study, I investigated whether Social Economic Status (SES), age, race/ethnicity, lack of education about prostate cancer, income level, environment, cultural/tradition and Georgia healthcare policy contribute to some of the barriers in screening for prostate cancer by Black American men in Georgia.

The literature review in Chapter 2 covers the following topics: prostate cancer, barriers to accessing care in a timely manner, behavioral tendencies that influence an individual's behavior in light of the HBM? In Chapter 3, I discuss the study methodology including sample selection, analytical procedures, design of the research, instrument used, information about the study participation and the protection of privacy. I discuss about the quantitative design exploring relationships among variables in a single group using a descriptive cross-sectional research method. The descriptive cross-sectional design was useful to determine the significance of the independent and dependent

variables in the study. The outcomes of the study are given in Chapter 4; in Chapter 5, the following topics are covered: concise, appropriate, useful, and tangible recommendations for future studies.

Chapter 2: Literature Review

Introduction

The purpose of this study was to examine the socio-economic barriers and perceptions that prevent Black American men in Georgia from undergoing screening and early treatment for prostate cancer. Georgia prostate cancer statistics for 2006-2010 showed a decrease in reported prostate cancer cases and mortality rate (Georgia Cancer Registry, 2010). Despite this report, Black American men continue to witness an increase in both reported cases and mortality rates.

Literature Search Strategy

The literature for this study was identified with the following databases: CINAHL, MEDLINE, CINAHL & MEDLINE Simultaneously and PUBMED. The following keywords were used: *Black American, male, and prostate cancer*. Searching the databases for Black American men and prostate cancer generated the following articles, published between 2000- 2017; MEDLINE 878, CINAHL 212, MEDLINE Simultaneously 1435 and PUBMED 1954. Out of this, I reviewed approximately 300 articles and 50 studies were used in the review.

Risk Factors for Prostate Cancer

In its 2013 report, the ACS listed the following risk factors for prostate cancer: (1) age, (2) race, (3) family history, (4) genes, (5) diet, and (6) obesity (ACS, 2013). Similarly, Forbat et al. (2013) found that prostate cancer can be associated with ethnicity, age, and family history using an embedded mixed-methods, clinical records, and a

retrospective survey. In the study, the authors selected participants and categorized them as patients ($N = 474$) diagnosed with prostate cancer within a 2-year period between 2008 and 2009. Overall, 458 individuals participated in the postal survey and 320 responded. In their conclusion, the authors suggested that individuals with family history of prostate cancer had no perception of risks associated with the disease. They suggested that individuals should learn about the risks associated with prostate cancer from family members and friends.

Prostate Cancer Incidence

According to the CDC, prostate cancer is the most common form of cancer among American men and the second most common cause of death among men in the U.S., and the most common form of cancer diagnosed among American men. According to the CDC's 2009 report, more than 300,000 individuals were diagnosed with prostate cancer of which roughly 29,000 died. Black American males made up most these deaths (CDC, 2009). Despite many studies, recommendations and policy changes, the disease is more prevalence among Black American men in comparison to other ethnic groups (Jones, Steeves, & Williams, 2009). One of the methods of detecting prostate cancer is the Prostate-specific Antigen (PSA) test. However, most Black American men do not take the PSA test, but seek medical attention only when the disease has reached an advanced stage (Jones, Steeves, & Williams 2009).

During years 2005-2009, the ACS reported that the U.S. witnessed a decrease in prostate cancer incidence. However, the Black American community continues to

experience increase of the disease (ACS, 2013). One in five Black American men has the risk of developing prostate cancer (19.74%), while it is one in six for White men (15.39%). In addition, 1 in 22 Black American men can die from the disease in comparison to 1 out of 39 Whites (ACS, 2013). As such, it is imperative to study the reasons why Black Americans die at a higher rate from prostate cancer in comparison to Whites and other ethnic groups.

Prostate Cancer Mortality

In their 2012 report, the Georgia Cancer Registry (GCR) reported that prostate cancer is the most common form of non-skin cancer incidence and the second leading cause of mortality among men in the state of Georgia. According the report, the overall cancer incidence rate in Georgia is 167 cases per 100,000 and the overall age-adjusted mortality rate is 28 per 100,000 populations (GCR, 2012). According to the 2012 report, prostate cancer accounts for approximately 30% of all new cases of cancer among men in Georgia, and the Black American men are more likely to be diagnosed with the disease than Hispanics and Whites. In addition, Black American men living in Georgia are 17% more likely to be diagnosed with prostate cancer than Black American men living in other parts of the United States.

The number of prostate cancer cases in Georgia is 262 per 100,000 in comparison to 223 per 100,000 in other parts of the country (GCR, 2012). The GCR report mentioned that the risk of dying from prostate cancer is significantly higher among Black American men when compared to Hispanics or Whites. For example, Black Americans between 50

and 59 years of age are more likely to die from prostate cancer when compared to Whites between 60 and 69 years of age.

From 1980 to 1994, the mortality rates of prostate cancer among Black American men living in Georgia increased by 3.3%. From 1994, the mortality rates have decreased to 3.2% per year. However, when compared to the increase of 1.8% and decrease of 4.5% for Whites, the number of prostate cancer incidence and mortality rates among Black American men is higher (GCR, 2012). Carpenter et al. (2010) examined the PSA screening habits among Black Americans diagnosed with prostate cancer in comparison to White within the age category of 65 years and above using data collected from SEER-MEDICARE database. The authors found that screening may reduce the mortality rate that currently exist within the Black American community.

Although there are differences in opinions in the United States about the effect of prostate cancer screening, Gonsalves, Cartmel, and Mueller (2012) reported that screening for the disease at an early stage may decrease complications and future clinical problems. They suggested that individuals should be educated about the benefits and risks associated with screening for the disease. Despite various studies, adequate evidence does not exist to ascertain a definite method of preventing prostate cancer (Gonsalves, Cartmel, & Mueller 2012). The authors also mentioned that prostate cancer mortality rate among Black Americans could be attributed to SES, management of the disease and the difficulties to access the care. These factors alone cannot be used to fully

explain the prevalence of the disease among Black American men. As such, they recommended further studies.

Wong, Ettner, Boscardin, and Shapiro (2009) investigated whether the higher incidence of cancer mortality and survival rate among Black Americans can be reduced through timely access to care, screening, and treatment of prostate cancer. They found that the life expectancy rate for Black Americans is 1.47, which is 0.91 less than their White counterparts. The incidence, and mortality is higher among Black American men (Jones, Underwood, & Rivers, 2007). From 2000-2004, prostate cancer mortality rate among Black Americans was estimated to be 62.3 per 100,000 compared to 25.6 per 100,000 for Whites (Jones, Underwood, & Rivers, 2007). Jones, Underwood and Rivers (2007) acknowledged the controversies surrounding using PSA for prostate cancer screening, though they suggested that early screening for the disease may reduce the mortality rate. Using audio taped interview of 9 Black American men living in central Alabama, Oliver (2007) suggested that lack of trust and cultural beliefs are the other factors contributed to inability and reluctance of Black Americans to seek help for prostate cancer treatment. In their study using specific mortality rates from 1980-2000, Datta, Glymour, Kosheleva, and Chen (2012) reported that the confirmation of risk factors for prostate cancer is minimal, but mortality rate varies among Black Americans and Whites. Utilizing national mortality rate information from a sample of American men between 40-89 years of age and using geographical location, the authors suggested that Black Americans living in PCa vicinity had higher mortality rate.

Datta, Glymour, Kosheleva, and Chen (2012) reported that Black American men between the age of 65 and 89 and resided in the PCa neighborhood in 2000 had an odd ratio of 1.19 (1.14-1.24) for PCa mortality rate in comparison to Black Americans living outside the PCa vicinity. Thus, they hypothesized that accessing care due to geographical location, exposures, environmental situation and behavioral tendencies may have contributed to the higher mortality rate of Black Americans in PCa regions. Nock et al. (2009) studied the relationships between GSTM 1 null, GSTT 1 null, and GSTP 1 Ile 105 Val polymorphisms and BCR after the utilization of prostatectomy in 168 Black American men and 226 White men at the Henry Ford clinic in Detroit Michigan. The authors found an increase in BCR in Black American men having the GSTT 1 null genotype in comparison to those with GSTT 1 present (hazard ratio (HR) = 2.30; 95% CI = 1.01-5.18; $p = 0.04$). They also found that Black Americans had a greater risk with the GSTT 1 null genotype and bigger tumor of (HR = 7.82; 95% CI = 2.49–24.50; $p < 0.001$). The authors hypothesized that GSTs may be used as a therapy for advanced treatment of prostate cancer among Black American men.

Although there exists a disparity in access to care in the United States, the prevalence of prostate cancer observed within the Black American men cannot be over-emphasized (Cheng et al. 2009). The reasons for the high prevalence of prostate cancer within the Black American community has been investigated with conflicting outcomes. Cheng et al (2009) conducted a cross-sectional analysis of 98,484 prostate cancer incidences and 8,997 prostate cancer fatality using a population based method by

collecting data from the California cancer registry. In their findings, the authors hypothesized that Social Economic Status (SES) alone could not be attributed to the high prevalence of prostate cancer among Black American men and recommended additional study to ascertain the high prevalence of prostate cancer within the Black American community.

Annual death rate of Black American men from prostate cancer is estimated as 2.4 times higher than their White counterparts (Taksler, Keating, & Cutler, 2012). Using the Surveillance and Epidemiology database, the authors reported a significant change between the Black Americans mortality rate in comparison to their White counterparts between 1995 and 2005. The mortality rate was 1320 cases per 100,000 among Black Americans and 980 cases per 100,000 for White men. The authors attributed the higher incidence rate of prostate cancer within the Black American men to infrequency in accessing care for prostate cancer screening through PSA testing and income.

Taksler, Cutler, Giovannucci, Smith, and Keating (2013) suggested that because Black Americans have darker skin, their ability to generate vitamin D is inadequate and might have contributed to a higher incidence of prostate cancer within the Black American community. Taksler, Cutler, Giovannucci, Smith, and Keating (2013) hypothesized that disparities in prostate cancer incidence existed in areas with less sunshine and recommended additional study to determine if darker skin contributes to insufficiency in vitamin D among Black American men. Datta, Glymour, Kosheleva and Chen (2012) suggested that prostate cancer mortality rate seems to be higher among

Americans living in some geographical location in the United States. They hypothesized that geographical location, environmental influences, and behaviors may have contributed to inaccessibility of care by Black American leading to a high mortality and incidence rate of prostate cancer within the community.

Barocas et al. (2013) hypothesized that racial disparities seem to exist in the United States, resulting in lack of access to the care for follow-up visits after prostate cancer screening. The authors hypothesized that race might be a contributing factor to accessing care by Black Americans, who are ineligible for Medicare and Medicaid, based on the data collected from studies of individuals screened for prostate cancer through PSA. Tewari et al. (2005) reported that Black Americans that went through radiation treatment had a survival rate of 17% in comparison to 28% for Whites according to their retrospective cohort study with 4279 individuals diagnosed with prostate cancer between 1980 and 1997. However, the difference between the two groups during surgical procedures is not significant. The authors then hypothesized that SES and inadequate surgical procedures due to lack of access to care might have contributed to disparity in survival rate for Black American diagnosed with prostate cancer.

Utilizing the information obtained from cancer registry in Brooklyn, NY. Mutetwa et al. (2010) examined the mortality and survival rate of prostate cancer for Black Americans and two Caribbean countries, namely Guyana, and Trinidad and Tobago in comparison to Whites, and reported high mortality rate among Black Americans. They reported that prostate cancer is diagnosed late in Guyana (74.5 years),

Trinidad, and Tobago (72.4 years), and Brooklyn (65.8 years). Those diagnosed with prostate cancer in Guyana and Trinidad has lower survival rate in comparison to those born in the United States. The authors suggested that differences in survival rate could be attributed to late diagnosis due to lack of access, inadequate screening, and lack of education about prostate cancer.

Gilligan (2005) conducted a study on prostate cancer incidence since 1990. The author noted that the past studies could not conclude whether SES contributes to the high incidence of prostate cancer among Black Americans. The rate of prostate cancer mortality among Black Americans and Black ancestry men is the highest globally (Martins, Starks, & Ambs, 2013). The authors hypothesized that environmental and genetic characteristics are some likely contributing factors that cause prostate cancer aggressiveness among Black Americans and Black ancestry men. In their findings from DNA methylation research, the authors reported an increase in DNA hypermethylation loci in Black Americans tumors in comparison to the Europeans and Whites. Peters and Armstrong (2005) also highlighted the differences in the incidence and mortality rates due to prostate cancer among Black American and White men. Though the differences are widely accepted in the United States, access and treatment of the disease, however, remains controversial. Based on studies from 1992-2002, the authors recommended that efforts should be geared towards ensuring that Black American men received optimal prostate cancer treatment and education about prostate cancer and early detection.

Accessing the Healthcare System in the United States

Accessing the United States healthcare delivery system to receive necessary treatment for prostate cancer, such as screening for the disease with PSA testing, is a barrier that persists within the Black American community. Access to care is one of the most challenging aspects of seeking medical attention. It is important to access the care in a timely manner to avoid the spread to other parts of the organs. Many theories are used to explain what motivates an individual's willingness to access care and seek help for prostate cancer treatment. However, it is not clear whether certain other barriers prevent Black American men from accessing care.

Despite the improvement and expansion of the health care workforce, accessing healthcare continues to be problematic and continues to elude minority groups (Saha & Shipman, 2008). The authors hypothesized that healthcare providers are hesitant to provide services to poor neighborhoods and recommended changes in policies that might improve accessing care by the underprivileged, poor, and disadvantaged individuals. Per capita health care cost in the United States is the highest in the world and continues to rise (Hoffman & Paradise, 2008). With health insurance, individuals and families are protected against the exorbitant cost of accessing the healthcare delivery system. However, some individuals are unable to obtain any of the private or public or Medicare or Medicaid coverage and find it difficult to access care.

Despite these coverages, the number of uninsured people rose by more than one million Americans could not access the care in 2006 (Hoffman & Paradise, 2008). In

addition, the authors reported that 46 million Americans had no access to care in 2006, and attributed these findings to lack of healthcare coverage and poverty. Among the poor, 36% have no healthcare coverage, with half of the uninsured were Black Americans. Accessing the United States healthcare system continues to be a problem for most citizens, especially the Black Americans. The following subsection discusses the reasons for difficulty in accessing the United States healthcare system, and thereby contributing to high prevalence and mortality rate of prostate cancer among Black American men.

Health Insurance Cost

Landon, Reschovsky, O'Malley, Pham, and Hadley (2011) used data from a 2004-2005 Community Tracking Study Physician Survey on PCP (CTSPS) to examine the relationships of payment arrangement between primary care physicians (PCP) and cost of care for Medicare recipients. The study consisted of a cross-sectional analysis of PCPs data connected to Medicare claim. In their findings, the authors hypothesized that the cost of primary physicians living in high capitated environment has the lowest spending, while physicians, who receive productivity payments spend more, usually result in lower access to care.

Buntin, Colla, and Escarce (2009) used a multinomial study to measure the effect of payment system and predicted its effect on access to alternative care. Linking data from elderly individuals receiving Medicare from 1996 to 2003, the authors suggested that the payment system plays a significant role in receiving care by Medicare recipients.

Gilman (2008) conducted a retrospective observational study to investigate the

advantages of hospitals converting to the Critical Access Hospital (CAH) program on out of pocket co-insurance payments for outpatient services for Medicare beneficiaries. The authors suggested that the conversion to CAH increases out of pocket payments of Medicare beneficiaries by \$17.19 or 34% of individual participants in the study. With a high increase in out of pocket payment, it is possible that the poor, especially Black American men diagnosed with prostate cancer might find it difficult to access care.

Uninsured Citizens

In 2010, approximately 61 million individuals representing 20% of the United States population did not have adequate medical coverage, while 48 million (16%) did not have any type of medical coverage. This is an increase from the 2009 figure of approximately 47 million (Hellander & Bhargavan 2012). In addition, Hellander and Bhargavan (2012) mentioned that more than nine million Americans lost their medical coverage between 2008 and 2010, as a result of job loss, recession and the economy downturn. Out of this, 25 percent found other sources of coverage and 1 out of 7 individuals were lucky to retain their previous coverage through Consolidated Omnibus Budget Reconciliation Act Coverage (COBRA) (Hellander & Bhargavan 2012).

Additionally, in 2010, 75 million adults did not have any medical coverage due to high medical cost, while 73 million had problems paying their medical bills, and 29 million spent their entire savings on medical bills (Hellander & Bhargavan, 2012). Also, one out of 3 individuals below 65 years old, who were diagnosed with cancer did not have any medical coverage during diagnoses, due to high premium cost or issues relating

to pre-existing condition. Hellander and Bhargavan (2012), and Sabik. (2012), investigated the effect of insurance on the individuals' access to care using the Community Tracking Study and Area Resources File and the Bureau of Primary Healthcare data. The authors hypothesized that uninsured are associated with poor access to care, where as individuals with health insurance are more likely to access the care.

Underinsured Citizens

High deductible health plans (HDHPs) is another reason Black Americans are hesitant to access care. HDHPs are defined as health coverage with a minimum deductible of \$1000 for individuals and \$2000 for families (Hellander & Bhargavan 2012). With the high HDHP, most families with cancer patients or other form of chronic disease face the possibility of not able to access the care (Hellander & Bhargavan 2012). Additionally, individuals diagnosed with cancer are required to spend more out of pocket costs. For example, 14 percent of non-elderly adult diagnosed with cancer spent a minimum of 20 percent of their income on cancer treatment and insurance payment.

Medicaid

In 2006, one out of five adults accounting for 37 million individuals between 19 and 64 years of age had no medical coverage (Blewett, Ziegenfuss, & Davern, 2008). In their 2008 report, the authors mentioned that five million adults were uninsured. The authors also reported that only seventeen states provided Medicaid to working adults with restrictions that made it impossible for qualification. For example, adults that are employed with 3 children and on an annual income of \$17,710 are not qualified for

Medicaid. Additionally, non-U.S. citizens or recently migrated individuals may not qualify for Medicaid (Blewett, Ziegenfuss, & Davern, 2008).

With the expected decline in Medicaid spending due to cut in the 2009 economic stimulus package, 24 states are contemplating reduction in Medicaid spending and 20 states are planning to reduce or cut Medicaid benefits that consume 20 percent of the state budget (Blewett Ziegenfuss, & Davern, 2008). With a cut in Medicaid, Black Americans diagnosed with prostate cancer are more likely to continue experiencing difficulties in accessing care. Using a cross-sectional analysis through data obtained from National Health and Nutritional Examination Survey (2007-2010) to describe demographic and health characteristics of eligible Medicaid recipients, Chang and Davis (2013) hypothesized that 49.2% individuals applying for Medicaid are mostly men.

Based on an analysis of 13.8 million current Medicaid data, potential beneficiaries are mostly Black Americans with 58.8% eligibility. From their result, Chang and Davis (2013) suggested that because of the Black Americans demographic and health characteristics, health providers need to visit the Black American community more often. In another study conducted to determine the effect of the Community Care of North Carolina (CCNC) health intervention program, DuBard (2013) hypothesized that healthcare providers are not accepting Medicaid insurance, resulting in inability to access the care by the underprivileged. Antos (2013) noted that more Americans are supposed to be added to Medicaid with the Patient Protection and Affordable Care Act. However, the

author suggested different policy should be introduced to help Medicaid recipients accessing the care.

Medicare

Huckfeldt, Sood, Romley, Malchiodi, and Escarce (2013) suggested that reforming Medicare payment affects the individual accessing the care, the market structures and quality of care. Basu (2012) assessed the importance of Medicare Advantage (MA) in providing adequate and quality care in three states, namely California, New York, and Florida, across racial groups, using a multivariate cross-sectional analysis. The author suggested that minorities, especially Black Americans, were less likely to be enrolled in the MA program and recommended that the MA program should be made available to all minority groups to address the racial/ethnic disparities in accessing care.

Lebrun-Harris et al. (2013) conducted a study to assess Patient- Centered Medical Home (PCMH) and the quality of care provided by the Federal Government supported centers. Using data from 2009 Health Center Patient Survey (HCPS) ($N = N = 4,562$) consisting of interviews and individual perceptions of quality of care provided, the authors suggested that communication with patients could be attributed to the difference in the perception of individuals about accessing quality care. Zaslavsky, Ayanian, and Zaborski (2012) used the data from the Medicare Consumer Assessments of Healthcare Providers and Systems (CAHPS) to understand the racial/ethnic disparities in accessing care through Medicare. The authors concluded that there is a difference between different

ethnic groups in utilizing Medicare and recommended addressing the disparities that currently exist in accessing care through the Medicare program.

Age

Gargel, Sefik, Balci, Girgin, and Dincel (2012) studied 1,133 participants to investigate the relationships between age, prostate cancer size and individuals, who had undergone ten quadrants transrectal ultrasonography-guided (TRUSG) prostate biopsy because of high Prostate- Specific Antigen (PSA) values between 2001 and 2012. Participants were classified into three main groups based on age, i.e. <60, 60-70 and >70 years and prostate size, i.e. <40 cc, 40-70 cc and >70 cc. The authors then compared the prostate size of an individual to the results of the PSA test, Gleason score, positive core percentage, the average highest positive core tumor percentage, and perineural invasion. They found prostate adenocarcinoma in 326 participants (28.7%), and benign hyperplasia in 808 participants (71.3%). The authors concluded that age possibly contributes to prostate cancer among men, though they recommended further studies on this factor. Using the Surveillance, Epidemiology and End Results database between the 1st of January 2004 to 31 December 2007, Russo, Chen, Aizer, Hattangadi and D'Amico (2012) conducted a study to determine if age can be attributed as a contributing factor to individuals with a Gleason score of 6 or 7 prostate cancer. The authors hypothesized that increase in age may contribute to individuals diagnosed with prostate cancer.

Geographic Location

Urban areas. Hospital closure has impacted individuals living in the poorest

urban areas (Jervis, Goldberg, & Cutting, 2012), and the closure of urban hospitals has significantly affected adults of 65 years old and above, the poor, especially Black American living in urban areas. They recommended an investigation on the implication of closing a hospital, which is the last resort for the poor, including inadequate access to care. Shi and Singh (2008) reported that urban hospitals have higher operational costs in comparison to the rural hospitals, because they typically pay higher salaries in a more competitive market. In addition, urban hospitals offer a more broader scope with more sophisticated services, and generally treat patients requiring more complex care (p. 312).

The National Center for Health Statistics (NCHS) in 2010 reported that approximately 17% of the United States population resides in rural areas. The report further mentioned that approximately 12% of the total number of hospitalization in the U.S. occurred in the rural areas. In addition, rural hospitals provided 6% out of the 51 million surgical and nonsurgical procedures in the U.S. (NCHS, 2010). Furthermore, 51% of inpatient and outpatient in rural areas were 65 years and older (51%) in comparison to 37% for urban hospitals.

Rural areas. Onega, Duell, Shi, Demidenko, and Goodman (2010) suggested that Black Americans diagnosed with cancer and living in rural areas have difficulties in accessing care in comparison to Whites and other ethnic groups living in urban areas. The Balance Budget Act of 1997 was introduced to improve access to care by individuals living in rural areas, by allowing some hospitals located in rural areas to utilize the critical access hospitals (CAHs) to change their methods of reimbursement from a

prospective payment system to cost based system (Li, Schneider, & Ward, 2009). With the PPS, it is difficult for rural hospitals to fully recover their operating costs. Using a quasi-experimental study, Li, Schneider, and Ward (2009) investigated the effect of PPS of seven rural hospitals in Iowa and concluded that converting hospital payments from the PPS method to the CBS method could reduce the difficulties in accessing care by individuals living in rural areas.

Race/Ethnicity

An epidemiological study conducted by DeSantis, Naishadham, and Jemal (2013) found that, the rate of prostate cancer mortality has decreased in the United States according to recent data compiled by the ACS. However, it is estimated that 176,620 cases were diagnosed in 2013 with Black American men accounting for 64,880 of the mortality rate. The authors reported that the five-year survival rate among Black Americans in comparison to Whites at the diagnosis stage is low and recommended further investigation into this phenomenon.

Major et al. (2012) conducted a study to determine if neighborhood and social-economic status contribute to disparities between Black American and White men using a large, prospective NIH-AARP diet and health study data from 1995-1996. The incident of prostate cancer ($N = 22,523$; 1089 among Black Americans) was identified from 1995 through the end of 2006. Major et al. (2012) hypothesized that social economic status was responsible for Blacks Americans being diagnosed with prostate cancer and finding difficult to access care, in comparison to Whites.

Wray et al. (2009) interviewed 19 community leaders and focus groups within the Black American community about screening for prostate cancer. Individual level obstacles, limitation about knowledge of the disease, prevention and treatment, and fear were associated with lack of prostate cancer screening among Black Americans. Inadequate access to care, lack of education and distrust of the United States healthcare systems are some other contributing factors for lack of access to care by Black American men diagnosed with prostate cancer (Wray et al., 2009).

Prostate cancer is the most common form of cancer diagnosed among Black American men in the U.S. (Toles, 2008). In 2004, 230,110 cases of prostate cancer were reported, of which 29,900 men would not survive (Toles, 2008). Despite the improvement in prostate cancer treatment, it is expected that the numbers of prostate cancer will increase and Black American men are more than twice likely to die from the disease in comparison to Whites. Toles (2008) hypothesized that genes, diet, lack of education, and socioeconomic factors affecting Black Americans are the contributing factors. Akpuaka et al. (2013) investigated prostate cancer among Nigerian immigrants living in the United States, who account for 13.1% of the 1.4 million Blacks living in the United States, through the Migration Policy Institute in Washington. They concluded that Nigerian men have the risk of developing prostate cancer. The authors also mentioned that prostate cancer accounts for 11% of reported cases of cancer in Nigeria and the most common form of cancer among Nigerian men, living in Georgia.

Family History

Family history is another contributing and risk factor for the occurrence of prostate cancer (Colloca & Venturino, 2011). Individuals with family history of prostate cancer are likely to die from the disease at earlier age than individuals without a history of prostate cancer (Colloca & Venturino, 2011). Investigating the link between family history and prostate cancer, Madersbacher et al. (2011) reported that evidence showed a clear association between family history and prostate cancer. The authors hypothesized that evidence for prostate cancer risk reduction with mono 5 α -reductase inhibitor (5ARI) finasteride in a low-risk population with dual 5ARI dutasteride in a population at increased risk of developing the disease.

From data obtained from the 2005 National Health Interview Survey and cancer control module supplement, Drake, Lathan, Okechukwu, and Bennett (2008) reported that prostate cancer is more prevalent within the Black American community in comparison to Whites. They mentioned that individuals with family history of CaP have 75% to 80% risk of CaP. Participants were restricted to individuals over the age of 40. In their conclusion, the authors suggested that despite the prevalence of prostate cancer within the Black America community, individuals with a family history of prostate cancer are not screened more than those without family history.

Summary

Prostate cancer is more prevalent among the Black American men than any other ethnic group since it is the second common cause of death within the Black American

community. More than 300,000 men were diagnosed with prostate cancer and 29,000 individuals died from the disease in 2009. Accessing the United States health care for timely intervention is of utmost importance to reduce the high mortality of the disease within the Black American community. Because of the high incidence of prostate cancer among Black American men in Georgia, it is important to investigate the cause of this phenomenon.

In the literature review, I investigated difficulties in accessing care by Black American men diagnosed with prostate cancer, in addition to examining the inability to access care contributed to Black American men seeking help at the advanced stage of the disease. Additionally, I explored the possibility of age, type of insurance, lack of insurance, geographical location, race/ethnicity, cost, income, education, and family history being responsible for the inability of Black American men to access care. Further, the importance of accessing care in a timely manner for treatment and prevention, and theories that contribute to make decisions to access care or not were discussed.

In Chapter 3, I discuss the research methodology and cover the following topics: ethical considerations, limitations of the design, inclusion and exclusion criteria used in recruiting, tools and processes used for data collection, the reasons for selecting this particular data matrix for the study, the method used to analyze the data, and the methods to examine the validity and reliability of the study.

Chapter 3: Research Method

Introduction

The purpose of this study was to examine the socio-economic barriers and perceptions that prevent Black American men living in predominantly Black American counties in Georgia from undergoing early screening and treatment, as needed, for prostate cancer.

Research Questions

The objective of this study was to determine the barriers and perceptions that affect the ability of Black American men living in some counties such as Fulton, DeKalb, Clayton, Atlanta metropolitan and Gwinnett in Georgia to screen for prostate cancer in a timely manner for early detection and treatment. Questionnaires were distributed to the contacts obtained from ACH and to officials of the GPCC. The following research questions were investigated in this study:

Research Question 1: What perceived benefits do Black American men derive from prostate cancer screening?

H0: Early detection and treatment are the most significant perceived benefits that drive the Black American men to undergo prostate cancer screening.

Research Question 2: Why are Black American men not getting early screening for prostate cancer?

H0: Fear and cost are the most significant barriers that prevent Black American men from getting early screening for prostate cancer.

Research Question 3: What are the risk factors that contributes to the high prevalence of prostate cancer among Black American men?

H0: Geographical location and ethnicity are the most significant risk factors that are perceived by Black American men as the primary reasons for the high prevalence of prostate cancer.

Research Question 4: What do Black American men perceive as a severe case of prostate cancer?

H0: Difficult in urination and getting an erection are considered as the most significant symptoms by Black American men to be classified as the severe stage of prostate cancer.

Research Question 5: What lifestyle changes do Black American men need to make to avoid the diagnosis of prostate cancer?

H0: Diet and regular exercise are the most significant lifestyle changes that the Black American men need to make to avoid prostate cancer.

Research Question 6: When do Black American men seek medical attention to treat prostate cancer?

H0: Pain during urinating and swelling in the penis are the most significant symptoms that derive the Black American men to seek medical attention to treat prostate cancer.

Research Question 7: Do age and existence of health insurance directly correlate with the perceived benefits, barriers, susceptibility, severity, self-efficacy, and cues to action?

H0: Age and existence of health insurance have a direct correlation with the perceived benefits, barriers, susceptibility, severity, self-efficacy, and cues to action.

Advantages and Disadvantages of Quantitative Study

According to Nachmias and Nachmias (2008), “cross-sectional study is the predominant research design method mostly used in the social sciences” (p.116). It is a research method used to identify survey methods. Schmidt and Kohlmann (2008) also defined the cross-sectional design as a descriptive study used for the determination and comparability of one variable to another. In the cross-sectional design, researchers can randomly ask participants to respond to a set of questions regarding their background, past experiences, and their attitudes. While some studies are concerned about establishing causal relationships through a cross-sectional design, most researchers prefer exploring the patterns and relationships between variables (Nachmias & Nachmias, 2008). Additionally, the cross-sectional design is less expensive, and the possibility of bias is minimal. Another advantage of the quantitative study is the ability to collect large amount of data that are quantifiable and can be easily identified by their population. A disadvantage of the quantitative design is that it requires time for data analysis using software such as the R-Studio and Statistical Package for the Social Sciences (SPSS).

Since the cross-sectional analysis requires the collection of large sample size, the analysis and interpretation of the data are time-consuming.

Data Collection Methods in a Quantitative Research

Little (2013) mentioned that the primary and secondary methods are the most frequently used methods for collecting data in research. The primary data are collected directly from the primary source, while the secondary data are extracted from past studies. With the primary data, the investigator can interpret based on the information provided by the participants, rather than interpreting based on the information provided by another research. Due to the importance and advantages of utilizing the primary data, I used the primary data in this study. Though many methods can be used for primary data collection, this research used a quantitative research method for data collection.

Ethical Considerations

According to Burns and Groove (2011), the importance of ethics cannot be over-emphasized in a study. The authors mentioned that the researcher should give considerations to the significance and importance of ethics before any study can be conducted. The ethical aspect of the research could be termed as the investigator's moral obligation to ensure that the data collections are not manipulated in any form or shape. Since the study used a quantitative research method, ethical consideration was given a high priority before the commencement of the study. Approval was obtained from the Walden University Institutional Review Board (IRB) before performing the study (IRB approval number: 06-14-16-0227932). In choosing the participants and protecting their

rights, the IRB provided guidance about the procedures to follow. The following subsections discuss various aspects related to ethics.

Informed Consent

Informed consent approval was obtained from participants on a voluntary to maintain a high level of research integrity. According to Nachmias and Nachmias (2008), investigators should perform their study with the informed consent of participants. Since participants are exposed to substantial risks or asked to provide personal information, it is important to ensure that participants are given the opportunity to consent to the study. According to the authors, the U.S. Department of Human Services requires that investigators obtain consent form from participants before the study.

Reasons for Informed Consent

The reasons for informed consent could be attributed to moral, cultural, and legal obligations. In the American Constitution, high value is given to the individual freedom and self-determination. According to the constitution, individuals should be able to determine their behaviors and participation in research. Informed consent is necessary and justifiable to avoid restrictions on individual freedom (Nachmias & Nachmias, 2008). Obtaining informed consent to participate in the study shows respect to the participants and provide legitimacy to the study. In addition, if participants consent to the study, these individuals can protect their interest and well-being. With the informed consent, participants are given the freedom of choice to either participate or not participate in the

study. Additionally, the researcher is protected through the informed consent from any responsibility from any negative effects of the study.

Anonymity of Participants and Confidentiality of the Data

In a research study, it is important to ensure that participant identities are protected. The most reasonable and common way of protecting participant's identities are protected through the utilization of anonymity and confidentiality (Nachmias & Nachmias, 2008). It is the responsibilities of the investigator to ensure that data collected from participants are made confidential, except where there are advanced arrangements between the investigator and participants. With the internet and satellite capability, safeguarding participant information has become a challenge (Nachmias & Nachmias, 2008). Thus, it is imperative for researchers to separate the information received from participants from the information provided. Participant identity was maintained confidential by not including their names in the study.

Limitations of the Study

One of the limitations in this study is the limited amount of time that was available to conduct the research as the survey was expected to be completed within a specified and pre-determined time. In addition, the sample collection was restricted to residence from some counties, namely Fulton, DeKalb, Clayton, Gwinnet and Atlanta metropolitan in Georgia. Questionnaires were distributed to the contacts that were obtained from ACH. After conversation with the chairman of Georgia Prostate Cancer Coalition (GPCC), additional questionnaires were distributed through the GPCC. The

results obtained from this study were based on the information obtained from the population from these counties and demographics. Therefore, the application of the findings to wider communities may be limited.

With the study limited to some counties in Georgia, the outcomes of the study cannot be used to ascertain if Black Americans in other parts of the United States and to a certain extent Black Americans in other parts of the world would have the same problem of accessing prostate cancer care. Additionally, the sample size is not representative of the entire Black American living in the United States of America. Since the survey sample size is small, the outcomes of the statistical analysis may have limited reliability.

Inclusion and Exclusion Criteria

The objective of the inclusion criteria was to ensure that participants recruited for the study are the targeted population. The target of the research was Black American men between 40 to 60 years of age living in Fulton, DeKalb, Gwinnett, Clayton counties and Atlanta metropolitan in Georgia. There are differences between the criteria used for the use of the primary and secondary data. The secondary data contains information derived from other research, which is generally not representative of the population. Therefore, this research was based on information obtained directly from the targeted population, that is, Black Americans in Georgia.

The selection of participants was based on their relevancy to the study. For example, participants were Black American men in Georgia because it would help to determine if there are difficulties that they experience in accessing care in Georgia.

Questionnaires were distributed to participants for completion. In this study, I ensured that participants were given the opportunity to express if there are certain limitations to accessing care in Georgia. Answers provided by participants provided an opportunity for the investigator to determine the reasons why Black American are not accessing care in a timely manner. The outcome of the research was useful to determine if ethnicity/race, level of education, income, environment, age, culture/tradition and employment status contributed to the inability of Black American men to access prostate cancer care in a timely and most efficient manner in Georgia.

Use of Primary Data

Investigators can choose from three methods such as mail questionnaire, personal interview, and telephone interview to gather data in a survey (Nachmias & Nachmias, 2008). Though observational methods would have been appropriate for this study, participants may not be accessible for the study. Thus, it was necessary to ask participants about their perceptions about various aspects related to prostate cancer. Primary data were obtained by distributing questionnaires to the contacts obtained from ACH. Additional questionnaires were distributed through GPCC.

Sample Size and Sampling Process

Sampling in a research is considered the primary source of data collection. Therefore, it is imperative to ensure that the sample size is adequate to provide the results needed for the validity and the reliability of the study and is a true representative of the views expressed by population. The Georgia Comprehensive Cancer Registry (GCCR)

(2006-2010) reported that prostate cancer accounts for 30% of all new cancer cases among males (GCCR, 2013). The GCCR report mentioned that 3,777 men died between 2007 to 2012 from the disease. Among them, Black American men accounted for 1484 of the fatality (GCCR, 2013).

However, the ACS (facts and figures for 2013) reported 7,930 as the total number of cancer cases in Georgia. The National Cancer Institute (NCI) in their 2015 prostate cancer cases by Counties reported 665 cases in Fulton County, 488 cases in DeKalb County, and 380 prostate cancer cases in Gwinnett County. Since Black Americans reside mostly in Atlanta metropolitan such as Fulton, De-Kalb, Clayton and Gwinnett Counties, participants were selected from the aforementioned Counties. From this figure, we selected 1153 as the total population size, representing prostate cancer diagnosis from Atlanta metropolitan, Fulton, De-Kalb, Clayton and Gwinnett Counties respectively.

Power Analysis for the Sample Size

Different strategies are employed to determine the appropriateness and adequacy of a sample size. Some sampling methods include probability and non-probability sampling. Probability sampling encompasses the random, stratified, and the cluster sampling, while the non-probability sampling includes purposive, convenience, and snowball sampling (Nachmias & Nachmias, 2008). The purposive sampling method is most appropriate for this study because the aim of the study aimed was to determine the reasons for Black American men not accessing prostate cancer care until a later stage of the disease. It is necessary to ensure that the sample size for this study is sufficient to

conclude the factors affecting Black Americans to access early prostate cancer detection and treatment in Georgia.

Power analysis was employed to investigate whether the sample size selected in this study was adequate to perform the statistical analysis. In this study, I used Analysis of Variance (ANOVA) and Pearson's correlation for data analysis. The power analysis for ANOVA was conducted by setting a medium effect size of 0.25 and significance level of 0.05 for 4 groups (4 questions per construct). Similarly, a medium effect size of 0.3 was used in the power analysis for correlation along with 0.05 significance level.

Recruitment Process

According to Nachmias and Nachmias (2008), in a survey study, the selection of participants is critical and necessary to ensure reliability of the research. The response rate of the survey questionnaire is dependent on certain characteristics; for example, it is important to consider if participants are either heterogeneous or homogeneous. Participants from various ethnic and racial groups, different income level, and geographical locations are considered as heterogeneous participants since these differences can have an influence on the outcomes of the study. In contrast, heterogeneous participants are individuals that differ from one another in a manner that can influence the study. They consist of participants from various ethnic and racial groups, different income level, and geographical locations. Homogeneous participants are individuals with similar characteristics. Since the study was to determine Black

Americans living in Georgia and their difficulties in accessing care, the recruitment of participants was homogeneous in nature.

Questionnaires were distributed to participants who were in the list of contacts obtained from American Clearing House (ACH). In addition, questionnaires were distributed to the GPCC. Responses obtained from participants were analyzed to identify the perception and barriers that hinder early detection and treatment of Black American men in Georgia. The number of questionnaires mailed to potential participants was tripled to get the required response rate of 40%. Participants were sampled according to their age groups. In this study, I intentionally included the selection of Black American men, and living in Fulton, DeKalb, Clayton, Gwinnett Counties including Atlanta metropolitan. A cover letter, identifying the investigator, purpose of the study, the importance of the research, and the assurance that the answers provided will be confidential, was attached to the questionnaires to persuade individuals to participate in the research. The letter was semi-personal in nature because a semi-personal letter can generate a higher rate of return (Nachmias & Nachmias, 2008). Participants were also informed that the research might not be a success without their help. The selection of participants was based on their willingness to participate in the study. Participants were also provided with the time necessary to complete the survey questions.

Data Collection

Several methods are available for collecting research data in a quantitative study. Since this study was based on the primary data collection, the utilization of the survey

method was considered to be appropriate for this study. The survey method was appropriate for this study because of the larger sample size due to the collection of information from a large group of individuals, and allows for the performance of the generalization test. There are different ways to construct surveys. Irrespective of the styles or manners the surveys are conducted, the two most important aspects of the survey are the manner the questions are posed to participants and their responses (Fowler, 2009).

In the past, survey questionnaires were conducted through a face to face interview (Nachmias & Nachmias, 2007). However, the survey method has reached a higher dimension of data collection with new technology comprising of cell-phones, internet, home phones, and skype (Fielding et al., 2008). There are other factors that contribute to the selection of the appropriate survey method. Some of these factors depend on the availability of participants, resources needed to accomplish the research objectives, schedules of participants, and how complex the survey questions are. However, using the internet for surveys is more beneficial to both the participant and the researcher. Using the internet or the web saves time by ensuring that information is provided through the internet and the collection of data are completed in a timely manner. Additionally, the internet and web allow the researcher to ignore responses that are not in conformity with the survey questions (Chaudhuri & Stenger, 2010). The descriptive cross-sectional analysis was used to achieve the objective of this research.

Instruments

The objective of this study was to examine the barriers and perceptions that prevent Black American men living in Georgia to undergo early screening and treatment for prostate cancer. Black American men participating in the survey were required to complete a non-generalizable questionnaire to explore the barriers and perceptions that prevent them from accessing prostate cancer care in Georgia. Participants consisting of Black Americans of the 45 years of age and above, and living in Georgia were intentionally sampled for the study. Individuals that meet the definition of an Black American and willing to participate in the study were approached to participate in the study. Participants eligible for the study were provided letters that included consent forms and questionnaires for completion. The objective of the letter was to explain the purpose and reasons of the investigation, their willingness to participate in the study, and to inform about their privacy and confidentiality.

The survey instrument was developed from information obtained from the experts and professionals in the field of prostate cancer such as medical doctors, urologists, and from information obtained from peer-reviewed articles from past studies. In addition, a pilot study was used to test the survey questionnaires. The survey questionnaire consisted of six demographic questions describing participant age, level of education, household income, race/ethnicity, and marital status. The survey questionnaire asked participants 30 questions about perceived benefits, barriers, susceptibility, severity self-efficacy and cues to action. These questions were useful to understand participant's demographic

characteristics, knowledge about prostate cancer and other obstacles to access Georgia State health delivery system. The survey questionnaire also contained information about participants' knowledge about barriers associated with accessing the Georgia healthcare system.

I used the HBM as the theoretical framework in this study. The framework has been widely used in healthcare research domain including in prostate cancer screening research. For example, Oliver (2008) investigated prostate cancer screening patterns among Black American men using the HBM. The HBM model used in Oliver's study consisted of three constructs, namely perceived benefit, perceived barriers, and health motivation. In this study, the HBM model include six constructs, namely perceived susceptibility, perceived severity, perceived benefits, perceived barriers, cues to action, and self-efficacy. The definitions of each construct are discussed in detail in Chapter 1.

The perceived benefits subscale consisted of four items, measured in a 5-point Likert scale, with scores ranging from 1 (strong disagreement) to 5 (strong agreement). The questions were focused mainly on extracting participants' perception on the potential benefits in undertaking prostate cancer screening. Similarly, perceived barrier subscale was used to identify the potential barriers that prevent Black Americans to undergo prostate cancer screening. The subscale also consists of four items measured in the 5-point Likert scale. Four items measured in the 5-point Likert scale were used to measure the perceived susceptibility subscale, which was focused on the perception of Black Americans on the factors that are responsible for getting prostate cancer.

The perception of Black Americans about the severity of prostate cancer was measured using perceived severity subscale, which consists of four items measured in the 5-point Likert scale. Factors that are perceived by the Black Americans as helping to make necessary changes were identified using the Cues to Action subscale, while self-efficacy subscale was used to measure the ability of an individual Black American to take necessary actions. Both subscales had four items each and were measured using 5-point Likert scale.

The following questions also were included, whether income is a barrier to accessing care, participant's perception about prostate cancer, education and awareness about prostate cancer diagnosis, disparities in accessing care in Georgia, their geographical location and the importance of their relationship with health care providers. Additionally the survey questionnaires collected information about the benefits of prostate cancer screening perceived by the Black American men, the major barriers to access prostate cancer screening as perceived by the Black American men, whether age and lifestyles of Black American men make them more susceptible to prostate cancer, the symptoms that Black American men perceived as the severe case of prostate cancer, the lifestyle changes Black American men need to make to prevent the re-occurrence of prostate cancer, and symptoms that indicate the occurrence of prostate cancer in Black American men diagnosed with the disease.

To ensure that participant's identity was protected, the questionnaires included a sealed envelope either to return to the cancer centers or a self-addressed envelope to be

returned to my house address. Connelly (2008) suggested that a pilot study of approximately 10% of the projected overall samples should be tested to test the study tools. Other authors suggested testing between 10-30 participants for a sample size of 300 participants. Based on this recommendation, I selected 15 participants for my pilot study.

Follow-up Mailings

Participants who did not respond were sent a letter of encouragement to participate in the study. A new copy of the survey questionnaire was sent with the follow up letter in case the participants had lost the initial questionnaire or forgotten about it. Past studies suggest that following up on survey questionnaire increases the return rates (Babbie, 2007). Another way to increase the return rates from participants is to mail the survey questionnaires outside the summer and holidays since most people travel during these periods (Nachmias & Nachmias, 2008). Martins, Lederman, Lowenstein, Joffe, Neville, Hastings, and Abel (2012) suggested to distribute the survey questionnaires with a pre-paid envelop with incentives such as cash to increase favorable responses from participant. In addition, the survey questionnaires should include personalized cover letter stressing the importance of the study (Martins et al., 2012).

Data Analysis

The most important component of conducting a quantitative study is the ability of the researcher to analyze the data in a precise manner. Statistical analysis is the most common methods for analyzing data in a quantitative research. The data analysis for this research was conducted using R-Studio Version 1.0.44, which is a common software

used for statistical analysis (Nachmias & Nachmias, 2008). The responses of the participants were analyzed using the frequencies of their responses and used to test the hypothesis and the identification of barriers and perceptions that prevent the Black American men from accessing prostate cancer care in Georgia.

Frequency distribution was used to analyze the variables of the research and to summarize the measurements. The frequency distribution was used to gain more knowledge and understanding of participating individuals in the study. In addition, the analysis of variance (ANOVA) coupled with Tukey Honest Significant Difference (HSD) test were used to investigate if and where there is a significance difference between the perception of the participants regarding the benefits, barriers, susceptibility, severity, self-efficacy, and cues to action. The outcomes of these analyses were validated using the box plot. Further, the relationships of age and existence of health insurance with these perceptions were examined using the correlation analysis.

Reliability and Validity Test

According to Nachmias and Nachmias (2008), validity is concerned about “what is intended to be measured properly and adequately measured” can be obtained through the questions (p.149). There are three basic types of validity, with each concerned with different types of measurement: content validity, empirical validity, and construct validity. The content validity ensures that the measurement instrument covers all the attributes of the concept to be measured (Nachmias & Nachmias, 2008). With the content validity, the researcher ensures that nothing relevant to the phenomenon under study is left out. The

empirical validity is concerned with the relationships between a measuring instrument and the measured outcomes. With the empirical validity, the researcher assumes that the result produced by applying the instrument and the relationships existing among the variables measured are similar if a measuring instrument is valid.

With the construct validity, researchers establish validity by relating a measuring instrument to the general theoretical framework, within which they conduct their studies to determine whether the instrument is logically and empirically tied to the concept and theoretical assumptions that they are employing. For this study, content validity was used, as it covered all the attributes of all the concepts the research was aiming to measure. In some studies, evidence of validity may be almost entirely lacking. Thus, it becomes imperative for researchers to evaluate their instruments with respect to characteristics other than the validity test. One characteristic frequently tested is the degree of reliability of the study (Nachmias & Nachmias, 2008).

Creswell (2014) defined reliability as the extent to which a measuring instrument contains variables. That is, inconsistent errors between observations either during measurement or each time a given variable is measured by the same instrument. Since measurement is primarily indirect, the number of errors that occur when variables are measured tends to be greater than when physical variables are measured (Creswell, 2014). For example, participants' momentary distractions when completing a questionnaire or technical difficulties may introduce variable measurement errors. Therefore, reliability can be defined as the ratio of the true-score variance to the total

variance in the score measured, as measurement consists of two components, namely a true and error components (Nachmias & Nachmias, 2008). Additionally, reliability varies on a scale from 0 to 1, having the value of 0 when measurement displays nothing but error, and reaching the value 1, when the measurement displays no variable error at all (Nachmias & Nachmias, 2008). To ensure that the result of this research is both reliable and valid, the Cronbach's alpha was used for the study.

Summary

In Chapter 3, I presented the study's methodology: a quantitative method using cross-sectional analysis to determine the barriers and perceptions of Black American men being prevented from access to care in Georgia. Participants were selected based on their willingness to participate in the study. A sample of 329 Black American men living in Georgia was selected for the study. Survey questionnaires were distributed to the contacts that were in the list obtained from ACH.

In Chapter 4, I cover the following topics: the demographics of the participants including age, prostate cancer diagnosis stage, health insurance status, and household income level. The findings from the survey responses, the ANOVAs coupled with post-hoc analysis, and reliability analysis.

Chapter 4: Analysis and Discussion

Introduction

The primary aim of this research study was to investigate the barriers that are responsible for inadequate access to screening and quality care for prostate cancer among Black American men in Georgia. The purpose of the study was to facilitate early detection, diagnosis and treatment for prostate cancer in Georgia. To achieve this aim, I developed the following research questions:

Research Question 1: What perceived benefits do Black American men derive from prostate cancer screening?

Research Question 2: Why are Black American men not getting early screening for prostate cancer?

Research Question 3: What are the risk factors that contributes to the high prevalence of prostate cancer among Black American men?

Research Question 4: What do Black American men perceive as a severe case of prostate cancer?

Research Question 5: What lifestyle changes do Black American men need to make to avoid the diagnosis of prostate cancer?

Research Question 6: When do Black American men seek medical attention to treat prostate cancer?

Research Question 7: Do age and existence of health insurance directly correlate with the perceived benefits, barriers, susceptibility, severity, self-efficacy, and cues to action?

To test the questionnaire, I conducted a pilot study with 15 participants. This was followed by the actual survey among the participants who met the selection criteria (Black Americans between the ages of 40 and 65). The participants answered 24 questions along with the demographic and medical background information. In the first week, 200 questionnaires were sent, followed by another 200 in the next week, and another 200 in the following week. Of the 316 respondents, 13 were discarded because they did not meet the selection criteria, bringing the total down to 303. Each survey question was answered on a 5-point Likert scale, ranging from 1 (strongly *disagree*) to 5 (strongly *agree*). The power analysis results showed that the sample size reached power (power =1) to employ ANOVA with an effect size of 0.25 and a significance level of 0.05. Similarly, the sample size reached power (power = 0.99) to use correlation analysis with an effect size of 0.3 and significance level of 0.05.

Pilot Study

Participants were given the survey questionnaire twice with one week apart to test whether the responses vary significantly. The first one was denoted as Pilot 1, while the second one was called Pilot 2. The questions were focused on the six themes such as perceived benefits, perceived barriers, perceived susceptibility, perceived severity, self-

efficacy, and cues to action. For each construct, mean, standard deviations, percentage agreement, Cronbach's alpha were calculated.

The demographic characteristics of the 15 Black American participants are given in Table 2. More than half of the participants were between 40 and 50 years of age, followed by 33% from age group between 51 and 60. About 14% of the participants accounted for the age group of 61-80. Except one participants, others were not diagnosed with any prostate cancer. Six of the 15 participants did not have any health insurance, while the rest had some form of health insurance. Majority of the participants were from income group \$50,000 and above (40%), followed by \$10,000-\$29,000 (27%), less than \$9999 (20%), and \$30,000-\$49,000 (13%).

Table 2

Demographic Characteristics of the Participants

Demographic characteristics	Frequency (N=15)	Percentage
Age		
40-50	8	53.3
51-60	5	33.3
61-70	1	6.7
71-80	1	6.7
Prostate cancer diagnosis stage		
Not Applicable	14	93.3
Stage 1	1	6.7
Stage 2	0	0
Stage 3	0	0
Stage 4	0	0
Health insurance status		
No health insurance	6	
Private health insurance	4	
MEDICAID	3	
MEDICARE	3	
Other	4	
Household income level		
Less than \$9999	3	20
\$10000-\$29999	4	26.7
\$30000-\$49999	2	13.3
\$50000 and above	6	40

The percentage agreement between the Pilot 1 and Pilot 2 responses, and Pearson's correlation for each construct are given in Table 3. The first construct is perceived benefits, which was determined based on the responses of the pilot study participants to Questions 1-4. The Pilot 1 and Pilot 2 responses are in complete agreement as confirmed by the strong positive statistically significant correlation with the correlation coefficient of 1.00 ($p < 0.05$) between the responses to both pilot

questionnaires. For the perceived barrier construct, the percentage agreement and the correlation between Pilot 1 and Pilot 2 responses are high with 93.3%, and 0.99 ($p < 0.05$). Similarly, the percentage agreement and correlation coefficient are 93.3 and 0.98, respectively, indicating a strong correlation between the responses. The responses for Pilot 1 and Pilot 2 surveys have a strong positive correlation for perceived severity construct with percentage agreement being 93.3 and the correlation coefficient being 0.98. The self-efficacy and cues to action constructs have 100% agreement between the Pilot 1 and Pilot 2 responses, and a correlation coefficient of 1.

Table 3

Percentage Agreement and Correlation Coefficient for Pilot Samples

Construct	% agreement	Pearson's correlation (p value)
Perceived benefits	100	1.00 (0.00)
Perceived barriers	93.3	0.99 (0.00)
Perceived susceptibility	93.3	0.98 (0.00)
Perceived severity	93.3	0.98 (0.00)
Self-efficacy	100	1.00 (0.00)
Cues to action	100	1.00 (0.00)

Note: N = 15

Data Analysis

Demographic Characteristics

The demographic information was collected through the questionnaire presented in Appendix A. The summary of the demographic characteristics is given in Table 4. The age of the participants ranged between 40 and 80 with a mean of 52.3 and a standard

deviation of 8.0. Majority of the participants were between 40 and 50 years of age and formed 47% of the total participants. The 50-60 years of age was the second largest group, forming 38% of the total sample. Among 303 participants, only 27 of them have been diagnosed with either Stage 1 or Stage 2 or Stage 3 or Stage 4 of prostate cancer, while most of them have not been diagnosed with prostate cancer. The undiagnosed persons account for 276 participants forming 91% of the total sample.

Several participants reported that they have multiple health insurances. The number of participants having some form of health insurance is 225, out of which 144 persons have a private health insurance. The participants with MEDICAID and MEDICARE are 42, while 94 respondents have other forms of health insurance. Seventy-eight participants do not have any health insurance. As evident in Table 4, approximately half of the respondents are high income earners above \$50,000 per annum, while 22% of them earn between \$30,000 and \$50,000 annually. The low-income earners, that is less than \$30,000 per year, form 27% of the respondents.

Table 4

Characteristics of the Participants

Demographic Characteristics	Frequency	Percentage
Age		
40-50	143	47
50-60	114	38
60-70	39	13
70-80	7	2
Prostate cancer diagnosis stage		
Not Applicable	276	91
Stage 1	15	5
Stage 2	8	2.6
Stage 3	2	0.7
Stage 4	2	0.7
Health insurance status		
No health insurance	78	
Private health insurance	144	
MEDICAID	21	
MEDICARE	21	
Other	94	
Household income level		
Less than \$9999	25	8
\$10000-\$29999	57	19
\$30000-\$49999	68	22
\$50000 and above	153	50

Note: N = 303

Data Preparation and Analysis

The survey questionnaire that was distributed among participants is given in Appendix B. Questions 1-4 in the survey questionnaire were related to the perceived benefits of undertaking prostate cancer screening, while Questions 5-8 were to identify the perceived barriers among Black American men to undergo the screening process. The purpose of Question 9-12 was to extract information on the perception of Black American men regarding the susceptibility of prostate cancer, whereas Question 13-16 were to investigate what symptoms were perceived by Black American men as a severe case of prostate cancer. The self-efficacy of Black American men in preventing prostate

cancer was investigated through Questions 17-20. Questions 21-24 were to provide an understanding of which prostate cancer related symptoms would prompt a Black American man to seek medical attention. The responses of the participants were extracted and tabulated in Microsoft Excel® and exported in RStudio.

Analysis of the Responses of the Participants

In this section, I discuss the outcomes of the quantitative analysis of the survey responses.

Perceived Benefits

The aim of the first four questions in the survey questionnaire was to identify the benefits of undergoing prostate cancer screening as perceived by Black American men. As can be seen in Table 5, 77% of the participants ($N = 233$) strongly agreed that prostate cancer screening would allow them to detect prostate cancer. Seventeen percent of respondents ($N = 50$) also agreed that the screening can be useful for detecting prostate cancer. Only 6% ($N = 17$) disagreed. Such a high level of positive perception suggests that trust in the screening method is a major perceived benefit that can be used to increase prostate cancer screening among Black American men.

Table 5

Perception about Usefulness of Screening in Detecting Prostate Cancer

	n	%
Strongly Disagree	13	4.3
Disagree	4	1.3
Neutral	3	1.0
Agree	50	16.5
Strongly Agree	233	76.9

Note: N = 303

The perception of Black American men whether annual prostate cancer screening reduces the chances of dying from prostate cancer is presented in Table 6. Majority of the participants strongly agreed or agreed that the chances of dying from prostate cancer is less for persons undergoing annual screening. The Black American men with similar view were 274 or 89% of the total participants in contrast to 17 or 6% of them, who disagreed or strongly disagreed with it. This suggests that perception of having reduced chance of dying can be a significant motivational factor for Black American men to seek annual prostate cancer screening.

Table 6

Perception about the Chances of Dying due to Prostate Cancer

	n	%
Strongly Disagree	15	5.0
Disagree	2	0.6
Neutral	12	4.0
Agree	77	25.4
Strongly Agree	197	65.0

Note: N = 303

The third question in the questionnaire focused on understanding whether the sense of good feeling plays a part in seeking prostate cancer screening by Black American men. Seventy-one percentage of respondents ($N = 216$) agreed or strongly agreed that the sense of good feeling after the screening is a motivational factor for them to undergo the screening. In comparison to the previous two questions, the number of people strongly disagreed or neutral was slightly higher. This accounts for a proportion of 29% of the total participants ($N = 87$).

Table 7

Perception about the Sense of Good Feeling after Screening

	n	%
Strongly Disagree	20	6.6
Disagree	17	5.6
Neutral	50	16.5
Agree	71	23.4
Strongly Agree	145	47.9

Note: N = 303

More than 90% of the participants believed that prostate cancer screening would assist them to get early treatment. This accounted for 277 of 303 participants. Around 9% of them did not fully agree with it. Among them, 13 persons strongly disagreed, while 5 respondents disagreed. Eight participants remained neutral.

Table 8

Perception about the Usefulness of Screening to get Early Treatment

	n	%
Strongly Disagree	13	4.3
Disagree	5	1.7
Neutral	8	2.6
Agree	63	20.8
Strongly Agree	214	70.6

Note: $N = 303$

The benefits of prostate cancer screening perceived by Black American men were investigated further in this study. The questions were tested for internal reliability using the Cronbach's alpha. The Cronbach alpha for the perceived benefits theme consisting of four items was 0.86 suggesting that the instrument is reliable. The first hypothesis of this study was that the early detection and treatment are the most significant perceived benefits to undergo prostate cancer screening. ANOVA tested coupled with Tukey Honest Significant Difference (HSD) test was used to test this hypothesis. According to the ANOVA outcomes, there is a significant difference between the four items, $F(3, 303) = 20.7, p < 0.05$. The posthoc analysis using Tukey HSD and boxplot in Fig. 1 confirm that the early detection (ED), early treatment (ET), and the reduced chance of dying from prostate cancer (LL) are the primary factors that motivate the Black American men to get prostate cancer screening. The sense of feeling good is also a significant reason for seeking prostate cancer screening, though it is relatively less important compared to the other three reasons.

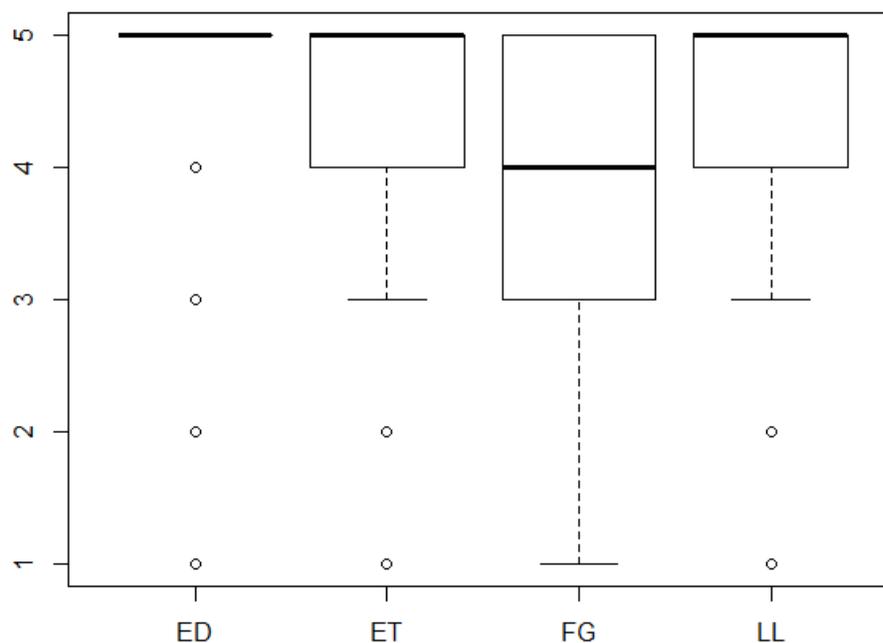


Figure 2. Box plot showing the distribution of responses to the four questions related to the perceived benefits.

Perceived Barriers

Questions 5-8 in the survey questionnaire were focused on identify which factors prevent the Black American men from seeking prostate cancer screening.

Uncomfortableness, cost, fear of positive test results, and time are the four factors investigated in this study. According to Table 9, 61% of the participants ($N = 186$) strongly disagreed that the sense of uncomfortableness during prostate cancer screening is a reason for avoiding the screening, while 23% ($N = 68$) mentioned that it is a reason. Remaining 16% of the respondents ($N = 49$) expressed a neutral response.

Table 9

Perception about the Sense of Uncomfortableness during Prostate Cancer Screening

	<i>n</i>	%
Strongly Disagree	123	40.6
Disagree	63	20.8
Neutral	49	16.2
Agree	40	13.2
Strongly Agree	28	9.2

Note: $N = 303$

The cost of prostate cancer screening is not a major concern for Black American men since 190 participants (63%) either disagreed or strongly disagreed when asked whether the cost is a concern for them. Around 20% of the respondents ($N = 61$) mentioned that it is a concern. The response of cost being not a major factor can be due to the fact that prostate cancer can become terminal without early detection and treatment.

Table 10

Perception about the Cost of Screening

	<i>n</i>	%
Strongly Disagree	114	37.6
Disagree	76	25.1
Neutral	52	17.2
Agree	33	10.9
Strongly Agree	28	9.2

Note: $N = 303$

The seventh question in the questionnaire focused on understanding whether the sense of fear that the respondent may find out about his prostate cancer during the screening acts as a barrier and prevents the Black American men from undergoing the

screening. As evident from Table 11, this is not the case since 71% of respondents ($N = 214$) strongly disagreed or disagreed. Sixty-one persons accounting for 20% of the total respondents agreed or strongly agreed that this has a role in preventing them from seeking the screening. It is worthy to note that such delay can be detrimental for their health and may lead to their death.

Table 11

Sense of Positive Diagnosis

	n	%
Strongly Disagree	147	48.5
Disagree	67	22.1
Neutral	28	9.2
Agree	34	11.2
Strongly Agree	27	8.9

Note: N = 303

More than 72% of the participants believed that prostate cancer screening would not take too much of time. This accounted for 219 of 303 participants. Around 11% of them fully agreed that it is a time-consuming process. Among them, 16 persons strongly agreed, while 18 respondents agreed. Fifty participants remained neutral.

Table 12

Perception about the Length of Screening

	n	%
Strongly Disagree	146	48.2
Disagree	73	24.1
Neutral	50	16.5
Agree	18	5.9
Strongly Agree	16	5.3

Note: $N = 303$

The barriers faced by Black American men to undergo prostate cancer screening were investigated further in this study. The questions were tested for internal reliability using the Cronbach's alpha. The Cronbach alpha for the perceived barriers theme consisting of four items was 0.82 indicating that the questions are internally reliable. The second hypothesis of this study, that is fear and cost are the most significant perceived barriers that prevent the Black American men from undergoing prostate cancer screening. As in the case of first hypothesis, ANOVA tested coupled with Tukey HSD was used to test this hypothesis. The outcome of the ANOVA confirmed that there a significant difference between the four items, $F(3, 303) = 4.7, p < 0.05$. Based on the posthoc analysis using Tukey HSD, it was found that the perception of time consumption significantly differs with perception of uncomfortableness and cost, while significantly similar to perception of being afraid of finding something wrong during the screening.

Perceived Susceptibility

In Questions 9-12 in the survey questionnaire, the perception of the Black American men about the risk factors that would exacerbate the chances of developing

prostate cancer. Age, ethnicity, and geographical location were the risk factors investigated in this study under perceived susceptibility. According to Table 13, 180 participants, accounting for 59% strongly agreed or agreed that the risk of developing prostate cancer is higher in people over the age of 40. Only 56 participants disagreed or strongly disagreed that age is a factor, while 67 participants remained neutral. Persons disagreed formed 19% of the total participants, where as 22% of them account for neutral. A higher percentage of neutral participants suggest that there is a significant lack of understanding about the influence of age on developing prostate cancer.

Table 13

Perception about the Age as a Risk Factor

	n	%
Strongly Disagree	27	8.9
Disagree	29	9.6
Neutral	67	22.1
Agree	79	26.1
Strongly Agree	101	33.3

Note: N = 303

Over a half of the participants (52% or $N = 156$) believed that the Black American men have a higher risk of developing prostate cancer compared to the White men. As high as 30% of the participants ($N = 89$) were neutral about this indicating that a significant group of people are not sure whether the ethnicity has any influence on prostate cancer development. Nineteen percentage of participants ($N = 58$) strongly disagreed or disagreed that prostate cancer is affected by their ethnicity.

Table 14

Perception about the Ethnicity as a Risk Factor

	n	%
Strongly Disagree	24	7.9
Disagree	34	11.2
Neutral	89	29.4
Agree	62	20.5
Strongly Agree	94	31.0

Note: N = 303

The 11th and 12th questions in the questionnaire focused on understanding whether the respondents believe that the geographical locations such as urban and rural areas can be a risk factor for developing prostate cancer. Forty-two percentage of the participants ($N = 127$) responded neutral when asked whether Black American men living in urban areas are more likely to develop prostate cancer. When asked whether they are more likely to develop prostate cancer if they live in rural areas, 43% ($N = 131$) replied neutral. This suggest that the respondents are unsure about the influence of the geographical location on developing prostate cancer. About 36% ($N = 111$) strongly agreed or agreed that the Black American men in urban areas have a higher risk of developing prostate cancer, while 31% ($N = 96$) believed that the risk is higher in rural areas. Twenty-one percentage ($N = 65$) strongly disagreed or disagreed about the higher risk factor in urban areas, where as it was 25% ($N = 76$) for rural areas.

Table 15

Perception about the Urban Areas as a Risk Factor

	n	%
Strongly Disagree	35	11.6
Disagree	30	9.9
Neutral	127	41.9
Agree	57	18.8
Strongly Agree	54	17.8

Note: N = 303

Table 16

Perception about the Rural Areas as a Risk Factor

	n	%
Strongly Disagree	38	12.5
Disagree	38	12.6
Neutral	131	43.2
Agree	47	15.5
Strongly Agree	49	16.2

Note: N = 303

The risk factors perceived by Black American men to develop prostate cancer were investigated further in this study. The questions were tested for internal reliability using the Cronbach's alpha. The Cronbach alpha for the perceived susceptibility theme consisting of four items was 0.81 suggesting that the instrument is internally reliable. The third hypothesis of geographical location and ethnicity being the most significant risk factors that are perceived by the Black American men for developing prostate cancer was tested. The ANOVA test coupled with Tukey HSD was used to test this hypothesis. The outcome of the ANOVA confirmed that there a significant difference between the four

items, $F(3, 303) = 14.03, p < 0.05$. Based on the posthoc analysis using Tukey HSD and the box plot presented in Fig. 2, it was found that American Black men perceive age (AR) and ethnicity (AA) as the most prominent risk factors for developing prostate cancer. There is no significant difference in the perception of Black American men about the risk level between living in urban areas (UA) and rural areas (RA).

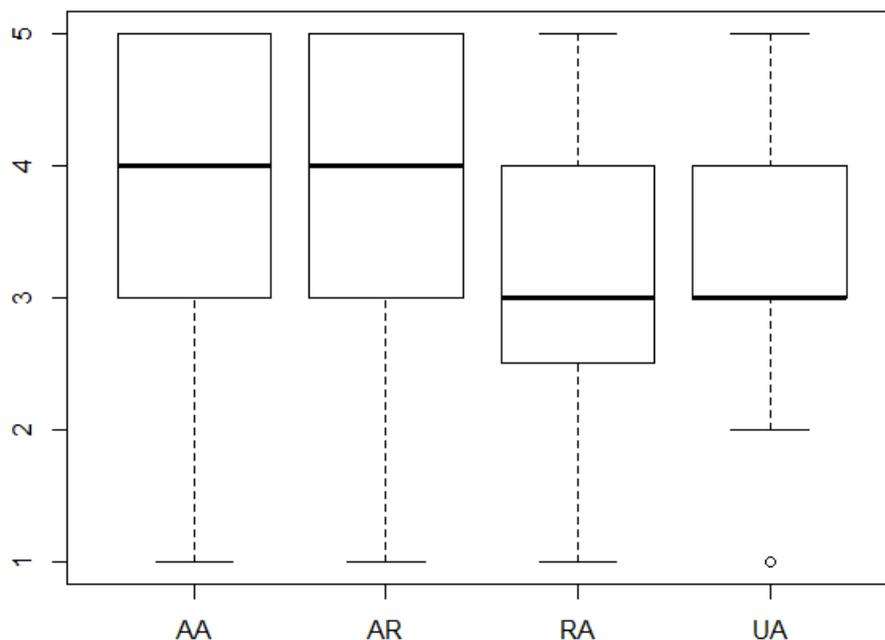


Figure 3. Box plot showing the distribution of responses to the four questions related to the perceived susceptibility.

Perceived Severity

Questions 13-16 in the survey questionnaire were used to investigate which symptoms are considered by the Black American men to have related to severe case of prostate cancer. Difficult to urinate, preventing from getting an erection, death, and

sterilization were investigated in this study under perceived severity. According to Table 17, 210 participants, accounting for 70% strongly agreed or agreed that the difficulty in urinating is a symptom of severe case of prostate cancer. Only 31 participants disagreed or strongly disagreed that difficult during urination is a symptom, while 62 participants remained neutral. Persons disagreed formed 10% of the total participants, where as 20% of them account for neutral. A higher percentage of neutral participants suggest that there is a significant lack of understanding about the relationship between difficulty in urination and prostate cancer.

Table 17

Perception about Difficulty in Urinating as a Prostate Cancer Symptom

	n	%
Strongly Disagree	15	4.9
Disagree	16	5.3
Neutral	62	20.5
Agree	93	30.7
Strongly Agree	117	38.6

Note: N = 303

About 60% of the participants ($N = 181$) believed that prostate cancer can prevent the person from getting an erection. As high as 30% of the participants ($N = 90$) were neutral about this indicating that a significant group of people are not sure whether prostate cancer has any influence on getting an erection. Eleven percentage of participants ($N = 32$) strongly disagreed or disagreed that prostate cancer affects the erection.

Table 18

Perception about not Getting an Erection as a Prostate Cancer Symptom

	n	%
Strongly Disagree	14	4.6
Disagree	18	5.9
Neutral	90	29.7
Agree	71	23.4
Strongly Agree	110	36.3

Note: N = 303

More than 78% of the participants believed that prostate cancer can lead to death.

This accounted for 238 of 303 participants. Around 34% of them disagreed with it.

Among them, 22 persons strongly disagreed, while 12 respondents agreed. Thirty-one participants remained neutral.

Table 19

Perception about Death due to Prostate Cancer

	n	%
Strongly Disagree	22	7.3
Disagree	12	4.0
Neutral	31	10.2
Agree	58	19.1
Strongly Agree	180	59.4

Note: N = 303

About 59% of the participants ($N = 179$) believed that prostate cancer can lead to sterilization. Thirty-one percentage of the respondents ($N = 94$) were neutral about this indicating that a significant group of people are not sure whether prostate cancer can lead

to sterilization (RS). Ten percentage of participants ($N = 30$) strongly disagreed or disagreed that prostate cancer can result in sterilization.

Table 20

Perception about Sterilization due to Prostate Cancer

	n	%
Strongly Disagree	14	4.6
Disagree	16	5.3
Neutral	94	31.0
Agree	66	21.8
Strongly Agree	113	37.3

Note: N = 303

The severity of prostate cancer as perceived by Black American was investigated further in this study. The questions were tested for internal reliability using the Cronbach's alpha. The Cronbach alpha for the perceived susceptibility theme consisting of four items was 0.82 suggesting that the instrument is internally reliable. The fourth hypothesis of this study was that the difficulty in urination (DU) and difficulty in getting erection (NE) are the most significant symptoms of severe stage of prostate cancer as perceived by the Black American men. The ANOVA test coupled with Tukey HSD was used to test this hypothesis. The outcome of the ANOVA confirmed that there a significant difference between the four items, $F(3, 303) = 7.42, p < 0.05$. Based on the posthoc analysis using Tukey HSD and the box plot presented in Fig. 3, it was found that American Black men perceive death (CK) as the most prominent signs of sever stage of prostate cancer in comparison to the other symptoms.

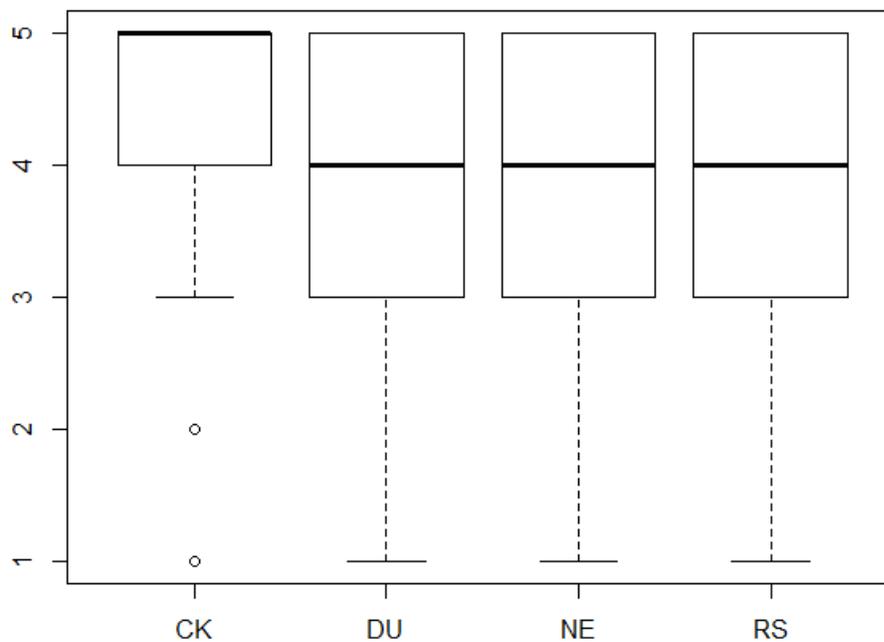


Figure 4. Box plot showing the distribution of responses to the four questions related to the perceived severity.

Self-Efficacy

The purpose of Questions 17-20 in the survey questionnaire was to explore which life style changes that the Black American men need to make to reduce the chances of having prostate cancer. Participants were asked whether diet, exercise, and following the advice of the health care provider can help the Black American men to risk of getting prostate cancer. As per Table 21, about 63% of the participants ($N = 191$) disagreed or strongly disagreed that prostate cancer would not be too bad (NB), that is, majority of the participants believe that prostate cancer is bad, only 13% ($N = 39$) of them were of the opinion it would be too bad. Twenty-four percentage ($N = 73$) stated that they are neutral.

This indicates that there can be a portion of Black American men, who may not be aware of the adverse consequences of prostate cancer.

Table 21

Perception that prostate cancer is not Bad

	n	%
Strongly Disagree	146	48.2
Disagree	45	14.8
Neutral	73	24.1
Agree	15	5.0
Strongly Agree	24	7.9

Note: N = 303

About 52% of the participants ($N = 157$) believed that the diet can prevent the person from getting prostate cancer. Approximately 27% of the participants ($N = 81$) were neutral about this indicating that a significant group of people are not sure whether prostate cancer has relationship with diet. Twenty-one percentage of participants ($N = 65$) strongly disagreed or disagreed that prostate cancer can be prevented through diet.

Table 22

Perception about Diet Preventing Prostate Cancer

	n	%
Strongly Disagree	29	9.6
Disagree	36	11.9
Neutral	81	26.7
Agree	84	27.7
Strongly Agree	73	24.1

Note: N = 303

More than 48% of the participants believed that regular exercise can prevent prostate cancer. This accounted for 147 of 303 participants. Around 23% of them disagreed with it. Among them, 29 persons strongly disagreed, while 41 respondents agreed. Eighty-six participants remained neutral.

Table 23

Perception about Exercise Preventing Prostate Cancer

	n	%
Strongly Disagree	29	9.6
Disagree	41	13.5
Neutral	86	28.4
Agree	84	27.7
Strongly Agree	63	20.8

Note: N = 303

About 85% of the participants ($N = 259$) believed that following the advice of the health care provider can prevent prostate cancer suggesting that health care providers can play a significant role in prostate cancer awareness, early detection and treatment. Five percentage of the respondents ($N = 15$) were neutral. Nine percentage of participants ($N = 29$) strongly disagreed or disagreed that prostate cancer can be prevented by following the advice of health care provider.

Table 24

Perception about Following Advices Preventing Prostate Cancer

	n	%
Strongly Disagree	22	7.3
Disagree	7	2.3
Neutral	15	5.0
Agree	108	35.6
Strongly Agree	151	49.8

The self-efficacy theme was investigated further in this study. The questions were tested for internal reliability using the Cronbach's alpha. The Cronbach alpha for the self-efficacy theme consisting of four items was 0.67 suggesting that the instrument is internally reliable albeit less reliable than the previous themes. The fifth hypothesis of this study was that diet (CD) and regular exercise (ER) are the most significant changes that Black American men need to make to prevent prostate cancer. The ANOVA test coupled with Tukey HSD was used to test this hypothesis. The outcome of the ANOVA confirmed that there a significant difference between the four items, $F(3, 303) = 153.6, p < 0.05$. Based on the posthoc analysis using Tukey HSD and the box plot presented in Fig. 4, it was found that the perception of American Black men about the life style changes that are required to make increase in the following order: exercise < diet control < listening to the advice of the health care provider (DA).

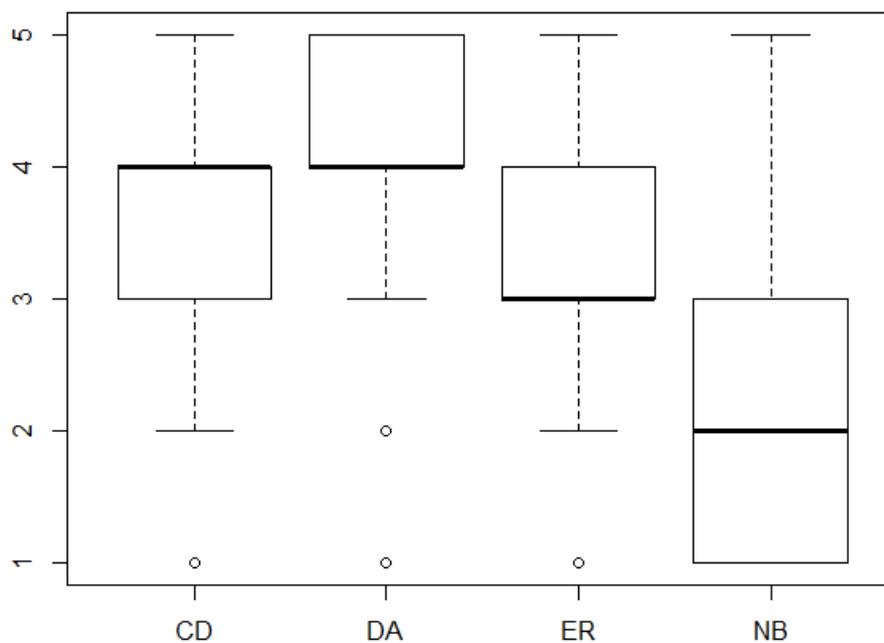


Figure 5. Box plot showing the distribution of responses to the four questions related to the self-efficacy.

Cues to Action

In Questions 21-24 in the survey questionnaire, I investigated the perception of the Black American men about when a person suspecting prostate cancer seek a medical attention. According to Table 25, 273 participants, accounting for 90% strongly agreed or agreed that they would seek medical attention (PT) if they are diagnosed with prostate cancer. Only 21 participants disagreed or strongly disagreed that they would seek medical attention, while 9 participants remained neutral. Persons disagreed formed 7% of the total participants, where as 3% of them account for neutral.

Table 25

Perception about Seeking Medical Attention for Prostate Cancer

	n	%
Strongly Disagree	16	5.3
Disagree	5	1.7
Neutral	9	3.0
Agree	106	35.0
Strongly Agree	167	55.0

Note: $N = 303$

Over 65% of the participants ($N = 197$) believed that the Black American men would seek medical attention if they experience swelling in their rectum. As high as 20% of the participants ($N = 60$) were neutral about this indicating that a significant group of people are not sure whether swelling of rectum is related to prostate cancer or not. Fifteen percentage of participants ($N = 46$) strongly disagreed or disagreed that they would seek medical attention if they experience swelling in their rectum.

Table 26

Taking Action when Experiencing Swelling in Rectum

	n	%
Strongly Disagree	30	9.9
Disagree	16	5.3
Neutral	60	19.8
Agree	91	30.0
Strongly Agree	106	35.0

Note: $N = 303$

About 75% of the participants ($N = 228$) believed that they would seek medical attention for prostate cancer if they experience pain while urinating. Twelve percentage

of the respondents ($N = 37$) were neutral. Thirteen percentage of participants ($N = 38$) strongly disagreed or disagreed that they would seek medical attention for prostate cancer if they experience pain during urination.

Table 27

Taking Action when Experiencing Pain while Urinating

	n	%
Strongly Disagree	26	8.6
Disagree	12	4.0
Neutral	37	12.2
Agree	103	34.0
Strongly Agree	125	41.2

Note: N = 303

About 67% of the participants ($N = 203$) believed that they would seek medical attention for prostate cancer if they experience swelling in penis. Eighteen percentage of the respondents ($N = 53$) were neutral. Sixteen percentage of participants ($N = 47$) strongly disagreed or disagreed that they would seek medical attention for prostate cancer if they experience swelling in their penis.

Table 28

Taking Action when Experiencing Swelling in Penis

	n	%
Strongly Disagree	30	9.9
Disagree	17	5.6
Neutral	53	17.5
Agree	79	26.1
Strongly Agree	124	40.9

Note: $N = 303$

The actions that cue Black American men to seek medical attention were investigated further in this study. The questions were tested for internal reliability using the Cronbach's alpha. The Cronbach alpha for the cues to action theme consisting of four items was 0.87 suggesting that the instrument is internally reliable. The sixth hypothesis of pain during urination (PU) and swelling in penis (SP) being the most significant action that drive the Black American men to seek medical attention to treat prostate cancer. The ANOVA test coupled with Tukey HSD was used to test this hypothesis. The outcome of the ANOVA confirmed that there a significant difference between the four items, $F(3, 303) = 14.02, p < 0.05$. Based on the posthoc analysis using Tukey HSD and the box plot presented in Fig. 5, it was found that there is no significant difference between pain during urination, swelling in penis, and swelling in rectum (SR) in driving the American Black men to seek medical attention for prostate cancer.

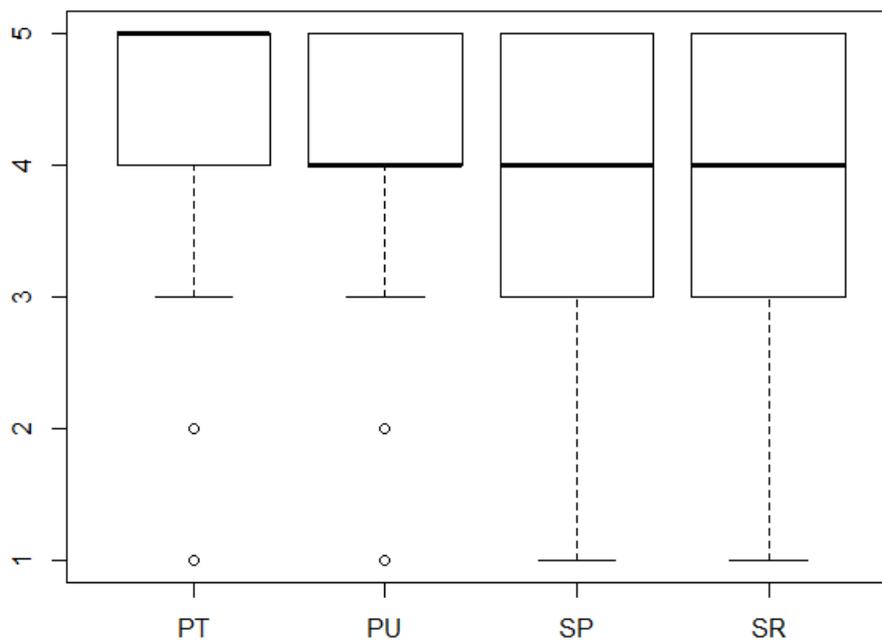


Figure 6. Box plot showing the distribution of responses to the four questions related to the perceived susceptibility.

Relationship of Age and Existence of Health Insurance with the Themes

I investigated the relationship of age and existence of health insurance with perceived benefits, barriers, susceptibility, severity, self-efficacy, and cues to action. The correlation analysis was used to investigate these relationships. Perceived benefits were calculated as the average of the responses to Questions 1-4, while the perceived barriers were calculated as the average of Questions 5-8. Perceived susceptibility, perceived severity, self-efficacy, and cues to action were calculated as the averages of Questions 9-12, 13-16, 17-20, and 21-24, respectively.

Table 29

Outcome of Correlation Analysis of Independent Variables with Age, and Existence of Health Insurance (p-values are given in the bracket)

Independent Variable	Age	Existence of Health Insurance
Perceived benefits	-0.05 (0.42)	-0.01 (0.87)
Perceived barriers	0.04 (0.54)	-0.10 (0.08)
Perceived susceptibility	0.17 (0.00)	0.07 (0.22)
Perceived severity	-0.01 (0.80)	0.08 (0.18)
Self-efficacy	-0.11 (0.06)	-0.06 (0.26)
Cues to action	-0.06 (0.30)	0.02 (0.75)

As evident in Table 30, there is no statistically significant relationship of existence of health insurance with perceived benefits, barriers, susceptibility, severity, self-efficacy, and cues to action, since the p value is greater than 0.05. The relationship of age with perceived benefits, barriers, severity, self-efficacy, and cues to action is also not statistically significant since p value is greater than 0.05. There is a statistically significance relationship between age and perceived susceptibility since the p is less than 0.05.

Summary

The purpose of the study was to facilitate early detection, diagnosis and treatment for prostate cancer in Georgia. A survey with 24 questions along with the demographic and medical background information was conducted and the responses were collected on a 5-point Likert scale. The survey responses were analyzed using correlation analysis, analysis of variances coupled with post-hoc analysis, and reliability analysis using the RStudio version 1.0.44. The participants were between 40 and 80 years old,

with a mean of 52.3 and a standard deviation of 8.0. Only 27 of the participants had prostate cancer, while 91% of them did not have it. Among 303 participants, 78% of them did not have any health insurance. Majority of the participants were earning over \$50000 per annum.

The first hypothesis of this study was that early detection and treatment are the most significant perceived benefits that drive the Black American men to undergo prostate cancer screening. From the data analysis outcomes, I concluded that early detection, early treatment, and the reduced chance of dying from prostate cancer are the primary factors that motivate the Black American men to get prostate cancer screening. The second hypothesis was related to the perceived barriers that prevent the Black American men from seeking prostate cancer screening. It was found that the perception of time consumption significantly differs with perception of uncomfortableness and cost, while significantly similar to perception of being afraid of finding something wrong during the screening. As such, the primary perceived barriers are perception of time consuming and perception of being afraid of finding something wrong are the most prominent barriers.

According to the third hypothesis, geographical location and ethnicity are the most significant risk factors that are perceived by Black American men as the primary reasons for the high prevalence of prostate cancer. According to the test results, age and ethnicity are perceived by Black American men as the most prominent risk factors for developing prostate cancer. Fourth hypothesis of this study was that difficulty in

urination and getting an erection are considered as the most significant symptoms by Black American men to be classified as the severe stage of prostate cancer. However, American Black men perceive death as the most prominent signs of severe stage of prostate cancer in comparison to the other symptoms according to the analysis outcomes.

The fifth hypothesis of this study was that diet and regular exercise are the most significant changes that Black American men need to make to prevent prostate cancer. However, listening to the advice of the health care provider was found to be prominent, followed by diet control and exercise. The sixth hypothesis was that pain during urination and swelling in penis are the most significant actions that drive the Black American men to seek medical attention to treat prostate cancer. However, it was found that there is no significant difference between pain during urination, swelling in penis, and swelling in rectum in driving the American Black men to seek medical attention for prostate cancer.

According to the seventh hypothesis, age and existence of health insurance have a direct correlation with the perceived benefits, barriers, susceptibility, severity, self-efficacy, and cues to action. However, there was no statistically significant relationship of existence of health insurance with perceived benefits, barriers, susceptibility, severity, self-efficacy, and cues to action. The relationship of age with other parameters was also not statistically significant except with perceived susceptibility. In Chapter 5, I discuss the key findings of this study, along with the implications for social change, the limitations, conclusions, and recommendations for future studies.

Chapter 5: Conclusions, Limitations and Recommendations

The purpose of this study was to examine the barriers and perceptions that prevent African American men in Georgia from undergoing screening and early treatment for prostate cancer. The focus of the study was also to identify the risk factors that influence the Black American men to respond and seek medical attention for prostate cancer.

Importance of this Study

According to the CDC, prostate cancer is the second most common male fatality in the United States. According to the 2015 CDC report, 177,489 cases of prostate cancer were diagnosed between 1999 and 2012, of which 27,244 died (CDC, 2015). Prostate cancer is one of the most critical health issues faced by the Black American men in the 21st century. Black American men die from prostate cancer at a higher rate than other ethnic groups, such as Whites, American Indian/Alaska Natives, Asian/Pacific Islanders, and Hispanics (CDC, 2015). Therefore, it is important to investigate the benefits and barriers, as perceived by Black American men in Georgia, of undergoing screening for prostate cancer. The results of this study are expected to help develop strategies to reduce prostate cancer incidence among Black American men.

Conclusions

Through this study, I found several important aspects in relation to the attitude and response of Black American men when it comes to prostate cancer diagnosis, early detection and early treatment. In this study, I hypothesized that early detection and treatment are the most significant perceived benefits that drive the Black American men

to undergo prostate cancer screening. I found that three reasons why Black American men would undergo screening: their perceptions about early detection, early treatment, and reduced chance of dying from prostate cancer. As such, the first hypothesis was accepted.

The second hypothesis of this study was that fear and cost were the most significant barriers preventing Black American men from getting early screening for prostate cancer. According to the results, the main reasons Black American men avoided prostate cancer screening were the concern that prostate cancer screening may take a longer time to complete, and the fear about positive test results,. Therefore, the second hypothesis of the study was rejected.

The third hypothesis of this study stated that the geographical location and ethnicity are the most significant risk factors that are perceived by Black American men as the primary reasons for the high prevalence of prostate cancer. This hypothesis was accepted since the study concluded that Black American men believe that their geographical location and ethnicity can influence the prevalence of prostate cancer. Furthermore, the Black American men identify that a patient with difficulty in urinating or getting an erection is at the severe stage of prostate cancer, though they believe that the death is the outcome of the severe stage of the cancer. According to the fourth hypothesis of this study, difficulty in urination and getting an erection are considered as the most significant symptoms by Black American men to be classified as the severe stage of prostate cancer. Thus, the fourth hypothesis was rejected.

Black American men are of the opinion that the cancer can be prevented by changing the diet and performing regular exercise. However, they emphasized that listening to the advice of the health care provider is the key to control prostate cancer. Therefore, the fifth hypothesis, i.e. diet and regular exercise are the most significant lifestyle changes that the Black American men need to make to avoid prostate cancer, was rejected as well. The sixth hypothesis of this study stated that pain during urinating and swelling in the penis are the most significant symptoms that derive the Black American men to seek medical attention to treat prostate cancer. This hypothesis was accepted since the study outcomes indicate that the Black American men would most likely to seek the medical attention when they feel the pain during urination and/or notice the swelling in their penis. In this study, the seventh hypothesis was that age and existence of health insurance have a direct correlation with the perceived benefits, barriers, susceptibility, severity, self-efficacy, and cues to action. However, I found that there was no statistically significant relationship of existence of health insurance with perceived benefits, barriers, susceptibility, severity, self-efficacy, and cues to action. The relationship of age with other parameters was also not statistically significant except with perceived susceptibility. Therefore, this hypothesis was rejected.

The findings in my study agree with the findings of previous studies. For example, in this study, I found that “listening to the advice of the health care provider is one of the keys to control prostate cancer (p.102). In his study about evaluating prostate cancer knowledge in rural Southeastern Indiana County, Kroger-Jarvis (2014) also

reported that information provided by their health care providers, on a timely basis regarding prostate cancer, was key for Black American men to seek early diagnosis and treatment for prostate cancer.

Similarly, Miller (2014) published a study on what Black American men know about prostate cancer screening, knowledge, and risk perceptions. He concluded that Black American men believe that they are aware of the risk factors associated with prostate cancer and that screening and testing for the disease in a timely manner can help prevent death and other consequences resulting from prostate cancer diagnosis and treatment. This conclusion agrees with the findings of this study, in which early detection, early treatment and reduced chance of dying from prostate cancer are some primary factors for Black American men to undergo screening for prostate cancer.

It is interesting to note that Black American men participated in this study are aware of the consequences and benefits of early prostate cancer detection. They are aware that early detection and treatment of prostate cancer can reduce their chances of dying from the disease. However, according to the study findings, most Black American men, would not make adequate and concise effort to seek medical help, until when it is too late, or they become uncomfortable during urination and swelling in their penis before seeking for medical help.

Study Implications

The study has significant implications in early diagnosis, and early treatment of prostate cancer among Black American men, who are highly affected by prostate cancer.

The study outcomes can provide a basis to design awareness program to educate Black American men about the early signs of prostate cancer so that they can seek immediate medical attention. As study captured the benefits and barriers perceived by the Black American men to attend prostate cancer screening, the knowledge generated by this study can be used to tailor prostate cancer educational programs by emphasizing the significant perceived benefits, while developing programs to remove the barriers to increase the participation of Black American men in prostate cancer screening.

According to the outcomes of this study, Black American men perceive early detection, early treatment, and fear of death as the most common reasons for them to undergo prostate cancer screening. Therefore, the study finding can help the healthcare managers to emphasize these benefits among the Black American men in their care to persuade them to undertake the screening. Further, the study can assist the healthcare workers conducting awareness programs aiming to increase the proportion of Black American undergoing prostate cancer screening to explain the importance of early detection and treatment on the increased survival rate.

The main barriers for the lower level of prostate cancer screening among Black American men are fear of positive diagnosis and length of time taken to complete the screening procedure. Therefore, the study will help healthcare professionals to work with the Black American men to explain the importance of diagnosis and how the early detection would prolong their life. Further, this study will provide the evidence for the policy makers to devise strategies and modify the screening procedures to shorten the

time taken to complete the screening. As the Black American men believe the geographical location and ethnicity as factors influencing the prevalence of prostate cancer, the study can emphasize the importance of researching the prevalence of prostate cancer, and thereby saving their lives and reducing the current high prevalence of the disease in their community.

Social Change Implications

According to the findings of this study, education and encouragement are necessary for Black American to undergo prostate cancer screening for early detection and treatment. The healthcare professional should recognize the perceptions of their patients regarding the benefits of and barriers for prostate cancer screening, and educate them as required. Healthcare professionals need to discuss with them about their level of knowledge about prostate cancer risk factors, and should be able to recognize and comprehend the problems, and concerns that Black American men have. When health care providers do not recognize these concerns and properly address, it may be difficult to reduce the prevalence of prostate cancer among Black American men.

Because prostate cancer significantly affects the Black American population in the United States, any improvement or actions that reduce the prevalence can lead to improved quality of life among Black American communities. By focusing on the attitude and perceptions of Black American men about prostate cancer, this study provides information to health professionals and policy makers to devise strategies and action plans to engage with Black American men, and to reduce the prevalence of

prostate cancer among Black American communities, leading to improved quality of life to the Black American men and their families.

Study Limitations

The sample size was restricted to less than 350, which may not be adequate to be representative of the entire United States. I conducted the study in Georgia region, and the study outcomes may not be applicable in other regions with different demographic, educational, social, and economic characteristics. The data accuracy is another limitation since the participants may have misunderstood certain questions, though such possibility appears to be small as per the outcomes of the pilot studies. The bias of the researcher is a major limitation of qualitative research. However, participants answered the questions freely through questionnaires without any guidance or influence. This could have reduced the bias significantly.

Key Recommendations

The findings of this study led to various key recommendations in relation to prostate cancer screening, and awareness programs for Black American men. The recommendations are as follows:

- Black American men perceive early detection, and treatment as the primary benefits that they get by attending prostate cancer screening. They also believe that undergoing the screening for prostate cancer can reduce their chance of dying from prostate cancer. Thus, any promotional programs aiming to increase

the participation of the Black American men in prostate cancer screening program should highlight these three benefits to attract their participation.

- Black American men perceive that prostate cancer screening consumes significant amount of time. Additionally, they believe that the process is uncomfortable and costly. They also stated that they worry about being positively diagnosed for prostate cancer. These are the significant barriers for Black American men to undergo prostate cancer screening. The awareness program aiming to improve the Black American participation in prostate cancer screening needs to focus on educating them about the potential cost and the average screening time. This will help them to make an informed decision and may increase their participation. Further, Black American men need to be counselled about their fear by emphasizing the fact that early detection can lead to early treatment, and thereby can save their lives.
- Through this study, I found that Black American men are unsure about prostate cancer risk factors, symptoms of severe stage of prostate cancer, and proper prostate cancer prevention measures. Therefore, a comprehensive education program that incorporates the above aspects is essential to reduce prostate cancer among Black American men.
- Efforts should be geared towards assisting Black American men living in rural areas in Georgia to timely screen for prostate cancer. In this study, the Black

American men stated that their geographical location determines their ability or inability to screen for prostate cancer in a timely manner.

Additionally, the following specific recommendations can be made in relation to prostate cancer screening, and awareness programs for Black American men based on the findings of this study:

Healthcare providers

It is imperative for healthcare providers to encourage Black American men at the age of 40 years and above to screen for prostate cancer. In addition, the healthcare providers should inform the Black American men of the advantages and disadvantages of prostate cancer screening. Healthcare providers must ensure that they provide every possible information pertaining to the past medical history about PSA results, screening and treatment of Black American men at the age of 40 years and above.

Stakeholders

With the uncertainty of the current insurance situation in the country and the insurance companies rejecting to participate in the Affordable care, coupled with the threat to cancel or repeal the affordable healthcare insurance, it becomes imperative that the insurance companies, healthcare providers and the legislative arm of the government ensure that the citizens of the United States of America have adequate and quality access to care so as to reduce the current high fatality rate caused by prostate cancer within the Black American communities.

Legal Framework.

It is the responsibility of the Federal, State and Local Governments to ensure that all citizens of the country, states and locality, respectively, have access to good and quality medical care. This can be done by providing easy accessibility to affordable, quality and reliable health insurance. To achieve this purpose, the Federal and State legislators should enact laws that will curtail the profit maximization of the insurance companies. In addition, consumers should be made aware of the services available to them, through radio, television, the communities, and the Black American churches and mosques.

Standardization of Insurance Services.

According to Shi and Singh (2008), “the United States healthcare system does not consist of a network of interrelated components designed to work together coherently (p.4)”. The authors further explained that “the United States healthcare systems comprise of market oriented economy involving a variety of private business men and women whose objectives are the pursuit of profit maximization (p.5)”. As a result of the profit maximization of insurance companies, efforts should be geared towards helping consumers by reducing health insurance cost and encouraging more insurance companies into the healthcare business. In addition, experts should be employed by the Federal, States and Local government either as consultants or full time employee to ensure that the insurance companies are not charging consumers for excessive operational expenses.

Black American Men.

It is imperative that Black American men realize that prostate cancer is more common in their community. It is therefore important that they screen for prostate cancer once they reach the age of 40. It is also important that Black American men encourage other Black American men about the need to test for the disease in a timely manner. Additionally, the wives of Black American men and other family members should encourage their husbands and the loved ones to undergo screening for prostate cancer once they reach the age of 40 years.

Future Study

Many studies have been conducted to identify the reasons for the high prevalence and fatality of prostate cancer within the Black American communities. Despite these studies, the fatality rate among these communities are alarming. Therefore, it is the belief of this author that more research should be conducted to establish the reasons for the high prevalence of prostate cancer within the Black American communities, since this study limits itself to few Black American counties in Georgia.

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Appendix A: Health Belief Model Instrument

Health Belief Model Scales

Patients Perceptions Regarding Prostate Cancer

Direction:

This survey questionnaire is to be completed voluntarily. The anonymous and confidentiality of participants will be respected.

Please Circle Your Response	1	2	3	5
	Strongly Disagree	Disagree	Neutral	Strongly Agree
Perceived Benefits				
1. Prostate cancer screenings will allow me to detect prostate cancer early.	1	2	3	5
2. Participating in prostate cancer screening yearly will reduce my chance of dying from prostate cancer.	1	2	3	5
3. Participating in prostate cancer screenings makes me feel good.	1	2	3	5
4. Participating in prostate cancer screening will help me get early treatment.	1	2	3	5
Perceived Barriers				
5. I am afraid to screen for prostate cancer because the exam might be uncomfortable.	1	2	3	5
6. I am unwilling to be checked for prostate cancer because the exam may cost too much.	1	2	3	5

7. I am afraid to have prostate cancer screening because I might find out something is wrong	1	2	3	5
8. Participating in prostate cancer screening will take too much time	1	2	3	5
Perceived Susceptibility				
9. Men my age are at higher risk of developing prostate cancer.	1	2	3	5
10. Black American men are more likely to have prostate cancer than white males.	1	2	3	5
11. Black American men in urban areas are more likely to develop prostate cancer	1	2	3	5
12. Black American men in rural areas are more likely to develop prostate cancer	1	2	3	5
Perceived Severity				
13. Prostate cancer can make it difficult for me to urinate.	1	2	3	5
14. Prostate cancer can prevent me from getting an erection.	1	2	3	5
15. Prostate cancer can kill me.	1	2	3	5
16. Prostate cancer can result in sterilization.	1	2	3	5
Self-Efficacy				
17. If I get prostate cancer, it will not be too bad	1	2	3	5
18. If I control my diet, I may not have prostate cancer.	1	2	3	5
19. If I exercise regularly, I may not have prostate cancer.	1	2	3	5
20. If I follow my health care provider advice, I can best take care of myself.	1	2	3	5
Cues to Action				
21. I may go to my physician to be tested for prostate cancer:	1	2	3	5

22. If I experience swelling in my rectum.	1	2	3	5
23. If I experience pain urinating.	1	2	3	5
24. If I experience swelling in my penis.	1	2	3	5

Appendix B: Demographic/Medical Background Instrument

Demographic/Medical Background:

Place a "√" mark in the box of your answer or fill in the information as indicated.

1. What is your race?

White _____

Black/Black American _____

Spanish/Hispanic _____

Other _____

2. What stage is your prostate cancer diagnosis?

Stage 1 (Cancer is confined to the prostate) _____

Stage 2 (Cancer can be detected during a DRE) _____

Stage 3 (Cancer is in the tissues near the prostate) _____

Stage 4 (Cancer has spread to other parts of the body) _____

3. What is your age? _____ years old

4. Do you have health insurance? Yes _____ No _____

5. If Yes;

6. What type of insurance? Private health insurance Yes _____ No _____

7. Medicaid _____

8. Medicare _____

9. Other _____

10. What is your household income level PER YEAR?

Less than \$9,999 _____

\$10,000 to \$29,999 _____

\$30,000 to \$49,000 _____

\$50,000 and above _____

Appendix C: Letter of Permission to use instruments

From: Martins Nnoko [mailto:martins.nnoko@waldenu.edu]
Sent: Wednesday, April 01, 2015 1:14 PM
To: Oliver, JoAnn S.
Subject: Permission to use your survey questionnaire

Dear Dr. Oliver,
In reference to our telephone conversation this afternoon, this is to inform you that I will like your permission to use your survey questionnaire for my studies.
Thanks in advance.

Mr. Nnoko, permission is granted. Please let me know of your results.

Best regards,

JoAnn Oliver

JoAnn S. Oliver, PhD, RN, CNE

Associate Professor

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Phone: [205.348.2916](tel:205.348.2916)

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Martins Nnoko <martins.nnoko@waldenu.edu>

to JoAnn

Thanks Dr. Oliver

Appendix D. Letter from Georgia Prostate Cancer Coalition



Awareness, Outreach, Advocacy

The Georgia Prostate Cancer Coalition (GPCC) would like to help with Martins Nnoko's study by encouraging all GPCC members to participate in the survey questionnaire.

The Georgia Prostate Cancer Coalition was founded in 2000 and is a 501c3 (nonprofit) Tax ID is 31-1717086. GPCC gives talks to corporations, community groups, religious groups and health fairs to build awareness and educate the men of Georgia on the importance of annual physicals and getting screened for Prostate Cancer.

GPCC also funds free Prostate Cancer screening events for the unemployed, uninsured and underinsured men of Georgia.

All GPCC members are volunteers, no member receives a salary. 100% of our donations and fundraising monies are used to achieve our mission of awareness, education and free screening. GPCC is the largest Prostate Cancer organization in the State of Georgia.

If you would like to learn more about GPCC, please visit our website at:

www.georgiapcc.com

Sincerely,

A handwritten signature in black ink, appearing to read "Fred R. Cutler". The signature is fluid and cursive, with a large initial "F" and a distinct "Cutler" at the end.

The Georgia Prostate Cancer Coalition

Board Member – Treasurer

(770) 619-0710