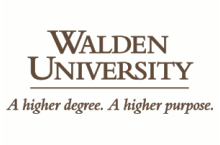

2020

Factors Associated with Prostate Cancer Screening among African American Men in California

Frank Ibe Agodi
Walden University

Walden University

College of Health Sciences

This is to certify that the doctoral dissertation by

Frank Agodi

has been found to be complete and satisfactory in all respects,

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Review Committee

Dr. Egondu Onyejekwe, Committee Chairperson, Public Health Faculty

Dr. Chinaro Kennedy, Committee Member, Public Health Faculty

Dr. Jagdish Khubchandani, University Reviewer, Public Health Faculty

Chief Academic Officer and Provost

Sue Subocz, Ph.D.

Walden University

2020

Abstract

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by

Frank Agodi

MPH, Walden University, 2014

MSc, Golden University, 2002

BS, University of Phoenix, 2000

Dissertation Submitted in Partial Fulfillment

Of the Requirements for the Degree of

Doctor of Philosophy

Doctor of Public Health

Walden University

February 2020

Abstract

In Los Angeles County, California, prostate cancer (PC) is the second primary cause of cancer-related death in men. Previous studies have focused on sociodemographic factors influencing racial and ethnic inequalities in health in the United States. However, research was lacking regarding if and to what extent social-ecological factors predict PC screening, specifically among African American men residing in Los Angeles County. The purpose of this quantitative study, using a cross-sectional design, was to identify the factors that may align with PC screening among African American men living in Los Angeles. African American men aged 45 and older were the targeted population for this study. Individuals included in this study were those who had a digital rectal exam or prostate-specific antigen test for PC screening. The sociodemographic risk factors examined to determine factors associated with PC screening of AA men in Los Angeles included age, income, education, and marital status. This study was guided by the socioecological theory. Data for this study involved secondary data from the SEER/California Health Interview Survey. I used the Statistical Package for Social Sciences (SPSS) IBM software version 25 for analysis based on the research questions and hypothesis. Inferential statistics were performed using chi-square, logistic regression, and stepwise logistic regression; age and education remained significant predictors of PC screening as did age when combined with married with no kids' family support type. Potential positive social change from this study could provide meaningful evidence-based and informed health intervention approaches for individuals at risk of developing PC and for individuals who are less likely to be screened for PC.

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Dedication

I would like to thank, glorify, honor, and praise invisible good Lord, my creator and the creator of heaven and earth with whom all things are possible. Without Him, this journey would not have been possible. I would like to dedicate this dissertation to my entire family and all of my friends, especially, Dr. Abosede Frances Obikunle, Lady Vivian Nwankwo and Akuabata Eneh, for their moral support and words of encouragement during this period; to my daughter, Amaka Agodi and son Emeka Agodi; to my brothers Christopher Chijioke Agodi, Chimezie Agodi, and Ugochukwu Agodi; to my sisters Meg Ogbonna, late Lovina Isoka, Comfort Udeh Egwu, and Helen Anyanso; to my nieces Princess Ijeoma Isoka; to Dr. Adanma Agodi Kanu, and finally to my late parents, Chief Samuel Agodi Kanu and Madam Nwanji Agodi Kanu. I know that you all are proud of my accomplishment.

Acknowledgements

I would like to give a special thanks to my dissertation chair, Dr. Egondu Onyejekwe, and committee members, Dr. Chinaro M. Kennedy and Dr. Jagdish Khubchandani for their encouragement and support during the entire dissertation process. I am grateful for their commitment for ensuring that my dream of earning a PhD is a reality. I would also like to thank those individuals who have in one way or the other provided the support, advice, and encouragement I needed during the entire dissertation process.

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Chapter 1: Introduction to the Study

In 2014, there were 3,191 deaths due to prostate cancer (PC) in California, most of which involved African American (AA) men (American Cancer Society [ACS], 2017). AA men were over 50% more prone to develop PC than men of any other racial and ethnic group (Adeloye et al., 2016; CDPH, 2015; Hoffman et al., 2001; Hudson et al., 2014). The PC risk in AA men was 45% higher than White men, 58% higher than Hispanic men, and 94% higher than Asian/Pacific Islanders (Adeloye et al., 2016; CDPH, 2015; Hoffman et al., 2001; Hudson et al., 2014).

Furthermore, the death rate for PC is about 272 per 100,000 men for AA men, much higher than the death rate of 169 per 100,000 for White men (ACS, 2007). The mortality and risk disparities of PC in AA men compared to other racial groups is of great public health concern (Chen, Vargas-Bustamante, Mortensen, & Ortega, 2016; Odedina et al., 2009). Researchers have conducted minimal investigation on AA men's PC in California; therefore, an urgent need persists to further investigate factors that align PC and AA men (National Institutes of Health [NIH], 2009; Plowden, 2003, 2006; Reynolds, 2008; Wu & Modlin, 2012).

In this study, I evaluated the effects of social and ecological ideals on screening methods (digital rectal examination [DRE] and prostate-specific antigen [PSA]) for PC (see Dickey, 2013) through the collection of secondary data. The results from this study may advance social change by providing educational information that could facilitate

efforts to promote health and effective and efficient PC screening (Reynolds, 2008; Taylor et al., 2006). Such screening strategies could apply tailored or specific approaches that may address the factors associated with the low early screening rate of PC among AA men at risk (Reynolds, 2008; Taylor et al., 2006). If applied effectively and proactively, the screening of PC may help increase and reduce the high morbidity and mortality linked to later diagnoses of PC among AA men (Wu & Modlin, 2012). The remainder of this chapter addresses the background, problem statement, purpose of the study, research questions and hypotheses, theoretical foundations, nature of the research, assumptions, and the study's delimitations and limitations

Background

In 2014, PC was the second most detected cancer and a common newly diagnosed cancer among men, representing 28% (22,080) of the total cases of the disease occurring in California (CDPH, 2015). Additionally, one in six men will have PC, and about one in 38 will die from the disease (CDPH, 2015; Centers for Disease Control and Prevention [CD], 2014). In the United States and California in particular, AA men exhibit extreme numbers of PC-related deaths and the shortest survival rate of any racial and ethnic group (ACS, 2009; Jones, Underwood, & Rivers, 2007). The PC death rate for AA men is about 20% higher than among Whites (Allen et al., 2007). Some recent efforts have been made to promote screening for PC. For instance, early detection and removal of the precancerous prostate or detecting and treating cancer in its early stages substantially

reduces the number of deaths associated with the condition (ACS, 2015; CDPH, 2015; CDC, 2016). In 2015, ACS established basic guidelines by recommending that all AA men aged 45 be screened for PC with PSA and DRE for PC (ACS, 2005; CDC, 2008).

Despite many advanced public health efforts implemented by recommendations regarding this health issue, the screening rate among AA men remains low (Weinrich, 2006; Woods, Montgomery, Herring, Gardner, & Stokols, 2004; Wu & Modlin, 2012). Researchers have reported that AA men experience higher onus at a younger age, and more progressive phases of the disease when detected, compared to Whites (Fyffe, Hudson, Fagan, & Brown 2008; Jemal, Siegel, Xu, & Ward, 2010). However, research is needed that more closely examines the factors exhibited by AA men that contribute to the low PCS rate. Such research could help healthcare providers identify and address amendable barriers preventing AA men from PCS (Plowden, 2003, 2006; Wu & Modlin, 2012).

Problem Statement

The problem that I sought to address is that in the state of California, ethnic inequality exists around PC and PCS (California Cancer Registry [CCR], 2015; CDPH, 2017; CDC, 2014). The mortality and risk disparities of PC in AA men compared to other racial groups is of great public health concern (Chen et al., 2016; Odedina et al., 2009). In fact, AA men are significantly more likely to have PC than White men, Hispanic men, and Asian/Pacific Island men (ACS, 2017; CCR, 2017; CDPH, 2017; CDC, 2015).

Age, African heritage, familial history, and specific innate hereditary conditions are some of the associated deep-rooted risk influences for the disease (CDPH, 2015; Toles, 2008; Weinrich, 2006); however, research is lacking that examines these factors specifically among AA men. The rate of PC occurrence and death among AA men in California, especially Los Angeles County, is high (Atulomah, Olanrewaju, Amosu, & Adedeji, 2010; CCR, 2015; CDPH, 2014). However, researchers have indicated that there is insufficient understanding of the factors determinative of PCS among AA men (Barati, Hidarnia, Allahverdipour, & Niknami, 2015; Wu & Modlin, 2012). In the current study, I aimed to fill this research gap. Specifically, I investigated the factors associated with PCS and AA men in Los Angeles County, California. I examined if and to what extent the following variables are correlated with PCS: age, education, income, marital status, access to care, and family support. These variables were chosen as they align with the Social-Ecological Model (SEM) which suggests that social-ecological factors (such as personal factors, social factors, and community factors) affect injury, violence, and health.

Purpose of the Study

The purpose of this research study was to examine the factors that affect AA men's participation in PCS in Los Angeles (L.A.) County, California. This is important because a significant racial disparity exists in PC screening participation among AA men in California and the United States (NIH, 2015). Despite the lack of consensus on

established guidelines for PCS, AA men are at a higher risk of acquiring and dying from PC (Atulomah et al., 2010; CCR, 2015, CDPH, 2014; Drake, Shelten, Gilligen, & Allen, 2010; Haque et al., 2009). Previous researchers have demonstrated conflicting results regarding the associations between PCS and racial/ethnic background (Haque et al., 2009).

In this study, I further explored factors related to participation in PCS or adherence to recommended screening methods (ACS, 2017; CDPH, 2017; Wu & Modlin, 2012). The variables of focus for this study included age, education, income, marital status, access to care, and family support. This study and its research questions were guided by the social-ecological model (SEM) to investigate the influence of socioeconomic factors on AA men's PCS (ACS, 2017; Cheng et al., 2009; Taylor et al., 2006; Wilt et al., 2001; Wu & Modlin, 2012). Ultimately, the results from this study can help inform targeted screening and culturally appropriate approaches to increase the PCS rate among AA men and therefore substantially decrease the disparity observed between PC cases and deaths (Wu & Modlin, 2012).

Research Questions

The primary goal of this research was to explore if, and to what extent, social-ecological factors of AA men are correlated with PCS participation rates. Furthermore, this study and its research questions were guided by the SEM. The research questions posed in this study were as follows:

Research Question (RQ) 1: Does an association exist between age and PCS participation rates among AA men in L.A. County?

$H_0$1**:** No association exists between age and PCS participation rates among AA men in L.A County.

H_a1: An association exists between age and PCS participation rates among AA men in L.A County.

RQ2: Does an association exist between education and PCS participation rates among AA men in L.A. County?

$H_0$2: No association exists between education and PCS participation rates among AA men L.A County.

H_a2: An association exists between education and PCS participation rates among AA men L.A County.

RQ3: Does an association exist between income and PCS participation rates among AA men in L.A. County?

$H_0$3: No association exists between income and PCS participation rates among AA men L.A County.

H_a3: An association exists between income and PCS participation rates among AA men L.A County.

RQ4: Does an association exist between marital status and PCS participation rates among AA men in L.A. County?

$H_0$4: No association exists between marital status and PCS participation rates among AA men in L.A. County.

H_a4: An association exists between marital status and PCS participation rates among AA men in LA County.

RQQ5: Does an association exist between access to healthcare and PCS participation rates among AA men in L.A. County?

$H_0$5: No association exists between access to healthcare and PCS participation rates among AA men in L.A. County.

H_a5: An association exists between access to healthcare and PCS participation rates among AA men in L.A. County.

RQ6: Does an association exist between family support and PCS participation rates among AA men in L.A. County?

$H_0$6: No association exists between family support and PCS participation rates among AA men in L.A. County.

H_a6: An association exists between family support and PCS participation rates among AA men in L.A. County.

Theoretical Framework

In this study, I applied the SEM to understand AA men's participation in PC screening. The basis of the SEM is to develop general strategies for planning and assessing programs to promote community health (CDC, 2015; Stokols, 1992, 1996). The

variables of focus in the current study aligned with the different social-ecological factors of the SEM: age, education, income, marital status, access to healthcare, and family support.

The SEM is a system model for which I used a multi-level approach to examine AA PCS (see CDC, 2015). Social-ecological ideations began with Murray Bookchin. McLeroy, Bibeau, Steckler, and Glanz (1988) used the SEM as a tool for a health campaign, originating from Bronfenbrenner's (1979) ecology theory. Essentially, the SEM has been used to understand factors that influence violence, injury, and health conditions. The SEM involves individual, relationship, community, and societal factors and how they interact to lead to violence, injury, and health conditions. In this study, I measured individual, relationship, and community/societal factors including age, education, income, marital status, access to care, and family support among AA men in L.A. to better understand if, and to what extent, these variables are correlated with PCS participation rates.

Significance of the Study

Researchers have previously indicated that more research is needed to increase adherence to PCS among AA men in California (NIH, 2009; Reynolds, 2008). The results from this study could help promote PCS participation, and thereby promote a reduction in the mortality rate associated with PC among AA men (Friedman, Corwin, Dominick, & Rose, 2009; Hughes, Sellers, Fraser, Teague, & Knight, 2007; Reynolds, 2008). Study

outcomes could also facilitate changes in attitudes, behaviors, and lifestyles of AA men about early PCS activities. Additionally, AA community stakeholders, including for-profit and non-profit organizations, could mobilize PCS reeducation, awareness, and advocacy. Ultimately, knowledge of the factors that affect PCS and early PCS or early detection of the disease in AA men in California may save and extend their lives (Bloom, Hayes, Sauders, & Flatt, 2009; CCR, 2014; CDPH, 2015; Fielding & Briss, 2006). Early intervention approaches or health promotion measures advance positive social change on both the individual and community levels.

Nature of the Study

In this study, I collected secondary data from the CCR and LA Cancer Surveillance Program. Secondary data are archived data collected by someone else or by an organization for interest or other purposes (Creswell, 2009). Secondary data are exceedingly valuable in characterizing the target population and sample size (Creswell, 2009; Green, Deriel, & Henderson, 1993). In this study, I used secondary sources of information to generate accurate data because there was no access to primary data sources.

Definitions

Barriers: A subscale of the health-belief operational construct that prevents or diminishes health promotion measures (Orji, Vassileva, & Mandryk, 2012).

Benefits: A subscale of the health-belief instrument that assesses the worthiness of health choices and their effectiveness in reducing the risk or seriousness of health outcomes or events (Jones et al., 2015). For instance, cancer is a deadly disease that affects over 1 million people per year in the United States (Lin & Plevritis, 2012; Murphy, Kochanek, Xu, & Heron, 2015). Unscreened and untreated cancer will ultimately cause death (Lin & Plevritis, 2012; Murphy et al., 2015).

Digital rectal exam (DRE): A DRE is a form of rectal examination using DRE procedures and protocols. During the DRE procedure, the examiner or physician inserts a lubricated, gloved finger into the rectum to examine a variety of maladies, including PC. Through the process, the physician determines the condition of the rectum and prostate gland by the enlargement, hardness, or abnormality of growth around the prostate gland, which is located just in front of the rectum (Kowalik et al., 2012).

Early detection: Timely discovery of cancer cells could promote increased survival rates. Evidence suggests that early detection reduces the likelihood of higher mortality from cancer (Institute of Medicine and National Research Council, 2003).

Health behavior: An individual's characteristics such as values, attitudes, objectives, awareness, emotional state, and traits that contribute to healthy choices (Morrison, 2007).

Health disparities: The differences in access to or availability of facilities and services. Disproportionate variations in the occurrence, frequency, and mortality of

unfavorable health outcomes or events present in a population (HealthyPeople2020, 2017; Hoffman et al., 2001).

Health factors: Factors that affect one's health and well-being. The social, economic, cultural, and physical environment in which people live has a significant effect on their health and welfare (Robert Wood Johnson Foundation, 2015).

Health literacy: The U.S. Department of Health and Human Service sees health literacy as the degree to which individuals can obtain, process, and understand necessary health information and services needed to make appropriate health decisions (Benjamin, 2010). Individuals with limited health literacy may have trouble reading and understanding food labels, completing health assessment forms, communicating symptoms to a clinician, measuring medications, navigating the healthcare system, or following self-care instructions (Benjamin, 2010).

Middle SES: Middle SES is a class of people in the middle of a social hierarchy. The very definition of the term middle SES is highly political and vigorously contested by various schools of political and economic philosophy (APA, 2018).

Prostate cancer: A malignant tumor of the prostate gland (Beers & Berkow, 1999).

Prostate-specific antigen (PSA): A well-known biomarker associated with the PC test used for sensitivity and specificity screening (ACS, 2010; Vashi, 2010). PSA is a glycoprotein produced almost exclusively by the prostate gland (Beers & Berkow, 1999).

Men with prostatic diseases may have high serum PSA levels because of enhanced production of PSA (Beers & Berkow, 1999).

Social-ecology Model (SEM): A methodology that involves an environmental, communitarian, and reconstructive assessment of society (Bookchin, 2007; Stokols, 1992).

Social-economic status (SES): An economic and sociologic measurement that represents a person's or a family's economic and social position based on their income, education, and occupation (American Psychological Association [APA], 2018). Adults who have lower levels of educational attainment, who are unemployed, or who live at, near, or below the U.S. federal poverty level are considered to have a low SES (APA, 2018; CDC, 2014).

Wealthy, or upper class: Includes those from higher class social backgrounds who tend to be more successful in achieving career goals and are generally better prepared for the world of work due to their relatively better access to resources such as career offices, guidance counselors, better schools, high-level "social actors," and familial experience with higher education (Diemer & Ali, 2009).

Assumptions

The assumptions identified in this dissertation are as follows. First, the provision of informed consent protected participants from unintentional harm, including confidentiality of the information provided. Second, I assumed that the selected sample

size was representative of the entire population of participants in the screening. Third, based on the SEM, I assumed that the key factors that may affect PCS behavior among AA men in California involved intrapersonal, interpersonal, and community factors.

Scope and Delimitations

Only AA men of the age of 45 years and older participated in the study because this is the age range at which men are at a higher risk for PC and in greater need of PCS. I did make general inferences from the findings of the research outside the scope of the population used in this study. The extent of the covariates and confounders accounted for in this study depended on whether the secondary data captured the variables during the data collection stage. In other words, if covariates or confounders were not recorded in the secondary database, it would have been impossible to account for the effect of such variables in this study.

The study method was a quantitative approach. Therefore, subjective or qualitative experiences were not a part of the analysis of the study. Under the current research design, using correlational analyses, results identified if, and to what extent, the social-ecological factors were related to PCS among AA men. Furthermore, no causal claims could be or were made, (see Creswell, 2009). Hence, it was not possible to state that low PCS caused a high PC mortality rate among AA men in this geographic area, L.A County. Also, the ability to establish a spatiotemporal exposure outcome sequence was limited. In other words, the use of a cross-sectional design made it difficult to

determine whether exposure occurred before the outcome or vice versa. Thus, it was highly unlikely to predict if early PCS, in general, preceded PC onset, or if low adherence to PCS among AA men preceded cancer onset among this racial group (Hacihasanoglu & Gozum, 2011). To address this, the results and discussion were framed in terms of positive and negative correlations and the strength of the correlations; no causal claims or claims about directionality or order were supported by this study.

Limitations

AA men in the current study were from a local county (as suggested by Cary et al., 2015; Owens, Jackson, Thomas, Friedman, & Hébert, 2015). Selection bias could have been problematic because the selected participants may not have been interested in PCS. Therefore, future studies are needed to further explore factors affecting AA men's participation or lack of interest in PCS to gain additional objective information or perspectives/experiences regarding PCS (Forrester-Anderson, 2005; Gonzalez, Consedine, McKierman, & Spencer, 2008; James et al., 2017).

The study's sample characteristics such as healthcare access, insurance affordability, and work status may have limited study findings. Most of the selected sample population may have been insured and may have had a prior PCS (Allen, Kennedy, Wilson-Glover, & Gilligan, 2007). Underinsured and uninsured men may not be well-represented in the study. In such cases, future studies of factors affecting prostate screening behavior among AA men in L.A. County should be multi-site studies and

should include proportionally uninsured and underinsured men (see Cheng et al., 2009; Chornokur, Dalton, Borysova, & Kumar, 2011; Myers-Walls, Ballard, Darling, & Myers-Bowman, 2011; National Cancer Institute, 2015).

Implications for Social Change

A positive social change implication is potentiated by the research itself. So, California Health Interview Survey (CHIS), the providers of the secondary data source will have expanded scope of what future secondary data will look like. Invariable, this will minimize the limitations of the secondary source of data, because it will have additional value in terms of what more to add/modify or delete from the database. Improvement in community-based healthcare approaches could come about as a result of the information resultant from this study; thereby, increasing the awareness of PCS in vulnerable AA communities and among stakeholders' affiliates. Policymakers may incorporate the findings of this study in order to support meaningful policy implementation and promote higher turnout rates for PCS among AA men in L.A. County. Also, results of this study could lower healthcare related costs and high hospital bills associated with late PC diagnosis. A healthier AA community means healthier people and workforce for the county. The institutional and policy levels of the SEM framework could be activated to promote social change as a result of this study.

Summary

In this chapter, I addressed the basis and rationale for this current study. I included the problem statement, purpose of the study, background, significance, theoretical foundation, operational definition, scope and delimitations, limitations, and social change implications. Overall, routine health screening presents the prospect of early detection of PC onset (CDC, 2016; CDPH, 2015). Screening for PC is particularly important for high-risk individuals such as AA men and those with a familial history of PC. Identifying the factors preventing participation of AA men in PCS could promote important health awareness in the targeted population and, thus, may improve screening rates (Cheng et al., 2009). As a result, early detection and treatment and a higher survival rate from the disease could be possible (Cheng et al., 2009). In Chapter 2, I describe the literature review.

Chapter 2: Literature Review

Introduction

In this chapter, I review and discuss literature relevant to the scope of the study. I focused on factors associated with PCS of AA men, discerning plausible processes to promote and increase PCS participation using an SEM approach or framework (see Toles, 2008). Relevant information from the literature review formed the basis for the informed opinions discussed in this dissertation. The chapter contains sections on the literature-search strategy, theoretical foundation, literature related to critical variables, a summary, and conclusions. Several sections describe key variables. SEM is the theory I employed in this study, explored here and serving as a paradigm for assessing how AA men participate in PCS. Based on its adeptness to assimilate core and external forces in the ecosystem, I explain the SEM theory further.

Literature Search Strategy

I performed a literature search in the CDPH PubMed, CCR, and MEDLINE databases. A combination of terms and phrases used for the literature searches were as follows: *AA men and PC, ACA and PCS, PSA and PCS, perceived barriers and PCS, poverty and PC, and disparity. Barriers, DRE and PCS, diet and PC, smoking and PC, obesity and PC, AA and PCS, health disparities and PCS, relationship with physician and PCS, family history and PC, medical mistrust and PCS, stage of diagnosis and PC, side effects of treatment and PCS, SES and PCS, cultural influences and PCS, families,*

friends, and PC and PCS, stress, social support, and the buffering effect and PCS, quality of committed relationships and PCS, survival and PC, mortality related to PC, and religion-spirituality and health and PC. The literature search included mostly peer-reviewed articles published within the last 10 years because they reflected the most recent information about the topic under investigation. I identified and reviewed more than 300 articles, and selected about 120 for this study.

Theoretical Foundations

The SEM was employed in this study to understand the motives affecting AA men in screening for PC. Mcleroy et al. (1988) developed this model as a tool for a health campaign originated from Bronfenbrenner's ecology theory, and the social, ecological ideations began with Bookchin. Theorists created some social-awareness models to account for sociodemographic variations in health behaviors. The SEM is an investigative tool that is used to explore health outcomes or behaviors concerning various interacting levels of interpersonal, intrapersonal, and environmental factors (McLaren & Hawe, 2005).

Conclusions have been drawn from numerous studies based on the application of the SEM for the assessment of health behaviors (Kothari, Edwards, Yanicki, & Hansen-Ketchum, 2007; Lewis, 2005; Novilla, Barnes, De La Cruz, Williams, & Rodgers, 2006; Raneri & Wiemann, 2007; Richard, Gosselin, Ducharme, Sapinsky, & Trudel, 2008; Vantamay, 2009; Woody, 2006). The SEM has been applied to address health risks

including but not limited to the evaluation of behaviors influencing HIV transmissions and AIDS outcomes resulting from HIV infections (Lewis, 2005). Also, in adolescent pregnancy studies, the SEM was applied as the theoretical framework (Raneri & Wiemann, 2007) and in alcohol consumption among college students (Vantamay, 2009). Furthermore, in other studies, the SEM was used as the explanatory framework for the prevention of elder abuse and elder falls (Richard et al., 2008), health promotion at the family and household levels (Novilla et al., 2006), smoking cessation and tobacco control (Kothari et al., 2007), promoting prevention science in social work practice (Woody, 2006, and expanding community-based health interventions (McLeroy et al., 2003).

The interpersonal level of the SEM describes the creation of change in social relationships. For this study, PCS activities were intended to facilitate individual behavioral change by affecting social and cultural norms and overcoming personal barriers. Access to healthcare providers, community health workers, and patient navigators represented potential sources of the environmental support system (Stokols, 1992, 1996). The SEM in this study highlighted several interventions appropriate for providers who recommended screening for their patients, patients' receipt of reminders about the need for screening, and patient navigator's assistance with the removal of logistical and other barriers to testing.

In this study, I explored the basis of the SEM variables of the interpersonal, intrapersonal, and environmental or community factors. For example, the independent

variables are explained by three levels of SEM factors (interpersonal, intrapersonal, and environmental or community). The intrapersonal factors for independent individual variables consisted of AA men's age, gender, race/ethnicity, education level, and employment status, annual household income variables. The interpersonal-level variable ascribed in this study was marital status (single, married, divorced, separated, and widow) variables. The third-level environment or community level of the SEM explained the independent social and control variables which included access to healthcare, family support, family history, health decision, health insurance status—specifically, access to healthcare provided via the Affordable Care Act (ACA)—and relationship with physician, medical trust, perceptions of health status, cultural influences, and religious variables. These variables were specified in the posited research questions and others were addressed in the written analysis.

Key Variables and Concepts Related to the Literature Review

The variables of intrapersonal, interpersonal, and community factors were ordinal variables, specifically for this study. These variables included age, education, income, marital status, access to care, and family support. The dependent variable in the PCS category, screen (participation status) or no-screen state (no participation), was a nominal variable. Based on levels of measurement, illustrated the independent and the dependent variables by logistic regression.

Prostate Cancer

An integral part of the male reproductive system is the prostate. It is localized underneath the bladder but precedes the rectum. Cancer of the prostate begins with the growth of abnormal cells in the prostate gland, a male-specific sexual organ. No cure exists for cancer, although a regimen of chemotherapy and/or radiation treatment can reduce the size and growth rate of tumors. With surgical intervention, cancerous tumors may be permanently removed without regrowth, contingent on the category of cancer and cancer phase, and the aggressiveness of the cancer cells (ACS, 2016; CDC, 2016).

PC continues to cause more death among AA men than men in any other racial group (CDPH, 2016; Cheng et al., 2009). According to the 2010 U.S. Census, California's population is over 38 million: about 39.4% Whites, 6.6% AA, 38.2% Hispanics; 13.9% Asians, 1.7% Native Americans and Alaskan Natives, and 0.4% Native Hawaiians and other Pacific Islanders (U.S. Census, 2010). In California, PC prevalence is highest among AA men; twice as high as among White men (American Cancer Society, 2014; CDPH, 2015; Cheng et al., 2009).

Prostate tumor growth is similar to other forms of cancerous tumors in which a mass of cells grows out of control and eventually spreads to other cells and tissues. Normal cells turn into cancer cells because of genetic defects or mutations in the DNA (Baba & Câtoi, 2007; Cooper, Yuan, Bowlin, Dennis, Kelly, Chen, & Rimm, 2000; NIH, 2007; Nnamdi, 2011). Often, damaged DNA that could lead to the formation of

cancerous cells can be detected and repaired by the cell's DNA repair mechanisms (Baba & Câtoi, 2007; Cooper, 2000; NIH, 2007; Nnamdi, 2011). However, when a cell is severely damaged and not repaired, the cancer cell may be destroyed by its own mechanism (Baba & Câtoi, 2007; Cooper, 2000; NIH, 2007; Nnamdi, 2011).

When damaged cells grow, cancer occurs, divide, and multiply aberrantly rather than undergoing self-destruction (Baba & Câtoi, 2007; Cooper, 2000; NIH, 2007; Nnamdi, 2011). Therefore, through early cancer screening tests, cancerous cells or by-products of cancerous cells can be detected before the onset of symptoms (ACS, 2016). For advanced cancerous cell symptoms, diagnostic tests can be used to diagnose cancer definitively (ACS, 2016; Baba & Câtoi, 2007; Cooper, 2000; NIH, 2007; Nnamdi, 2011).

Screening for Prostate Cancer

One of the commonly known screening options for PC is a DRE (American Society of Clinical Oncology, 2011; CDC, 2017). A DRE examination requires physical assessment of the prostate (American Society of Clinical Oncology, 2011; CDC, 2017). The test is semi-subjective because it relies on expert opinion and interpretation regarding the state of the prostate (ACS, 2016; CDC, 2017; Fedchenko & Reifenrath, 2014). A timely PCS is essential to detect and treat the disease early (ACS, 2016; CDC, 2017; Fedchenko et al., 2014). The DRE and the PSA are PCS tests that can be performed in conjunction (ACS, 2016; CDC, 2016; Lehto, Song, Stein, & Coleman-Burns, 2010).

A PSA is a histological test performed to determine the level of prostate-specific antigen or PSA proteins (ACS, 2016; CDC, 2017; Fedchenko & Reifenrath, 2014; Fedewa, Ward, Brawley, & Jemal, 2017; Scales, Antonelli, Curtis, Schulman, & Moul, 2008). Some men may have PC even though their PSA levels are less than 4ng/mL (ACS, 2016; CDC, 2017; Fedchenko & Reifenrath, 2014; Fedewa et al., 2017). Therefore, finding intermediate levels (5 to 9 ng/mL) of PSA complicates the ability to obtain an accurate diagnostic evaluation. Although it is an individual's right to choose whether to screen, awareness among AA men living in L.A. County must improve (ACS, 2016; CDC, 2017; Fedchenko & Reifenrath, 2014; Kendrick, Montgomery, & Ouattara, 2009).

Signs and Symptoms

Usually, no noticeable medical, physical, or emotional symptoms appear during the early stages of PC onset. At this first stage, no signs can be detected using any of the tests described in this dissertation. For metastasized tumors, bone pain, mostly in the lower back and pelvic bones are common symptoms (ACS, 2016). The following summarized sets of symptoms are common to individuals with advanced PC (ACS, 2016):

- Delayed urination,
- Urine leakage,
- Straining when urinating, and
- Blood in urine and semen.

General Risk Factors of PC

Aging, familial history, obesity, and genetics are typical examples of PC risk factors (ACS, 2016). Diets high in processed ingredients, known carcinogens, and industrial occupational exposures of toxic combustion products may increase the risk of PC (American Society of Clinical Oncology, 2017; Chan, Gann, & Giovannucci, 2005). Across racial groups, the lowest rate of PC is among Asian men, especially Chinese people living in Tianjin. In contrast, the highest incidence of PC occurs in Scandinavia and North America, especially among AAs living in the United States (ACS, 2016; American Society of Clinical Oncology, 2017; CDC, 2017; Gronberg, 2003).

Age: Age is a common risk factor and indicator for PC. Of men 65 years of age and older, about 97% are diagnosed with PC (ACS, 2016; American Society of Clinical Oncology, 2017; CDC, 2017). Among men 50 years or older, 60% are diagnosed with PC (ACS 2016; American Society of Clinical Oncology, 2017; CDC, 2017). In some cases, AA men developed PC at the age of 40 (ACS, 2016; CDC, 2017).

Family history. Familial history is a risk factor for PC (CDC 2016; CDPH, 2017). Men with a familial history of PC have a two- to three-fold increased risk of developing the disease (CDC 2016; CDPH, 2017; Gronberg, 2003; McDowell, Occhipinti, & Chambers, 2013). Genetic familial predisposition could account for five to ten percent of PCs (CDC 2016; CDPH, 2017; Colloca & Venturino, 2011). For instance, BRCA2 mutation and Lynch syndrome are inherited conditions connected to PC risk

(ACS, 2016; American Society of Clinical Oncology, 2017; CDC, 2017). Individuals with a familial history of PC may have genetic susceptibility to the disease, and exposure to common environmental or other risk factors could produce adverse health outcomes (Gronberg, 2003; McDowell et al., 2013; Zeigler-Johnson et al., 2008).

Diet. Vitamin D is a protective factor against PC (NIH, 2013; Woo, Choo, Jamieson, Chander, & Vieth, 2005). Protective factors reduce the risk of developing PC (Gann, 2002; NIH, 2013). For instance, high intake of Vitamin D reduces the level of PSA in men whose PC has spread to a new area (NIH, 2013; Woo et al., 2005). Bunker et al. (2002) explored the difference in diet between Asian Indians, Trinidadians, and AA men and their link to PC. The researchers suggested that regular consumption of tomato was a protective factor against PC (Clarke, 2017; NIH, 2013; Wiseman, 2014).

In contrast, high intake of milk, dairy, calcium, saturated fat, zinc, and heterocyclic amines are risk factors (Chan et al., 2005; Clarke, 2017; NIH, 2013; Wiseman, 2014; K. Wu, Hu, Willett, & Giovannucci, 2006). Other common risk factors are excessive alcohol use, a high fat diet, and exposure to cadmium or Agent Orange (American Society of Clinical Oncology, 2011; ACS, 2016; Hori, Butler, & McLoughlin, 2011). However, the link between diet and PC incidence, progression, and survival is not definitive for many of the nutritional risk or protective factors because the chances of acquiring PC are multi-faceted (Chan et al., 2005; Masko, Allott, & Freedland, 2013).

Obesity. Obesity is a risk factor for many health outcomes and the condition of other disease predictors such as diabetes. Obesity links to PC and an increased risk of death (ACS, 2016; Gallagher & LeRoith, 2015; Pi-Sunyer, 2009). Some studies found a link between obesity and cancer. Also, obesity aligns with a decreased risk for low-grade PC (Gallagher & LeRoith, 2015; Hsing, Sakoda, & Chua, 2007; Pi-Sunyer, 2009; Vidal et al., 2014). In contrast, obesity increases the risk of high-grade PC (Hsing et al., 2007; Vidal et al., 2014).

Side Effects of Treatment

Healthcare providers recommend specific types of treatment, based on the stage of cancer (ACS, 2016; Grunfeld & Earle, 2010). Standard treatments for PC include active interceptive surveillance such as hormone therapy, chemotherapy, radical treatment, brachytherapy, robotic-assisted prostatectomy, proton-beam radiation, and radical prostatectomy surgery (ACS, 2016; Jayadevappa et al., 2017). All available treatment options have side effects that could affect a patient's quality of life (ACS, 2016; Jayadevappa et al., 2017; National Cancer Institute, 2012). Problems with sexual function is a risk common to many of the specified treatments for PC (ACS, 2016; Jayadevappa et al., 2017; National Cancer Institute, 2012; Thor et al., 2015). Among AA men, 60% were concerned about or are afraid of impotence following PC treatment (Kalsbeek, Chan, Corcoran, Hovens, & Hayes, 2017; Parchment, 2004; Thor et al., 2015).

Prostate Cancer Prevention

In early detection of PC, before the onset of clinical symptoms, the disease can be prevented, delayed, controlled, and perhaps treated. The current screening guidelines for men aged 50 and older state that men should have sufficient information about PC to make an informed decision on screening participation or non-participation (Allen et al., 2011; R. A. Jones, Steeves, & Williams, 2009). All AA men, and especially those with a family history of PC, should have a dialogue with their doctor about the disease by 45 years of age. Men at higher risk should have a discussion about the condition with their healthcare provider at the age of 40 (Costanza et al., 2011). Participation in health screening should be voluntarily, and the participant must authorize such service before it is performed (ACS, 2016; Kendrick et al., 2009; Plowden, 2006).

The pivotal barrier to optimal healthcare services among AA men is the lack of or insufficient health insurance (Niu, Roche, Pawlish, & Henry, 2013; Williams & Jackson, 2005; Woods et al., 2004). A late-stage cancer diagnosis can be extraordinarily costly and stressful (ACS, 2016). Uninsured and underinsured individuals may receive a diagnosis of cancer at an advanced phase (ACS, 2016; Kirby & Kaneda, 2010; Niu et al., 2013; Polite et al., 2014). The ACA helped improve access to healthcare systems by substantially reducing the number of uninsured individuals (ACS, 2014; Kocher & Adashi, 2011). With the ACA in place, insurance companies may not deny coverage due to preexisting medical conditions (Karpman, Long, & Zuckerman, 2016; Kocher &

Adashi, 2011; Uberoi, Finegold, & Gee, 2016). The introduction of the ACA created a health insurance marketplace in which healthcare options are readily accessible and affordable (Karpman et al., 2016; Kocher & Adashi, 2011; Sommers, Chua, Kenney, Long, & McMorrow, 2015; Uberoi et al., 2016). The ACA promised to guarantee healthcare access for everyone in the U.S., but inherent issues in the quality of care or relationship between providers and AAs are still of great concern (Chen et al., 2016; Clemans-Cope, Kenney, & Buettgens, 2012; Long et al., 2015; McMorrow et al., 2015; Sealy-Jefferson, Vickers, Elam, & Wilson, 2015; Sommers et al., 2015).

Health Disparities in African American Men

Health disparities adversely affect people who have steadily experienced greater differences in the health status due to their race or ethnicity and other discriminatory or exclusionary characteristics (Aizer et al., 2014; Braveman et al., 2011; Brondolo, Brady, Pencille, Beatty, & Contrada, 2009). Among AA men, healthcare inequality is a factor mitigating willingness to participate in PCS (Jones et al., 2009; Muliira, Al-Saidi, & Al-Yahyai, 2017; Oliver, 2007). Such impediments are linked to perceived lack of self-efficacy due to the implicit and explicit social or institutional constructs that promote healthcare discrimination (Muliira et al., 2017; Oliver, 2007). Societal recognition of the self-worth of AA men is an important motivational aspect of their humanity (Daher, 2012; Dale, Bilir, Han, & Meltzer, 2005; Odedina et al., 2008; Oliver, 2007).

Social inequities in any environment, SES, and medical care status are factors influencing racially driven health disparities (Williams & Jackson, 2005; Williams, Mohammed, Leavell, & Collins, 2010). Although death from PC has declined among Whites, it has increased markedly among AA men (ACS, 2016; NIH, 2016; Platz, Rimm, Willett, Kantoff, & Giovannucci, 2000; Williams & Jackson, 2005). AAs often receive care from underserved healthcare systems and overworked providers (ACS, 2016; Hudson et al., 2014; Williams & Jackson, 2005). AAs have limited access to appropriate follow-up and rehabilitation services and health insurance coverage (ACS, 2016; Hudson et al., 2014; D. R. Williams & Jackson, 2005).

In addition to fears of sexual dysfunction, psychosocial issues influence access to alternative PC among AA men (James et al., 2017; Woods, Montgomery, & Herring, 2004). According to Healthy People 2020, health disparities disproportionately link to economic, social, and environmental disadvantages against AAs (Adeloye et al., 2016). Many barriers prevent AAs from receiving regular healthcare services (Mitchell, 2011). AA men can improve their use of cancer care if obstacles are addressed (Mitchell, 2011; Wray et al., 2009). This section will discuss various ways that AAs differ from patients of other ethnicities that could play a role in the development of PC or the participation in PCS.

Physician-patient relationship. A respectful and trusting relationship between healthcare providers and patients is an essential interpersonal quality in medical practice

and healthcare service processes (R. A. Jones, Steeves & Williams, 2010; Tucker, Marsiske, Rice, Jones & Herman, 2011). Respect and trust are critical interpersonal qualities evaluated at the point of care by many AA men seeking information about their health status and services (Ashton et al., 2003; Tucker et al., 2011). In a study, AA men identified good rapport, sincerity, and patient-caring quality as establishing meaningful trust and mutual respect between them and healthcare providers or healthcare systems (Ashton et al., 2003; Tucker et al., 2011).

AA men is the most disconnected group in healthcare systems compared to women or individuals in other racial or ethnic groups (Elder et al., 2014). Engagement and a healthy relationship between AA men and healthcare providers should rely on building trust and respect (Crowley, 2010; Elder et al., 2014). Most men feel the need to be respected and when such attribute is achieved will engage in a meaningful discussion about their health in environment settings that protect their rights and integrity (Ashton et al., 2003; Kendrick et al., 2009; Tucker et al., 2011).

Improving health literacy and culturally sensitive messages or cultural competency could enhance the value of life, and conceivably, decrease health inequalities (Parchment, 2004). Overall, substantial monetary and non-monetary benefits that could be achieved through improved or strengthened healthy patient-provider relationships (Ashton et al., 2003; Tucker et al., 2011).

Medical mistrust. Beyond disparities in health insurance and healthcare access, medical mistrust complicates the relationship between AA men and providers (Arnett, Thorpe, Gaskin, Bowie, & LaVeist, 2016; LaVeist, Isaac, & Williams, 2009; Underhill et al., 2015). Medical mistrust is an inherent healthcare barrier, regardless of the race, ethnicity, or SES of any group or individual (Arnett et al., 2016; LaVeist et al., 2009; Underhill et al., 2015). The Tuskegee experiment, involving the U.S. government, was an intentional and orchestrated exposure of AAs to syphilis without their informed consent or knowledge of the study. The Tuskegee experiment was one of many unethical and inhumane cases of medical malpractice experienced by AAs in the U.S. (Allen et al., 2007; Behrman, 2004; CDC, 2009; Jones, 1992; Scharff et al., 2010). At present, AAs' experience with the Tuskegee experiment continues to be a destructive force that prevents or delays any attempt to build perceived social, medical, political, or economic issues among AAs (Allen et al., 2007; Behrman, 2004; CDC, 2009; Freimuth et al., 2001; Jones, 1992; Scharff et al., 2010).

The benefits of social support. In the U.S., AAs, particularly men, experience psychosocial and psychological struggle for acceptance (APA, 2016; Badr & Taylor, 2009; Cranford, 2004; Franklin & Boyd-Franklin, 2000). Many AAs experience persistent racism, and as a result of centuries of discrimination and exploitation, their ability to cope with social and health issues is undermined (APA, 2016; Badr & Taylor, 2009). Invisibility syndrome is an expression used to explain the perceived effects of

injustices against AAs who maintain jaded outlooks about their conditions or address chronic societal indignation regarding their social environment (Dowden, Decuir Gunby, Warren, & Boston, 2014; Franklin & Boyd-Franklin, 2000; Roberts, 2011). The phrase describes an individual's feeling of being invisible and irrelevant to the dominant society (Dowden et al., 2014). In contrast, among AAs and in AA communities, feelings of invisibility are substantial because of shared social burden and emotional intelligence about sociopolitical issues that affect the group as a unit (Dowden et al., 2014).

SES, health status, and social support can be conceptualized in two ways (Cohen & Wills, 1985): social support as the main effect, or as a model of stress and buffering (Cheng et al., 2009; Cohen & Wills, 1985). In other words, social support is the main effect through which aid could positively link to mental state and physical well-being (Cohen & Wills, 1985; Sanderson et al., 2006). From the central-effect perspective, involvement in social networks could be beneficial in avoiding negative experiences such as physical or psychological illness (Cheng et al., 2009; Cohen & Wills, 1985). Social networks may assure predictability and stability and have a positive effect on one's ability to adapt to challenges (Bao et al., 2007; Du, Fang, & Meyer, 2008).

The stress-buffering model suggests that social support could diminish, prevent, or delay adverse effects of stress (Bennett et al., 2004; Blanc-Lapierre, Rousseau, & Parent, 2017; Bowen et al., 2014; Cranford, 2004). For example, family support may reduce, prevent, or delay the onset of psychological or physical illness (Bloom, Stewart,

Girvan, Banks, & Chang, 2006). Many sources can provide social support such as intimate/romantic partners, friends, family members, clergy, organizations, and coworkers (Bloom et al., 2006; Coker, Sanderson, Ellison, & Fadden, 2006).

Family and friends play a crucial role in PCS among AA men, influencing their decision-making processes (Enaworu & Khutan, 2016; R. A. Jones et al., 2010; Toles, 2008). Family in this context is not limited to only individuals with bloodline ties (Enaworu et al., 2016). Church members and community persons could be a branch of family, depending on the attached relationship and shared values (Colloca, & Venturino, 2011; Enaworu et al., 2016; Strong, DeVault, & Cohen, 2010). Social systems such as cultural outlook, health policy, and views on sexuality in a social environment influence decision-making processes and shape lifestyle behaviors (Rao, Gopalakrishnan, Kuruvilla, & Jacob, 2012).

Marital status and spousal support influence the health-seeking behaviors of AA men. Unfortunately, research has shown that AAs have lower marital quality than their White counterparts (Birmingham et al., 2015; Broman, 2005). Higher rates of married men participate in PCS, apparently due to the role of the spouse in PCS (Volk et al., 2004). In a study, about 88% of married AA men were likely to participate in PCS (Drake et al., 2010). In another study, the highest percentage or proportion of AA who did not join in PCS were unmarried men (Haque et al., 2009). Data collected by McFall and Davila (2008) and the outcome report by Haque et al. (2009) showed that PCS

participation correlates to marriage status. For most adults, marriage is a form of relationship that provides beneficial health impacts (Robles & Kiecolt-Glaser, 2003; Wilson, 2014).

The role of women or wives is a critical and fundamental source of support and encouragement to AA men regarding household issues and particularly PCS care (Jones et al., 2010; Wilson, 2014). The nature of the quality of the marital relationship seems to influence health status and quality of life of an individual (Robles & Kiecolt-Glaser, 2003; Wilson, 2014). Although marriage may be beneficial to health, troubled marriages may have adverse health consequences (Robles & Kiecolt-Glaser, 2003; Wilson, 2014). Marital strain is a chronic social stressor with severe health burdens that include risk for cardiovascular, endocrine, and immune diseases (Bevans & Sternberg, 2012; Robles & Kiecolt-Glaser, 2003; Wilson, 2014). Such strain also links to economic burden (Robles & Kiecolt-Glaser, 2003)

The monetary and non-monetary burdens associated with PCS or diagnosis weigh heavily on not just a man, but his spouse (Harden, Northouse, & Pienta 2002). The healthcare assistance advanced through a social system by a spouse to their partner plays a beneficial role in PCS and management care (Queenan, Feldman-Stewart, Brundage, & Groome, 2010; Wilt & Ahmed, 2013). Spouses play an active role in their partners' illness as the immediate source of support in seeking care and as a communication conduit between their partners and providers (Enaworu et al., 2016; Reinhard, Given,

Huhtula, & Bemis, 2008; Wilt & Ahmed, 2013). Harden et al. (2002) explored the benefit of spouses as caregivers in addressing cancer outcomes. Heterosexual couples indicated themes such as uncertainty, treatment effects (adverse or positive impact), coping with change, and the need for help or support as key concerns of their experience with cancer (Reblin et al., 2016).

Cultural influences. Cultural values influence health behaviors. Cultural values embed in people's lives and medical and public health practices. Specifically, culture affects the sociocultural and ethnic inequality perspectives on PCS, detection, treatment, and death incidence (Odedina et al., 2011; Woods et al., 2004). Shared cultural beliefs about the health condition or disease among a racial group or community of people play a vital role in preventative measures such as perceptions of screening behaviors for that disease (Conway et al., 2015; Machiori, Patch, & Metcalfe, 2018; Mulugeta, 2014).

Religion and health. A religious institution is often a community-based tool for a directed intervention in health promotion and education measures (Lumpkins, Greiner, Daley, Mabachi, & Neuhaus, 2013; Wilson, 2014). Rigorous research should explore the extent to which and by what means religious factors influence health (Miller & Thoresen, 2003). In a study, AAs, as compared to White respondents, scored higher on each dimension of religiosity (Ferraro & Koch, 1994). AAs turn to religion more frequently when experiencing health problems than Whites (Ferraro & Koch, 1994). Among AAs,

engagement with religious beliefs is a critical coping mechanism (Ferraro & Koch, 1994; Lumpkins et al., 2013; Wilson, 2014).

Some researchers have asserted that religious practice aligns with better health among AA adults, but not among White adults (Miller & Thoresen, 2003). Religious traditions include prayer, reading spiritual literature, and attending religious events (Husaini et al., 2008; Miller & Thoresen, 2003; Wilson, 2014). Religious institutions in AA communities provide mediating effects on health status (Miller & Thoresen, 2003) because the church is one of the social institutions from which AA communities receive social support (Husaini et al., 2008; Miller & Thoresen, 2003; Wilson, 2014). The multi-dimensional nature of religious involvement in health outcomes and status should be appreciated and future studies are needed to examine the variability among groups to understand how differences affect the meaning and significance of religious factors on health outcomes (Chatters, 2000). The church is a means of receiving equitable treatment and therefore, gaining a better understanding of the correlation between religion and health (Blocker et al., 2006; Husaini et al., 2008; Wilson, 2014). Thus, exploring further evidence-based inquiry on this issue could provide insight on how to mediate health disparities and prevent adverse health outcomes among AA communities (Arcaya, Arcaya, & Subramanian, 2015).

Education and income. In research studies, schooling is often a salient factor because education provides access to knowledge, communication, and quality of life in

health activities, and PC knowledge, in particular, has been promoted across all groups of men (Fox et al., 2017; Owens et al., 2015; Pedersen, Armes, & Ream, 2012). However, PC knowledge is particularly weak among AA men (Owens et al., 2015; Pedersen et al., 2012). Similarly, AA men's understanding of risk of PC was inaccurate (Pedersen et al., 2012). Knowledge about the location and function of the prostate among healthy AA men was minimal (Fox et al., 2017; Owens et al., 2015; Pedersen et al., 2012).

Some men were unaware prostate was a man-specific gland and unaware of the risk factors or means of screening for the disease (CDC, 2016; Fox et al., 2017; Owens et al., 2015; Pedersen et al., 2012). Many men do not object to a PCS that is provided with an accurate and meaningful explanation and rationale for the test (Allen et al., 2007; CDC, 2016; Pedersen et al., 2012; Wilt, Scardino, Carlsson, & Basch, 2014). In studies, a majority of targeted men have lower educational attainment, income, and SES (Allen et al., 2007; Carpenter et al., 2009; CDC, 2016; Pedersen et al., 2012; Wilt et al., 2014). Level of education and income status can be determinants for AA men's participation in PCS (Carpenter et al., 2009). Those men with higher income may have the opportunity to participate in PCS activities because they can afford health insurance (Chiu et al., 2005; Papatsoris & Anagnostopoulos, 2009). Higher income status aligns with more education and with PCS participation (Papatsoris & Anagnostopoulos, 2009). Therefore, increased awareness and advancement of health education on PC-related diseases among AA men,

could improve adherence to screening recommendations (Akpuaka, Clarke-Tasker, Nichols-English, Daniel, & Akpuaka, 2013; Owens et al., 2015; Pedersen et al., 2012).

Community-based institutions such as churches, barbershops, and schools were frequently mentioned as appropriate avenues for health education and health-awareness settings (Allen et al., 2007; Cowart, Brown, & Biro, 2004). Health-promotion materials featuring AA men could be helpful along with articles encouraging the inclusion of significant others in the decision-making process; these critical cultural factors are those most important to AA men (Allen et al., 2007). Most AAs also recommended and preferred peer-to-peer formats for educational interventions and culturally tailored educational programs or intervention settings (Cowart et al., 2004; Owens et al., 2015; Woods et al., 2004).

Focusing on intrapersonal, interpersonal, and environmental influences of health behaviors within the target population is driven by the need to understand the contiguous association of factors such as age, education level, income, marital status (single, married, divorced, separated, and widow), access to healthcare, and family support. Also, their effects in promoting and maintaining preventive health behaviors such as PCS. Therefore, in this study the intrapersonal variables include age, education, household income; while intrapersonal and environmental factors include marital status and access to healthcare (e.g., health providers) and family support, respectively (Abernathy et al., 2005; Blumenthal et al., 2005; Fort, 2007).

Conclusion

The incidence of, and death due to, PC among AA men in L.A. County far exceeded that of any other racial or ethnic group (Mitschke, 2012). From an ecological perspective, illness plays an integral part in human relationships, and human relationships affect an individual's or a population's response to disease (Seymour, 2016; Strong et al., 2010; Weinrich et al., 2004). In L.A. County, AA men's health is understudied, and AA men have been disadvantaged in contemporary medical institutions (Brown, Hargrove, & Griffith, 2015; CDPH, 2016). AA men are sometimes unable to make informed decisions due to their lack of knowledge or education about the symptoms and risk factors associated with PC (Allen et al., 2007; Brown et al., 2015; CDPH, 2016; Pedersen et al., 2012). This group is hardly targeted with effective PCS information (Forrester-Anderson, 2005; Weinrich, 2006; Weinrich et al., 2004). AA men may not receive necessary screening recommendations and information because some healthcare professionals lack a vital understanding of the culture and history of AAs (Allen et al., 2007). In Chapter 3 of this dissertation, I explore the methodology implemented in the research inquiry for this study.

Chapter 3: Research Methods

Introduction

In L.A. County, California, AA deaths related to PC cancer are excessive when compared with White men. AA men use healthcare services less and undergo PCS tests less than White men. The literature-review materials related to PC and screening among AA men in L.A. County presented a series of relevant contextual factors. Some relevant contextual factors pertinent to AA PCS are age, education, income, ethnicity, SES, marital status, supports, and access to healthcare, and family history.

The exploration of associations between these factors and PC helped determine why AA men do not fully participate in PCS. I adapted SEM to frame the investigation of the variables concerning AA men's PCS (see Crosby, Kegler, & DiClemente, 2002; Glanz, Marcus, & Rimer, 1997; Glanz, Rimer, & Lewis, 2002; Norman & Conner, 1996). The goal of many researchers involved in health behavior is to recognize the bases of health behaviors and the progression of health behavior changes (Campbell et al., 2007; Crosby et al., 2002; Glanz et al., 1997; McLeroy et al., 1988). This chapter sets forth the research methodology and design, as well as the research questions and data collection and analysis procedures for this study.

Research Design and Rationale

In this study, I aimed to enumerate risk factors associated with PCS among AA men residing in L.A. County, California, in order to promote their early detection and treatment. A cross-sectional design using secondary data was used to examine the research study questions.

Quantitative research is useful in exploring scientific inquiries (Nachmias & Nachmias, 2008). Usually, in a quantitative study, the sample population iscategorized into groups. Members of each group are similar, close in unique profile, and distinct from other groups by exposure and predictive variables. In some cases, quantitative research is a follow-up approach needed to quantify a qualitative study previously conducted on the same topic, and in some cases, it is the opposite (Nachmias & Nachmias, 2008).

Quantitative research could be used to quantify opinions, attitudes, and behaviors to assess a population and the correlation between a specific predictor variable and a health outcome (Nachmias & Nachmias, 2008). Researchers conduct quantitative research to collect a large amount of data that could be used for multiple purposes other than its original purpose. The quantitative method is time consuming in terms of data collection and analysis. Selection, misclassification, researchers' recall, and participants' biases are possible limitations of quantitative studies (Nachmias & Nachmias, 2008). In this study, the independent variables under investigation were SES, education, and income. The possible confounders or covariates were age and family history. The outcome variable was PCS (screened or not screened) for at-risk individuals.

One of the limitations of a cross-sectional design is the difficulty of addressing a spatiotemporal sequence of exposure and outcomes in a study (Creswell, 2009). A cross-sectional study in the absence of an experimental or quasi-experimental study can be used only for correlational research and does not identify causation. Researchers use cross-

sectional research most effectively to address the occurrence and frequency of an event or an outcome. Cross-sectional research lacks the random assignment of subjects, and thus misclassification, selection, and recall bias are possible (Creswell, 2009).

Methodology

Research Methods and Design

In this study, I used quantitative methods. Specifically, secondary data were collected and analyzed. The quantitative methodology was appropriate because the data collected were numerical and continuous, as opposed to text (which calls for qualitative methods). I also used a correlational design because my aim was to determine if there is a relationship between social-ecological factors and PCS among AA men, and if so, the strength and directions of the relationships (i.e., positive or negative correlations).

Population

The targeted population for this study was AA men residing in L.A. County. In this county, the ethnicity or racial composition of the residents are 44.0% non-Hispanic Whites, 39.2% Hispanic Americans, and 8.8% non-Hispanic AAs (CDPH, 2015). In L.A. County, geographic-information-systems analysis demonstrates that 10% of AA men are concentrated densely within a 20-mile radius (CCR, 2015; CDPH, 2015).

Sampling and Sampling Procedures

Secondary data were collected for this study. Ethnicity was a critical inclusion criterion. Only individuals identified as AA men were included in this study. Individuals

with no prior diagnosis or symptoms of PC who were at least 45 years of age were included the study. Individuals with no evidence or diagnosis of mental illness also were included. A purposeful sampling involves the selection of research participants based on the intended objectives of the study (Morse, 1991; Strauss et al., 1990). With purposeful sampling, individuals with informed experiences or those with sufficient information about the subject matter are eligible participants. Eligible participants may include individuals in various professional fields or with various job statuses. This sample consisted only of AA men. The selected men were people born in the United States who identify as AA (ACS, 2014; Cheng et al., 2009; Elder et al., 2014).

Sample Size Calculation

In this study, I used G*Power software to estimate the minimum sample size required to address the research questions. For the sample size estimation, I used 80% statistical power, 20% beta (Type II error/false negative), 95% confidence level, 5% alpha level (Type I error/false positive), 1.3 odds ratio (effect size), and *z*-test calculations. A total of 721 minimum sample sizes was used to address each research question. The overall maximum total sample sizes required for this study was about 1,442.

Archival or Secondary Data

For this study, I examined a sample of men aged 45 years and older from secondary data sources (see Kim & Seo, 2013). The inclusion criteria were AA men who

were never screened for PCS or those with abnormal test results in addition to a biopsy or cancer diagnosis. The exclusion criteria involved AA men who did not understand or speak English. The Walden University Institutional Review Board approved the study procedures before any data collection took place. Because most of the secondary data originated from the public domain, no formal request was made for participants' data collection consent access (see Woods et al., 2004).

Data Analysis Plan

I used the Statistical Package for Social Sciences (SPSS) for the specified predictor, dependent, covariate, and confounder variables. I also performed data manipulation, including missing data cases and data-entry errors. The descriptive statistics provided information on participants' characteristics and distribution (i.e., central tendencies, standard deviations, ranges, and frequencies) for each specified variable. The levels of measurement for each variable determined the type of descriptive statistics performed (central tendency, mean, standard deviation, or frequency). Variables with an interval or a ratio level of measurements were measured with initial tendency estimations. Variables with nominal or ordinal levels of measures were measured by frequencies or proportions (aligned with Kim & Seo, 2013).

The predetermined alpha value (Type I error/false positive) for this study was 5%. The insignificant premise is excluded from this study based on the predetermined alpha value if the predictable *p*-value is less than or equal to .05. In contrast, the estimated *p*-

value is higher than .05 if it fails to discard the insignificant premise. The odds ratio is a form of effect size, and it is the preferred effect size estimated by default using binary logistic regression.

The following are the research questions and hypotheses for this current study:

$H_0$1**:** No association exists between age and PCS participation rates among AA men in L.A County.

H_a1: An association exists between age and PCS participation rates among AA men in L.A County.

RQ2: Does an association exist between education and PCS participation rates among AA men in L.A. County?

$H_0$2: No association exists between education and PCS participation rates among AA men L.A County.

H_a2: An association exists between education and PCS participation rates among AA men L.A County.

RQ3: Does an association exist between income and PCS participation rates among AA men in L.A. County?

$H_0$3: No association exists between income and PCS participation rates among AA men L.A County.

H_a3: An association exists between income and PCS participation rates among AA men L.A County.

RQ4: Does an association exist between marital status and PCS participation rates among AA men in L.A. County?

$H_0$4: No association exists between marital status and PCS participation rates among AA men in L.A. County.

H_a4: An association exists between marital status and PCS participation rates among AA men in LA County.

RQQ5: Does an association exist between access to healthcare and PCS participation rates among AA men in L.A. County?

$H_0$5: No association exists between access to healthcare and PCS participation rates among AA men in L.A. County.

H_a5: An association exists between access to healthcare and PCS participation rates among AA men in L.A. County.

RQ6: Does an association exist between family support and PCS participation rates among AA men in L.A. County?

$H_0$6: No association exists between family support and PCS participation rates among AA men in L.A. County.

H_a6: An association exists between family support and PCS participation rates among AA men in L.A. County.

Measures

Criterion Variable

Records of AA men aged ≥ 45 for PCS (which includes a DRE and PSA test) from Surveillance, Epidemiology, and End Results (SEER) and California Health Interview Survey.

Predictor Variables

Data on social intrapersonal, interpersonal, and community characteristics, which included age, education, religion, marital status, family, and church support, were collected as possible modifying variables as well as to describe the sample for PCS rates among AA men.

Threats to Validity

The concept of external validity is essential to quantitative research because the research was able to demonstrate inferences made from this study. The degree to which the conclusions could be generalized was evaluated based on the external-validity integrity of the broader population, and the study content or context (Kukull & Ganguli, 2012). Also, the level of internal validity could be influenced by the study design (experimental, quasi-experimental, observational, or longitudinal) employed. For this quantitative research, the primary threat to internal validity was instrumental bias (Kukull & Ganguli, 2012).

When measurement instruments, such as a survey or questionnaire are used, instrumental bias can occur over time. Instrumentation could become a threat to internal validity when it reduces the confidence and reliability of an observation (Kukull & Ganguli, 2012). The observations made may not only be influenced by the instruments themselves but could be underestimated or overestimated due to the use of statistical tools (Kukull & Ganguli, 2012). Also, construct validity is a form of threat assessment used in evaluating the integrity of operationalized procedures (Kukull & Ganguli, 2012; Messick, 1980; Wainer & Braun, 1988).

Ethical Procedures

Participants' values and personal information must be protected. Their best interests must be the primary goal of any study. Developing trust, protecting against indiscretion and any misconduct that could expose participants to unnecessary risk must be prevented (Creswell, 2009). The basic tenets guiding human ethical studies are respect, beneficence, and justice. Approval from the Institutional Review Board (IRB) was obtained from Walden University before I started the data collection processes. The IRB approval number was 02 15 19 01772704Because secondary data were used in this study, I had no known direct contact with the participants. Based on the dictionary information and the recruitment/enrollment protocols and documents, the researcher verified the authenticity, ethics, and validity of the informed consent. The secondary data set is identified as well, so participants' information is protected.

Data Management Procedure

Data were stored in a secure computer only accessible to the researcher. Names and identifying information were not included in the data set that the researcher received. The stipulated data procedures specified in this section were followed in gathering, assessing, and corroborating the data and results. For the data to be used, they must contain the predictor and dependent variables specified in the research questions and hypotheses. The reliability and internal consistency of questionnaire responses were validated. Strategies to verify the compatibility of the observations or findings determined the accuracy of this study and possible applications to public health issues and practices. A detailed description of instruments used in this study is provided in this section. An explanation of the tools and their content, as well as their use in previous research, is included and described. Furthermore, information on the reliability of scales used to compute each of the variables for this study is described.

Summary

In this study, the intent is to explore factors influencing PCS behavior or adherence to PCS among AA men in California. The methods and procedures used to address the research questions regarding factors affecting cancer screening are relevant in understanding the low adherence rate of PCS among AA men. Factors such as age, education, and income were evaluated in this study. Family history, race, healthcare-insurance, marital status, culture, attitudes, and beliefs may affect health-seeking

behavior. In Chapter 4, the data were analyzed, and the results were interpreted in Chapter 5.

Chapter 4: Results

Introduction

Within the state of California, there is an ethnic inequality evident in PC and PCS rates (CCR, 2015; CDPH, 2017) particularly among AA men (Chen et al., 2016; Odedina et al., 2009). In comparison to other ethnic groups, AA men are more likely to have PC (ACS, 2017; CCR, 2017; CDC 2015; CDPH, 2017). To address this problem, the purpose of this study was to examine the factors that affect participation in PCS among AA me in L.A. County. Various socioeconomic factors related to PCS among AA men were examined with the goal of determining which factors are associated with PCS among this demographic group, particularly age, education, income, marital status, and access to healthcare. The six research questions formulated for this study were addressed through the statistical analysis of the archival data collected based on the California Health Interview Survey of 2009, gathered from AA men who underwent PSA screening.

Data Collection

The archival data collected were first processed to remove all entries collected from females and from non-AA males. After the data were sorted, 782 data entries remained. When the data were further sorted on age criterion (above 45 years), only 534 data entries were eligible for further processing. As part of preliminary analysis procedures, the collected data were analysed for descriptive statistics. For continuous variables such as age and income, measures of central tendency were calculated.

Descriptive Data Analysis

For this project, the main dependent variable is whether someone has ever had a prostate screening. Results revealed that 40.1% (*n* = 220) have not had a screening and 58.8% (*n* = 314) have as shown below in Table 1

Table 1

Descriptive Statistics: Ever Had a Prostate Screening

	Frequency	Percent
No	220	41.2
Yes	314	58.8

Note: *N* = 534

The data collected were analyzed with a focus on the independent variables. For education, the most common group was High School Diploma (HSD) or lower (32.3%, *n* = 162), while 16.7% (*n* = 89) had a BA/BS degree. The most common marital status was married (48.4%, *n* = 243), and 48.8% of the sample was single without kids (*n* = 245). Table 2 summarizes the independent variables.

Table 1

Frequencies for Categorical Independent Variables

		Frequency	Percent
Education	Grade 1-8	18	3.4
	Grade 9-11	39	7.3
	Grade 12/H.S. diploma	117	21.9
	Some college	109	20.4
	Vocational school	21	3.9
	AA Or AS degree	50	9.4
	BA Or BS degree	89	16.7
	Some Grad. school	8	1.5
	MA Or MS degree	62	11.6
	Ph.D. or equivalent	21	3.9
Marital status	Married	260	48.7
	Living w/partner	20	3.7
	Wid/Sep/Div	167	31.3
	Never married	87	16.3
Family support	Single adult, 21+	260	48.7
	Married, no kids	197	36.9
	Married with kids	62	11.6
	Single with kids	15	2.8

Note: $N = 534$

Further analysis was done on the interval level variables (age and income). The mean age for the sample was 61.58 years (*SD* = 10.71) with a range from 45 to 85 years, whereas the mean annual income was $61,140 (*SD* = 54,816), with a range of $ 0 to $300,000, as shown in Table 3.

Table 3

Descriptive Statistics for Continuous Independent Variables

	Mean	Std. Deviation	Minimum	Maximum
Age	61.58	10.71	45	85
Respondent's earnings last month	61,140	54,816	0	300,000

Note: *N* = 534

Testing Bivariate Relationships Research Question 1: Age and PC Screening

The first research question was formulated to determine whether there is a statistically significant association between age and PCS among AA men in L.A. County. Age was left as a continuous variable, and the Pearson's correlation was run to test the bivariate relationship. A significant correlation between age and PCS was inferred because those who had screening were older (r (534) = .303, p <.001).

Research Question 2: Education and PC Screening

The second research question was formulated to determine whether there was a statistically significant association between education and PCS among AA men in L.A.

Education was broken down into six categories as shown in Table 4. All those who had a high school diploma or less were combined into a single group.

Table 2

Frequency of Recoded Education

	Frequency	Percent
HSD or lower	174	32.6
Some college	109	20.4
Vocational school	21	3.9
AA	50	9.4
BA	89	16.7
Graduate school	91	17.0

Note: $N = 534$

To have an in-depth analysis of the education variable, a Chi Square test was run to see if there were differences between level of education and having a PC screening. As shown in Table 5, there was a significant difference, $X^2(5) = 19.45$, $p = .002$**.** Those with an AA or graduate education were the most likely to have had a screening (AA $n = 34$, 68.0%; Graduate $n = 69$, 69%) compared to other groups. These results indicated a statistically significant relationship between educational attainment and prostate screening among the AA males in the sample.

Table 3

Chi Square of Education and Ever Had a Prostate Screening

	Ever had a screening	
	No	Yes
HSD or less	87	87
	50.0%	50.0%
Some college	44	65
	40.4%	59.6%
Vocational school	10	11
	47.6%	52.4%
AA	16	34
	32.0%	68.0%
BA	41	48
	46.1%	53.9%
Graduate school	22	69
	30.1%	69.0%
X^2		19.45
Df		5
Sig		.002

Note: $N = 534$

Research Question 3: Income and PC Screening

The third research question was formulated to determine whether there is a statistically significant association between work status and PC screening among AA men in L.A. County. For the purposes of this project, income was broken into four categories:

- $23,000 – this is the federal poverty level;
- $23,001 - $48,000 - 48K is U.S. median income;
- $48,001 to $100,000 – is where the census bureau defines the upper limit of the middle class;
- 100,001 and up the U.S. census bureau defines as upper class for the year of the data collection.

Table 6 shows the frequencies of AA men in difference categories of income who have had a PC screening.

Table 4

Frequency of Recoded Income

	Frequency	Percent
Low (23K or less)	149	27.9
Low middle (23K-48K)	128	24.0
High middle (487K-100K)	170	31.8
Upper (100K+)	87	16.3

Note: $N = 534$

To determine if there were differences between the different income groups, a Chi Square was run. A significant difference, $X^2(3) = 19.00$, $p < .001$, was identified. This means that as the income level increases, AA men are more likely to have a screening, with those over 100K having the highest level ($n = 60$, 69.0%). The Chi Square analysis

is shown in Table 7. These results indicate that there is a statistically significant relationship between income level and prostate screening among the AA males in the sample.

Table 5

Chi Square of Income and Ever Had a Prostate Screening

	Ever Had a screening	
	No	Yes
Low (23k or less)	82	67
	55.0%	45.0%
Low middle (23K-48K)	53	75
	41.4%	58.6%
High middle (487K-100K)	58	112
	34.1%	65.9%
Upper (100K+)	27	60
	31.0%	69.0%
X^2		19.004
Df		3
Sig		$P < 0.001$

Note: $N = 534$

Research Question 4: **Marital Status and PC Screening**

The fourth research question was formulated to determine whether there is a statistically significant association between marital status and PCS among AA men in L.A. County. Marital status variable was categorized into a dichotomous variable; married or in a relationship versus all others. A Chi Square was the most appropriate tool for analysis of marital status variable. Analysis showed a significant difference, $X^2(3) = 19.00$, $p < .001$. Those who were married or in a relationship were more likely to have

had screening (n=182, 65%) than those who were not (n=132, 52%) as displayed in Table 8. These results indicate that there is a statistically significant relationship between the marital status and prostate screening among the AA males in the sample.

Table 6: Chi Square of Marital Status with Ever had a Prostate Screening

	Ever had a screening	
	No	Yes
Other	122	132
	48.0%	52.0%
Married/In relationship	98	182
	35.0%	65.0%
X^2		9.34
Df		1
Sig		.002

Note: $N = 534$

Research Question 5: Access to Health Care and PC Screening

The fifth research question was formulated to determine whether there is a statistically significant association between access to healthcare and PCS among AA men in L.A. County. A chi square was run to test whether access to health care was related to ever had a screening. There was a significant difference, X^2 (1) = 15.55, p<.001. Those with insurance for the last 12 months were much more likely to have ever had a screening (61.3%) compared to those who had not (31.1%) and this well-illustrated Table 9 below.

These results indicate that there is a statistically significant relationship between access to healthcare and prostate screening among the AA males in the sample.

Table 7

Chi Square of Insured for the Last 12 Months with Ever Had a Prostate Screening

	Ever had a screening	
	No	Yes
No	31	14
	68.9%	31.1%
Yes	189	300
	38.7%	61.3%
X^2		15.55
Df		1
Sig		p<.001

Note: $N = 534$

Research Question 6: Family Support and PC Screening

The sixth research question was formulated to determine whether there is a statistically significant association between family support and PCS among AA men in L.A. County. A Chi Square was run to see if there were differences between types of family support. There was a significant difference, X^2 (3) = 19.925, p<.001. Those who were married with no kids had the highest level of screening (71.1%), while those who were single with no kids had the lowest (46.7%) as shown in Table 10. Since there were significant differences in the family support variable, it was broken into 3 categorical

sub-variables: Married with kids, Married no kids, and Single with kids, with Single no kids as the control group for the regression analysis.

Table 8

Chi Square of Family Type with Ever Had a PC Screening

	Ever had a screening	
	No	Yes
Single Adult, 21+	123	137
	47.3%	52.7%
Married, no kids	57	140
	28.9%	71.1%
Married with kids	32	30
	51.6%	48.4%
Single with Kids	8	7
	53.3%	46.7%
X^2		19.925
Df		3
Sig		$p<.001$

Note: $N = 534$

Stepwise Logistic Regression

A stepwise logistic regression was run with the significant variables from the bivariate analysis. The assumptions of logistic regression were met. The DV was binary and categorical. The observations are independent of each other as each person in the data is not related to each other in some way. A sample size of over 500 was large enough to run a stepwise logistic regression.

A backwards Wald method was used for the stepwise to determine what is the best model to predict ever had a screening. It took 6 iterations in order to find the optimal

model, with X^2 (5) = 83.79, p <.001. Nagelkerke R Square = .196, thus the model accounted for 19.6% of the variance in screenings. Age, education, and income were the predictors that remained after the stepwise process. Age was a significant predictor of getting screening (B=.007, Wald = 52.70, p<.001, Exp(B) = 1.07). For each year you increase the odds by 7% of ever had a screening. Education was a significant predictor of getting a screening (B=.106, Wald = 1.11, p=.043, Exp(B) = 1.112). For every level of education, you complete you increase the odds of having a screening by 11.2%.

Income was treated as a categorical variable. Both the lowest income level (under 23K annually) and 23-48K annually were negatively related to ever having a screening. For under 23K, B=-1.22, Wald = 14.48, p<.001, Exp(B) = .448. Having an annual income under 23K decreased the odds of having a screening by 55.2% compared to those making over 100K annually. For 23-48K annually B=-.802, Wald = 6.084, p=.014, Exp(B) = .703. Having an annual income between 23 and 48K annually decreased the odds of you having ever had a screening by 29.7% compared to those making over 100L annually. 48-100K was not a significant predictor of screenings compared to those over 100K. The analysis of the stepwise logistic regression is summarized in Table 11.

Table 9

Stepwise Logistic Regression for Ever Had a Screening

	B	S.E.	Exp(B)	Sig.	95% C.I. for EXP(B)	
					Lower	Upper

Age	0.07	0.01	1.07	0.000	1.054	1.095
Education	0.11	0.05	1.11	0.043	1.003	1.233
Income				0.000		
Income 23K and less	-1.22	0.32	0.30	0.000	0.159	0.555
Income 23-48 K	-0.80	0.33	0.45	0.014	0.237	0.848
Income 48-100K	-0.35	0.30	0.70	0.240	0.390	1.266
Constant	-3.69	0.64	0.03	0.000		

Note: $N = 534$

Interaction Variable Creation

Six interaction variables were created; 3 combined age with married with children, married without children, and single with children and 3 combined education with married with children, married without children, and single with children. In order to test these interaction effects, a stepwise logistic regression was run. The model was a significant predictor of screenings, $X^2(3) = 73.56$, $p<.001$. Nagelkerke R^2 showed that the model accounted for approximately 17.3% of the variance in being screened. In the final model, age, education and the interaction between age and married with no kids were significant. Age remained a significant predictor of screening (B=.06, Wald=39.90, $p <$ .001 Exp (B) = 1.06). For every year you increase in age, you increase the odds of being screened by 6%. Education also remained a significant predictor of screening (B=.171, Wald=11.88, p = .001 Exp (B) = 1.187). For every level of education, you increase the odds of being screened by 18.7%. The interaction of age with being married without kids

was a significant predictor of screening (*B*=.010, Wald=8.51, *p* = .004 Exp (*B*) = 1.003). This is shown in Table 12.

Table 10

Stepwise Regression of Interaction Terms on ever had a Screening

	B	S.E.	Exp(B)	Sig.	95% C.I. EXP(B)	
					Lower	Upper
Age	0.06	0.01	1.06	0.000	1.040	1.080
Education	0.17	0.05	1.19	0.001	1.077	1.308
Age * Married no kids	0.01	0.00	1.01	0.004	1.003	1.016
Constant	-3.89	0.62	0.02	0.000		
X^2			73.56	.000		
Df			3			
Nagelkerke R^2			.173			

Note: *N*= 534

Summary

In the state of California, AA men were found to be more likely to have PC. In line with this assertion, the purpose of this study was to examine the factors that affect participation in PCS among AA men in L.A. County. To achieve this purpose, archival data collected using the California Health Interview Survey of 2009 were used, particularly data collected from AA men who have undergone PSA screening. An

examination of the data indicated that among the AA males included in the sample, differences in PCS status and history are significantly associated with age, working status, education, marital status, access to healthcare, and family support. After a stepwise logistic regression was run on the six variables, only age, education, and income remained as significant predictors of PC screening. Interaction variables that combined age and education with types of family support types were created. Both age and education remained significant predictors of PC screening as did age when combined with married with no kids' family support type. These results are discussed in the next chapter of this study in relation to existing literature. The conclusions, implications, and recommendations from the study are also discussed.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

Over 50% of AA men are more likely to be diagnosed with PC than any other racial and ethnic group. The rate of occurrence in this racial group is 45% higher than the White group, 58% higher than the Hispanic group, and 94% higher than the Asian/Pacific Islander group (Adeloye et al.,2016; CDPH, 2015; Hoffman et al., 2001; Hudson et al, 2014). The mortality rate for PC is 272 per 100,000 AA men, which is considerably higher than the 169 per 100,000 for White men, thereby indicating the existence of a public health issue for this demographic (ACS, 2007). PC was listed as the second most detected cancer among men in California in 2014, with a mortality rate of one in 38 (CDC, 2014, 2015). On top of that, AA men have a shorter survival rate and the greatest number of PC-related deaths (ACS, 2009; Jones et al., 2007).

However, men are not without recourse within the battle against PC. Early detection and removal greatly reduce the mortality rate, especially when AA men are screened by the age of 45 (ACS, 2005; CDC, 2008). Yet with these positive statistics, AA men continue to have a reduced rate of PCS. Public health efforts to increase screening rates among AA men have fallen short (Wu & Modlin, 2012). Age, African heritage, family history, and hereditary conditions can all be linked to the high rates of PC among AA men (CDPH, 2015; Toles, 2008; Weinrich, 2006). However, these are not the only variables that could be influencing PCS rates among AA men in California. Education,

income, marital status, access to care, and family support may also increase or decrease screening rates.

In the state of California, it was observed that AA males have higher rates of PC as compared to men of other ethnicities (ACS, 2017; CDPH, 2015). AA men are 50% more prone to developing PC than men from other racial or ethnic groups (Adeloye et al., 2016; CDPH, 2015; Hoffman et al., 2001; Hudson et al., 2014). However, while the mortality and risk disparities of PC in AA men in comparison to other racial groups is a public health concern (Chen et al., 2016; Odedina et al., 2009), there is a paucity of research on the factors that are associated with PCS rates among AA men (NIH, 2009; Plowden, 2003, 2006; Reynolds, 2008; Wu & Modlin, 2012). Therefore, in this study, I aimed to fill this research gap by investigating the factors associated with PCS rates and AA men in L.A. County, California. Specifically, I examined if, and to what extent, the following variables are correlated with PCS participation rates: age, education, income, marital status, access to care, and family support.

The purpose of this quantitative research study was to examine the factors that affect AA men's participation in PCS in L.A. County. This is important because while a significant racial disparity exists in PC incidence among AA men in California and the United States (National Institutes of Health, 2015), there is very little data on the factors that are associated with PCS among AA men. Despite the lack of consensus on established guidelines for PCS, AA men are at a higher risk of acquiring and dying from

PC (Atulomah et al., 2010; CCR, 2015; CDPH, 2014, 2015; Drake et al., 2010; Haque et al., 2009). Previous researchers have demonstrated conflicting results regarding the associations between PCS and men from various racial/ethnic backgrounds (Haque et al., 2009). In this study, I further explored factors significantly associated with participation in PCS or adhering to the recommended screening method (see ACS, 2017; CDPH, 2017; Wu & Modlin, 2012), particularly among AA men. The variables of focus for the current study included age, education, income, marital status, access to care, and family support, and the study was guided by the SEM to investigate the influence of socioeconomic factors on AA men's PCS participation rates (see ACS, 2017; Cheng et al., 2009; Taylor et al., 2006; Wilt et al., 2001; Wu & Modlin, 2012).

To address this problem, six research questions were posed along with corresponding hypotheses. RQ1 was as follows: Does an association exist between age and PCS participation rates among AA men in L.A. County? RQ2 asked if an association exists between education and PCS participation rates among AA men in L.A. County. RQ3 inquired if an association exists between income and PCS participation rates among AA men in L.A. County. RQ4 was as follows: Does an association exist between marital status and PCS participation rates among AA men in L.A. County? In RQQ5, I examined whether an association exists between access to healthcare and PCS participation rates among AA men in L.A. County. Lastly, IN RQ6, I investigated if an association exists between family support and PCS participation rates among AA men in L.A. County.

To seek answers to these research questions, I devised a quantitative studyusing a correlational design. Quantitative research was selected because it is useful in exploring scientific inquiries (see Nachmias & Nachmias, 2008). When applying a quantitative method, the sample population is placed into groups that are similar and distinct from others. Quantitative research can quantify opinions, attitudes, and behaviors in order to assess the population and the correlation between a variable and a particular outcome (Nachmias & Nachmias, 2008). Quantitative research was appropriate because the data collected were numerical and continuous as opposed to text. Data were collected from the California Health Interview Survey and LA Cancer Surveillance Program- Los Angeles SEER registry. These data followed Creswell's (2009) recommendation that secondary data collected by an outside organization or individual should be used.

The results of this study uncovered that AA men were more likely to have PC in L.A. County, California. AA men at the age of 18 had a PC diagnosis rate of 2.3%, while AA men above the age of 40 had a 58% chance of never having underwent a PCS. AA men who had undergone a specific screening had their PCS as a part of a routine medical examination and use private insurance and/or Medicare to pay for it. Lastly, men who were married had the highest rate PCS participation.

Interpretation of the Findings

In this section, I examine the uncovered results of the study in the context of the literature review and the theoretical framework, when applicable. The literature from

Chapter 2 provided further insights into the findings of this study, while the theoretical framework helped to interpret the results. The lack of contextual data creates new avenues for future research.

RQ1: Does an association exist between age and PCS participation rates among AA men in L.A. County? Using data collected from the L.A. SEER registry on AA males who have undergone PCS, I uncovered that the largest groups were aged between 60 to 64 years (21%). AA males aged between 55 to 59 years made up 20.9% of the population, and the third largest group was males aged between 50 to 54 years (17.2%), with remaining age groups making up the difference. Upon statistical analysis, the results indicated that there was a statistically significant relationship between age and PCS within the sample. The literature supported that age was an important variable as a risk factor for PC. The literature stated that men 65 years of age in order have a 97% chance of being diagnosed with PC (ACS, 2016; American Society of Clinical Oncology, 2017; CDC, 2017). Men 50 years or older also had a 60% percent chance, and AA men were shown to be diagnosed at a high rate as early as the age of 40 (ACS, 2016; CDC, 2017). Age was a significant predictor because as age increases the chances of screening increases by 6%. All these statistics indicate that age is one of the strongest variables for predicting of PC and PSA screening. The SEM would agree with the literature in that age is an intrapersonal factor that can affect healthcare outcomes; therefore, targeting age in health outreach would be beneficial for future campaigns.

RQ2: Does an association exist between education and PCS participation rates among AA men in L.A. County? Upon statistical analysis, the results indicated a statistical relationship between educational attainment and prostate screening. Education was also a significant predictor of screenings; as the odds of having a screening increased by about 1.2%. Research participants with an AA or graduate education were the most likely to have had a screening (AA = 68.0%; Graduate 69%) compared to other education levels. The literature in Chapter 2 revealed that education provides access to knowledge, communication, and quality of life for PC awareness among all groups of men, regardless of race and ethnicity. Aligning with other statistics, AA men have the least amount of knowledge between PC and PCS (Fox et al., 2017; Owens et al., 2015; Pedersen et al., 2012). The lack of knowledge can be unawareness, yet when enlightened on PC, they are more aware of the benefits of PCS (Allen et al., 2007; CDC, 2016; Pedersen et al., 2012; Wilt et al., 2014). The literature noted that one way to improve PC education was to encourage churches, barbershops, and schools to disseminate information on PCS as they can offer safe settings in which AA men may increase their health awareness (Cowart et al., 2004). Allen et al. (2007) noted that when health promotion materials feature AA men, that group is more likely to adhere to those recommendations. AA men also prefer peer-to-peer formats for educational interventions that are tailored to their culture and race (Cowart et al., 2004; Owens et al., 2015; Woods et al., 2004). The literature indicated that education should be increased for lower income communities to influence

PC awareness. The SEM classifies educational attainment as an intrapersonal attribute along with age. Therefore, any future outreach program should also focus on educational status in order to help reach those who require increased information on PC.

RQ3: Does an association exist between income and PCS participation rates among AA men in L.A. County? Quantitative analysis demonstrated that there was a statistically significant relationship between income and PCS. Income increased the odds of screening, with those with income levels of more than 100K having a screening level of 69%. The literature provided more insights into the variable. Scholars stated that there is a direct correlation between income, PC education, and PCS participation (Carpenter et al., 2009). A higher income bracket enables better health insurance and more education. Higher education increases awareness on PC-related diseases among AA men, making them more likely to adhere to medical advice (Akpuaka et al., 2009; Owens et al., 2015; Papatsoris & Anagnostopoulos, 2009; Pedersen et al., 2012). Like the previous two variables, the SEM once again provides evidence that intrapersonal factors are important when conducting outreach and awareness.

RQ4: Does an association exist between marital status and PCS participation rates among AA men in L.A. County? The results of the study indicated that there was a statistically significant relationship between marital status and PCS, while the secondary data found that 52.3% of AA males who undergone PCS were married and 29% were single. The study findings indicated that married people or those in relationships were

more likely to have had a PC screening (65%) than those who were not (52%). Despite these positive numbers for marital status, the literature found that AA males generally have a lower quality of marriage than their white counterparts (Birmingham et al., 2015; Broman, 2005). Yet the importance of marital status cannot be discounted. The role of the spouse strongly influenced whether an individual underwent screening (Volk et al., 2004). Drake et al. (2010) found that 88% of married men were likely to participate in PCS and Haque et al. (2009) supported this assertion by finding the highest percentage of AA men who did not join in PCS were single. Scholars link PCS with improved health benefits as marital partners stay focused on medical issues (Robles & Kiecolt-Glaser, 2003; Wilson, 2014). Wives encourage AA men to participate in PCS (Jones, Steeves & Williams, 2010; Wilson, 2014). Conversely, if there are marital difficulties, there will be coincident problematic health issues such as cardiovascular, endocrine, and immune diseases in addition to economic burdens (Bevans & Sternberg, 2012; Robles & Kiecolt-Glaser, 2003; Wilson, 2014). While monetary burdens affect both the AA man and his partner, spouses still encourage their partner to seek medical treatment from professionals (Enaworu & Khutan, 2016; Reinhard, Given, Huhtula, & Bemis, 2008; Wilt & Ahmed, 2013). This was the first intrapersonal relationship factor within the SEM. Considering that it is not just interpersonal factors, but also intrapersonal, it would be wise for outreach and education to examine marital status and its relationship to PCS.

RQ5: Does an association exist between access to healthcare-insurance and PCS participation rates among AA men in L.A. County? Being uninsured decreased the odds of screening by 1.2%, when controlling for the other variables. There was a statistically significant relationship between access and PCS. Participants who had insurance for the last 12 months were more likely to have ever had a screening (61.3%), compared to those who had not (31.1%). The literature provided extended insight into access to healthcare. Researchers found that a central barrier to healthcare services within the AA community was a lack of access to healthcare (Niu, Roche, Pawlish, & Henry, 2013; Williams & Jackson, 2005; Woods et al., 2004). Healthcare can be costly and stressful, especially with late stage cancer (ACS, 2016; Kirby & Kaneda, 2010; Niu et al., 2013; Polite et al., 2014). While the ACA improved access to healthcare by offering affordable insurance and eliminating preexisting conditions, the relationship between providers in the AA community remains a lingering issue (Chen et al., 2016; Clemans-Cope, Kenney, & Buettgens, 2012; Long, Karpman, Kenney, Wissoker, Anderson & Zuckerman, 2015; Karpman, Long & Zuckerman, 2016; Kocher & Adashi, 2011; McMorrow, Long, Kenney & Anderson, 2015; Sealy-Jefferson, Vickers, Elam & Wilson, 2015; Sommers, Chua, Kenney, Long & McMorrow, 2015). AAs already have limited access to health coverage, with fears of sexual dysfunction and psychosocial issues further alienating AA men from seeking PCS and treatment (James et al., 2017; Woods, Montgomery & Herring, 2004). These variables are exacerbated by health disparities due to economic,

social, and environmental disadvantages within the AA community (Adeloye et al., 2016; Mitchell, 2011). Improving access to healthcare and the likelihood of PCS (Mitchell, 2011; Wray et al., 2009) is the first environmental factor from the SEM, thereby further evidencing the importance of utilizing the SEM when creating and conducting outreach.

RQ6: Does an association exist between family support and PCS participation rates among AA men in L.A. County? There was a statistically significant relationship between family support and PCS. Participants who were married with no kids had the highest level of screening (71.1%) while those who were single with no kids had the lowest level (46.7%). The literature indicated that increased family support could reduce, prevent, or delay the likelihood of PCS (Bloom, Stewart, Oakley-Girvan, Banks & Chang, 2006; Coker, Sanderson, Ellison & Fadden, 2006). Intrapersonal and interpersonal relationships as well as social and situational influences could increase an individual's likelihood of accessing preventative medical care, such as PCS (Abernathy, Magat, Houston, Harold, Bjorck & Gorsuch, 2005; Blumenthal, Fort, Ahmed, Semenya, Schreiber, Perry & Guillory, 2005; Fort, 2007). The variable was a social factor, indicating that the SEM should focus on intrapersonal and interpersonal factors, as well as social factors for successful outreach programs.

Limitations of the Study

There were numerous limitations, assumptions, and delimitations to the study that could affect generalizability, trustworthiness, validity, and reliability of its results. One

assumption of the study was that the information provided was confidential and that the sample size was representative of the population. The study was delimited to the age of 45 and older for AA men since they are more at risk for PC and in need for PCS. The study was also delimited to quantitative analysis as qualitative analysis would be outside the scope. The study was limited to AA men from L.A. County. While selection bias was of initial concern, it was not needed at all as data came from a secondary source. It was predicted that variables such as healthcare access, family support, and education may not be well-represented in the study, but all found a place within the study. It was predicted that a threat to internal validity would be instrumental bias, yet there was no indication that it did influence internal validity.

Recommendations for Future Research

While quantitative analysis results were used to identify that five of the six factors listed in this study were significantly associated with PCS among AA men, there remains opportunities for future research. This study yielded many interesting results, but there are still avenues for future research. One such avenue would be focusing on the collection of data through first person questionnaires or by inquiring with relevant community organizations if they already have such information. Additional data that could be relevant to future research are: how many AA men were ever diagnosed with prostate cancer, their PSA screening history, their reasons for PSA screening, the number of PSA screenings, and their insurance statuses. Each of these elements can also enable further

insight into the subject being studied. These variables could be paired or contrasted with other statistics to demonstrate just how deep the problem goes.

Another way to expand this research would be to change geographic locations. This study was only performed within the L.A. area. Other cities might have their own environmental, interpersonal, or intrapersonal factors that could affect outcomes. Applying the SEM to various locations could help determine which one of these variables are the most important for PCS and outreach. Along with location, comparative analysis was performed on the variable of race. Belonging to the AA racial group increased the odds of screenings by 9.4% whereas for the White racial group increased the odds by 2.09%. However, comparing differing races and their view of PCS and the interrelationships between variables can also identify the socioeconomic factors that may be limiting the AA community in encouraging PCS in AA men.

All the recommendations mentioned above are for quantitative research; however, that is not to say there is not room for qualitative research. Qualitative research in the form of interviews could be performed to provide first-hand accounts of the relationships between each variable. By performing qualitative research, the investigator could seek answers to questions regarding how and why the discrepancy between AA men in terms of PCS develops and persists. Lastly, a researcher could also perform a mixed-method study that combines both the qualitative and quantitative elements. Doing so would

provide the most exciting opportunity to further knowledge on the relationship between AA men and PCS rates.

Lastly, there is room for further research involving PCS and the SEM. While interpersonal and intrapersonal factors were proved to be significant, environmental factors proved to be inconclusive. Therefore, future research could examine why such differences exist. The SEM proved to be a valuable tool in other health campaigns, yet the mixed results of the environmental variable indicate that there may be misplaced emphasis in this regard. Future research could help clarify these discrepancies.

Implications

The study sought to provide an impetus for positive social change in the AA community. The study anticipated that further research could provide greater adherence to PCS recommendations among AA men in L.A. County. By doing so, the study could increase PCS participation among AA men, and in turn, increase early diagnosis and proper management of PC. The results of this study could be used to change attitudes, behaviors, and lifestyles about PCS within the AA community. Additional stakeholders such as non-profit organizations and insurance companies could increase education, awareness, and advocacy for this topic. Increasing education and knowledge is important as PCS can help early detection of PC and save lives—as well as reduce medical costs—thereby reducing stress on the healthcare system. Early intervention and preventative healthcare are great ways to reduce the financial strain that a serious illness causes for

families, insurance companies, hospitals, and society at large. Each of these implications occurs on the individual, societal, family, and organizational level. Lastly, policymakers can incorporate the findings of this study to promote further turnout for PCS among AA men in L.A. County as well as in other locations around California and the U.S. A healthier AA community means a healthier society and workforce, thereby the results of this study could initiate and facilitate positive social change.

The literature points out that education is lacking in AA communities and should be improved. Offering advice to policymakers that an increase in PCS education among the AA community is of course a recommendation of this research. There is a need for further education that could decrease late diagnoses of PC. Such education should be offered at the organizational level, such as by insurance companies and community-based healthcare providers, as well as by general practitioners.

Conclusion

The purpose of this quantitative research study was to examine the factors that affect AA men's participation in PCS in L.A. County. This is important because a significant racial disparity exist in PC screening participation among AA men in California and the U.S. (NIH, 2015). Six research questions were posed to address the research questions. Routine health screening can increase early detection of PC-onset. It is especially important for high-risk individuals such as AA men with a history of PC. Isolating variables that could prevent a man from participating PCS should help improve

early screening rates. L.A. County was chosen as it has an extremely high rate among AA men with compared to other geographic locations. The literature found that much of the lack of screenings was due to diminished knowledge and education about the risk factors associated with PC. AA men often lacked the needed medical advice to provide a proper understanding of the importance of screening because of the medical history of AAs.

Family history, race, culture, attitudes, and beliefs may all shape opinions regarding PCS, thereby creating a gap in the knowledge. The results of this study indicated that all the six research questions were shown to be statistically significant. The statistically significant results tended to be intrapersonal and interpersonal factors according to the SEM. Environmental factors were found to be mixed, providing an opportunity to revise and review the SEM. The study also provided data regarding statistics on the descriptive nature and frequency of occurrence of PC in L.A. County for AA men. It resulted in numerous recommendations for future research and the positive implications for social change that can occur by advancing such research in the future.

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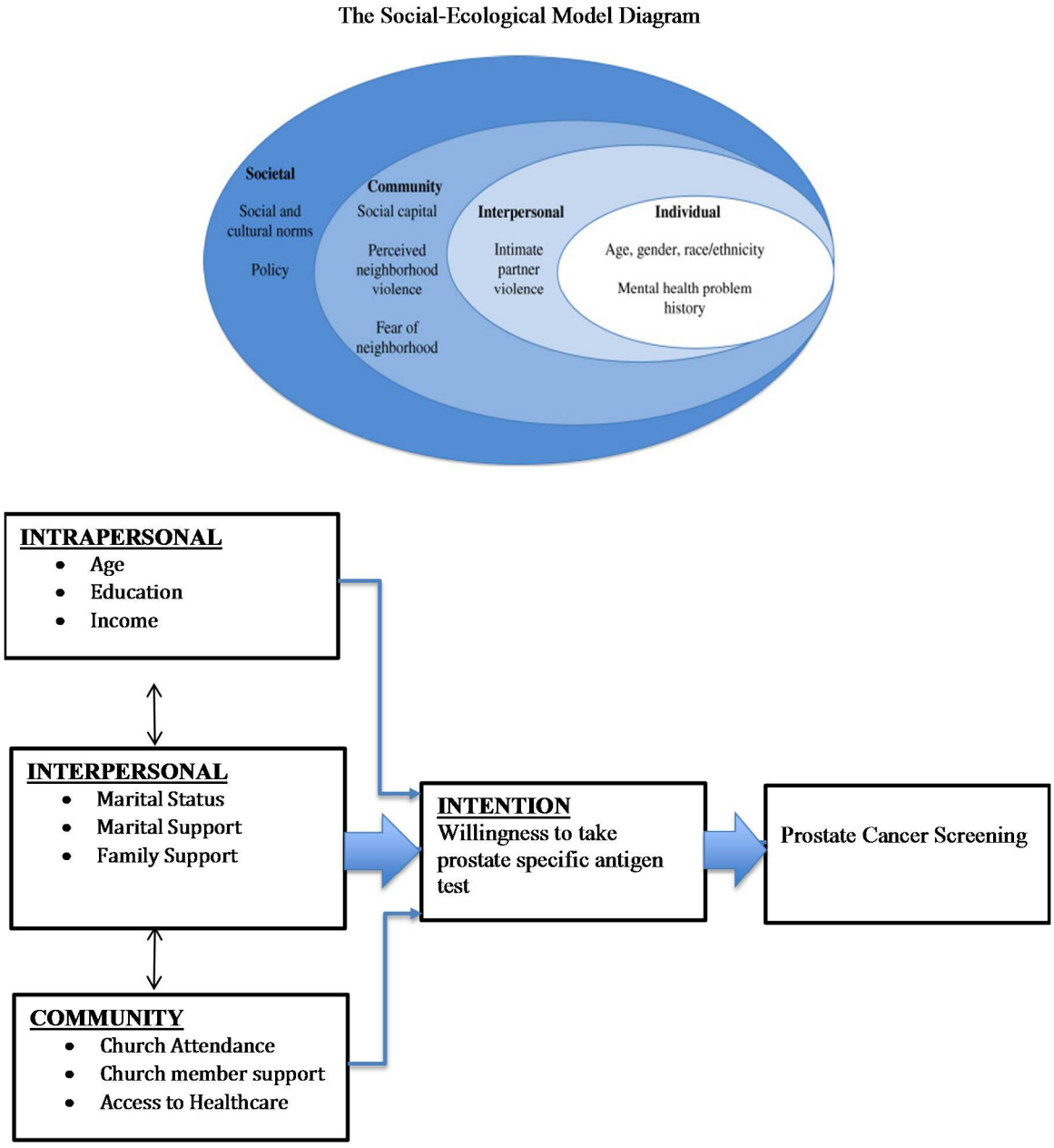
Appendix A: The Social-Ecological Model Diagram



Appendix B: SEER Approvals

3/29/2019 SEER Research Data Agreement

Last Name: Agodi
SEER ID: 19072-Nov2017
Request Type: Internet Access

SURVEILLANCE, EPIDEMIOLOGY, AND END RESULTS PROGRAM
Data-Use Agreement for the SEER 1973-2015 Research Data File

It is of utmost importance to protect the identities of cancer patients. Every effort has been made to exclude identifying information on individual patients from the computer files. Certain demographic information - such as sex, race, etc. - has been included for research purposes. All research results must be presented or published in a manner that ensures that no individual can be identified. In addition, there must be no attempt either to identify individuals from any computer file or to link with a computer file containing patient identifiers.

In order for the Surveillance, Epidemiology, and End Results Program to provide access to its Research Data File to you, it is necessary that you agree to the following provisions.

1. I will not use - or permit others to use - the data in any way other than for statistical reporting and analysis for research purposes. I must notify the SEER Program if I discover that there has been any other use of the data.
2. I will not present or publish data in which an individual patient can be identified. I will not publish any information on an individual patient, including any information generated on an individual case by the case listing session of SEER*Stat. In addition, I will avoid publication of statistics for very small groups.
3. I will not attempt either to link - or permit others to link - the data with individual level records in another database.
4. I will not attempt to learn the identity of any patient whose cancer data is contained in the supplied file(s).
5. If I inadvertently discover the identity of any patient, then (a) I will make no use of this knowledge, (b) I will notify the SEER Program of the incident, and (c) I will inform no one else of the discovered identity.
6. I will not either release - or permit others to release - the data - in full or in part - to any person except with the written approval of the SEER Program. In particular, all members of a research team who have access to the data must sign this data-use agreement.
7. I will use appropriate safeguards to prevent use or disclosure of the information other than as provided for by this data-use agreement. If accessing the data from a centralized location on a time sharing computer system or LAN with SEER*Stat or another statistical package, I will not share my logon name or password with any other individuals. I will also not allow any other individuals to use my computer account after I have logged on with my logon name and password.
8. For all software provided by the SEER Program, I will not copy it, distribute it, reverse engineer it, profit from its sale or use, or incorporate it in any other software system.
9. I will cite the source of information in all publications. The appropriate citation is associated with the data file used. (Please see either Suggested Citations on the SEER*Stat Help menu or the Readme.txt associated with the ASCII text version of the SEER data.)

My signature indicates that I agree to comply with the above stated provisions.

Signature Frank Agodi

Date 3/30/19

Please print, sign, and date the agreement. Send the form to The SEER Program:

- **By fax to 301-680-9571**
- **Or, e-mail a scanned form to seerfax@imsweb.com**

Last Name: Agodi | SEER ID: 19072-Nov2017 | Request Type: Internet Access

frank frank.agodi@waldenu.edu

Frank.Agodi@waldenu.edu

SEER Data Collection Request Approved

From: seertrack@imsweb.com <seertrack@imsweb.com>
Sent: Friday, March 29, 2019 10:21 AM
To: Frank Agodi
Subject: SEER Data Request Approved

Thank you for your interest in the SEER Research Data. Your signed Research Data Agreement is on file at SEER. Your username and password have been generated for Internet access and they are shown below. Please note that both the username and password are case sensitive.
Username: XXXXX
Password: XXXXX

These will allow you to utilize the SEER*Stat client-server system and/or download the files which make up the SEER Research Data. These options are described at the following URL:

DELETE

You can change your password once you log into SEER*Stat from the "Client Server User Information" option located under the Profile menu.