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Social Network and Health Seeking Behavior of Men of West African Descent

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Walden University
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Abstract

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M.S., University of Rhode Island, 2009

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Dissertation Proposal Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Health- Epidemiology

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Abstract

Men are less likely than women to seek help from health services providers regarding the health issues they face. In the United States, of the various race/ethnicity populations, Black American men are least likely to seek health related help, which is reflected in the substantially higher mortality and morbidity rates in Black American men compared to other populations. Guided by the social epidemiological framework, this study examined the relationship between social network measure and health help-seeking behavior among foreign-born and U.S.-born Black American men of West African descent residing in the state of Rhode Island. A cross-sectional study design with convenience sampling method was used in executing the study. A questionnaire that was developed based on validated instruments such as the General Help-Seeking Questionnaire (GHSQ) and Social Network Index (SNI) was employed in collecting data. Ordinal logistic regression and the Chi-square test of independence were used to assess the associations between health help-seeking behavior and social networks. Findings revealed a significant relationship between social network measure and selected categories of general help-seeking measures. For example, foreign-born participants compared to their U.S-born counterparts were more likely to have a high social network size, with respect to future intent to seek help from both formal and informal help sources. The results of this study may drive social change by providing evidence that is vital to our understanding of the health-related help seeking behavior of Black American men in general and Black American men of West African descent in particular.

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Dedication

I dedicate this dissertation to Valerie Marie-Anne Louisiana Bijoux. Thank you for your love, patience, kindness and wish you all the best forward. I wish to also dedicate this dissertation to my parents, who provided me with the opportunities that have enabled me to explore and exhaust my inquisitive nature. In particular, a special thanks to my mother, Iyabo Odewale, for providing me with a stable foundation from which to navigate my inquisitive nature. I want to also express my thanks to my siblings, for always being there to make me laugh and motivate me, especially at any moment whenever I have contemplated giving up. To Oluwadolopa Fakiyesi, you have remained a steady friend, and an older brother who I could always rely on for perspective, when life seems to go array. To Dr. Marcus Allen, I thank you for being a wonderful friend, inspiration and role model, that always remind me to be true to myself. To Gloria Faboyede, PhD(c) thank you for taking the time to help me flesh out my ideas and for your friendship. In addition, to Mrs. Koenig for taking the time to read and edit the dissertation. Lastly, to friends gained and lost, thank you for being part of the process.

I would like to extend a special thanks to the teachers, professors, and mentors who provided for me a focal lens, in which to observe the world. In addition, I would like to thank the academic and non-academic institutions that provided for me an opportunity to engage, fine-tune, and practice my craft. Lastly, to my committee chairs, you are perfect balance of individual who complement each other. Thank you for your guidance, and continuing to challenge me to think beyond surface ideas, and for getting me to the finish line.

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Chapter 1: Introduction to the Study

Background of the Study

About 20.8% of U.S. men did not seek any health care in 2012 compared to 11.4% of U.S. women (National Center for Health Statistics [NCHS], 2014), which indicates that men seek less help for their health care needs. Important factors that influence health help-seeking behavior include education, employment, income, and the connection and/or relation an individual has in terms of social network with family members, friends, colleagues, and others (Glanz, Rimer, & Viswanath, 2008; Griffith, Johnson, Zhang, Neighbors & Jackson, 2011; Kawachi, Daniels & Robinson, 2005; Lucas, Barr-Anderson & Kingston, 2003; Mount, Johnson, Rego, Schofield, & Amponsah, 2012; Shi, Macinko, Starfield, Politzer & Wulu, 2005; Xanthos, Treadwell & Holden, 2013). Alters with whom an individual interacts may facilitate help-seeking by the types of help source (i.e. emotional, instrumental, informational and appraisal) that they may provide (Berkman, 1995, 2005; Glanz, Rimer, & Viswanath, 2008; Rickwood, Deane, Wilson, & Ciarrochi, 2005; Mount, Johnson, Rego, Schofield, Amponsah et al., 2012). These different help sources are fundamentally necessary to address various needs, with health-related needs being one; however, researchers who have examined gender differences in relation to help-seeking for health-related needs have documented a need to examine the relationship between social network and help-seeking, particularly among men (Griffith et al., 2011; Lucas et al., 2003; Mount et al., 2012; Neighbor et al., 2011; NCHS, 2014; Rich & Ro, 2002; Xanthos et al., 2013).

Black men in the United States, which include subgroups from Africa, West Indies, Central and South America, and native African-Americans, are the least likely to engage in preventive health behaviors, such as help-seeking for health-related needs for a number of

reasons, such as disproportionately low level of education, employment socioeconomic status, and having limited social networks, are important factors for health help-seeking. Because of the subgroup heterogeneity that exists within the Black American male population, variations in health status, health care and health behavior (i.e. help-seeking for health-related needs) have been documented (Abioye-Akanji, 2013; Lucas, et al., 2003; Ogedegbe et al., 2004; Ogungbade, 2010; Ojikutu, Nnaji, Sithole, Schneider, Higgins-Biddle et al., 2013; Oyeyemi & Sedenu, 2010; Perez, 2002; Simbiri, Hausman, Wadenya & Lidicker, 2010; Singh & Siahpush, 2002; Udeh, 2013). Concerning health status, first generation foreign-born Blacks are healthier, have a lower mortality rate, and live 7–9 years longer compared to their native African American and other first generation U.S.-born Black male subgroups (Bailey, 1987; Griffith et al., 2011; Hummer et al. 1999; Lucas et al., 2003; Singh & Siahpush 2002; Singh & Hiatt, 2006). For instance, foreign-born men from Africa have been noted to have the lowest levels of hypertension and disability, followed by foreign-born Blacks from the Caribbean, native born Black Europeans Blacks, and native born Black Americans (Elo, Mehta & Huang 2011; Hicks, Fairchild, Cook & Ayanian, 2003). Similar in-group comparative findings regarding self-rated health status have been noted between African Americans, U.S.-born Caribbean Blacks, and Caribbean-born Blacks. Griffith, et al. (2011) noted that Caribbean-born Blacks were least likely to rate their health as fair or poor, followed by African Americans, and U.S.-born Caribbean Blacks. Concerning health behavior, researchers have noted differences in attitudes, beliefs, and perceptions toward health practice among the Black American population. For example, in a study that examined the rate of HIV screening among foreign-born and U.S.-born Black Americans, the authors noted that HIV screening patterns differed by nativity (Ojikutu et al. 2013). Results show that foreign-born Blacks had a lower rate of recent HIV testing compared to their U.S.-born counterparts (Ojikutu

et al., 2013). In two other studies that investigated barriers to diabetes and high blood pressure management among West African immigrants living in Rhode Island, social norms (i.e. cultural attachment to traditional management and cultural beliefs) were noted to moderate their approaches toward help-seeking for need management and treatments (Abioye-Akanji, 2013; Udeh, 2013).

As indicated previously, foreign-born Black Americans are healthier compared to their U.S.-born counterparts; their health advantages may be explained by the, "healthy immigrant effect" (Venters, Homer & Gany, 2011; Acevedo-Garcia, Bates, Osypuk, & McArdle, 2010; Antecol & Bedard, 2006; Hummer & Rogers, 2004). Several explanations for the healthy immigrant effect include "selective migration of healthy immigrants," "cultural buffering," and the "racial context of origin hypothesis" (Hamilton & Hummer, 2011). The selective migration of healthy immigrants perspective contends that only healthy individual emigrate; the cultural buffering perspective argues that immigrants have a broader social network of support in their home countries; and lastly, the racial context of origin hypothesis argues that immigrants experience fewer racialized situations in their home countries. Therefore, they are healthier compared to their U.S.-born counterparts upon arrival in the United States.

On the other hand, the health advantages of the foreign-born population may be due to limited data collected from unhealthy foreign-born individuals who return to their countries of origin (Palloni & Arias, 2004; Palloni & Ewbank, 2004). Despite these health advantages, the health status of foreign-born Blacks converges toward those of their U.S.-born counterparts with an increase in length of residency in the U.S. (Griffith et al., 2011; Haile, 2010; Hamilton et al., 2011; Lucas et al., 2003). For foreign-born ethnic populations, particularly those of African descent, the process of becoming an American involves reluctantly living with negative

stereotypical characterizations associated with their racial group (Viruell-Fuentes, 2007, 2011, 2012; Waters, 1994). These negative stereotypical characterizations inadvertently limit access to life opportunities, which may result in negative consequences for health status, health care, and health behavior (Kaestner, Pearson & Geronimus, 2009; McEwen & Lasley, 2002; Pearson, 2008; Viruell-Fuentes, 2012). For example, both foreign-born and U.S.-born Black American men are less likely to have health insurance coverage, or seek help for health-related needs, consequently leading to the deterioration of their health status (Griffith et al., 2011; Lucas et al. 2003; Oyeyemi & Sedenu, 2010; Singh & Siahpush, 2002; Singh et al., 2006). In general, the social determinants of health among Black American men in relation to health behavior may be conceptualized by homogenizing the entire group. However, homogenizing an entire group and perpetuating racial or ethnic stereotypes in understanding health behavior (i.e. help-seeking) limits the scope needed to understand the specificities of health-related needs for subgroups within the group (Viruell-Fuentes, 2012; Raphael, Anstice, Raine, McGannon, & Rizvi, 2000). Therefore, this research filled a gap in understanding through examination of the relationship between the social network measures (i.e. size and diversity) and help-seeking measures (i.e. future intention to seek help from a formal, informal, or having no help source, and past help sought and experience from a formal help source) for health-related needs among U.S-born and foreign-born Black American men of West African descent residing in the state of Rhode Island.

Problem Statement

According to reports from the Rhode Island Department of Health (HEALTH) and African Alliance of Rhode Island (AARI; 2011), a multitude of factors contribute to help-seeking for health-related needs among foreign-born Black Americans of West African descent residing in the state of Rhode Island. Reports of these findings indicated that “discussions concerning

one's health are not done openly and as such, they tend to not be 'open' about their health care needs; and were less likely to seek medical help" (HEALTH & AARI, 2011). In addition, participants reported, "it is not a practice of their culture to visit the doctor regularly for check-ups." Several of the male participants indicated only seeing health-care service provider after they had been in the United States for 15 to 20 years, and only when they felt ill (HEALTH & AARI, 2011). Of interest to this study, was the statement that "male participants were confused about the concept of prevention and seeking medical care as a means of prevention" (HEALTH & AARI, 2011). A paradox noted by the participants was that men who had been in the United States for an average of 24 years were not reluctant to seek help for health-related needs, and had yearly health physical (HEALTH & AARI, 2011). Unfortunately, the men who had been in the United States for an average of 24 years had prior medical ailments (i.e. prostate cancer, colon polyps, high blood pressure, etc.) before they sought help for health needs (HEALTH & AARI, 2011).

The findings documented by HEALTH & AARI are not peculiar to Black Americans of West African descent that live in Rhode Island; these findings are well documented among other groups of foreign-born Black Americans (i.e., Caribbean-born, Ethiopian-born, Kenyan-born, and Haitian-born) (Barimah & van Teijlingen, 2008; Griffith et a., 2011; Lucas et al., 2003; Oyeyemi & Sedenu, Ogungbade, 2010; Perez, 2002; Simbiri, Hausman et al., 2010; Singh et al., 2002). People are interconnected, and so are the social determinants that shape their health status, health care, and particularly their health behavior (Smith & Christakis, 2008). Although many investigations concerning the relationships between social determinants and health focused on the type of social support (i.e. financial, instrumental, support, etc.) received from members within an individual's network, a broader social network approach would be more pertinent

(Berkman, 2000; Cohen et al., 2007). In this study, I considered the relationship between social network measures and type of help sources (i.e. formal, informal or no help source), to identify the high-value source of advice preferred for help-seeking for health-related needs.

Examination of the relationship between social network and health behaviors such as help-seeking among foreign-born and U.S.-born (i.e. first generation U.S.-born) Black Americans of West African descent is an important public health research endeavor, in order to address the special public health problems prevalent in these populations (Abioye-Akanji, 2013; Barimah et al., 2008; Griffith et al., 2011; Lucas et al., 2003; Ogungbade, 2010; Ojikutu et al., 2013; Oyeyemi, 2010; Simbiri, 2010; Udeh, 2013). There is limited literature concerning foreign-born and U.S.-born Black American men of West African descent, due to the fact that all "Blacks," or people of African origin tend to be clustered by researchers into one demographic category: "Black non-Hispanic" (Ojikutu et al., 2013; Shepard, 2008). The population for this study represented a cohort with different nativity, ethnicity, and life experiences that differ from the larger U.S. Black American male population. Therefore, in this cross-sectional, quantitative study, I examined primary data from both foreign-born and U.S.-born Black American men of West African descent (namely Ghanaians, Liberians, and Nigerians) that reside in the state of Rhode Island to determine the relationship between the social network measures (i.e. size and diversity) and help-seeking (i.e. future intention to seek help from a formal, informal, or having no help source, and past help sought and experience from a formal help source) for health-related needs.

Purpose of the Study

The purpose of this quantitative study was to examine the relationship between social network measures (network size and network diversity) and help-seeking measures (future

intention to seek help from a formal, informal, or having no help source, and past help sought and experience from a formal help source) for health-related needs (i.e. information regarding physical examination, health screening test, stress reduction, sexual health and medication usage) among U.S.-born and foreign-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income. Social network studies and analysis focuses on social connections among individuals, and the patterns and consequences of these connections (Kelly, Patel, Narayan, Prabhakaran & Cunningham, 2014). Therefore, a self-administered primary questionnaire data was administered from an egocentric social network approach.

Public health reports about the foreign-born and U.S.-born (i.e. first-generation U.S.-born) Black American populations of African descent have disproportionately focused on the burden of infectious diseases, morbidity, and mortality, with limited focus on their antecedent (i.e. help seeking pattern; Venters & Gany, 2011). There are limited data and there has been limited examination of the relationship between social network and help-seeking for health-related needs for foreign-born and U.S.-born Black American males of West African descent. According to the U.S. Census Bureau's 2009 reports, regionally, recent African immigrants were representative of West Africa by 36.3%, East Africa by 28.4%, North Africa by 17.7 %, South Africa by 5.7%, and Central Africa by 4.4% (Migration Policy Institute (MIP), 2012). West African countries that constitute the highest population of West African descent in the state of Rhode Island and the U.S. include Ghana, Liberia, and Nigeria, and hence they were targeted population for the study. As the population of foreign-born and U.S.-born Black American men of West African descent continues to increase, it is imperative to understand their health care patterns and practices.

Nature of the Study

I used a cross-sectional study designed to quantitatively assess the relationship between social networks measures (independent variable) and health help-seeking behavior (dependent variable). I compiled the data from a cohort of foreign-born and U.S.-born Black American men of West African descent that are residing in the state of Rhode Island. This quantitative research method helps to discern, quantify, and make inferences about help-seeking patterns for health-related needs, based on a convenience sampling of the population of interest for this study. The study involved examination of ordinal data collected via survey instruments (detailed further in Chapter 3).

I measured two subscale network measures, namely network size and diversity with use of the Social Network Index (SNI) to represent the independent variables. With respect to the SNI scale, (a) the subscale network size reflects the sum of all individuals with whom an ego has contact at least once every two weeks and (b) the subscale network diversity reflects the number of different types of high contact social roles in which an ego participates (Cohen et al., 1997). I measured the help-seeking variable with use of the General Help-Seeking Questionnaire (GHSQ), to represent the dependent variable; particular subscale measured included future intention to seek help from a formal, informal, or having no help source, and past help sought and experience from a formal help source were examined (Rickwood, Deane, Wilson, & Ciarrochi, 2005). I considered the following potential confounding variables (i.e. age, education level, employment status, and income), as they have been indicated in prior studies to impact the relationship between the two primary variables. I used descriptive statistical analysis method to provide a summary of the demographic variables and the two primary variables. I used a bivariate statistical analysis method to determine the relationship between independent,

dependent, and potential confounding variables. I used a multivariate statistical analysis method to test hypotheses associated with the research questions. Further details that pertain to study design and methodology are described in Chapter 3.

Research Questions and Hypotheses

The proposed study includes the following research question and corresponding hypotheses:

RQ1: What is the relationship between social network measures, which include network diversity and size, and help-seeking measures, which include future intention to seek help from a formal, informal, or having no help source, and past help sought and experience from a formal help source, for health-related needs among foreign-born and U.S.-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income?

H_o1: There is no relationship between network size and past help sought and experience from a formal help source and future intention to seek help from (formal, informal, no) help source, among foreign-born and U.S.-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income.

H_a1: There is a relationship between network size and past help sought and experience from a formal help source and future intention to seek help from a (formal, informal, no) help source, among foreign-born and U.S.-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income.

H_o2: There is no relationship between network diversity and past help sought and experience from a formal help source and future intention to seek help from a (formal, informal, no) help source among foreign-born and U.S.-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income.

H_a2: There is a relationship between network diversity and past help sought and experience from a formal help source and future intention to seek help from a (formal, informal, no) help source among foreign-born and U.S.-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income.

Conceptual Framework

I examined the relationship between social network measures and help-seeking measures as they relate to health needs of foreign-born and U.S.-born Black American men of West African descent from a social epidemiological perspective. Social epidemiology is defined as "the branch of epidemiology that studies the social distribution and social determinants of states of health" (Berkman & Kawachi, 2000); in particular, it focuses on the effects of social determinants on different aspects of health (i.e. behavior, pattern, status, etc.). In the context of social epidemiology, social network analysis provides a method to determine the flow of socially relevant determinants (i.e. health information) between an ego and alters with whom they have connection and/or interact. Extensive research from the field of social epidemiology has demonstrated the intrinsic connection between social network and health; therefore, I used this approach for this study because it provides a framework to examine the relationship between

social network measures and help-seeking for the health-related needs of foreign-born and U.S.-born Black American men of West African descent.

Theoretical Foundation

I used the social network theory (SNT) to understand the relationship between social relationships and health. Researchers have used the SNT to examine social relationships in terms of nodes and ties, where the nodes denote individuals, groups, organizations, or societies, and ties are the relationships between the actors (Wasserman & Faust, 1994). Social network studies differ from traditional social science studies, because social network studies assume that relationships among actors within the network are more important than attributes of individuals (Freeman, 2004; Scott, 2011; Valente, 2010; Wasserman, 1994). Therefore, a social network is an influential determinant of different aspects of an ego's health (i.e. behavior, pattern, status, etc.; Berkman, et al., 2000; Youm & Laumann, 2002). For the current study, a social networks approach was useful to examine the relationship between social network measures and measures of help-seeking for health-related needs among foreign-born and U.S.-born Black American of West African descent residing in Rhode Island. The connection and/or relation an ego has to alters with whom the ego interacts is evidence and relevant for health-related research, health care practice, and to design effective health intervention programs (see the reference theoretical foundation in Chapter 2 for further details).

Definition of Terms

The following includes definitions of the terms used in this study:

Alter: refers to a person (i.e. parent, sibling etc.) connected to the ego (individual of interest), who may influence the behavior of the ego (Bryant, 2007).

Blacks: refers to a person having origins in any of the Black racial groups of Africa; which includes people who indicate their race as "Black, African Am., or Negro" (Rastogi, 2011).

Convenience sampling: a type of non-probability sampling technique in which a sample is drawn from that part of the population that is close to hand, readily available, or convenient (Bhattacherjee, 2012).

Cross-sectional design: refers to a type of study design that examines the relationship between exposure and factor of interest in a defined population at a single point in time (Aschengrau & Seage III., 2008).

Ethnic groups: refers to people assumed to have common cultural traits that distinguish them from other ethnic groups, including primary language, nativity, history, traditions, values, and dietary habits (Smedley & Smedley, 2005).

Foreign-born: refers to anyone who was not a U.S. citizen at birth, which includes individuals who became a U.S. citizen by naturalization (U. S. Census Bureau, 2014).

Formal social network: the web of relationships developed on a professional basis and interest, which is used to obtain and exchange resources and services (Gurau & Benkraiem, 2012).

Gender: socially constructed roles, behaviors, activities, and attributes that a given society considers appropriate for men and women (McElhinny, 2003).

Help-seeking behaviors: refers to how a person has viewed seeking assistance from others, how they have reacted to assistance from others, and how likely they are to seek out assistance from others (Holley, 2011).

Informal social network: refers to the web of relationships developed on a personal basis and interest, which is used to obtain and exchange resources and services (Gurau & Benkraiem, 2012).

Network diversity: refers to the number of different types of high contact social roles in which individuals participate, as measured by the SNI (Cohen et al., 1997).

Network size: refers to the sum of all individuals with whom an individual has contact at least once every two weeks, as measured by the SNI (Cohen et al., 1997).

Node (ego, social atom): refers to a central "unit or individual" that has networks (Bernardi, González, & Requena, 2007).

Race/Ethnicity: a combination of physical and social characteristics used to categorize populations based on shared physical attributes, cultural beliefs, and life experiences (Ogden et al., 2012; Wang et al., 2011).

Social Epidemiology: refers to the branch of epidemiology that studies the social distribution and social determinants of states of health (Berkman & Kawachi, 2000).

Social network: refers to a social structure made up of individuals (or organizations) called "nodes," which are tied (connected) by one or more specific types of interdependency (Wasserman, 1994).

Social Network Analysis: refers to an analytical method used to determine relationship between various components and resources of one's network (Berkman, et al., 2000).

Ties (links, relationships, edges): refers to the network connections between nodes and actors (Bernardi, et al., 2007).

U.S.-born (native): refers to anyone who was a U.S. citizen or U.S. national at birth, which includes individual who were born in the United States, Puerto Rico, a U.S. Island Area

(U.S. Virgin Islands, Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands), or abroad of a U.S. citizen parent or parents (Gryn & Larson, 2010).

Assumptions

In this study, I made the following assumptions. First, I assumed that the social network of foreign-born and U.S.-born Black American men of West African descent (from Ghana, Liberia, and Nigeria) is not monolithic because of the difference in nativity and ethnicity. Second, I assumed that the help-seeking pattern for health-related needs of foreign-born and U.S.-born Black American men of West African descent (from Ghana, Liberia, and Nigeria) is not monolithic because of the difference in nativity and ethnicity. Third, I assumed that sociodemographic determinants (age, education, employment, and income) beyond social ties within a social network impact the relationship between social network measures and help-seeking measures. Lastly, I assumed that foreign-born and U.S.-born Black American men of West African descent would provide socially accepted responses, because questionnaire items were not commonly discussed in public venues among the population of interests.

Limitations

Limitations outside of my control may affect the internal validity of the study. Although the cross-sectional research design is most adequate to examine the relationship between social network measures and help-seeking measures among the population of interest for the current study – a population where there is no established or documented data – it is nonetheless limited to a heterogeneous participating population. Because of the ethnic heterogeneity within the sample population, the study's conclusion reflects participants who completed the survey. Due to the cross-sectional nature of the study design, a causal relationship between dependent variables and the independent variable cannot be established. In addition, a convenience sampling

procedure was conducted in cities/towns with the highest number of population of interest, to select a representative target population. The convenience sampling techniques used may have led to the under-representation or over-representation of groups and/or characteristics within the sample population that complete the study's questionnaires, which in turn may have skewed the results of the study. In addition, the study lacks generalizability, as participants may have not been a representative of the population due to the variation with the participants' lived experiences.

Delimitations

Delimitation factors may affect the generalizability of results beyond the population of interest for this study. Although the study is focused on Black American men of West African descent—which may include individuals from the following countries in West Africa: Benin, Burkina Faso, Cape Verde, Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, St Helena, and Togo—a representative sample from Ghana, Liberia and Nigeria (MIP, 2011) were considered because they reflect the highest population both nationally and locally in the state of Rhode Island. In addition, because both foreign-born and U.S.-born Black Americans of West African descent do not have a monolithic attitude, belief, and perception toward health practice, a selection of the population of interest set a defined boundary for the study.

Although there are a number of instruments available to determine the relationship between a social network and help-seeking for health-related needs, none have been used with the population of interest for this current study. Studies that examined the relationship between social relationship and health typically require multiple questionnaires; therefore, I selected multiple predesigned instruments, which complement one another, for the current study to

address the research questions. The predesigned survey instruments, the SNI and GHSQ instruments, were selected for this study because of their ability to be adjusted to different population groups, sources of help, and problem types (Cohen et al., 1997; Rickwood et al., 2005).

Significance of the Study

The purpose of the study was to examine the relationship between social network measures and help-seeking measures, with respect to health-related needs among U.S.-born and foreign-born Black American men of West African descent that reside in the state of Rhode Island. I selected the population of interest for the current study because a literature search revealed that there have been no similar studies conducted on the population of interest for this study. In regard to positive social change, the study provides health care service providers data that are vital to understanding the health-related needs of Black American men in general, and Black American men of West African descent in particular. Secondly, this study affirms the Healthy People 2020 goal of achieving health equity, elimination of disparities, and improving the health of all groups, particularly with a focus on future public health needs of the Black American male population (Aungst, 2011).

Summary and Transition

In Chapter 1, I described both the general and specified scope of the research study. First I provided a review of the background to the study as it relates to the general population and the population of interest. I identified the gap in literature and presented the research questions that I attempted to answer in this study. I identified key terms were in order to provide clarification and to act as a guide for the remainder of the study.

In Chapter 2, I provided a systematic review of the literature related to social networks and help-seeking behavior as to how they relate to health-problems. Secondly, I provided a discussion of the constructs of social networks and help-seeking, as they relate to the U.S. population in general, and the Black American population in particular were provided. Finally, in the theoretical framework section I demonstrated how SNT is related to the research problem statement.

Chapter 2: Literature Review

Introduction

The U.S. male population for 2012 was estimated to be 154.5 million, and of the total population, 19.7 million, or 13%, identified as Black American men (U.S. Census Bureau, 2012). Black men in the United states., including subgroups from Africa, West Indies, Central and South America, and native African-Americans, are less likely to seek help for health-related needs; consequently, this population suffers a disproportionate burden of preventable morbidity and mortality (Rastogi, 2011). As a group, Black American men had the highest age-adjusted rates of HIV/AIDS (17.0 to 21.8 per 100,000) from 2008-2010 and age-adjusted death rates (995.1 to 1,173.2 per 100,000) from 2008-2012 (NCHS, 2013). In addition, Black American men had the lowest life expectancy of any racial group in either gender (Kochanek, Arias & Anderson, 2013; Rich & Roe 2002).

Because of the heterogeneity within the Black American male population, variation exists with respect to attitudes, beliefs, and perception toward different aspects of health (i.e. behavior, pattern, status, etc.) (Abioye-Akanji, 2013; Barimah et al., 2008; Lucas et al., 2003; Ogedegbe et al., 2004; Ogungbade, 2010; Ojikutu et al., 2013; Oyeyemi et al., 2010; Perez, 2002; Simbiri et al., 2010; Singh et al., 2002; Udeh, 2013). Researchers generally aggregate all Black Americans as one group in studies; however, aggregating all of the Black American population as one group leads to an incomplete understanding of their attitudes, beliefs, and perceptions toward health. Therefore, in this cross-sectional quantitative study, I examined the relationship between social network measures (size and diversity) and help-seeking of foreign-born and U.S.-born Black American men of West African descent (namely Ghanaians, Liberians, and Nigerians) that reside

in the state of Rhode Island. In particular, with regards to help-seeking measures I examined future intention to seek help from a formal, informal, or having no help source, and past help sought and experience from a formal help source for health-related needs.

Because the current study draws on several bodies of research, including social networks studies and behavioral health studies, to contextualize the key relationships, I organized the chapter into sub-sections to present the details of this chapter. Section one includes search strategies that I used in conducting the literature review. In section two, I focus on the following: (a) review of social network theory with respect to purpose, history, and how the theoretical foundation provides the basis for the underlying relationship between the independent and variables. Secondly, in section two I provided a review of studies that are concerned with relationship between health-related topics, social network, and help-seeking. Third, in section two I provided a review of studies that are concerned with the relationship between health-related topics, social network, and help-seeking among the Black American population. Lastly, in section two I provided a review and synthesis of the independent variable, dependent variables, and potential confounding variables in order to justify the rationale for their selection. The chapter ends with a summary that segues into topics that are introduced in Chapter 3.

Search Strategies

There has been a growing concentrated interest concerning the relationship between Black American men's social networks and their help-seeking patterns. In this literature review, I incorporate retrospective and emerging research to present the depth and breadth of literature on this subject. I conducted a systematic review of peer-reviewed journal articles was conducted using various search engines and databases. I conducted a search of peer-reviewed journals for studies published between 1980-2014 with a focus on peer-reviewed journal articles from 2008-

2014 on the Black American population, specifically in relation to social networks and help-seeking for health-related needs. Journal articles that I included were in English and limited to studies conducted in the U.S., Canada, United Kingdom, and West African countries, namely Ghana, Liberia, and Nigeria. Search engines used to locate peer-reviewed journal articles included PsychInfo, Medline, EBSCOhost, Social Sciences Citation Index, PubMed, and Google Scholar. Keywords and subject terms used included: *demographic characteristics, emigration and immigration, health behavior health status, health, patient acceptance of health care, socioeconomic factors, health seeking behavior, black American health, racial and ethnic health, social support network, health belief, West African immigrants, gender health, racial and ethnic disparities, health communication* and *Black men's health*. The databases that I used included: Academic Search Premier, CINAHL Plus with Full Text, and Health Sciences: A SAGE Full-Text Collection. Finally, I used reference lists from selected studies as a source of articles.

Theoretical Foundation

Social Network Theory (SNT) is concerned with the examination of social relationships in terms of nodes and ties, where the nodes denote individuals, groups, organizations, or societies, and ties are the relationships between the nodes (Wasserman & Faust, 1994). Social network research places the content, structure, and function at the center of analysis in order to map the relationship between groups and/or an individual and others with whom they interact (Pescosolido, 2006). Traditionally, researchers have focused on individual attributes to understand their health; however, there are inherent limitations associated with this approach, which are not common with the social network approach. The social network approach differs because it assumes that relationships among actors within the network are more important (Freeman, 2004; Scott, 2011; Valente, 2010; Wasserman, 1994).

Methods for social networks analysis are egocentric and sociocentric. The sociocentric method, or whole network research, focuses on mapping the direct and indirect connections between members of a bounded or closed set of individuals in an effort to explain group-level outcomes, such as diffusion of information (Carrington, Scott, & Wasserman, 2005). In contrast, egocentric network research focuses on a central individual or "ego" and the connections this person has to "alters" (i.e. family members, friends, colleagues, etc.) with whom they interact (Carrington et al., 2005). There are overlaps between egocentric, sociocentric, and traditional social science research in terms of analysis. Both egocentric and traditional network analysis are concerned with the individual, whereas sociocentric network analysis focuses on the totality of all individuals in a defined population and all the links between them. Unique to egocentric network analysis is that data is collected from a central individual or "ego" in order to determine the connection and/or relation this person has to alters with whom they interact. Therefore, I used a social network approach with use of egocentric data analysis was used to determine the relationship between the social network measures and help-seeking for health-related needs of the population of interest for this study.

Studies of social relationship and health, particularly with respect to social networks and health, have their origins in the field of sociology (Wasserman, 1994; Kadushin, 2004). In the late 1800s, Émile Durkheim, a sociologist, argued that a stable social structure and accepted norms are protective and regulate behavior (as cited by Cohen et al., 2000); he noted in his seminal study that individuals who lacked social ties (i.e. marriage) were more likely to commit suicide compared with their married counterparts (Wasserman, 1994; Kadushin, 2004). Georg Simmel (1955), another notable sociologist, discussed in his work titled *Conflict and the Web of Group Affiliations*, that relationships are more important than individuals or groups, because

relationships are likely to moderate behavior (Pescosolido & Rubin 2000; Pescosolido & Levy, 2002). Contributions from the fields of psychology, anthropology, and mathematics led to the second wave of interest in social network studies. In the field of psychology, Moreno (1934) introduced sociometry, a conceptual map of relationships between an ego and the connection that person has to alters in his or her network. In the field of mathematics, the introduction of graph theory contributed to mathematical techniques necessary for networks analysis (Bernardi et al., 2007), which allowed for a broader examination of social relationships. In the field of anthropology, notable researchers such as Malinowski, Radcliffe-Brown, and Claude Lévi-Strauss focused on social structure to understand the relationships through which social actions are organized, and their research served as the precursor for the development of modern social network theory. Finally, the contributions from the field work conducted by social anthropologists, Barnes (1954) and Bott (1957), served as a template to conduct field work using social network methods and data. The abovementioned researchers were instrumental in shaping the field of social network research.

Researchers generally examine the relationship between social network and health-related topics while taking into consideration the content, function, and structure of the network (Pescosolido & Levy, 2002). Although structural terms such as network diversity and size can be differentiated conceptually, they are inextricably linked to network content and function; thus, they should minimally be considered as separate entities (Cohen et al., 1985). However, aggregating social network content of either functional or structural items into one social network index results in scores that have little conceptual meaning; therefore, this research focused on a specified aspect of the social network, namely the structural network measures (i.e. diversity and size).

Social Network and Health

As noted previously, commonly addressed measures in social network studies include structure, content, and function (Pescosolido et al., 2002). Social network measures account for the range of an ego's connections (i.e., marital status, number of friends, attendance and participation in faith-based organizations), while functional measures (i.e., emotional, instrumental, informational, and appraisal) focus on an individual's perceptions about the available content (i.e., social support, social integration, and social ties). Therefore, central to the network are social network measures (i.e. size, diversity, etc.), which are the link that binds function and content (Berry, Cash, & Hoge, 1998). Literature concerning the relationship between social network and health is voluminous and expansive. Thus, a complete review is beyond the scope of this study. In this section I will review pertinent and current literatures on social network, with emphasis on social network measures (i.e. size and diversity) and health-related topics (i.e. mortality, chronic illness, preventive health, and immunity). Secondly, I will provide a review of the potential confounders that were considered for the current study. In order to appreciate the relationship between social network and health, I will provide a conceptual overview that highlights how social determinants influence health.

Boissevain (1974) noted that attitudes, beliefs, and perceptions toward health may be influenced by both intimate/informal and extended/formal social network members (Berkman 2005). In his classical social network model (Figure 1), Boissevain presented a concentric conceptual map that represents three levels of relations in a social network, which included intimate, instrumental, and extended zones. As described by Berkman (2005), the intimate zone represents alters closest to the ego; intimate zone A represents close alters to the ego; zone B represents instrument alters, with whom an ego has passive relationships; and the nominal zone

represents known alters with whom an ego has minimal to no relationship. The different level of social ties illustrated in Boissevain's model may be a proxy for measurable social network measures (i.e., size and diversity), useful to determine the location of high-valued alters that may influence attitudes, beliefs, and perceptions toward health.

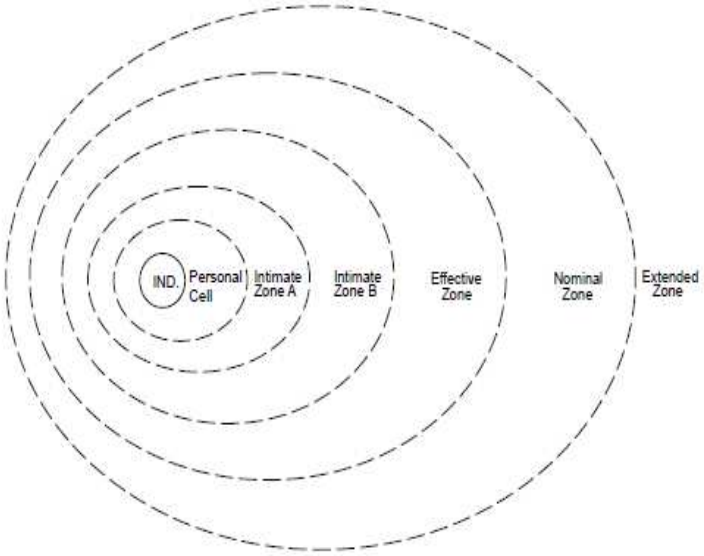

Figure 1. Social Network Model (Adapted from Boissevain, 1974)

The pathways that mediate how alters influence an ego's health are equally as important as the types of alter described in Boissevain's social network model. Figure 2 illustrates a schematic pathway of how social networks and social support may influence health (Heaney & Israel, 2008). Pathway 1 illustrates the relationship between social networks and social support on health. Pathways 2 and 4 illustrate different types of help sources (i.e. informal and formal) that may influence health and/or one's approach toward seeking help. Pathway 3 illustrates the negative health effects (i.e. stress) that may be associated with alters that provides support and/or are members of an ego's network. Pathway 5 depicts health behaviors as a mediatory component between social support, social network, and health outcomes. Of particular interest to the current

study is pathway 5, as it draws on the conceptual relationship between social network and health behavior (i.e. help-seeking).

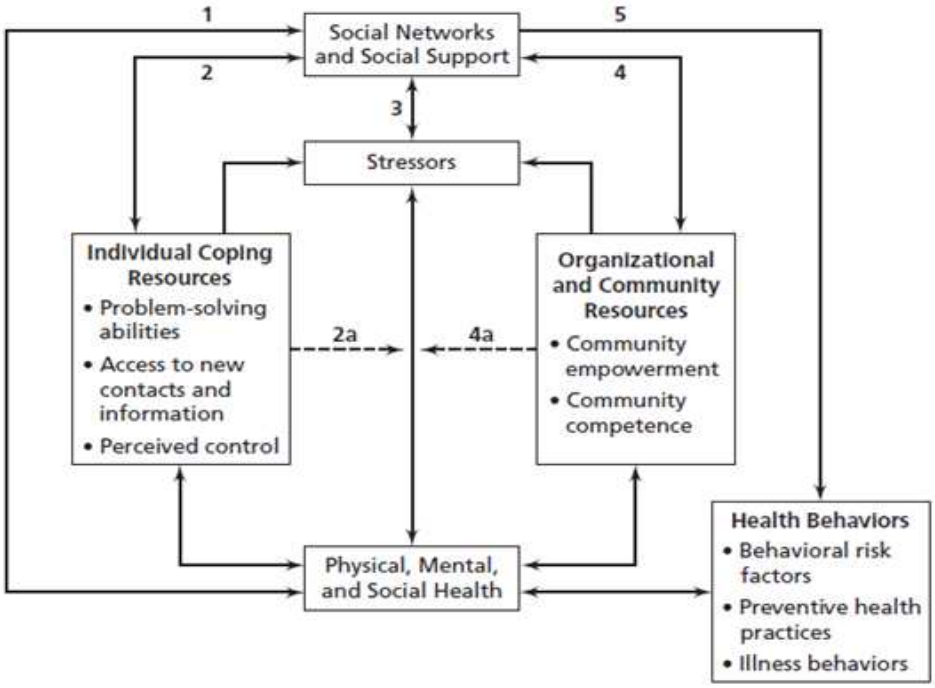

Figure 2. Conceptual model for the relationship of social networks and social support to health (Adapted from Heaney & Israel, 2008)

Both the Boissevain (1974) and Heaney et al., (2008) models draw attention to principles central to social network concepts; each model accounts for the structure, function, and content. Examinations of the relationship between social network measures and help-seeking measures alone may not be robust; nonetheless, their examination does allow for identification of high-valued social alters that influence attitudes, beliefs, and perceptions toward help-seeking for health-related needs.

The relationship between social network measures, particularly size and diversity and health-related topics, has been well-studied (Berkman & Syme 1979; Christakis & Fowler, 2007; Cohen 2007; Gottlieb & Green, 1984; Kawachi & Berkman, 2001; Pescosolido, 2006). For instance, results from the Alameda County study were among the earliest to highlight the

relationship between social network measures and health (Berkman et al., 1979). The study's researchers highlighted the impact of the absence of social contact with mortality rates (Berkman et al., 1979); study participants with a smaller network of social contacts were noted to have had an increased age-adjusted relative risk of mortality (Berkman et al., 1979). Similar findings were noted among a cohort of breast cancer patients (Kroenke, Kubzansky, Schernhammer, Holmes & Kawachi, 2006). According to results from the study, socially isolated breast cancer patients had a two-fold rate increase of breast cancer mortality compared with their counterparts with a larger network size (Kroenke et al., 2006). Alongside network size, network diversity has been noted to be associated with health. In a study that accounted for social contacts across various sources (as a proxy for network diversity), contact with a spouse, parents, children, and friends were found to have decrease incidence of ischemic heart disease (IHD) and mortality, whereas contact with only work colleagues and neighbors did not show protective effect on IHD and mortality rate (Barefoot, Grønbæk, Jensen, Schnohr, & Prescott, 2005). The abovementioned findings show that there is a relationship between social network measures (network size and diversity) and various health-related issues.

Alongside studies that focused on mortality rate and chronic illness, a correlation has been shown between social network measures and physiological mechanisms through which social ties influence health. Evidence was provided in an experimental study where participants were administered nasal drops containing rhinoviruses and monitored for the development of a common cold (Cohen, Doyle, Skoner, Rabin, & Gwaltney, 1997). Findings from the study indicated that susceptibility to common colds decreased with increased social network diversity (Cohen et al., 1997). In a similar study, the synergistic effects of social isolation (as proxy for network size) and loneliness on a component of immune competency – assessed as level of

antibody (Ab) production – to the influenza virus was examined (Pressman, Cohen, Miller, Barkin, Rabin et al., 2005). Results show that social isolation and loneliness were independently associated with Ab production (Pressman et al., 2005). Specifically noted was an inverse correlation between loneliness and social network size (Pressman et al., 2005). These studies highlight the relationship between physiological mechanisms through which social network measures influence health-related issues – susceptibility to common cold and Ab production. Specifically, these studies illustrate that immunity may be conferred through social alters with whom an ego interacts.

Beyond being determinants of health status, network size and diversity have been known to be determinants of health behavior. The Framingham Heart Study serves as a useful example of how a large network size and diversity contributed to the spread of health behavior, namely person-to-person spread of obesity (Christakis & Fowler, 2007). Christakis noted that the likelihood of becoming obese was correlated with the number and type of social contacts in an ego's network (Christakis et al., 2007). For instance, according to results from the study, the likelihood of the spread of obesity were as follows: a 57% chance among friends, a 40% chance among adult siblings, and a 37% chance among spouses, of spreading obesity (Christakis & Fowler, 2007). Using the same data from the Framingham Heart Study, alcohol consumption behavior was also examined. Results showed that the spread of alcohol consumption to be both health promoting and deteriorating, because of the existence of both social contacts that are drinkers and abstainers within the network (Christakis et al., 2008). For instance, behaviors of immediate neighbors and coworkers were not significantly associated with an ego's alcohol consumption, but the behavior of close relatives and friends was associated with likelihood of alcohol consumption (Christakis et al., 2008). Similar evidence was noted in a study that

examined the relationship between health behaviors (such as fast food consumption, alcohol consumption, meeting routine medical check-ups, recommendations for leisure time, physical activity, and sleep duration) and social network measures among a cohort of Latino population (Marquez, Elder, Arredondo, Madanat, Ji, et al., 2014). Results show that meeting routine medical check-ups varied by marital status (Marquez et al., 2014). In regards to alcohol consumption, adults were least likely to consume alcohol compared to younger individuals (Marquez et al., 2014). In addition, older individuals with smaller social networks were less likely to consume fast food compared to younger individuals (Marquez et al., 2014). Meeting recommendations for leisure time and physical activity was correlated with belonging to a larger network (Marquez et al., 2014). Finally, in regards to meeting recommendations for sleep duration, cohabitation among adults resulted in decreased sleep duration (Marquez et al., 2014). Evidently, results from the study show a relationship between an ego's health behaviors and alters with whom they have connection and/or interaction. In another study, similar findings were noted in regards to the relationship between social network measures and adherence to medication and rehabilitation attendance (Molloy, Perkins-Porras, Strike & Steptoe, 2008). Findings indicated that participants with a large social contact were three and half times more likely to attend cardiac rehabilitation compared to individuals with a small number of social contacts, and those with a medium-sized number of social contacts were two and half times more likely to attend cardiac rehabilitation than those with a small number of social contacts (Molloy et al., 2008).

The abovementioned studies highlight the effect of the relationship between an ego's health behaviors and those with whom the individual interacted. These studies concerning mortality, chronic illness, immune response, and health behavior illustrate that social network

measures exert their influence to shape health through various mechanisms. The connection and/or relation an ego has to alters with whom they interact determines whether the mechanisms are health promoting or health deteriorating. The current study examined social network measures, diversity, and size to determine the influence of high-value alters on an ego's attitudes, beliefs, and perceptions toward seeking help for health-related needs.

Prior sections in this chapter primarily focused on the relationship between social network measures of informal social network (i.e. family, friends, workmates, etc.) and health-related topics. Although the current study is not directly concerned with the size and diversity of formal social networks (i.e. health care providers, government agencies, etc.) available to participants of interest, the study questionnaire (GHSQ) does require participants to rate their preference for use of formal social networks to seek help for health-related needs (Reference GHSQ, questions 1e, 1f & 2a). The size and diversity of the health care workforce available to a population influence their approaches toward help seeking for health-related needs (McLafferty, 2003; Robert Graham Center, 2013; Wang, Babkirk & Yan, 2012). Therefore, the following section highlight the relationship between social network measures of formal social network and health-related topics.

The nation's health care workforce is not regulated with regards to the number and/or geographic distribution, with respect to population that it services (Robert Graham Center, 2013). Researchers have used several approaches to quantify the number of available health care providers to a population, and notably the geographic information system (GIS) has proven useful. GIS has been used to understand spatial organizations of health care providers, spatial behaviors of health care providers, and consumers and disparities in access and utilization among vulnerable populations (McLafferty, 2003; Wang, Babkirk & Yan, 2012). For example,

according to a study, which used GIS to examine geographical location of primary care physicians per residents across five counties in Maryland, it was noted that the most vulnerable population had the lowest rate of primary care physicians available to them (Wang et al., 2012). Specifically examined in the study was the correlation between geographical location of primary care physicians and the rates of hospital discharge among the population who had myocardial infarction and asthma (Wang et al., 2012). Results indicated that geographical locations of primary care physicians did not correspond with the geographical location of the hospital with the highest rates of myocardial infarction and asthmatic population (Wang et al., 2012). Similar evidence was noted in an intervention study, which used GIS to identify vulnerable communities and populations, in order to improve their access to primary care and reduce the use of the emergency department (Dulin, Ludden, Tapp, Smith, de Hernandez et al., 2010). Abovementioned studies focused on the number of available health care providers; however, they minimally reveal the satisfaction of health care consumers. For instance, according to a study that focused on the correlation between health care consumers' satisfaction and the geographical distance of local primary care physicians, it was noted that participants were not satisfied with available health care providers because of limited available service and travel inconvenience (Pathman, Ricketts & Konrad, 2006). This study highlights that although health care providers may be available geographically, a consumer's satisfaction may also dictate use of available health care service (Pathman et al., 2006). Overall, the abovementioned studies show that social network measures of formal social networks may moderate attitudes, beliefs, and perceptions toward various aspect of health (i.e. behavior, pattern, etc.). Because the current study required participants to rate their preference for use of a formal social network to seek help for health-related needs, it was important to account for the connection and/or relation between

an ego and the formal health care service provider with whom they may seek help for health-related needs.

Beyond the relationship between formal network size and health, diversity of formal social network may also moderate attitudes, beliefs, and perceptions toward health. Health care providers are increasingly required to interact with patients whose nativity and racial-ethnic composition are different from their own (Health Resources and Services Administration, 2006). For instance, White registered nurses made up over 85% of the health care workforce in 2004; nonetheless, evidence shows an increase in diversity, from 20 to 25 percent between 2000 and 2010, among non-White registered nurses (Health Resources and Services Administration, 2013). It has been suggested that increasing the racial-ethnic composition of the health care workforce may enhance delivery of culturally sensitive health care service (Griffith et al., 2011; Malat, van Ryn & Purcell, 2009; McGinnis, Brush & Moore, 2010; Saha, Taggart, Komaromy & Bindman, 2000). For instance, results from a telephone survey of 695 Whites and 510 Blacks conducted by the Institute for Policy Research at the University of Cincinnati noted that race and nativity correlated with a patients' perception of health care providers (Malat, van Ryn, & Purcell, 2009). In particular, Malat also examined patients' attitudes toward seeing same-race versus different-race health service providers, especially in the cases of consultation with foreign-born versus U.S.-born doctors, in tandem with a health service provider's understanding of health problems and comfort-level with their health service providers (Malat et al., 2009). Findings revealed that patient-provider race concordance influenced the perception of the type of service received and comfort-level with a health service provider (Malat et al., 2009). In regards to race, Black participants were noted to hold this perception more compared to Whites of a similar level of education (Malat et al., 2009). In regards to nativity, respondents believed that

U.S.-born doctors understood their health concerns, particularly among Blacks compared to their White counterparts (Malat et al., 2009). These findings suggest that health provider's nativity and race may influence patients' perception of the formal health care workforce, inadvertently influencing their help-seeking for health-related needs. Similar evidence was noted in a study that was primarily comprised of a racial-ethnic cohort of Black and Hispanic HIV-infected population. Results from the study show that racial-ethnic concordance influences quality of the provider–patient relationship (Sohler, Fitzpatrick, Lindsay, Anastos & Cunningham, 2007). In particular, similarity between provider and patient racial-ethnicity contributed to patients understanding and navigating the health-care system (Sohler et al., 2007). This data illustrates that there is a correlation between patient's perceptions and preferences for a health service provider. Because the current study's participants of interest belong to a racial-ethnic group, it was important to account for the connection and/or relation between them and the formal health care service provider with whom they may seek help for health-related needs.

Formal health care providers may not always be readily available; they nonetheless serve an important function in providing health care services. The abovementioned GIS-based studies illustrate that the number of available formal health care providers may contribute to the decision to seek help for health-related needs. In addition, diversity within the health care workforce may also contribute to the decision to seek help for health-related needs. Although the current study is not concerned with social network measures of formal social network, it was still important to account for participants' preferences for use of a formal social network (i.e. medical doctors, nurses, etc.) to seek help for health-related needs.

Lastly, although the study is not concerned with a gender-based comparison, it was important to address male gender-role perspective on health. An overwhelming number of

studies have indicated that men have smaller and less diverse social networks compared with their female counterparts (Ajrouch, Blandon & Antonucci, 2005; Berkman, 2000; Lucas 2007; Moore, 1990). However, regarding the relationship between men's social network measures and health, there remain inconsistencies in the literature. Generally, regardless of diversity and size of social network, men typically adopt health-deteriorating behaviors and have worse health outcomes compared to their female counterparts (Williams et al., 2003). On the contrary, evidence has also been noted for the adoption of health promoting behavior among men. For instance, results from a community-based intervention study, designed to increase sexual health practices and screenings among Latino heterosexual men, shows that the use of a male ego-led intervention team to train male alters with whom they interact, was noted to be effective in alters adopting sexual health practices and screenings (Rhodes, Daniel, Alonzo, Vissman, Duck et al., 2012). Similar findings were noted in a study that focused on sexual health screenings among racial-ethnically diverse cohort of young homosexual men, bisexual men, and other men who have sex with men (Siconolfi, Kapadia, Halkitis, Moeller, Storholm et al., 2013). Participants who had higher homosexual social networks were noted to have higher rate of seeking out sexual health screenings, due to positive behavioral reinforcement of seeking health screenings (Siconolfi et al., 2013). Additional findings noted were that the extent of social network size, in relation to the number of sexual partners, was associated with higher seeking of sexual health screenings (Siconolfi et al., 2013).

The abovementioned studies indicated that male gender-norms influence attitudes, beliefs, and perceptions toward health, which may result in either health benefiting or health deteriorating practices. The current study participants of interest are male, hence it is assumed that a large portion of alters with whom they have relations and interact are of the same gender.

Therefore, it was important to highlight gender-norm influence between an individual and those with whom they have social ties.

In summary, both social network measures (i.e. size and diversity) of either formal or informal network alters are important determinants of attitudes, beliefs, and perceptions toward health practice. The abovementioned studies highlight these relationships between social network measures, namely size and diversity and various aspects of health-related topics (mortality, chronic illness, immune response, and preventive health). In addition, the abovementioned studies highlight these relationships with respect to gender-based role characteristic, racial-ethnic makeup, and nativity makeup, all of which may determine attitudes, beliefs, and perceptions toward health practices. Hence, the study examined the relationship between social network measures and help-seeking for health-related needs among foreign-born and U.S.-born Black American men of West African descent.

Social Network and Help-seeking

The process of help seeking for health-related needs is not purely an individual choice, but rather a social network phenomenon (Pescosolido, 1992). Connections and/or relations an ego formed with formal and informal network alters have traditionally served as a medium for seeking help. However, an ego's perception of connections and/or relations to alters with whom they interact may moderate acceptance of information and/or advice for health-related needs. In addition to health-related information and/or advice acquired through interpersonal social networks, other health mediums such as the Internet and mass media (television, radio, billboards, etc.) are increasingly being used to seek help for health-related needs. Therefore, this section provides a review of pertinent and current literature in regards to the use of interpersonal

social networks and supplementary health mediums that are used to seek help for health-related needs in various contexts.

Informal social network members (intimate partner, relatives, faith-based organizations, neighbors) represent a diverse source that may influence help-seeking (Berkman, 1995; Berkman & Glass, 2000; Seeman, 1996). The relationships formed between an ego and alters within their networks at their specific life stages influence attitudes, beliefs, and perceptions towards health. As noted in prior sections, among all age groups, men are less likely to seek help for their health-related needs; however, research has shown that approaches toward health-related needs may vary due to different life course stages. For instance, parents have the greatest influence during childhood, peers during adolescence, and intimate partners during adulthood (Griffith et al. 2012; Schonert-Reichl & Muller, 1996; Umberson et al. 2010). These findings may be due to broader awareness of resources, and an increase in size and diversity of network alters, as individuals get older. Alongside influence of alters of similar age, researchers have noted that intimate relationships, either through marriage and/or non-marital relationships, have been highly correlated with seeking help for health-related needs, particularly for men (Mansfield, Addis & Mahalik, 2003; Mason & Strauss, 2004; Parslow, Jorm, Christensen, Jacomb & Rodgers, 2004; Smith et al., 2006). Nonetheless, the relationship dynamic dictates acceptance of health-related information or advice between partners. For instance, it has been noted that some married men do not maintain routine medical checkups even when their partners promote a healthy lifestyle and behavior (Mansfield et al.,2003; Mason et al.,2004; Smith et al., 2006).

In addition to the influence of alters of similar age and intimate partner, help-seeking for health-related needs is subjected to the influence of extended informal social network (i.e. parents, relatives, faith-based organizations, neighbors, etc.). According to reports from the

Health Information National Trends Surveys (HINTS), which compared use of various health communication mediums (print, TV, Internet) and interpersonal (informal and formal) social networks, it was noted that individuals preferred informal social networks as their primary source for seeking health information (Redmond, Baer, Clark, Lipsitz & Hicks, 2010). Nonetheless, because of the diversity that may exist within informal social networks, alters may influence help-seeking in different ways. For instance, in context of social ties among members of similar income status, evidence shows that low- income earners preferred to seek advice from members of similar income-levels (Cook-Craig, Ely, Flaherty, Dignan, & White, 2012). Along the same lines, the level of education has been noted to influence help-seeking for health-related needs. According to reports by the Center for Studying Health System Change (HSC), health information seeking increases as the level of education increases (Tu & Hargraves, 2003). For example, according to results from a study which considered level of education as a source of social capital, it was noted that a higher level of education correlated with an increase in the level of frequency of seeking health information (Song & Chang, 2012).

The relationship between an ego and relations that they have with informal alters (i.e. intimate partners, family members, and friends) with whom they interact may influence attitudes, beliefs, and perceptions toward health such as help-seeking for health-related needs. The abovementioned studies illustrated that the relationship between an ego with respect to different relation level -age, intimacy, income level and education level- with alters with whom they interact, may influence help-seeking for health-related needs in various ways. Therefore, the current study accounted for informal social ties, in order to determine their influence on an ego's attitudes, beliefs, and perceptions toward health, such as help-seeking for health-related needs.

Nativity and ethnicity may determine and/or influence sources use for seeking help for health-related needs (Griffith et al., 2011; Lucas, 2003; McPherson, Smith-Lovin & Cook, 2001). Social networks that consist of members of similar nativity and ethnicity are generally less diverse and vary in size, because individuals of the same national origin and ethnicity generally congregate within the similar enclaves (i.e. place-of-worship, community, organization membership) (Griffith et al., 2011; Marsden, 1988). These networks, particularly for the foreign-born population, serve as first-line for help-seeking for health-related needs; however, they may not be much help for accessing resources beyond the informal network. Therefore, resources needed for health-related needs may be limited. For instance, according to data from the 2005 Health Information National Trends Survey (HINTS), which examined experiences of non-Hispanics, English-speaking Hispanics, and Spanish-speaking Hispanics, differences were noted in regards to seeking health information for cancer (Vanderpool, Kornfeld, Finney, Rutten & Squiers, 2009). Results show that due to limited resources of informal networks, English-speaking Hispanics and Spanish-speaking Hispanics are less likely to seek health-related information compared with non-Hispanics (Vanderpool et al., 2009). Other researchers have also noted that those who are foreign-born of a racial-ethnic population have less experience with health information seeking, thus their preferred source to seek help for health-related needs may differ from U.S.-born racial-ethnic groups (Yoon, 2014). For example, the Internet, books, family members, magazines, newspapers, telephone information, and library were more preferred by U.S.-born; whereas the Internet, health care providers, and friends/co-workers were more preferred by the foreign-born population (Yoon, 2014). Because the current study is concerned with foreign-born and U.S.-born participants of different nativity and ethnicity, it was

important to determine whether alters with whom they interact influence attitudes, beliefs, and perceptions toward health, such as help-seeking for health-related needs.

Differences exist in preferred sources for seeking help for health-related needs; the abovementioned studies illustrated that the connections and relations that an ego has with informal alters with whom they interact may influence sources preferred for seeking help for health-related needs. In addition, preferred sources may be based on a type of relation (i.e. age, education, employment, income, ethnicity and nativity). Therefore, the current study does require participants to rate their preference for use of an informal social network to seek help for health-related needs.

Formal social networks (i.e. health care providers, government and private agencies/organizations) are for health care service and delivery. Although an overwhelming amount of research indicates reluctance of people to seek formal help, health care service remains a fundamental asset to address health-related needs. According to the National Hospital Ambulatory Medical Care Survey, there was an increase in emergency department visits between 1997–2012 among both the insured and uninsured adult population, ages 18 and over (NCHS, 2013). Although use of formal health care service increased, racial-ethnically defined populations are generally on the short-end of this increase. Data from the National Health Interview Survey (NHIS) regarding access and utilization of health care service shows that among young adults aged 19–25, non-Hispanic Whites and non-Hispanic Blacks were more likely to have had a doctor visit compared to Black and Hispanic populations of the same age (Kirzinger, Cohen & Gindi, 2012). Although the aforementioned data indicates that Blacks experience the short-end of use of health care services, there is a changing landscaped with health care service and delivery; there is a shift in patient-provider relationship from a passive

patient role to a patient-centered service, which views patients as active and equal partners with health care providers in making health-related decisions. Therefore, patient-provider relationship may moderate help-seeking for health-related needs. However, among ethnic-racially defined groups, disproportionate treatment and lack of health care providers has been reported. These factors may minimize the patient-provider relationship (Blanchard, Nayar, & Lurie, 2007; Cooper-Patrick et al., 1999; Johnson, Roter, Powe, & Cooper, 2004).

Formal social networks (i.e. health care providers, government and private agencies/organizations) are integral for health care service and delivery. Because of the need for formal health care service, the current study does require participants to rate their preference for use of formal social network to seek help for health-related needs.

Although the current research does not directly focus on the use of health communication mediums (Internet and mass media), the GHSQ does require participants to indicate if they use other sources, beyond alters in their social network, to seek help for health-related needs (reference GHSQ question 1i). Therefore, this section focused on other sources used for help-seeking for health-related needs. According to report from the 2001 Community Tracking Study (CTS) Household Survey, beyond their informal social network, health-care consumers preferred using books most, followed by both books and the Internet, with the Internet as the least preferred source of health information (Tu & Hargraves, 2003). In particular, among a racial-ethnic population, the Pew Healthcare Survey noted that use of mass media-based health information was positively correlated with help-seeking for health-related information (De Jesus, 2013). Along the same lines, the surge of Internet use, due to availability, ease of use, low cost, and quick information retrieval, has made it a useful source for seeking help for health-related needs. Health care providers have noted that the Internet is a helpful source to refer patients to,

because it increases patients' knowledge and fosters provider-patient communication (D'Auria, 2010). However, health care providers have reported concerns of misuse of online health information (D'Auria, 2010). In light of the usefulness of health communication mediums, people still prefer to seek help for health-related needs from both informal and formal social networks because of the advantages (e.g. social support) of face-to-face interaction (Redmond et al., 2010). Although mass media and the Internet will not likely replace the role of informal social networks as a source of information, Internet may be supplemented with the information and/or advice received from formal and informal social network.

Lastly, because this study focused on the male population, it was appropriate to address how gender-norm influences attitudes, beliefs, and perceptions toward help-seeking for health-related needs. Stereotypical male gender-norm dictates that men be stoic, in control, and self-sufficient, particularly in relation to seeking help for health-related needs (Mahalik et al., 2003). For example, findings show that men who endorsed stereotypical male gender-norm were less likely to adhere to scheduled annual medical check-ups (Mahalik, Lagan, & Morrison, 2006). However, given the health inequalities that exist among the racial-ethnic U.S. population, stereotypical gender-norms have been noted to vary (Griffith et al., 2011; Lucas et al., 2003; Rooks, Wiltshire, Elder, BeLue & Gary, 2012; Siconolfi, Kapadia, Halkitis, Moeller, Storholm et al., 2013). For instances, among a cohort of men who have sex with men, Latino, Black, and multiracial participants were more likely to have recently sought sexual health screenings compared to White men (Siconolfi et al., 2013). Findings indicated that the high rates of Latino, Black, and multiracial participants who sought health screenings might be because of participants' awareness of the disproportionately higher rates of sexually transmitted diseases among this population (Siconolfi et al., 2013). In another study that examined the correlation

between seeking help and symptoms associated with acute cardiac arrest, help-seeking was not easily differentiated based on gender (Galdas, Johnson & Ratner, 2010). Galdas et al., (2010) found that some female participants displayed behavioral characteristics (stoicism, denial of weakness) frequently associated with men, prior to the onset of symptoms of cardiac arrest. On the contrary, some male participants showed concern for their health and displayed overt vulnerability during their cardiac event (Galdas et al., 2010). The Galdas et al., (2010) study indicated that assigned gender role and/or stereotypical gender associations may not reflect how some individual manifest symptoms associated with their state of health.

A theme that underlines the literature reviewed in the above section is that there are no precise relationships between gender-norm and help-seeking for health-related needs. The current study participants of interest are male; hence it was assumed that a large portion of alters with whom they have relations and interact are of the same gender. Therefore, it was important to highlight gender-norm influence on seeking help for health-related needs.

Black Americans' Social Network and Help-Seeking

Researchers have typically aggregated data concerning the relationship between social network and help-seeking for health-related needs among the Black American population, with a minimal emphasis for the heterogeneity that exists within the population. Because of the subgroup heterogeneity that exists within the Black American population, variation exists concerning their attitudes, beliefs, and perceptions toward health (Abioye-Akanji, 2013; Griffith et al., 2011; Lucas et al., 2003; Ogedegbe et al., 2004; Ogungbade, 2010; Ojikutu et al., 2013; Oyeyemi et al., 2010; Udeh, 2013; Xanthos et al., 2013). As with any other groups or subgroups of the American population, Black Americans have different life experiences, therefore disaggregating a subgroup of Black American population for the purposes of understanding the

relationship between their social network and help-seeking for health-related needs was a necessary undertaking. Although the current research study focused particularly on foreign-born and U.S.-born Black American men of West African descent, the literature review focused on the general Black American population in order to provide a broad overview of literature that has examined the relationship between the social network and help-seeking for health-related needs.

Researchers have documented that informal social networks are primarily used by Black Americans when making decisions regarding health-related needs (Alexander, 2003; Bierman, 2006; Deering & Harris, 1996; Dilsworth-Anderson, Williams, Gibson, 2002; Duncan, 2005; Grier-Reed, 2013; Hill, 1998; Holley, 2011; Mills, 2005; Neighbors & Jackson 1984; Tovar-Murray, 2010; Waites, 2009). For instance, although Black Americans experience greater marital strain compared to Whites (Wilson, 2003), it has been argued that they receive greater health benefits from marriage compared to their White counterparts (Broman 1993; Kiecolt, Hughes & Keith 2008; Liu & Umberson 2008; Umberson et al., 2005). In general, several studies have noted a higher rate of routine medical check-ups among married individuals, compared to non-married individuals (Dryden, Williams, McCowan, & Themessl-Huber, 2012). The health benefits for foreign-born individuals, particularly that men receive from their intimate partners, is not well documented; however, foreign-born individuals face a host of challenges when in a new country, which may lead to strain in marriages, inadvertently resulting in health deterioration (Griffith et al., 2011; Lucas, 2008). The abovementioned studies illustrate the role of formal social network alters to influence attitudes, beliefs, and perceptions toward health-related needs among the Black American population. Therefore, the current study required participants to indicate preference of intimate alters for seeking help for health-related needs.

In addition to intimate partners, faith-based organizations (i.e. church, mosque, etc.) are significant sources of help-seeking for health-related needs among the Black American population (Taylor & Chatters, 1988; Taylor, Chatters & Jackson, 1997). For example, among a cohort of church-going Black American men, the interest to stay healthy is supported by the belief that "God wants a person to take care of his body" (Calvert & Isaac-Savage, 2013; Cheatham et al., 2008; Heeren and Jemmott, 2011; Maliski, Connor, Williams, & Litwin, 2010; Plowden & Miller, 2000). Although faith-based organizations are essential for the Black American population, they may not be structurally available, which may be detrimental, because they serve as a source of extended kin (Simbiri et al., 2010). For example, it was noted that Francophone speaking foreign-born from Africa, who are majority Muslims, do not have access to readily available sources of health information, typically available through established churches for Anglophone foreign-born Africans who are of the majority Christian (Simbiri et al., 2010). Alongside mainstream religions, the traditional religion contributes heavily to the health of Black Americans population, particularly for foreign-born Black Americans (Gyimah, Takyi, & Addai, 2006; Krause, 2005; Landrine & Klonoff, 1992, 1994). For instance, some foreign-born Black Americans of West African descent prefer to use traditional remedies to control diabetes and hypertension (Abioye-Akanji, 2013). Similar findings were noted in regards to seeking help and treatment for cancer-related information, among two Anglophone West African cohorts (Ghanaian and Nigerian) in the United Kingdom; some study participants believed that God had a role in the origin of cancer, and through divine healing they could be cured of cancer (Ehiwe, McGee, Thomson, & Filby, 2013). In addition to faith-based organizations, other venues of congregation such as barbershops have been reported to be a help source, used particularly among Black American men to seek help for health-related needs (Griffith, Allen, Johnson-

Lawrence & Langford, 2013; Linnan, Reiter, Duffy, Hales, Ward & Viera, 2011). For instance, according to a report from the Black Barbershop Health Outreach Program (BBHOP), barbershops were effective in reaching more than 7,000 Black American men to be screened for high blood pressure (Releford, Frencher Jr., Yancey & Norris, 2010).

Evidently the abovementioned studies indicate that faith-based organizations (i.e. church, mosque, etc.) and other venues of congregation may influence attitudes, beliefs, and perceptions for help-seeking for health-related needs. The current study does not directly account for the relationship between venues of congregation (i.e. faith-based organization and barbershops) and help-seeking for health-related needs; however, it does account for influence that might arise from alters with whom an ego interacts with in these venues. Because the current study required participants to indicate whether they belong to groups, which included but not limited to faith-based organizations, it is therefore important to determine influence on help-seeking for health-related needs from alters in their group with whom they interact.

According to the Institute of Medicine's 2002 report "Unequal Treatment," there are persistent differences in the quality of health care delivered to Blacks versus Whites (Nelson, Smedley, & Stith, 2002). The relationship between formal social network and the Black American population have been shaped by mistrust, skepticism and race-based medical malice, which has contributed to little to no use of formal health care services (Cheatham, Barksdale & Rodgers, 2008; Hammond, Matthews, Mohottige, Agyemang, & Corbie-Smith, 2010; Gadson, 2006; Watkins & Neighbors, 2007). For example, in a study that examined Black American males' perspectives about screening for prostate and colorectal cancer, it was noted that fear and negative past experiences with the health care system and/or health-care providers moderated their willingness to seek help (Fyffe, Hudson, Fagan & Brown, 2008). On the contrary, other

studies have shown benefits of formal health care service through the use of a community-based health program. For instance, using a community health-based program, individuals who may be a carrier and/or at high-risk of interacting with a carrier among a network of Black American men who were HIV-negative, HIV-negative injection drug user (IDU), HIV-positive-IDU and HIV-positive-non-IDU, were able to be targeted to receive health screenings (Fuqua, Chen, Packer, Dowling, Ick et al., 2012). Findings from this study indicate that community-based programs are an opportune medium for formal health care service providers to target individuals that may have had a negative experience and/or perception using formal health care services.

Although formal health care service may be effective under certain circumstances, their utilization may partly be dependent on demographic factors such as income, education, employment status, nativity, and ethnicity (Griffith et al., 2012; Johnson & Case, 2012; Ojikutu et al., 2013). According to a report by NCHS (2012), among Black American population about 3 million persons delayed seeking health-related care due to cost, and 3.5 million did not receive needed care due to the cost. Beyond cost, concerns about employment status has been noted to moderate help-seeking for health-related needs (Allen et al., 2007; Ravenell et al., 2008; Thompson, Talley, Caito & Kreuter, 2009). Both of these perimeters are essential in order to have access to health care service.

Furthermore, with respect to the heterogeneity that exists by nativity among Black American population, differences have been indicated with the use of formal health care service. For example, difference have been noted with regards to how foreign-born and U.S.-born Black Americans use community-based programs for HIV screenings. A lower rate of HIV screening was noted among foreign-born individuals compared to their U.S.-born counterparts (Ojikutu et al., 2013). Furthermore, researchers have also noted differences in help-seeking from formal

health care service among foreign-born Black Americans compared to their U.S-born counterparts. For instance, in a study which compared intentions related to prostate screening among foreign-born Nigerian men and their counterparts who remain in their native country, it was noted that Nigerian men who reside in the U.S. had access to readily available health resources, therefore increasing their intentions for prostate cancer screenings (Akpuaka, Clarke-Tasker, Nichols-English, Daniel & A. Akpuaka, 2012). The abovementioned studies illustrate how the relationship between formal social network and the Black American population influence attitudes, beliefs, and perceptions toward seeking help for health-related needs. Although there is no direct relationship, the current study does nonetheless require participants to rate their preference for use of formal social networks.

Lastly, a lack thereof or limited structurally available formal social network (i.e. health care providers, hospitals, etc.) to address health-related needs has been shown to influence help-seeking among the Black American population (Bach, Pham, Schrag, Tate & Hargraves, 2004; Gaston, 2009; Randall, 2009). For example, it was noted that emergency surgical services are less structurally and readily available in highly segregated geographical locations (Hayanga et al., 2009). The lack of structurally available health care service evidently determines help-seeking for health-related needs; more importantly, it can be detrimental to overall health status of a population.

The abovementioned studies illustrate a host of social determinants (i.e. perception of the health care system, income, education, employment, etc.) that may promote or deter help-seeking for health-related needs in formal health care settings. Because formal health care service and delivery are an integral apparatus used for maintaining health, the current study required

participants to indicate a preference for use of formal health care service for seeking help for health-related needs.

Beyond the influence of formal and informal social networks, demographic factors such as age, education, employment, and income were examined because they have been noted in previous studies to influence the relationship between social network measures and help-seeking for health-related needs. In general, Black Americans are disproportionately affected by low socioeconomic status (SES) -employment, education, and income; they are paid less, under-employed, and have limited education compared with their White American counterparts (National Urban League, 2007). Although foreign-born tend to have higher incomes, higher levels of education, and greater employment stability than U.S.-born Black American, as a group, Black American are more likely to belong to lower tiers of SES group (Griffith et al., 2011; Oyeyemi & Sedenu, 2010). As noted by Williams (2003), SES is a determinant of variations in health; therefore, conditions associated with reduced socioeconomic opportunities tend to lead to decrease purchasing capacity for basic health needs, which in turn may lead to negative health consequence. For instance, according to results from the Hypertension Detection and Follow-Up Program, it was noted that among men with middle-class status, Whites had the lowest level of hypertension, followed by Black American men with some college education, and Black American men with a college degree (Williams, 2003). Similar correlation was noted between hypertension and socioeconomic position (SEP) among a cohort of Black American men (James, Van Hoewyk, Belli, Strogatz, Williams & Raghunathan, 2006). Results shows that low childhood and adulthood SEP was associated with an increased rate of hypertension status (James et al., 2006). As it relates to level of education, it has been noted that Black American men who had some college education or higher compared with their counterparts had higher

rates of Internet use as a source for seeking help for health-related information and higher rates of discussion of family health history with their health service provider and relatives (Mitchell, Hawkins & Watkins, 2013). On the contrary, researchers have documented that a higher level of education does not necessarily lead to an increasing health status (Griffith et al., 2011; Lucas et al., 2003; Neighbor et al., 2011; William, 2003). For instance, according to results from a study that examined a cohort of Black American men, college graduates compared with high school graduates had lower rates of cigarette smoking, physical inactivity, and obesity; however, they had higher rates of hypertension (William, 2003). In addition, level of income has been noted to act on the relationship between social network and health-related help-seeking among the Black American population. As noted in a prior section, Black Americans are typically in a lower tier of SES; therefore, they belong to social networks with limited economic means to address health-care related problems. For example, a correlation was noted between unmet health-care needs and the increase of health care costs among a cohort of related Black American men (Tucker-Seeley, Mitchell, Shires & Modlin, 2014). Lastly, in regards to employment, Black American men tend to have higher rates of unemployment and lower rates of stable employment; these social determinants present barriers to acquiring health-related care (Williams, 2003). For instance, among Black Americans with unsteady employments and homelessness, a higher rate of hypertension and cigarette consumption have been noted compared with men with steady full-time employment (Diez-Roux, Northridge, Morabia, Bassett & Shea, 1999). On the contrary, foreign-born individual with access to stable employment, who often hold two jobs and work long hours, have been noted to seek less help for health-related needs due to the demands of their occupations (Oyeyemi et al., 2010).

A host of demographic determinants (education, employment, and income) may act on the relationship between social network and help-seeking for health-related needs. Therefore, for the purpose of this study, demographic determinants were accounted for because they may act on the primary variables.

Lastly, as indicated in prior sections, although the current study does not concern itself with gender-norm comparison, nonetheless it was important to highlight the role of gender-norm with respect to the health of the Black American population. Although male gender-norm roles are reflected across different racial-ethnic lines, some social determinants are unique to the gender-norm characteristics of Black American men, which may influence their attitudes, beliefs, and perceptions toward health; some of which include racism, marginalization, and lack of resources (as cited by Calvert & Isaac-Savage, 2013). Researchers have generally noted an inverse relationship between male gender-norm role and health practices. Because the current research focused on a subgroup of the Black American male population, it was therefore assumed that a large portion of alters with whom they have relations and interact are of the same gender and racial-ethnicity. Therefore, the current study required participants to indicate their preference to seek help for health-related needs from alters that may be of the same gender and racial-ethnicity.

Primary & Covariate Variables

Mechanisms linking social network to health are rarely direct; rather they are indirect and in some cases, context-specific (Umberson et al., 2010; Umberson & Montez 2010). Hence, for the purpose of this study, several variables were considered in order to address the research question. Two social network variables which include the number of high contact roles (network diversity) and the number of people in a social network (network size) will be examined. The

help-seeking variables included future intention to seek help from a formal, informal, or having no help source, and past help sought and experience from a formal help source were examined. Finally, demographic factors, such as age, education, employment status, and income were selected because they have been shown to act on the relationship between social networks and health; therefore, their impact was also considered as a potential confounding variables. The preceding section provided justification and rationale for the selection of the two primary variables and potential confounding variables. An examination of the primary variables together with demographic factors affords a more nuanced representation of the relationship between social network measures (i.e. size and diversity) and help-seeking measures (future intention to seek help from a formal, informal, or having no help source, and past help sought and experience from a formal help source) for health-related needs.

In brief, the social network index (SNI) accounts for three variables, which include number of high contact roles (network diversity), number of people in social network (network size), and number of embedded networks, used to assess participation in 12 types of social relationships. In regard to the current study, two variables will be examined using the SNI. One SNI variable (number of people in social network) measured the total number of regular contacts that a person maintains, reflecting overall network size. A second variable (number of high-contact roles) measured the number of social roles in which the respondent has regular contact, reflecting network diversity (Cohen et al., 1997). As indicated in the prior section of this chapter, social network size and diversity influence various aspects of health. In scope of the research question, it was pertinent to consider these variables to determine the relationship between social network measures and source of help-seeking for health-related needs.

Although embedded networks variable can be measured using SNI, it was not addressed in the current study. Embedded networks variable reflect different alter domains (family, friends, religious group, school, work, neighbors, volunteer group, and other groups) that an ego has active contact with at least once every two weeks (Cohen et al., 1997). This study does not account for network domains, primarily because it restricts participants of interest to have contact with four or more person at least once every two weeks within a specific network domain. In addition, because the participants of interest included individuals who are foreign-born, of different ages, and different religious and/or non-religious affiliations, there may not be contact with four or more persons at least once every two weeks within a specific network domain.

The second variable, help-seeking, was measured using the General Help-seeking Questionnaire (GHSQ), and subscales of help-seeking variable, namely future intention to seek help from a formal, informal, or having no help source, and past help sought and experience from a formal help source were examined. Rickwood et al. (2005) noted that the GHSQ instrument accounts for three components of help-seeking, which include time context, a source of help, and the type of problem. In regards to time context of help-seeking, the GHSQ allow researchers to assess changes over time, either in the past and/or future intentions with regards to how help is sought (Rickwood et al., 2005). Therefore, the time context characteristic of the GHSQ provides a mean to account for changes in approach toward help seeking (Rickwood et al., 2005). In regards to the GHSQ's source of help component, it allows researcher to differentiate between preferred sources of help. Lastly, in regards to the third component of GHSQ, type of problem, it allows researchers to focus on a particular problem (i.e. health-care

needs), as it relates to how help is sought. The GHSQ's ability to measure these three components of help-seeking evidently indicates its usefulness for the current study.

Demographic factors such as age, level of education, income, and employment status are correlative determinants that have been widely studied to determine various aspects of health. Demographic factors that stratify social network include, but are not limited to, gender, racial-ethnicity, nativity, age, and acquired characteristics such as education, employment, or income (Lazarsfeld & Merton, 1954). Prior sections in this chapter intermittently addressed demographic factors (i.e. age, education, employment and income) that may act on the relationship between social network measure and help-seeking for health-related needs. The following section reiterated how demographic factors may act on the relationship between social network and health.

In regards to how age acts on the relationship between social network and health, researchers have documented the short- and long-term influence of alters of similar age with respect to health (Ajrouch et al., 2005). In general, both size and diversity of social network vary over the life course, subsequently exhibiting their impact on the decision-making process. For example, adolescents and young adults tend to belong to larger and more diverse social networks; therefore, there may be a greater possibility of influence. In context of certain health practices, adolescents and young adults tend to exhibit health behavior associated with the majority of their age group (Halkitis & Figueroa, 2013; Rickwood et al., 2005). Older individuals have about half as many social ties as do younger individuals; however, their social networks tend to be more stable and maintained. Therefore, differences may be exhibited in their decision-making for health-related needs (Luong, Charles & Fingerman, 2010). In considering age as a

potential confounder, this study examined the influence of alters of similar ages with an ego, to moderate the approach toward help seeking for health-related needs.

SES, which may be reflective of education level, income level, and employment status, is a known determinant of variations in health (Williams, 2003). In regards to the impact of education on the relationship between social network and health, variability exists. Studies have shown that social networks are generally similar based on level of education (Louch 2000; Marsden, 1987; Smith, McPherson, & Smith-Lovin, 2014). In addition, a higher level of education has been associated to increase network diversity (Krause & Borawski-Clark, 1995; McPherson et al., 2001; Wenger, 1995). In regards to health, a higher level of education has been noted to correlate to an increase in the practice of health-enhancing behavior (Ross, 1995). It has also been argued that higher education improves health through various pathways (i.e. increase health literacy needed to navigate the health care system) (Cutler and Lleras-Muney, 2006). A network of a highly educated group may be a source and/or provide access to range of information, including health-related information; however, in the absence of economic means, information received from highly educated alters may not be useful and/or manifest for practical application (Pinquart & Sörensen, 2000). Because people are likely to confide in others from similar educational backgrounds (Kalmijn 1998; Marsden 1988; Yamaguchi, 1990), this study considered educational level as a potential confounder, to examine its influence to shape network size and diversity, and secondly, to determine influence of alters of the same level of education to influence help-seeking for health-related needs.

It is well-documented that stable and adequate employment correlates with better health. In addition, the employment status of alters within an ego's social network may influence the probability of an ego's access to employment, and therefore may result in higher purchasing

power for health-related needs (Marmot & Wilkinson, 2005; Kessler, House, and Turner 1987; Moser, Fox, and Jones 1986). Employment provides economic benefits, which may translate directly or indirectly into better health. In considering employment status as a potential confounder, this study examined its influence to shape network size and diversity of social network that an ego belongs, and secondly, to determine how social ties with members of similar employment status influence help-seeking for health-related needs.

There is extensive literature concerning the interplay of income on the relationship between social networks and health (Adler, Boyce, Chesney, Folkman & Syme, 1993; Ecob & Smith, 1999; Ettner, 1996; Feinstein, 1993; Fiscella & Franks, 2000; Wilkinson & Pickett, 2006, 2008, 2009). Researchers have noted the level of income to be a significant determinant of health behavior and status (Wilkinson, 1992; Wilkinson & Pickett; 2006). Persons with higher incomes are in better health primarily because of the purchasing power to access health care service compared to low-income individuals (Wilkinson, 2006). Although the association between income and health is not linear, income provides purchasing power for services that are necessary for maintaining health (Case & Paxson, 2002; Fritzell et al. 2004; Grossman 2000; Hernandez & Blazer, 2006; Mackenbach et al. 2005; Wagstaff, 1986). Secondly, income differences within social network have also been argued to be an important determinant of health (Wilkinson, 1992). For example, Marmot (2002) argued that poor health stems from the perception of others above oneself in the social and income hierarchy. Given this relationship between income and health, it was important to consider income as a potential confounder. Therefore, this study examined its influence to shape network size and diversity. Secondly, the role of alters with members of similar income to influence help-seeking for health-related needs was examined.

Rationale for instrument selection

A number of researchers have used both the SNI (Brickart et al., 2011; Brickart et al., 2012; Cohen et al., 1997; Cohen et al., 2003; Cohen et al., 2007; Hamrick et al., 2002; Sneed et al., 2011) and GHSQ (Rickwood et al., 2005; Rughani et al., 2011; Tuliao et al., 2014; Wilson et al., 2005; Wilson et al., 2011; Watsford et al., 2013) instruments. As noted in prior sections, the SNI assesses social network measures (i.e., diversity, embeddedness, and size) (Cohen et al., 1997), and the GHSQ assesses intentions to seek help from different sources and for different problems (Wilson et al., 2007). Both instruments have been used to examine the relationship between health-related needs, social network measures, and help-seeking from different sources, and for different problems within a social network; therefore, they were selected for the current study. This section provides a chronological order of the literature that has used the instruments selected for the current study. This section addresses how researchers have used the instruments under similar circumstances, as related to the current study. Secondly, this section highlights similarities between the current study's design and methodology, and that of other researchers that have used the selected instruments for the current study. Third, this section evaluates the strengths and limitations of the selected instruments, while considering the instruments that share similar properties to the selected instruments for the current study.

In regards to the purpose and outcome measure of the SNI and GHSQ, these instruments were selected because after reviewing their use in the literature, several researchers have used them to address similar research questions to that of the current study. Although the SNI was developed to examine the relationship between health-related physiological characteristics and constructs of social networks (i.e. relationship between upper respiratory infection and social network characteristics) (Brickart et al., 2011; Brickart et al., 2012; Cohen et al., 1997), it later

was adapted to examine the relationship between health-related behavioral characteristics and the construct of social network (i.e. relationship between health practice and social network characteristics) (Cohen et al., 2007; Hamrick et al., 2002; Sneed et al., 2011). In regards to chronological use of SNI, Cohen et al. (1997) initially used it to assess the role of social network diversity in relation to susceptibility to upper respiratory infections (URIs), and found that diverse network ties were correlated with increase rate of resistance to URIs (Cohen et al., 1997). In a similar study, Hamrick et al. (2002) noted a correlation between increased diversity of network, increased level of stress, and increased URIs. Furthermore, beyond studies that focused on immune response, other studies revealed that the brain regions that regulates behaviors correlated to social network measures. For instance, in two studies that examined the relationship between the amygdala –a brain region associated with social cognition- and construct of a social network, they noted that individuals with larger amygdala volumes reported larger and more complex social networks (Brickart et al., 2011). To substantiate these findings, the same authors noted that participants with stronger amygdala connectivity within brain regions subserving social cognition were noted to have larger social networks compared to participants with weaker amygdala connectivity within the same brain regions (Brickart et al., 2012). Although the abovementioned studies that used the SNI primarily focused on the relationship between health-related physiological characteristics and construct of social network, they, nonetheless, highlight the importance of social network measure's influence on a various aspect of health.

Beyond the relationship between health-related physiological characteristics and construct of social network, researchers have used the SNI instrument to examine the relationship between health-related behavioral characteristics and construct of social network. For instance, Cohen et al. (2003) noted an inverse correlation between the level of sociability and

probability of developing a cold (Cohen et al., 2003). In a similar study, Cohen et al., (2007) noted that greater network diversity was associated with increased interaction with people, and decreased alcohol and cigarette consumption (Cohen et al., 2007). In the most recent study that has used the SNI instrument, it was noted that parents were less likely to develop colds compared to non-parents (Sneed et al., 2012). The abovementioned studies that have used the SNI instrument illustrate the relationship between health-related behavioral characteristics and construct of social network. In a similar manner, the current study examined the relationship between social network measures and health-related behavioral measures among a population of foreign-born and U.S-born Black American men of West African descent.

The second instrument selected for the study is the General Help-Seeking Questionnaire (GHSQ). The GHSQ instrument was selected because after reviewing its use in the literature, it was used to address a purpose and outcome measure similar to the current study. For instance, using the GHSQ instrument, Wilson et al. (2005) noted a correlation between an increase in suicidal thoughts and decrease in intentions to seek help from formal and informal help sources. In a similar study that used the GHSQ instrument to examine male cohorts, a group that will be primarily of focus for the current study, it was noted that an informal source of help was preferred to formal sources by study participants (Rickwood et al., 2005). Along the same line of studies that used the GHSQ to focus on help-seeking from a formal help source, it was noted that participants are reluctant to seek help from a formal source because they do not believe formal help sources are beneficial (Rughani et al., 2011). In regards to how individuals are influenced with respect to their approach to seeking help from formal help sources, Wilson et al. (2011) found that an ego's family origin may moderate intentions to seek help from formal help sources. Beyond formal and informal help sources, Wilson et al. (2011) also noted, among a cohort of

male participants, that the severity of their health conditions predicted their intention to seek help from formal and informal help sources. In a recent study, which focused on help-seeking from formal help sources, Watsford and Rickwood (2013) noted that individuals who experience negatively disconfirmed expectations related to their role as a client seek less help from formal help sources. Lastly, in a study that adapted the GHSQ to a Filipino cohort, for the purpose of instrument validation, evidence was provided for differences that may exist in regard to how help is sought from formal and informal sources among Filipino immigrants, Filipino Americans, and native-born Filipinos (Tuliao & Velasquez, 2014). The abovementioned related studies using GHSQ illustrate how both formal and informal help sources influence how individuals seek help. As indicated in prior sections, the current study examined the influence of formal and informal social network members on help-seeking, in relation to social network measures among a population of foreign-born and U.S born Black American men of West African descent.

The abovementioned studies highlight the chronological progression of literature that have used both the SNI and GHSQ under similar circumstances as the current study. An underlining theme central to these studies is the examination of the relationship between health-related needs, social network measures, and help seeking. In particular, both the SNI and GHSQ addressed health-related topics and their relationship to the construct of social network, namely social network measures (i.e. diversity and size) and the relations, such as influential factors, that may mediate intentions to seek help from different sources for different problems within a social network. The current study was conducted under similar circumstances, in that it examined the relationship between help-seeking for health-related needs, between an ego and formal and informal alters within a social network.

Beyond similarities in purpose and outcome measures, there are similarities between the current study's design, methodology, and that of researchers that have used the SNI and GHSQ. In regards to research design, researchers that have used both instruments have extensively used a quantitative analysis approach – an approach that was used in the current study. There are currently no quantitative data available for the population of interest for the current study, in regard to the relationship between their social network and help-seeking pattern. Nonetheless, there are limited, qualitative data regarding the population of interest perspective about the relationship between their health and intimate social network (Abioye-Akanji, 2013; HEALTH, 2011; Ogedegbe et al., 2004; Ogungbade, 2010; Ojikutu et al., 2013; Oyeyemi et al., 2010; Udeh, 2013). In reviewing the literature, there was a substantial benefit in using the quantitative analysis approach. For instance, with respect the SNI, Cohen et al. (2007) provided quantitative evidence to determine the relationship between social network diversity and social influence on health. Quantitative evidence revealed that increased social network diversity is correlated with the level of interaction, and decreased smoking level and alcohol intake (Cohen et al., 2007). Furthermore, it was noted that increased interaction between alters and egos with fewer network diversity correlated with a greater likelihood of cigarette and alcohol consumption (Cohen et al., 2007), whereas with increased interaction between alters and egos with high network diversity, there was a lesser likelihood of cigarette and alcohol consumption (Cohen et al., 2007). In regards to the GHSQ, both qualitative and quantitative analysis approaches have been used by a number of researchers (Wilson et al., 2005; Wilson et al., 2007; Rughani et al., 2011; Wilson et al., 2011; Watsford et al., 2013; Tuliao et al., 2014). Rickwood et al. (2005) noted that quantitative data are collected to minimize limitations associated qualitative data. For instance, individuals have been noted to make statements regarding seeking help from formal help sources

such as, “I’ve seen one before, and they don’t do anything” (Rickwood et al., 2005). However, such qualitative statements are subjective and are not quantifiable (Rickwood et al., 2005). For instance, with the use of a quantitative analysis approach, Wilson et al. (2011) found that a correlation exists between symptoms associated with mental health distress, an ego’s innate ability to address social problems, recent help-seeking experiences, and future intentions to seek help for mental health problems. Results revealed that the severity of mental health distress lowers intentions to seek help in the future (Wilson et al., 2011). As evident in the literature reviewed, numerical data obtained through the quantitative approach facilitates comparisons between groups, and secondly provides important facts from research data, including differences between groups, and demographics.

In regards to methodology, there are similarities between the current study and that of researchers that have used the SNI and GHSQ. In regards to the procedure for recruitment, a convenience sampling method has been used with both the SNI and GHSQ. Because of the cross-sectional nature of a number of studies that have used both the instruments, a convenience sampling method provided access to a readily available sampling population. For instance, a cross-sectional convenience sampling method was used in several studies for SNI (Cohen et al., 1997; Cohen et al., 2003; Cohen et al., 2007; Hamrick et al., 2002; Sneed et al., 2012;) and GHSQ (Tuliao et al., 2014; Watsford et al., 2013; Wilson et al., 2011). As noted in prior sections, because of the nature of convenience sampling and cross-sectional studies, there are advantages and disadvantages with the procedures. Namely, cross-sectional studies are limited to a particular time point. Therefore, it was impossible to infer causality with the general population. Nonetheless, in regards to the selected instruments, Bickart et al. (2011; 2012), Rickwood et al. (2005), and Wilson et al. (2005) have used the respective instruments repeatedly

in a number of cross-sectional studies consistently with the same cohort group which, in effect, reflects pseudo-longitudinal studies, thus adding to the reliability of the selected instruments. The current study adhered to a convenience sampling method primarily for the reasons indicated, and in addition, because of its cost effectiveness, expedited data collection, and ease of research.

In regards to sampling parameters, the sample size typically ranged from 50 to 800 for studies that have used the SNI (Bickart et al., 2011; Bickart et al., 2012; Cohen et al., 1997; Hamrick, 2002; Sneed et al., 2012), and the sample size for studies that used the GHSQ generally ranged from 120 to 1,200 (Rickwood et al., 2005; Tuliao et al., 2014; Wilson et al., 2005). In order to keep in line with the sample size range, the current study included 230 participants of interest.

In regards to participation, as noted in prior sections, both the SNI and GHSQ were constructed to be tailored to a wide range of population. For instance, the SNI has been administered to participants from various racial-ethnic backgrounds in the U.S. (i.e., Whites, Black, Asian, Hispanic, and other races) (Cohen et al., 1997; Hamrick et al., 2002; Cohen et al., 2007; Sneed et al., 2012). Although the SNI has not been used with the particular population for this study, it was important to note that it has been used among the Black American population; the participants of interest for the current study are a subgroup of this population. The second instrument, the GHSQ, has mainly been administered to participants from various racial-ethnic demographic backgrounds in Australia, Canada, the U.S., and Philippines. The racial-ethnic make-up of participants has included Caucasian, Asian, Aboriginal/Indigenous and other (Wilson et al., 2005; Wilson et al., 2011). In relation to the current study, similarities exist with respect to comparative analysis of help-seeking patterns between different subgroups within a specified region (Tuliao et al., 2014; Wilson et al., 2005; Wilson et al., 2007). For instance, comparative

analysis of help-seeking for health-related information was examined among Filipino immigrants, Filipino Americans, and native-born Filipinos (Tuliao et al., 2014).

In regards to demographic data, the age of the participants has typically ranged between 12–25 years old, and included participants of both genders, for studies that have used the GHSQ (Watsford et al., 2013; Wilson et al., 2005). As indicated previously, the studies using the GHSQ have focused on the male genders (Wilson et al., 2011). The SNI participants' demographic background included both genders; the age ranged from 18-75 years (Cohen et al., 1997; Cohen et al., 2003; Cohen et al., 2007; Hamrick et al., 2002; Sneed et al., 2011). Therefore, the instruments were selected because of similarities between previous research studies and the current study in regards to demographic data.

In addition, after reviewing the literature that has used the instruments, inclusion and exclusion criteria for participation have been well defined in regards to language and demographic perimeters. Because the participants of interest for the current study included participants from both foreign-born and U.S.-born populations, inclusion and exclusion criteria will be defined in a similar format as that of the literature reviewed. For instance, although the instruments have been used in multiple countries, speaking, reading, and writing in English has been an inclusion criteria. In addition, the age range and gender of participants are well defined for the current study, as indicated previously; these perimeters are similar to prior studies that have used the selected instruments.

In regards to the method for data collection, the SNI and GHSQ instruments were selected because individually they can be supplemented with other instruments; secondly, to account for limitation that may be associated with the individual instrument. For instance, the SNI has been combined with other instruments such as the Goldberg's adjective scales (Cohen et

al., 1997), and The Perceived Stress Scale (PSS) (Sneed et al., 2012). The GHSQ has been combined with a number of questionnaires, some of which include Suicidal Ideation Questionnaire (Wilson et al., 2005) and Disclosure Expectations Scale (Rughani et al., 2010). The current study adopts this approach because it has proven effective. The combination of SNI and GHSQ allowed for examination of social network and help seeking components beyond the capability of individual instrument. In considering the combination of the selected instruments, the researchers considered the length of time it will take to complete the questionnaire. In addition, the structural format of the questionnaires, as open-ended questions, has been indicated to be useful for exploring ideas and concepts that pertain to participants' social network and approach toward help-seeking. For example, in regards to the GHSQ, a question such as, "If you were having any health-related needs which may include but not limited to the following, how likely is it that you would seek help from the following people in the next 4 weeks?" (Wilson et al., 2005); and with regards to SNI a question such as, "How many members of your church or religious group do you talk to at least once every two weeks?"(Cohen et al., 1997).

In reviewing the literature, there are several strengths and limitations associated with both the SNI and GHSQ instruments. In regards to the SNI, the instrument belongs to a class of social integration measures that accounts for social connectedness (Department of Health and Human Services (DHHS), 2009). Social integration measures are categorized into non-complex measures (i.e. role-based measures, social participation measures, perceived integration measures) and complex measures (i.e. Cohen's SNI and Berkman's SNI) (DHHS, 2009). Complex measures combine aspects of role-based measures, social participation measures, and perceived integration measures (DHHS, 2009). From a comparative standpoint, non-complex measures are one-dimensional, and therefore are limited in their ability to capture robustly the

social connection and/or relation an ego has to alters within their social network. For instance, a commonly used non-complex measure is the Thoits' role measure (1986), which assesses participation in 8 social roles (spouse, parent, worker, student, group member, church member, neighbor, friend) in which an ego actively participates (DHHS, 2009). Because Thoits' role measure did not account for an extensive social connection and/or relation an ego has to alters within their social network, an additional measure, Thoits' role (1995), was developed to assess participation in 7 social roles (lover, son/daughter, son/daughter-in-law, relative, hobbyist, athlete, stepparent) (DHHS, 2009). Complex measures, on the other hand, account for an extensive social connection and/or relation an ego has to alters within their social network because they combine role-based measures, social participation, and perceived integration measures. For instance, Berkman's SNI (Berkman & Syme 1979) accounts for four components: social network, marital status, contact with friends and family, church membership, and group membership (DHHS, 2009). However, there are disadvantages with Berkman's SNI measure – primarily its unequal weighting system distribution. For instance, based on the weighting system, the category for formal intimate network alters is weighted higher compared to informal alter. In addition, Berkman's SNI aggregates both the intimate and non-intimate social connections and/or relations an ego has to alters within their social network, therefore limiting information that can be elicited. On the other hand, the SNI developed by Cohen et al. (1997) assesses participation in 12 types of social relationships. The weighing distribution is equal across the 12 types of social relationships measured by the instrument. In particular, with respect to the current study, which include foreign-born and U.S.-born participants, it is pertinent to weigh equally the types of social connection and/or relations an ego has to alters within their social network,

because variations may exist, as some of their formal and informal social network alters may reside overseas.

In regards to GHSQ, studies that have measured help-seeking have focused on an ego's willingness and/or intentions to seek help (Wilson et al., 2005). However, studies which exclusively focused on willingness are limited, being that they do not account for an ego carrying out an actual plan to seek help (Wilson et al., 2005), whereas studies that have focused on help seeking intention accounted for an ego plan and/or decision to seek help (Wilson et al., 2005). For instance, Cohen's (1999) Willingness to Seek Help Questionnaire (WSHQ) assesses individuals' willingness to seek help for particular problems, rather than their specific help-seeking intentions (Wilson et al., 2005); data on willingness generally reflect qualitative results. According to the WSHQ measure, willingness to seek help is an individual initiated process (Cohen, 1999); however, such instruments are limited, because they minimally take into account the influence social connection and/or relation an ego has to alters within their social network to influence the approach toward help seeking. As noted in the prior section, the approach an ego takes to seek help is not solely an individual initiative, but more importantly, a combination of social influence; therefore, the GHSQ would be appropriate to determine the relationship between social network measures and help-seeking intentions from alters within an ego's network.

In addition to the abovementioned strength, the response formats of the selected instruments were useful to elicit pertinent information from participants of interest for the current study to address the research questions. Researchers that have used the SNI used a rating scale response format questionnaire to assess the connection and/or relation an ego has to alters within their social network. In regards to the GHSQ, a number of response formats (i.e. ranking,

dichotomous, and rating scales) have been used by researchers. However, it has been noted that questionnaires that request participants to rank and/or use a dichotomous yes/no response format are difficult for participants (Wilson et al., 2005). In addition, dichotomous yes/no response format do not provide a degree of intentionality to seek help (Wilson et al., 2005). The GHSQ uses a rating scale that asks participants to respond to each problem-type by rating their help-seeking intentions on a 7-point scale for each help source option, including no one (Wilson et al., 2007). The rating scale format used in both SNI and GHSQ provides the capacity to compare and determine the relationship between social network measures and help-seeking measures from formal and informal social network members within a population of foreign-born and U.S born Black American men of West African descent.

In reviewing the literature, there were limitations associated with both the SNI and GHSQ instruments. In regards to both the SNI and GHSQ, a primary limitation is that the instruments are predominately used in cross-sectional studies. Secondly, although both SNI and GHSQ broadly assess the connection and/or relation an ego has to alters within their social network, the questionnaires are minimally constructed to factor in cultural dynamics that may moderate approach used to seek help. For instance, Tuliao et al. (2014), in their use of GHSQ, noted that there are cultural dynamics that moderates approach toward help-seeking among Filipino immigrants, Filipino Americans, and native-born Filipinos. It was noted that cultural roles influenced an individual's openness to relate one's problems to members of their social network (Tuliao et al., 2014). For example, among the cohort of native-born Filipinos, parents and grandparents are treated as authority figures, and therefore they typically are not the primary source of help, whereas, siblings, particularly individuals of a similar age range, are more likely to be sources of help (Tuliao et al., 2014). In regard to the current study, for instance, there are

segments of the Black American of West African descent population that may have prefer traditional methods to seek help for health-related needs; the GHSQ did not include these in its options. The GHSQ provided an optional "other help source" section to accommodate for other help sources. In addition, the respective instruments included girlfriends, wives, significant others, children, parents, and other family members/relatives as viable options for connection and/or relations an ego has to informal alters within their social network; however, this approach may not be sensitive to the varying cultural roles that the respective alter has to influence approach toward help-seeking for health-related needs. Similar cultural role dynamics are prevalent among Black American of West African descent. Therefore, aggregating parents, siblings, cousins, etc., under a category of "other family members," which has been done with both the SNI and GHSQ, may have led to an incomplete understanding of how and from whom help was sought.

Overall, because of similarities between previous research studies and the current study, both the SNI and GHSQ were useful to examine the relationship between social network measures and help-seeking measures from formal and informal social network members, within a population of foreign-born and U.S-born Black American men of West African descent. A number of researchers have used the selected instruments under similar circumstances as the current study intends to carry out. In addition, parameters such as study design, sampling method, and study research methodology used by researchers that have used the selected instruments are similar to the current study.

Summary

In Chapter 2, the literature review illustrates that social network measures may shape health, specifically as it related to the current study, seeking help for health-related needs.

Secondly, the literature review illustrates that demographic factors such as age, education, employment and income may act on the relationship between social network and help-seeking, related measures. An examination of these demographic factors in tandem with social network measures and help-seeking measures yielded insights on the relationship between the two primary variables as it relates to the population of interest for the current study.

Although differences in attitudes, belief and perception toward health have been documented among different subgroups of the Black American population, it is not clear whether the same factors hold true for the population of interest for this research; therefore, the gap in literature was addressed in the current study. Much of the literature concerning the social relationship and health of the Black American population has been accumulated through research on African Americans, and Caribbean-born and U.S.-born Caribbean Black Americans; less is known about other subgroups of the Black American population, such as those of West African descent. As the Black American population becomes more diverse because of the increased numbers of foreign-born and U.S.-born Black American population of West African descent, this population will contribute to the growing number of health disparities among Black American populations. Therefore, it was pertinent to examine the relationship between social network measures and help-seeking for health-related needs, for the population of interest.

Chapter 3 focused on research design and rationale, methodology, and data analysis that was used to address the study's research question and hypotheses.

Chapter 3: Research Method

Introduction

In this study, I utilized a cross-sectional quantitative analysis that was composed of primary data that I collected from a cohort of foreign-born and U.S.-born Black American men of West African descent who reside in the state of Rhode Island. I distributed self-administered surveys and analyzed the data to determine the relationship between social network measure and help-seeking as it relates to health-related needs. Alongside the dependent and independent variables, potential confounders (i.e. age, educational status, employment status and income) were adjusted for.

In this chapter, I describe the methodology and design rationale with respect to the research questions and hypotheses. The chapter includes a discussion of the (a) inclusion and exclusion criteria for participants of interest, (b) a description of the data collection methods used and the meaning of the codes in the survey, (c) statistical methods used for analyzing the data, and (d) information on the steps taken to protect the rights of participants. First, I focus on the overall research design of the study and describe the rationale for the research method, particularly for the use of surveys to collect data. Then, I describe the details of the participants for the study, sampling method, and data collection procedures. I also discuss the procedures taken to ensure research ethics and participant privacy. Finally, I provide details about the operationalization of key variables and the survey instruments, and conclude with the specific data analysis techniques that I used to answer research questions.

Research Design and Rationale

In this study, I used a cross-sectional quantitative research design to answer the research question:

RQ1: What is the relationship between social network measures, which include network diversity and size, and help-seeking measures, which include future intention to seek help from a formal, informal, or having no help source, and past help sought and experience from a formal help source, for health-related needs among foreign-born and U.S.-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income?

H_o1: There is no relationship between network size and past help sought and experience from a formal help source and future intention to seek help from (formal, informal, no) help source, among foreign-born and U.S.-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income.

H_a1: There is a relationship between network size and past help sought and experience from a formal help source and future intention to seek help from a (formal, informal, no) help source, among foreign-born and U.S.-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income.

H_o2: There is no relationship between network diversity and past help sought and experience from a formal help source and future intention to seek help from a (formal, informal, no) help source among foreign-born and U.S.-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income.

H_a2: There is a relationship between network diversity and past help sought and experience from a formal help source and future intention to seek help from a (formal,

informal, no) help source among foreign-born and U.S.-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income.

The study variables were help-seeking measures, social network measures, covariate measures, and potential confounders. Help-seeking was measured with the General Help-Seeking Questionnaire (GHSQ), which represented the dependent variable. The social network, measured with the Social Network Index (SNI), represented the independent variables. Potential confounders considered include age, education level, employment status, and income. I selected a cross-sectional study design because the study aimed to determine the relationship between participants' social network and help-seeking for health-related needs, as they existed at a particular time. In this quantitative, I (a) discerned, quantified, and made inferences about help-seeking patterns as they related to social network and (b) created a detailed analysis of the impact of variables associated with the relationship between social networks and help-seeking for health-related needs. In general, researchers that have used qualitative analysis to examine the health of U.S.-born and foreign-born Black American men have noted correlation between social network and various aspects of health (i.e. behavior, pattern, status, etc.). Therefore, findings in the study contributed to this area of research because it considered the fastest growing subgroup of the Black American male population, namely U.S-born and foreign-born Black American men of West African descent (Abioye-Akanji, 2013; Griffith et al., 2011; Lucas et al., 2003; Ogedegbe et al., 2004; Ogungbade, 2010; Ojikutu et al., 2013; Oyeyemi et al., 2010; Udeh, 2013; Xanthos et al., 2013).

Methodology

I collected the data for this study using a survey questionnaire administered to a convenience sample population of foreign-born and U.S-born Black American men of West African descent that reside in the state of Rhode Island. I used the survey questionnaire to examine measurements of the study variables, which include: (a) help-seeking, measured using the General Health-Seeking Questionnaire (GHSQ) instrument and (b) social network, measured using the Social Network Index (SNI) instrument. In particular, I used the GHSQ was used to gather the information that pertains to future help-seeking intentions and past help-seeking experience. Secondly, I used the SNI to collect data on twelve types of relations, which included spouse, parents, parents-in-law, children, other close family members, neighbors, friends, workmates, schoolmates, volunteer group members, group members, and faith-based religious group members. I collapsed the results from the SNI data into number of high contact roles (network diversity) and number of people in social network (network size). Finally, I collected demographic data (i.e. age, education level, employment status, and income), in order to account for potential confounding variables.

I selected the survey-based questionnaires because they allow me to have access to a large and diverse group of participants while taking into consideration limited time and cost. Considering the nature of inquiries in the present study, surveys provide specific benefits to both participants and researchers. For instance, to recall information regarding help-seeking for health-related needs and social ties, survey-based questionnaires permit participants to recall information at their own pace. In addition, I selected a survey-based questionnaire to minimize and/or eliminate discomfort that may be associated with answering some demographic questions (e.g., income, education level, and employment status).

With respect to social network data analysis, I examined associations between social network measures and help-seeking measures using egocentric network data. Egocentric data was appropriate for the cross-sectional quantitative study because it relies exclusively on the ego's social network, without enrolling alters with whom they interact. In addition, a number of researchers have noted that egocentric data can be collected using traditional research methods (i.e. self-administered survey-based questionnaire) (Kelly et al., 2014; Valente et al., 2013).

Population

A number of legislative policies (i.e. McCarran-Walter Act of 1952, Hart-Cellar Immigration Act 1965, Refugee Act of 1980, Immigration Reform and Control Act in 1986, Diversity Visa Lottery 1990, and Temporary Protected Status [TPS]) have contributed to the growth of the foreign-born Black American population. According to U.S. Census Bureau's 2009 reports, regionally, recent African immigrants were representative of West African by 36.3%, East Africa by 28.4%, North Africa by 17.7 %, South Africa by 5.7%, and Central Africa by 4.4%. For the purpose of this research, both foreign-born and U.S.-born Black American men of West African descent were participants of interest. Western Africa countries include Benin, Burkina Faso, Cape Verde, Gambia, Ghana, Guinea, Guinea-Bissau, Ivory Coast, Liberia, Mali, Mauritania, Niger, Nigeria, Senegal, Sierra Leone, St Helena, and Togo (MIP, 2011). West African countries that constitute the highest population of individuals of West African descent in the state of Rhode Island and the U.S. include Ghana, Liberia, and Nigeria, hence they were the targeted population for the study (U.S Census Bureau, 2014).

The state of Rhode Island covers 1,214 square miles, of which 90.7% is urban, and 9.3 is rural (U.S. Census Bureau, 2010). The estimated state population in 2010 was 1,052,567 (U.S. Census Bureau, 2014); respectively 952,101 resided in urbanized and/or urban clusters, while

97,524 resided in a rural area. The respective population percentages are as follows: White (not Hispanic or Latino) 75.3%; Blacks 7.5%; Asian 3.3%, Hispanic (or Latino) 13.6%; American Indian and Alaskan Native, 0.9%; and Native Hawaiian and other Pacific Islanders, 0.2% (U.S Census Bureau, 2014). The percentage of foreign-born persons was estimated to be 13.0% between 2008 and 2012 (U.S Census Bureau, 2014). In regard to Rhode Island's total population by gender, women make up the majority of the state, at 538,512; and the male total population was estimated at 512,999 (U.S Census Bureau, 2014). Among individuals 18 years and over, who comprised 78.4% of the total population, 50.8% are women, and 49.2% are men (U.S Census Bureau, 2014). In 2012, the total Black American population in the state of Rhode Island was estimated to be 67,541 (U.S Census Bureau, 2014). In regard to nativity and citizenship status of Rhode Island's Black American male population, who are 18 years and over: native-born men were estimated at 15,720; foreign-born men 7,555, of which 4,030 are naturalized U.S. citizens and 3,525 are not U.S. citizens (U.S. Census Bureau, 2014). Foreign-born and U.S.-born of West African descent are the fastest-growing subgroups of the Black American population, both nationally and locally in the state of Rhode Island (U.S. Census Bureau, 2014). Therefore, for this study, the participants included non-institutionalized U.S.-born and foreign-born Black American men of West African descent, that reside in the state of Rhode Island.

Sampling and Sampling Procedures

I used a nonprobability (convenience) sampling was used to select participants. There exists no previous study that has examined the relationship between social network measures and help-seeking measures among the foreign-born and U.S.-born Black American of West African descent in the state of Rhode Island to make reference. Hence, a convenience sampling strategy was appropriate because it allowed for the sample to be drawn from part of the target population

that is readily available. I conducted the study in cities/towns with the highest population of interest, namely Cranston, East Providence, Pawtucket, Providence, and Woonsocket (Appendix D). The highest concentrations of the population of interest in Rhode Island were in the city of Providence, followed by cities and/or towns of Cranston, East Providence, Pawtucket and Woonsocket, with moderately sized communities of the population of interest.

In regard to the sampling frame, participant inclusion criteria included: (a) aged 18 years or older, (b) identified as a male, (c) self-reported foreign-born or U.S.-born Black American of West African descent (Ghana, Liberia and Nigeria), (d) reported having resided in the U.S. for a minimum of 5 years, and (e) reported ability to read and understand English language. Participant exclusion criteria used included (a) aged less than 18 years, (b) identified as a female, and (c) reported having not resided in the U.S. for a minimum of 5 years.

I conducted a power analyses using G*power statistical software based on inputs of the estimated effect size, population size, significant difference level, and statistical test (Faul, Erdfelder, Buchner, & Lang, 2013). The required sample size was based on estimates reported in the literatures reviewed for similar studies (Abioye-Akanji, 2013; Griffith et al., 2011; Lucas et al., 2003; Ogedegbe et al., 2004; Ogungbade, 2010; Ojikutu et al., 2013; Oyeyemi et al., 2010; Udeh, 2013). Analysis for RQ1 involved use of ordinal logistic regression methods. Sample size analysis for an ordinal logistic regression was conducted using the guidelines established in G*Power 3.1.9.2 (Faul et al., 2013) to determine a sufficient sample size using an alpha 0.05, a power of 0.80, a medium effect size (odd ratio = 1.25) and a two-tailed test. Based on the inputs, the desired sample size was 212 (Appendix F). Based on this power analysis, this study set a goal to recruit at least 230 participants. Based on estimates reported in the literature reviewed for similar studies, a medium effect size was selected in order to minimize the chance of missing an

effect. Power of 80% minimizes the opportunity for a type II error. Selection of a significance level of 0.05 minimizes the likelihood of an observed association being due solely to chance.

Procedures for Recruitment, Participation and Data Collection

I outlined the following sections accordingly, procedures for recruitment, participation, data collection and how participants were provided with informed consent. As indicated prior, I used a convenience sampling approach was used to select participants from the population of interest. In particular, cities and/or towns with the highest population of interest, which include: Cranston, East Providence, Pawtucket, Providence and Woonsocket, were be targeted. Locations of interest included the following: (a) community organizations (African Alliance of Rhode Island (AARI), Ghana Association of Rhode Island (GARI), Liberian Community Association of Rhode Island (LCARI) and Nigerian community of Rhode Island (NCRI); Igbara Oke Omo-eleye Progressive Association); (b) academic organizations (Brothers on A New Direction (BOND); (c) faith-based organizations (Muslim Community Center of Rhode Island, Holy Order of Cherubim & Seraphim and Trinity United Methodist Church); (d) local business organization (Buju's Barbershop & Hot Spot Barber Shop); and team-based organizations (Young Pro Football Club) where participants congregate. A etter of Cooperation was obtained from the leader, representative and/or owner of the respective organizations/business of the potential sites.

The process of acquaintance with the organizations that participated and survey administration to their members occurred within a four-week span, on four different meeting days. Permission to conduct the study was initially sought from the leader, representative and/or owner of the respective organizations/business, these initial meetings constituted the first meeting. The initial meeting validated the researcher's intent in scope of the study; it provided an opportunity to familiarize the leaders and/or representatives with the purpose and the

significance of the study and requested their help to attain participants for the study. In regards to the organizations that met regularly (community organizations, faith-based organizations, academic organizations, and team-based organizations), prior to the researcher having an introductory meeting with interested participants, leaders and/or representatives made announcements with regards to the study and distributed fliers during one of their regular meeting periods to potential participants, and the announcement constituted the second meeting. This approach was adhered to because it was important that potential participants be introduced to the study from a member within their community. However, some of the leaders and/or representatives had the researcher introduce the study to potential participants. The researcher returned to the locations of interest for the third and fourth meetings to administer the survey. During these meetings with potential participants, time was set aside to refamiliarize potential participants with the study's parameters and procedures for data collection. In addition, the study conditions for participation, privacy, and confidentiality for data collection were explained. Informed consent and questionnaires (Appendix A, B and C) were distributed to eligible and willing participants. Participants were allotted time as needed to complete the survey. Upon completion of the survey, the researcher collected and stored completed surveys in a secured case.

In regards to business organizations, an introductory meeting was held to familiarize the owner with the purpose and the significance of the study, and the researcher requested permission to place posters and fliers at the site of interest, in order to attract potential participants. The researcher returned to the locations of interest for three non-consecutive weekends (Saturdays) for approximately three hours per duration. Customers that were potential participants were familiarized with the study, conditions for participation, and privacy and

confidentiality for data collection. Informed consent and the questionnaire (Appendix A, B and C) were distributed to eligible and willing participants. Participants were allotted time as needed to complete the survey. Upon completion of the survey, the researcher collected and stored completed surveys in a secured case.

The survey included a study overview, consent form, and three self-administered questionnaires (demographic questionnaire, GHSQ and SNI). The demographic questionnaire was used to gather demographic data, which include age, income, education, employment status, nativity and ethnicity (Appendix A). The General Help-Seeking Questionnaire was used to gather information about future intention to seek help and past help sought and experience (Appendix B). The Social Network Index questionnaire was used to gather information regarding the number of high contact roles (network diversity) and number of people in social network (network size) (Appendix C).

The Social Network Index (SNI) and General Help-seeking Questionnaire (GHSQ) instruments were selected for this study broadly because of their ability to be adjusted to different populations, sources of help, and problem-types. In regards to the SNI questionnaire, Cohen et al. (1997) collapsed constructs of social network into three subscales: number of high contact roles (network diversity), number of people in social network (network size), and number of embedded networks in order to assess participation in 12 types of social relationships. In regards to the GHSQ, Wilson et al. (2005) noted that the instrument can be examined using scales, then combining scores for different formal, informal, and no help source options. In making a decision about employing these instruments, the researcher examined the questions in each instrument to understand the scope of the instrument as well as identify possible misleading or inappropriate questions. As with other studies that used the GHSQ and SNI, misleading or

inappropriate questions were modified to be culturally sensitive, in order to accommodate the population of interest (Bickart et al., 2011, 2012; Helgeson, et al., 1996; Rickwood, 2006; Rughani, Deane & Wilson, 2011; Sneed et al., 2012; Svenson, Wilson, & Caputi, 2013; Wilson 2011; Wilson, 2013).

Instrumentation and Operationalization of Constructs

Instrumentation

Demographic Questionnaire

The demographic questionnaire was used to capture data that reflects demographic variables (age, education, employment status, and income), place of birth (nativity), and ethnicity. The questionnaire was developed through knowledge of demographic characteristics that have been noted to act on the relationship between measures of social networks and help-seeking. The questionnaire items were not from one particular source; they comprise a combination of items referred to in various studies that have been used in similar populations (Abioye-Akanji, 2013; Lucas et al., 2003; Ogedegbe et al., 2004; Ogungbade, 2010; Ojikutu et al., 2013; Oyeyemi et al., 2010; Udeh, 2013). The rationale for selection of these data has been explained in Chapter 2 (Reference Rationale and Methodological Design).

Social Network Index

Specific to issues of social network measures, Cohen's SNI (1991, 1997), Berkman Social Network Index (1979), and Thoits' role measure (1983; 1986) are commonly used instruments. Seeman (1998) noted that a variety of instruments exist to measure social networks; however, one criticism of measurement in this area has been the lack of an established "gold standard," an issue that is still relevant. The variation in tools currently in use makes it difficult

to compare results across studies; nonetheless, Cohen's SNI was selected because of its appropriateness for the current research study's purpose. Cohen's SNI 12-question assessment has been administered since 1997; it was initially used in an experimental study, which examined the correlation between network diversity and susceptibility to the common cold (Cohen et al., 1997). Other researchers have used the instrument in various capacities (Barrera, Toobert, Angell, Glasgow & MacKinnon, 2006; Bickart et al. 2011; Bickart et al. 2012; Cohen et al., 1991; Cohen et al., 1997; Cohen et al., 2000; Cohen et al., 2007; Hamrick et al., 2002; Levitt, N.D; Sneed et al., 2012). Cohen's SNI was employed for this study for several reasons. First, SNI was a useful instrument for measuring social network measures (diversity and size) (Barrera et al., 2006; Bickart et al. 2011; Bickart et al. 2012; Hamrick et al., 2002; Levitt, N.D). Second, it was a highly appropriate tool to use when gathering sensitive information, because it incorporated the source of social relationships other than social support (Bickart et al. 2011; and Bickart et al. 2012; Hamrick et al., 2002; Levitt, N.D). Third, the instrument inquiries about formal and informal social ties, via assessment of participation in 12 social roles (spouse, parents, parents-in-law, children, other close relatives, close neighbors, friends, workmates, schoolmates, fellow volunteers, members of groups without religious affiliations, members of religious groups) (Cohen et al., 1997). Based on the work of Cohen and his research team, a relationship can be defined as an affiliation with another human being in which two individuals speak on the phone or in person at least once every two weeks. Thus, the survey broadens the scope participants' responses; therefore, this may have increased their willingness to be honest in responses. In comparison, the Berkman's SNI (1979) and Thoits' role measures assess participation in limited social roles (spouse, parent, worker, student, group member, church member, neighbor, and friend). Fourth, SNI subscales (i.e., network diversity, embedded

networks and network size) can be defined by how they are measured, thus making subscale flexible to be amendable to various types of variables (Cohen et al., 1997). For instance, the variable network diversity assessed the number of different types of high contact (alters in which the respondent reports engaging at least once every two weeks) social roles in which the ego participated (Cohen et al., 1997). In addition, the SNI was integrated with other instruments and additional questions composed by the researcher. This option allowed the researcher to integrate necessary measures and questions that inquire about areas not covered by the SNI instrument, but important to the research topic (Cohen et al., 1997).

The development of the SNI instrument was an interdisciplinary collaboration that included the fields of psychology, otolaryngology, pediatrics, pathology, and internal medicine (Cohen et al., 1997). Its development was supported by a grant from the National Institute of Mental Health and a grant from the National Institute of Health to the University of Pittsburgh Medical Center General Clinical Research Center; in addition, the co-authors, Brissette's participation were supported by a training grant in Health Psychology from the National Institute of Mental Health (Cohen et al., 1997). Types of questions include Likert-scale questions, yes and no responses, and individualized numeric responses. For example, "Do you belong to a church, temple, mosque, or other religious group?" (If not, check 'no' and skip to question- ☐ No ☐ Yes. A sample of the instrument is provided in Appendix C.

The SNI instrument was tested for reliability and validity (Bickart et al., 2011; Bickart et al., 2012; Cohen et al., 2007), although Cohen's Laboratory did not test reliability and validity from the original study the SNI instrument was intended:

> There are not any published psychometric data for the SNI. In some respects, measures such as construct validity and reliability are not applicable to the

scale. Concerning the former, social integration is in some respects defined by how it is measured. In the case of the SNI, it is defined as the number of social roles in which one regularly participates. The temporal reliability of the scale is somewhat of an empirical issue (D.J., Deverts, e-mail communication, November 11, 2014).

Bickart et al. (2011) provided evidence for the construct validity of the SNI using two approaches. Bickart et al. (2011) examined network size and complexity with 2 subscales of the SNI (a) number of people in social network, reflecting overall network size; (b) number of embedded networks, reflecting network complexity. According to their results, the two social network variables displayed a strong correlation within their sample population ($r=.86$, $p<.001$), supporting construct validity.

Construct validity was verified through various studies and by using the instrument to address various research questions in a number of studies (Bickart et al., 2011; Bickart et al., 2012; Cohen et al., 2007). Under different applications, the SNI has consistently been used to yield results pertinent to the subscale being measured; nonetheless, predictive validity of the instrument was not empirical being that subscales are defined by how they are measured. However, in proxy of the results predictive validity, the respective total subscales scores in three different studies reflected a correlation between size, density, and complexity of network behavioral attributes being measured (Bickart et al., 2011; Bickart et al., 2012; Cohen et al., 2007).

The instrument is reliable across different types of populations and for varying types of studies. For instances, evidence have been noted for it is reliability in studies that included the Black American male population of similar demographic characteristics as the current study (Cohen et al., 2007; Sneed et al., 2012). Although it has not been used with the specific

population of interest for the current study, its application was useful to capture their social network measures. Bickart et al. (2011); Bickart et al. (2012) assessed the reliability using both test-retest correlations and Cronbach alpha for internal consistency. The test-retest reliability using the Pearson Product Moment coefficient for the total test was 0.72 ($p \leq .01$) and Cronbach alpha for the test was reported to be 0.84 (Bickart et al., 2011; Bickart et al., 2012).

General Help-Seeking Questionnaire

The General Help-Seeking Questionnaire (GHSQ) was developed to measure future intention to seek help and past help sought and experience (Wilson et al., 2005). In regards to the primary study for the GHSQ, the study was approval by the Human Ethics Committee of University of Wollongong and the New South Wales (NSW) Department of Education and Training (Wilson et al., 2005). The psychometric properties (i.e. reliability and validity) of the GHSQ instrument were described in a study that examined the intent of a sample of 218 participants to seek help from a mental health counselor for personal-emotional and/or suicidal thoughts (Wilson et al., 2005). Reliability of the GHSQ has been documented with two different results: (a) first, as a single scale that specify help source for problem-types (Cronbach's alpha = .85, test-retest reliability =.92); (b) second, using two scales results that distinguish between problem types, (Cronbach's alpha = .83, test-retest reliability= .88) and personal-emotional problems (Cronbach's alpha = .70, test-retest reliability = .86) (as cited by Wilson et al., 2005). In regards to validity, Wilson et al. (2005) noted associations between prospective help-seeking for both personal-emotional and suicidal problems, respectively (*rs*= .48, rs= .26, $p < .001$, intimate partner) and other sub-scale measures. In regards to convergent validity, positive correlations were noted between intentions to seek counseling and the perceived quality of mental health; and in regards to divergent validity negative correlation was noted between

intentions to seek counseling and barriers to seeking professional psychological help supported GHSQ instrument convergent and divergent validity (Wilson et al., 2005).

There are several reasons for the selection of GHSQ for the current study. First, the GHSQ instrument was adaptable with respect to help sources and problem-types, in order to address the current research's question. As noted by Wilson et al. (2005), the instrument uses standard problem probe within which targeted problem-types can be interchanged: "If you were having [problem-type], how likely is it that you would seek help from the following people?" For example, within the current study, participants will be asked to report their intent to seek help from 11 targeted help sources (including "would not seek help") in regards to seeking help. In regards to the current study, several questions were modified to meet study requirements. The problem type was specified for health-related needs. In particular, question 1a-1i remained the same, with exception to the problem type. In regards to question 2a-2e, which assesses past help sought and experience from a formal health-care provider, several questions were modified. Question 2b was added to the specified the type of preventive health care sought. Secondly, results from research study using the GHSQ instrument have demonstrated a correlation with retrospective and prospective help-seeking (as cited by Wilson et al., 2005). Finally, help seeking will be reported using a Likert-scale (Wilson et al., 2005).

Operationalization

Demographic data (age, income, employment, and education), nativity and ethnicity were accounted for to provide background information on the participants of interest. Secondly, social network measures and help seeking measures were accounted for to provide background information on the participants of interest. Country of birth (nativity) was coded as 0, foreign-born and 1 for U.S.-born. Ethnicity was coded as 0= Ghanaian, 1=Liberian and 2=Nigerian.

Table 1 provides a description of characteristics associated with the covariate variables. Operationalization for potential confounders, social network measures, and general help-seeking measures were expounded upon in further sections.

Table 1

Covariate characteristics

Variable Type	Variable Name	Measure	Level of Measurement
Covariate	Ethnicity	Ethnic group	Nominal
Covariate	Nativity	Place of birth	Nominal

Independent

The independent variable in this study was social network measures, measured with the Cohen's et al., (1997) Social Network Index (SNI). SNI measures the number of high-contact roles (network diversity), number of people in social network (network size) and the number of embedded networks. For the purpose of this study, only network diversity and size were considered. In the prior section, an explanation has been provided as to why the number of embedded networks was not considered (reference Rationale and Methodological Design section).

SNI was scored based on the selected independent variables (network diversity and network size). In regards to network diversity for each of the 12 possible contact roles, a 0 is assigned if the respondent does not have the role, and a 1 if he does; the total number was computed by summing the 0s and 1s, resulting in a maximum number of 12 and minimum number of 0 (Cohen et al., 1997). Responses to network diversity was categorized into three levels of contact roles: low=1-3 contact roles, medium=4-5, and high=6+. In regards to social

network size, 0 was assigned if the respondent did not have contact with any individual at least once every two weeks. The numerical amount (i.e. 1, 2, etc.) was assigned if the respondent did have contact with an individual at least once every two weeks. The total network size was computed by summing the number of people in a respondent's social network (Cohen et al., 1997). Responses to network size was categorized into three levels of social ties: low social network size (0-20 members); medium networks (20-40); and high networks (40+) (Cohen et al., 1997). To ensure that the size scores were not artificially inflated by individuals reporting large group memberships, variables will be recoded so that all values over 6 will be given a score of 7, thus to keep consistency with all other quantitative SNI items (Cohen et al., 1997). Lastly, question (7) was modified to reflect the characteristics of the population of interest. The original SNI survey did not include "mosque" as type of religious affiliation. A majority of the population of interest are affiliated either with the Muslim or Christian faith. Table 2, 3 and 4 provides a description of characteristics associated with the selected social network measures.

Table 2

Social Network Characteristics

Variable Type	Variable Name	Measures	Level of Measurement
Independent	Network Diversity	Number of social roles in which the participants has regular contact at least once every 2 weeks with at least one person	Ordinal
Independent	Network Size	Total number of people with whom the respondent has regular contact at least once every 2 week	Ordinal

Table 3

Social Network Diversity Range

Level of network diversity	Low	Medium	High
Characterization	1-3 Contact roles	4-5 Contact roles	6+ contact roles

Table 4

Social Network Size Range

Level of network size	Low	Medium	High
Characterization	0-20	20-40	40+

Dependent

The dependent variable in this study was help-seeking (past help sought and experience from a formal help) measured with Wilson et al.'s (2005) General Help-Seeking Questionnaire (GHSQ). Future health help-seeking intentions (Appendix B: questions 1a to 1i) are measured by listing a number of potential help sources and asking participants to indicate how likely it is that they would seek help from that source for a specified health-related needs (Wilson et al., 2005). Past help sought and experience from a formal help source (Appendix B: questions 2a to 2b) was measured by asking whether professional help has been sought in the past for a specified health-related needs and experience with help sought (Wilson et al., 2005).

In regards to (questions 1a to 1i), participants were asked to respond by rating their future intention to seek on a 7-point Likert scale ranging from 1 (extremely unlikely) to 7 (extremely likely) (Wilson et al., 2005). Response to items tapping future intention to seek help was reported

as three categories whether or not informal help has been sought; whether or not formal help has been sought; and whether no help has been sought. In regards to past help sought and experience (Appendix B: questions 2a-2b), whether professional help has been sought in the past for a specified problem was coded as No=0 and Yes=1 (Wilson et al., 2005). Secondly, participants were asked to respond to experience with past professional help sought by rating their experience on a 5-point Likert scale ranging from 1 (extremely unhelpful) to 5 (extremely helpful) (Wilson et al., 2005).

The following modifications were made to the GHSQ to reflect contextual and cultural understanding of the population of interest. Question (1g) was modified to reflect different types of religious leader (i.e. minister or imam) that participants of interest may seek or not seek help from; question (2a) was modified to formal health care provider (e.g., nurse practitioner or medical doctor) that may be used for routine medical check-up. Lastly, employment status was recorded without emphasis on full-time and/or part time. Table 5, 6 and 7 provides a description of characteristics associated with the selected help-seeking measures.

Table 5

General Help-Seeking Characteristics

Variable Type	Variable Name	Measures	Level of Measurement
Dependent	Future help-seeking intentions	Likelihood to seek help from a specified alter in the next 4 weeks	Ordinal
Dependent	Past help-seeking experience	Likelihood to have seen a formal health care provider in the last year	Ordinal

Table 6

Future Help-Seeking Intention Characteristics

Variable	Response Recoded		
Future help-seeking intentions	Formal	Informal	None

Table 7

Past Help-seeking Sought and Experience

Past help-seeking sought (professional)	Yes			No	
Past help-seeking experience	1=Extremely unhelpful	2=Unhelpful	3=Somewhat helpful	4=Helpful	5=Extremely Helpful

Potential Confounders

The nature of potential confounding variables to obscure the effects of another variable was of high interest; thus, their ability to obscure the effect of independent and dependent variable were addressed. Selected confounding variables include age, educational status, employment status, and income. Rationales for the selection of these potential confounders have been explained in Chapter two (Reference Rationale and Methodological Design). Participants' ages were collected as continuous measure age in years on the date of survey. Age was coded as 0 for 18-29, 1 for 30-45, 2 for 46-59 and 3 for 60+. Level of education was recorded as less than high school; some high school; high school graduate; some college; college graduate; graduate or professional school; and other; and it will be coded 0 to 6, respectively. Annual household

income was recorded as: less than $20,000 a year; $20,000 to $35,000 a year; $35,000 to $50,000 a year; $50,000 to $75,000 a year; $75,000 to $100,000 a year; $100,000 or higher a year, and coded 0 to 5, respectively.

Data Analysis Plan

Data Analysis Software & Data Management

The survey data was entered into a Microsoft Excel (2007) spreadsheet in a secured laptop with identification and password protection to secure the safety of the laptop and the data. The survey data was coded and then transferred to the Statistical Package for the Social Sciences (SPSS). There was no participant identifiable information contained within the survey. In addition, there were no identifiers that link a particular survey to a specific participant.

Analysis Plan

The analysis was used to examine the relationship between social network measures and general help-seeking measures. In particular, to address the following: (a) Does the network size correlate with past help sought and experience from a formal help source and future intention to seek help from a (formal, informal, or no) help source? (b) Does network diversity correlate with past help sought and experience from a formal help source and future intention to seek help from (formal, informal, no) help source? Analysis plan included a descriptive, bivariate and multivariate, analysis. Broadly, analysis plan included descriptive statistical analysis of demographic variables, social network variable and help-seeking variables. Bivariate analysis was conducted to examine relationship between social network variables and demographic variables. Secondly, bivariate analysis was conducted to examine relationship between help-seeking variables and demographic variables. In addition, bivariate analysis was conducted to

examine the relationship between social network variables and help-seeking variables. Finally, a multivariate analysis was conducted with help-seeking as the outcome variable and the social network variables, along with the potential confounder variables of age, employment, income, and education as predictor variables. The appropriateness of statistical tools for research studies was dependent on the type of variables, level of measurement, and research question. Further details pertaining to respective analysis will be provided in the following sections.

Descriptive Statistics

Descriptive statistical analysis was used to provide a summary of the demographics data, social network measure, and help-seeking measures. Analytical results that pertain to data dispersion were provided for the primary variables and potential confounders. A frequency table was created for the potential confounders to examine the distribution of data. The two primary variables and their relative frequencies table are provided.

Table 8

Potential Confounder Variable

Type	Variable Name	Measures	Level of Measurement
Potential Confounder	Age	Age in years	Ordinal
Potential Confounder	Education	Level of education	Ordinal
Potential Confounder	Employment	Employment status	Ordinal
Potential Confounder	Income	Level of income	Ordinal

Bivariate Statistics

Bivariate statistical analyses were conducted to examine the relationship between social network measures and the help-seeking measures (Reference Table 9-12 for Analysis Plan). Secondly, bivariate statistical analysis was conducted to examine the relationship between the

social network measures and potential confounders, particularly with respect to ethnicity and nativity of participants of interest. Bivariate results informed and impacted the approach used to conduct multivariate analysis, because it provided insight into the relationship that existed between the independent variable and each respective dependent and potential confounder.

Table 9

Relationship of independent variable to dependent variable

Independent Variable		Dependent Variable		Statistical Test
Name	Type	Name	Type	
Level of Network Size	Ordinal	Future intention to seek help	Ordinal	Chi-square
		Past help sought and experience	Ordinal	Chi-square

Table 10

Relationship of independent variable to potential confounder

Independent Variable		Potential Confounder		Statistical Test
Name	Type	Name	Type	
Level of Network Size	Ordinal	Education	Ordinal	Chi-square
		Employment	Ordinal	Chi-square
		Income	Ordinal	Chi-square
		Age	Ordinal	Chi-square

Table 11

Relationship of independent variable to potential confounder

Independent Variable		Potential Confounder		Statistical Test
Name	Type	Name	Type	
Level of Network Diversity	Ordinal	Education	Ordinal	Chi-square
		Employment	Ordinal	Chi-square
		Income	Ordinal	Chi-square
		Income	Ordinal	Chi-square

Table 12

Relationship of independent variable to dependent variable

Independent variable		Dependent variable		Statistical Test
Name	Type	Name	Type	
Level of Network Diversity	Ordinal	Future intention to seek help	Ordinal	Chi-square
		Past help sought and experience	Ordinal	Chi-square

Multivariate Statistics

Using the results from the bivariate analysis, an ordinal logistic regression test was used to test hypotheses associated with the research questions. An ordinal logistic regression statistical test was appropriate because it was used to model the relationship between the social network measures and help-seeking, while controlling for the potential confounding and covariate variables (Reference Table 13-14 for Analysis Plan).

Table 13:

Relationship between independent variable to dependent variable, covariate and potential confounder

Research Question	Independent Variable	Type	Dependent Variable	Type	Covariate	Type	Potential Confounder	Type	Statistical test
RQ1	Network diversity	Ordinal	Past help sought and experience	Ordinal	Ethnicity Nativity	Nominal Nominal	Age Education Employment Income	Ordinal Ordinal Ordinal Ordinal	Ordinal logistic regression
	Network size	Ordinal	Past help sought and experience	Ordinal	Ethnicity Nativity	Nominal Nominal	Age Education Employment Income	Ordinal Ordinal Ordinal Ordinal	Ordinal logistic regression

Table 14:

Relationship between independent variable to dependent variable, covariate and potential confounder

Research Question	Independent Variable	Type	Dependent Variable	Type	Covariate	Type	Potential Confounder	Type	Statistical test
RQ1	Network diversity	Ordinal	Future intention to seek help	Ordinal	Ethnicity Nativity	Nominal Nominal	Age Education Employment Income	Ordinal Ordinal Ordinal Ordinal	Ordinal logistic regression
	Network size	Ordinal	Future intention to seek help	Ordinal	Ethnicity Nativity	Nominal Nominal	Age Education Employment Income	Ordinal Ordinal Ordinal Ordinal	Ordinal logistic regression

In regards to method for including variables in the model, a simultaneous method was used. This method was selected because, in order to determine the relationship between independent variable, dependent variable, covariate, and potential confounder variables. Furthermore, in order to determine whether the selected model was appropriate, a Pearson Chi-square Goodness-of-Fit test was conducted.

Threats to Validity

Validity of research studies may be affected by study design, data collection procedures, and data analysis methods. Selection and information bias represent the two primary biases associated with epidemiological research (Szklo & Nieto, 2014). Because variation was present with size and diversity of social networks, data provided was limited to information readily provided by participants. Naturally, over time, individuals tend to forget members of their social network; however, Wright and Pescosolido (2002) reported that although the members of a

person's social network changed over time, less than 5 percent of the change was due to "forgetfulness" or recall bias. In addition, (a) due to the nature of the convenience sampling method, it was difficult to generalize (external validity) the result to the entire U.S. population of foreign-born and U.S.-born Black American men of West African descent; (b) due to the cross-sectional method, internal validity was limited due to the short temporal precedence, thus making the results incapable of estimating causal association between independent and dependent variables; however, statistical comparisons between both groups helped address these threats.

Ethical Procedures

Data gathered from participants' responses was protected in several manners. The survey questionnaire was structured in a format so that only pertinent information needed to address the two research questions and hypothesis was collected. A consent form was provided to the selected participants. The consent form included information regarding the nature and purpose of the study, risks and benefits to the participants, language regarding voluntary participation, a statement regarding confidentiality of responses, and principle investigator contact information. Post-administration of survey questionnaires, the raw data was locked in a secured cabinet, only available to the researcher. There was no participant identifiable information contained within the survey, and there were no identifiers that linked a particular survey to a specific participant. However, each respective study site was assigned a specified batch of questionnaires with study identifier numbers that was linked to their respective survey dataset. The raw data was entered into a Microsoft Excel spreadsheet on a safe laptop, with identification and password protection to secure the safety of the laptop and the data. In addition, the researcher sought consent from participants and Walden University Institutional of Review Board (IRB) prior to carrying out study.

Summary

The proposed study utilized a quantitative cross-sectional study design, in order to examine the relationship between social network measure and help-seeking measures, to determine the influence of social alters to influence help-seeking for health-related among a cohort of foreign-born and U.S-born Black American men of West African descent residing in the state of Rhode Island. The SNI was used to measure social network measures (i.e. network diversity and size) in order to determine the range of an ego's social network. The GHSQ was used to measure help-seeking measures (i.e. future intention to seek help and past help sought and experience) in order to determine an ego's pattern toward help-seeking for health-related needs. In addition, demographic measures, which reflected covariate and potential confounding variables, were included in order to determine their relationship with the two primary variables.

Chapter 4: Results

Introduction

The purpose of this study was to examine the relationship between social network measures and help-seeking measures from formal, informal, and no help sources for health-related needs among foreign-born and U.S-born Black American men of West African descent in Rhode Island. The research questions and hypotheses are as follows:

RQ1: What is the relationship between social network measures, which include network diversity and size, and help-seeking measures, which include future intention to seek help from a formal, informal, or having no help source, and past help sought and experience from a formal help source, for health-related needs among foreign-born and U.S.-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income?

> H_o1: There is no relationship between network size and past help sought and experience from a formal help source and future intention to seek help from (formal, informal, no) help source, among foreign-born and U.S.-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income.
>
> H_a1: There is a relationship between network size and past help sought and experience from a formal help source and future intention to seek help from a (formal, informal, no) help source, among foreign-born and U.S.-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income.

H_o2: There is no relationship between network diversity and past help sought and experience from a formal help source and future intention to seek help from a (formal, informal, no) help source among foreign-born and U.S.-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income.

H_a2: There is a relationship between network diversity and past help sought and experience from a formal help source and future intention to seek help from a (formal, informal, no) help source among foreign-born and U.S.-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income.

In this chapter, I will present the results of the analyses that I performed to answer the research question. I first present the analyses, including the demographic and background characteristics of the participants and descriptive statistics for social network measures and help-seeking measures. Second, I present the analyses of data to indicate associations between independent variable social network measures (network size and network diversity) and dependent variable help-seeking measures (future intention to seek help and past help sought and experience) and covariates (age, ethnicity, education level, employment status, income, nativity). Finally, I ran an ordinal logistic regression analysis to address the research question, the chapter ends with a summary.

Data Collection

Time frame for data collection

Between April and May of 2016, I distributed 245 surveys and informed consents to participants from 12 participating organizations, businesses, athletic-organizations, and faith-

based organizations, in districts with the highest population of foreign-born and U.S-born Black American of West African descent within the state of Rhode Island. Of the 245 distributed surveys and informed consent forms, 229 of the participants dated and returned the informed consent forms, indicating their willingness to participate in the study. Of these, 213 participants (93%) successfully completed the survey in its entirety.

I sought permission to conduct the study from the leader, representative and/or owner of the respective organizations/businesses that participated. Once I received permission to conduct the study, a primary meeting was arranged with potential participants, where respective leaders and/or representatives made announcements and distributed flyers pertaining to study perimeters. In cases that the leader and/or representative found it appropriate that I introduce the study to potential participants, this approach was used. The facilities maintained by participating organizations were the primary venues where I made announcements. I made announcements during weekly and biweekly meetings of the respective participants, and issues and questions about the study were addressed in order to help alleviate the general uncertainty about this study. I scheduled follow-up secondary meeting dates for surveys to be distributed. During the third and fourth (on need-basis) scheduled meetings with potential participants from the respective participating organizations, I distributed the formal consent and surveys. The facilities maintained by participating organizations were the primary venues where I distributed the formal consent and surveys, administered, and collected, with exception of potential participants recruited from local businesses (i.e. barbershops). I redirected potential participants recruited from local businesses to a well-known community facility, within a five-mile radius from the location where they were recruited, at specified date(s) and time(s) in order to distribute, administer, and collect surveys. I adhered to this format in order to protect participants' privacy

while the surveys were administered. During the second and third (on need-basis) scheduled meetings with all participants, I requested time from the leader and/or representatives to refamiliarize potential participants with the study parameters (i.e. purpose, benefits, risks, data collection methods, participant's privacy and confidentiality for data collection and informed consent). I distributed the informed consent forms and surveys were distributed to potential participants. Participants were requested to review and complete the informed consent form, with the date the survey was distributed. Survey questions were clarified to participants that had questions while taking the survey, in order to minimize any confusion. Participants were allotted time as needed to complete the survey. Upon completion, the surveys were collected and stored in a safe-secured sealed envelope. These secondary meetings occurred on the following dates: April 1st, 7th, 9th, 10th, 14th, 16th, 17th, 21st, 23rd, 24th, 28th, 30th, May 1st, and May 5th, 2016.

Discrepancies in data collection

Some of the issues that affected the data collection were that several potential participants could not find the time to participate in the study. There are over 400 individuals in the pool of available participants, all from the respective locations of interest, who had made verbal confirmation to be potential participants; however, due to these attendance inconsistencies, data collection continued until I attained data from 220 participants. In addition, during data collection, a number of potential participants were pressed for time, therefore they had to leave due to prior commitments (i.e. work, personal obligations) without fully completing the survey, and some even left with the survey.

Descriptive data

Table 15 shows the demographic and background characteristics of the participants. More than one half (62%) of the study participants were between the ages of 18 and 45. The fewest

number of participants (8%) were within the age bracket of 60-70+. The most common education levels were those with some college (39%) and college graduates (37.1%). In terms of employment status, most of the participants were currently employed, (83.1%), and the remaining indicated unemployed (16.9%). In terms of income, participants reported an annual income of less than 20,000 (33.3%), 20,000-35,000 (28.6%), and 100,000+ (2.8%). The ethnic diversity makeup of all participants were Nigerians (41.3%), Liberians (34.7%), and Ghanaians (23.9%). With respect to nativity, the majority of the participants (67.1%%) self-reported being foreign-born (with 32.9%) U.S-born).

Table 15

Demographic Characteristics of Study Sample (N=213)

Characteristics	Frequency	%
Age		
18-29	68	31.9
30-45	66	31.0
46-59	62	29.1
60-70+	17	8.0
Ethnicity		
Ghanaian	51	23.9
Liberian	74	34.7
Nigerian	88	41.3
Nativity		
Foreign-born	143	67.1
U.S-born	70	32.9
Level of education		
Less than High School and Some High School	12	5.6
High school graduate	18	8.5
Some college	83	39.0
College graduate	79	37.1
Graduate/professional school or other	21	9.9
Income		
Less than 20,000	71	33.3
20,000-35,000	61	28.6
35,000-50,000	47	22.1

50,000-75,000	17	8.0
75,000-100,000+	17	8.0
Employment status		
No	36	16.9
Yes	177	83.1

(continued)

Discrepancies in data collection

As noted in Chapter 3, West African countries that constitute the highest population in the state of Rhode Island and the United States include Ghana, Liberia, and Nigeria; hence, they were the targeted population for the study (U.S. Census Bureau, 2014). Census data have documented that Western African foreign-born and U.S-born make up the largest proportion of the African population in the United States, a trend that continues to be supported by current census data (MPI, 2014, U.S. Census 2014). Results of the data analysis indicate that the percentage of the ethnic population ratio sampled were as follows for the current study: Nigerians 41.3%, Liberians 34.7%, and Ghanaians 23.9%.

Univariate analysis

Social Network Index Characteristics

Descriptive statistics for the social network index characteristic variables are shown in Tables 16 and 17, respectively, for social network diversity and size. Social network diversity, being the independent variable, reflects the number of different types of high contact social roles in which individuals participate (Cohen et al., 1997). There were 12 possible high contact social roles; a 0 was assigned if the respondent did not have the role, and a 1 if he/she did. The total number was computed by summing the 0s and 1s, resulting in a maximum number of 12 and minimum number of 0, as indicated in SNI construct (Cohen et al., 1997). Responses to network

diversity were categorized into three levels of contact social roles: low=1-3, medium=4-5, and high=6+. A total of 175 (82.2%) of the participants had a high contact social role, 0 (0%) had a medium contact social role, and 38 (17.2%) had a low contact social role. The result indicates that a majority of participants (82.2%) have different types of social network members that they engage with at least once every two weeks. Further details that pertain to the individual 12 social roles, with regards to network size and diversity, are presented in Appendix (G and H).

Table 16

Social Network Diversity Characteristics of Study Sample (N=213)

Characteristics	Frequency	%
Low	38	17.8
Medium	0	0
High	175	82.2

Social network size reflects the sum of all individuals with whom a participant has contact at least once every 2 weeks (Cohen et al., 1997). In regard to social network size, 0 was assigned if the respondent does not have contact with any individual at least once every 2 weeks. The numerical amount (i.e. 1, 2, etc.) was assigned if the respondent did have contact with an individual at least once every 2 weeks. The total network size is computed by summing the number of people in the respondent's social network as per SNI guideline (Cohen et al., 1997). Responses to network size was categorized into three levels of social network size: low (0-20 members); medium (20-40 members); and high (40+ members) (Cohen et al., 1997). As indicated in Table 3, a total of 139 (65.3%) of the participants had a small sized social network, followed by a medium social network size of 61 (28.6%), and high network size of 13 (6.1%). The result indicates that a majority of participants (65.3%) had a low number of members in their social network with whom they had contact at least once every 2 weeks.

Table 17

Social Network Size Characteristics of Study Sample (N=213)

Characteristics	Frequency	%
Low	139	65.3
Medium	61	28.6
High	13	6.1

General Help Seeking Characteristics

The dependent variable, general help-seeking variables, reflects future intention of an individual to seek help from formal, informal, or no help source from their social network. In addition, the dependent variable, general help-seeking, reflects past help sought and experience from a formal help source. In the current study, I used the general help-seeking questionnaire (GHSQ) to measure future intention to seek help from a (formal, informal or no) help source and past help sought and experience from a formal help source. I measured future intention to seek help by listing a number of potential help sources and asking participants to indicate how likely it is that they would seek help from that source for a specified health-related need. I measured past help sought and experience were measured by asking whether help has been sought in the past from a medical care provider for a specified health-related need, and the experience of the medical help sought.

In regards to future intention to seek help, participants were asked to rate their future intention to seek help from a (formal, informal, or no) help source on a 7-point Likert scale ranging from 1 (extremely unlikely) to 7 (extremely likely) (Wilson et al., 2005). Table 18 provides information on participants' future intention to seek help from formal, informal, or no members of their social network. In regards to future intention to seek help from a formal help source, the majority of participants noted a greater likelihood than not to seek help from a formal

help source, respectively 64.8% as opposed to 35.3%. In regards to future intention to seek help from an informal help source, the majority of participants noted a greater likelihood, than likelihood not, to seek help from an informal help source, respectively 69% as opposed to 30.9%. In regards to no intention to seek help in the future, a minority of participants noted that they do not intend to seek help in the future (44.2%), whereas a majority of participants (55.9%) indicated future intention to use some form of help source. Overall, in regards to future intention to seek help from a formal, informal, or no help source, among all participants, there is a greater likelihood of future intention to seek help from an informal help source, followed by formal and no help source, respectively 69%, 64.8%, and 44.2%.

Table 18

Future Intention to Help Seek Characteristics of Study Sample (N=213)

Characteristics	Frequency	%
Future intention to seek help from formal help source		
Extremely Unlikely	8	3.8
Unlikely	67	31.5
Likely	101	47.4
Extremely Likely	37	17.4
Future intention to seek help from informal help source		
Extremely Unlikely	5	2.3
Unlikely	61	28.6
Likely	122	57.3
Extremely Likely	25	11.7
No intention to seek help in the future		
Extremely Unlikely	93	43.7
Unlikely	26	12.2
Likely	34	16.0
Extremely Likely	60	28.2

In regards to past help sought and experience, participants were asked whether they had sought help from a formal help source (medical care provider) in the past year. Responses were

categorized as No=0 and Yes=1. Secondly, participants were asked to rate their experience with the medical care provider on a 5-point Likert scale ranging from 1 (extremely unhelpful) to 5 (extremely helpful). Table 19 provides information on participants' past help sought from a formal help source in the past year, and their experience with the formal help source they sought in the past year. The majority, that is, 154 (72.3%) of the participants, indicated that they had sought help from a formal help source in the past. Of those participants who reported having sought help in the past from a formal help source, a majority reported their experience to be helpful (56.8%) compared with those who had an unhelpful experience (15.5%).

Table 19

Past-Help Seeking Characteristics of Study Sample (N=213)

Characteristics	Frequency	%
Past help sought from formal help source		
No	59	27.7
Yes	154	72.3
Experience of past help sought from formal help source		
None	59	27.7
Extremely unhelpful	16	7.5
Unhelpful	17	8.0
Somewhat helpful	29	13.6
Helpful	36	16.9
Extremely helpful	56	26.3

Bivariate analysis

Association between Social Network Diversity and Covariates

Pearson's chi-squared test ($\chi 2$) was conducted to determine whether there were significant relationships between the independent, dependent, and covariate variables. In particular, a chi-square test of independence was performed to examine the relationship between network diversity and covariate variables, respectively age, employment, income, education, nativity, and ethnicity (Table 20). The relationship between network diversity and the following

covariates were significant, age, X^2 (3, N =213) = 12.8, income, X^2 (5, N =213) = 10.0. employment status, p <.0.05, X^2 and (1, N=213) =16.8. In regards to all age groups, participants were more likely to have high network diversity. A larger portion of participants between the ages of 46-59 had the highest range of network diversity, while the smallest portion was reflected among participants between the ages of 18-29 who had the lowest range of network diversity. In regards to employment status, participants that are employed were more likely to have high network diversity. Lastly, in regards to all ranges of levels of income, participants were more likely to have high network diversity. However, there was not a significant relationship between network diversity and education status, ethnicity, and nativity.

Table 20

Association between Network Diversity and Covariate

Covariate	p	X^2
Age	.005	12.824
Employment Status	.001	16.779
Income	.040	10.005
Education	.341	4.512
Ethnicity	.085	4.930
Nativity	.181	1.790

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level less than 0.05

Association between Social Network Size and Covariates

A chi-square test of independence was performed to examine the relationship between network size and covariate variables, respectively age, employment, income, education, nativity, and ethnicity (Table 21). The relationship between network size and the respective covariates were significant, income, X^2 (10, N =213) = 66.7, p <.0.05; ethnicity, X^2 (4, N =213) = 9.56, p <.0.05; and nativity, X^2 (2, N =213) = 6.77, p <.0.05. In regards to income, participants that made between $20,000-50,000 were more likely to have a low network size. Participants that made

between $50,00-100,000 were more likely to have a medium network size. In regards to ethnicity, participants were more likely to have a low network size. Participants of the Ghanaian descent had the greatest number of their members having a low social network size, followed by Liberians, and Nigerians. Overall, with respect to all ethnic groups represented, 28.6% of the participants had a medium social network size, while 6.1% were represented in the high social network size category. Lastly, with regards to nativity, a greater portion of U.S-born participants were likely to have low social network size, compared to their foreign-born counterparts, respectively 77.1% and 59.4%. However, there was not a significant relationship between network size and age, employment status, and education status.

Table 21

Association between Network Size and Covariate

Covariate	P	X^2
Age	.551	4.946
Employment Status	.568	1.131
Income	.001	66.567
Education	.103	13.264
Ethnicity	.049	9.556
Nativity	.034	6.774

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level less than 0.05

Association between Help Seeking Characteristics and Covariates

A chi-square test of independence was performed to examine the relationship between future intention to seek help from (formal, informal, and no) help source and past help sought and experience from formal help source, and covariate variables, respectively age, employment, income, education, nativity, and ethnicity (see table 22 and 23). There was a significant relationship between participants' income and future intention to seek help from an informal help source and no future intention to seek out a help source, respectively X^2 (15, N =213) =24.27, p

<.0.05 and X^2 (15, N =213) = 24.9, p <0.05. Participants that earned an annual income between $20,000 and $50,000 indicated a higher likelihood of future intention to seek help from an informal help source. Participants that earned an annual income between $75,000 and $100,000 indicated a higher likelihood of future intention to seek help from an informal help source. Participants that earned an annual income between $50,000 and $75,000 indicated a higher unlikelihood of future intention to seek help from an informal help source. Lastly, participants that earned an annual income of $100,000+ indicated a higher unlikelihood of future intention to seek help from an informal help source. In regards to no future intention to seek help, participants that earned an annual income less $20,000 indicated an extreme likelihood of no future intention to seek help. Participants that earned an annual income between $20,000 and $100,000+ indicated an extreme unlikelihood of no future intention to seek help. In addition, an equal percentage of participants that earned an annual income of $100,000+ indicated extreme unlikelihood of no future intention to seek help.

Secondly, there was a significant relationship between participants' income and past help sought and experience from a formal help source, respectively X^2 (5, N =213) =11.1, p <.0.05 and X^2 (25, N =213) = 40.0, p <.0.05. In regards to past experiences for help sought from formal help source, a higher percentage of participants that earned an annual income between $35,000-100,000+ found the formal help source to be extremely helpful. In regards to the highest percentage of participants, an equal percentage (19.7%) of participants that earned an annual income of less than $20,00 found the formal help source to be either helpful and extremely helpful. In regards to the highest percentage of participants an equal percentage (18.0 %) of participants that earned an annual income between $20,000-$35,000 found the formal help source to be either helpful and extremely helpful.

Lastly, there was a significant relationship between participants' education and future intention to seek help from a formal help source and no help source, respectively X^2 (18, N =213) =29, p <.0.05 and X^2 (6, N =213) = 32.0, p <.0.05. Participants with less than a high school education indicated a higher unlikelihood of future intention to seek help from a formal help source. Participants with some high school education, those who are high school graduates, those who had some college education, and those with graduate or professional levels of education indicated a higher likelihood of future intention to seek help from a formal help source. Participants that are college graduates indicated an equal percentage (39.2%) of higher unlikelihood and likelihood of future intention to seek help from a formal help source. In regards to no future intention to seek help, participants with less than a high school education indicated a higher percentage of likelihood of no future intention to seek help. Participants with some high school education and some college education indicated a higher extreme likelihood of no future intention to seek help. Participants that are high school or college graduates, and those with graduate or professional levels of education, indicated a higher extreme unlikelihood of no future intention to seek help. Lastly, there were no significant relationships between the remaining help seeking measures and covariates.

Table 22

Association between Future Intention to Seek Help and Covariate

	Future Intention to Seek Help from Formal Help Source		Future Intention to Seek Help from Informal Help Source		No intention to seek help in the future	
Covariates	p	X^2	p	X^2	p	X^2
Age	.570	7.651	.141	13.509	.254	11.325
Employment	.355	3.247	.350	3.280	.415	2.851
Income	.288	14.203	.019	24.275	.016	24.857
Education	.047	29.118	.182	23.221	.023	31.815
Ethnicity	.965	1.421	.153	9.393	.765	3.338
Nativity	.310	3.588	.140	5.480	.071	7.035

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level less than 0.05

Table 23

*Association between P*ast help sought *and Experience and Covariate*

	Past Help Sought from Formal Help source		Experience of Past Help Sought from Formal Help Source	
Covariates	p	X^2	p	X^2
Age	.158	5.195	.171	20.016
Employment	.216	1.531	.078	9.903
Income	.026	11.087	.005	40.318
Education	.201	8.549	.321	33.035
Ethnicity	.860	.303	.816	5.995
Nativity	.239	1.385	.435	4.847

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level less than 0.05

Multivariate analysis

As indicated previously, the purpose of this quantitative study is to examine the relationship between social network measures and help-seeking measures for health-related needs among U.S.-born and foreign-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income. The proposed study includes the following research question:

RQ1: What is the relationship between social network measures, which included network diversity and size, and help-seeking measures, which include future intention to seek help from (formal, informal, and no) help source and past help sought and experience from a formal help source, for health-related needs among foreign-born and U.S.-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income?

The proceeding sections have been organized to address the research hypothesis, with respect to the association between the individual independent variable, social network measures, dependent variables, and covariates. An ordinal logistic regression (OLR) analysis was used to test the hypothesis for the research question. The OLR is built on a proportional-odds model, and

it is useful in predicting the probabilities of different possible outcomes of a categorically distributed dependent variable, when that dependent variable has more than two levels (Hosmer & Lemeshow, 2004). There are several tests in OLR designed to assess the statistical significance of a model. For the current study, the following were selected: Model-fitting information test, Goodness-of-Fit test, Test of Parallel Lines and the Parameter Estimates test.

In the following section I address the association between network size, future intention to seek help from (formal, informal, and no) help-source and past help sought and experience from (formal) help source adjusted for age, ethnicity, nativity, education, income, and employment.

(a) Does the network size correlate with past help sought and experience from a formal help source and future intention to seek help from a (formal, informal, or no) help source?

H_o1: There is no relationship between network size and past help sought and experience from a formal help source and future intention to seek help from (formal, informal, no) help source, among foreign-born and U.S.-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income.

H_a1: There is a relationship between network size and past help sought and experience from a formal help source and future intention to seek help from a (formal, informal, no) help source, among foreign-born and U.S.-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income.

The Model-fitting information test was used to test for the predictive value of OLR model, with respect to the relationship between network size, future intention to seek help from a (formal, informal, or no) help-source, past help sought, experience from a formal help-source, adjusted for age, ethnicity, nativity, education, income, and employment. The results reveal that difference between the -2 log-likelihood chi-square did observe significant value ($p<0.05$) between network size and future intention to seek help from formal and informal help sources, no intention to seek help in the future, past help sought from a formal help source (particularly a medical care professional), and experience of past help sought from a formal help source. The predictive value of the model that indicated a significant value is based on the change in -2 log-likelihood, when the independent variable is added to the model that contains the intercept. This means that the null hypothesis can be rejected, which indicated that the model without the independent variable, network size, is as good as the model with the independent variable. Results of model fitting test for association between network size, general help seeking characteristics and covariates are demonstrated in Tables 24 and 25.

Table 24

Association between Network Size and Future Help Seeking Intention having adjusted for Age, Ethnicity, Nativity, Education, Income and Employment) (N=213)

	Future Intention to Seek Help from Formal Help Source		Future Intention to Seek Help from Informal Help Source		No intention to seek help in the future	
	p	X^2	p	X^2	p	X^2
Network Size	0.001	9.559	0.001	83.000	0.001	90.399

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level less than 0.05

Table 25

*Association between Network Size and P*ast help sought *and Experience and Covariate, having adjusted for Age, Ethnicity, Nativity, Education, Income and Employment*

	Past Help Sought from Formal Help source		Experience of Past Help Sought from Formal Help Source	
	p	X^2	p	X^2
Network Size	0.001	81.937	0.001	99.124

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level less than 0.05

The Goodness-of-Fit demonstrated is reportedly a reliable model fit test available in SPSS (Pallant et al., 2010). It uses the test statistic that follows the chi-square distribution to determine whether the observed events match the expected rate of the event within the variables (Hosmer et al., 2004). Interpretatively, a high significant level in this test is indicative of a good fit, while a significant level less than 0.05 suggests a poor fit (Hosmer et al, 2004; Pallant et al., 2010). For example, in the analysis that addressed the relationship between network size, the independent variable, future intention to seek help from a formal help-source, and past help sought from a formal help source, the p-values respectively were .557 and .987 which is indicative of the model fitting well. The chi-square values for the three remaining variables, future intention to seek help from an informal help source, no intention to seek help in the future, and experience of past help sought from a formal help source, are significant as well; the results are presented in Tables 26 and 27.

Table 26

Association between Network Size and Future Help Seeking Intention having adjusted for Age, Ethnicity, Nativity, Education, Income and Employment

	Future Intention to Seek Help from Formal Help Source		Future Intention to Seek Help from Informal Help Source		No intention to seek help in the future	
	p	X^2	p	X^2	p	X^2

Network Size	.557	309.740	.884	263.483	.967 254.611

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level greater than 0.05

(continued)

Table 27

*Association between Network Size and P*ast help sought *and Experience and Covariate, having adjusted for Age, Ethnicity, Nativity, Education, Income and Employment*

	Past Help Sought from Formal Help source		Experience of Past Help Sought from Formal Help Source	
	p	X^2	p	X^2
Network Size	.987	219.180	1.000	242.527

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level greater than 0.05

The Test of Parallel Lines, also known as the assumption of proportional odds, was run to determine the association between the independent variable on the dependent variables and covariate variables. The assumption associated with the test is that the proportional odd assumption (i.e. null hypothesis) within the Parameter Estimate Test is that the effects of the dependent variables are proportional for the different thresholds; therefore, the association between the independent variable and dependent variables does not change for dependent variables' categories. If the assumption holds, it indicates that the general model gives a significantly better fit to the data than the ordinal model ($p<.05$), thus the null hypothesis cannot be rejected. The results of analyses indicate that the general model did not give a significantly better fit to the data than proportional odds, for association between network size and future intention to seek help from a formal help source, future intention to seek help from an informal help source, no intention to seek help in the future, past help sought from a formal help source, and experience of past help sought from a formal help source; therefore, these variables may need to be interpreted with caution. The results of the analysis are presented in Tables 28 and 29.

Table 28

Association between Network Size and Future Help Seeking Intention having adjusted for Age, Ethnicity, Nativity, Education, Income and Employment

	Future Intention to Seek Help from Formal Help Source		Future Intention to Seek Help from Informal Help Source		No intention to seek help in the future	
	p	X^2	p	X^2	P	X^2
Network Size	.762	13.487	.654	15.118	.929	10.093

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level less than 0.05

Table 29

*Association between Network Size and P*ast help sought *and Experience and Covariate, having adjusted for Age, Ethnicity, Nativity, Education, Income and Employment*

	Past Help Sought from Formal Help source		Experience of Past Help Sought from Formal Help Source	
	p	X^2	p	X^2
Network Size	.711	12.468	.575	18.196

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level less than 0.05

In the following section I address the association between network size, future intention to seek help from (formal, informal, and no) help-source and past help sought and experience from (formal) help source adjusted for age, ethnicity, nativity, education, income, and employment. The Parameter Estimates present the estimates, standard errors, degree of freedom, p-values and the confidence intervals of associated coefficients. In addition, the output indicates both the location and threshold value. The location indicates the ordered log-odds estimate for a one-unit increase in independent variable score on the expected dependent variable (Bruin, 2006). The thresholds indicate where the latent variable is cut to make variables that were analyzed. The threshold outputs are not used in the interpretation of the results (Strand, Cadwallader and Firth, 2011). The odds of being in the respective threshold group complement

the odds of being in the other (Strand et al., 2011). In regards to the reference groups, the model sets a default indicator for each category to compare against a specified group. In the respective tables (30, 31, 32, 33, 34, 35, 36, 37, 38, and 39), the reference group level for the model parameter are set to zero. The abovementioned factors were considered in the interpretation of the respective parameter estimates.

In regards to the association between network size and future intention to seek help from a formal help source, having adjusted for the covariates (Table 30), there were selected significant categories. Significant value was observed in term of association between network size and future intention to seek help from a formal help source, with respect to participants being of the Ghanaian ethnic group. The odds of participants that are of Ghanaian descent having a high network size was 0.266 less than that for participants of Nigerian descent. Since the significant value coefficient is negative, as the social network size of participants of Ghanaian descent decreased, so does the probability of their future intention to seek help from a formal help source. There was not a significant difference between participants of Liberian descent and those of Nigerian descent, with respect to their future intention to seek help from a formal help source. Interestingly, however, participants of Liberian descent are more likely to have a low social network size, and are least likely to have future intention to seek help from a formal help source.

Secondly, a significant value was observed in terms of association between network size and future intention to seek help from a formal help source, with respect to nativity, particularly for participants that are of the foreign-born status. Foreign-born participants are more likely to have future intention to seek help from a formal help source. The odds of participants that are foreign-born also having a high social network size was 2.30 higher compared to their U.S-born counterparts. Lastly, a significant value was observed in terms of association between network

size and future intention to seek help from a formal help source, with respect to the participants' annual income. Participants that noted an annual income between $0 and $50,000 were least likely to have a high social network size, and were least likely to have future intention to seek help from a formal help source.

Table 30

Association between Network Size and Future Help Seeking Intention from Formal Help Source having adjusted for Age, Ethnicity, Nativity, Education, Income and Employment

		Parameter Estimates					
		Estimate	Std. Error	df	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Threshold	[Network size = 1]	-1.009	1.079	1	.350	-3.123	1.105
	[Network size = 2]	1.930	1.070	1	.071	-.166	4.027
Location							
	Future intention to seek help from formal help source= Extremely Unlikely	-.122	.947	1	.898	-1.978	1.734
	Future intention to seek help from formal help source= Unlikely	.227	.486	1	.641	-.725	1.178
	Future intention to seek help from formal help source=Likely	-.296	.485	1	.542	-1.247	.655
	Future intention to seek help from formal help source=Extremely Likely	0[a]	.	0	.	.	.
	Age=18-29	.457	.806	1	.571	-1.123	2.037
	Age=30-45	.368	.685	1	.592	-.975	1.710
	Age=46-59	.456	.670	1	.496	-.857	1.769
	Age=60+	0[a]	.	0	.	.	.
	Ethnicity=Ghanaian	-1.325	.489	1	.007	-2.284	-.366
	Ethnicity=Liberian	-.571	.383	1	.136	-1.323	.180
	Ethnicity=Nigerian	0[a]	.	0	.	.	.
	Nativity=Foreign-born	.831	.436	1	.057	-.023	1.686
	Nativity=U.S-born	0[a]	.	0	.	.	.
	Education=Less than high school & Some high school	-.606	.852	1	.477	-2.276	1.064
	Education=High school graduate	-.701	1.008	1	.487	-2.678	1.275
	Education=Some college	.226	.611	1	.712	-.972	1.424
	Education=College graduate	-.186	.557	1	.739	-1.278	.907

Education=Graduate, professional degree and others	0[a]	.	0	.	.	.
Income=Less than $20,000	-2.068	.804	1	.010	-3.644	-.493
Income=$20,000-35,000	-3.413	.706	1	.000	-4.796	-2.029
Income=$35,000-50,000	-2.619	.663	1	.000	-3.918	-1.320
Income=$50,000-75,000	.678	.731	1	.354	-.754	2.110
Income=$75,000-100,000+	0[a]	.	0	.	.	.
Employment=No	.550	.515	1	.286	-.459	1.559
Employment=Yes	0[a]	.	0	.	.	.

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level less than 0.05

(continued)

In regards to the association between network size and future intention to seek help from an informal help source, having adjusted for the covariates (Table 31), there were selected significant categories. A significant value was observed in terms of association between network size and the degree to which participants would seek help from their informal social network members. Participants noted that they were extremely unlikely to have future intention to seek help from an informal help source. In addition, the odds of these participants having a high network size was 10.1 compared to participants that had noted extreme likelihood to have future intention to seek help from a formal help source. Secondly, as with the association found with the formal help, similar significant value was observed in terms of association between network size and future intention to seek help from an informal help source, with respect to participants being of the Ghanaian ethnic group. The odds of participants that are of Ghanaian descent having a high network size was 0.31 less than that participants of Nigerian descent. Since the significant value coefficient is negative, as the social network size of participants of Ghanaian descent decreases, so does the probability of their future intention to seek help from a formal help source. There was not a significant difference between participants of Liberian descent and those of Nigerian descent, with respect to their future intention to seek help from a formal help source. Interestingly, however, participants of Liberian descent are more likely to have a low social

network size, and are least likely to have future intention to seek help from a formal help source. In addition, a significant value was observed in terms of association between network size and future intention to seek help from a formal help source, with respect to nativity, particularly for participants that are of the foreign-born status. Foreign-born participants were more likely to have future intention to seek help from a formal help source. In addition, participants that are foreign-born have greater odds having a high social network compared to their U.S-born counterparts. Lastly, a significant value was observed in term of association between network size and future intention to seek help from an informal help source, with respect to participants' annual income. Participants that noted an annual income between $0 and $50,000 were least likely to have a high social network size and were least likely to have future intention to seek help from an informal help source.

Table 31

Association between Network Size and Future Help Seeking Intention from Informal Help Source having adjusted for Age, Ethnicity, Nativity, Education, Income and Employment

		Parameter Estimates					
		Estimate	Std. Error	df	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Threshold	[Network size = 1]	-.473	1.162	1	.684	-2.751	1.805
	[Network size = 2]	2.532	1.169	1	.030	.240	4.824
Location							
	Future intention to seek help from informal help source= Extremely Unlikely	2.315	1.123	1	.039	.114	4.516
	Future intention to seek help from informal help source= Unlikely	.298	.556	1	.592	-.791	1.387
	Future intention to seek help from informal help source=Likely	.091	.533	1	.864	-.954	1.137
	Future intention to seek help from informal help source=Extremely Likely	0a	.	0	.	.	.
	Age=18-29	.675	.831	1	.417	-.953	2.303
	Age=30-45	.497	.719	1	.489	-.913	1.907
	Age=46-59	.645	.709	1	.363	-.746	2.035
	Age=60+	0a	.	0	.	.	.
	Ethnicity=Ghanaian	-1.165	.494	1	.018	-2.133	-.197
	Ethnicity=Liberian	-.434	.391	1	.266	-1.200	.331

Ethnicity=Nigerian	0a	.	0	.	.	.
Nativity=Foreign-born	.863	.435	1	.047	.011	1.714
Nativity=U.S-born	0a	.	0	.	.	.
Education=Less than high school & Some high school	-.606	.858	1	.480	-2.288	1.076
Education=High school graduate	-.826	1.004	1	.411	-2.793	1.142
Education=Some college	.253	.613	1	.680	-.949	1.455
Education=College graduate	-.083	.564	1	.883	-1.188	1.023
Education=Graduate, professional degree and others	0a	.	0	.	.	.
Income=Less than $20,000	-2.061	.806	1	.011	-3.641	-.482
Income=$20,000-35,000	-3.378	.707	1	.000	-4.763	-1.992
Income=$35,000-50,000	-2.717	.675	1	.000	-4.039	-1.394
Income=$50,000-75,000	.591	.752	1	.432	-.883	2.065
Income=$75,000-100,000+	0a	.	0	.	.	.
Employment=No	.501	.510	1	.325	-.498	1.500
Employment=Yes	0a	.	0	.	.	.

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level less than 0.05

(continued)

In regards to the association between network size and no future intention to seek help, having adjusted for the covariates (table 32), there were selected significant categories. Significant values were observed, particularly among participants that noted that it was extremely unlikely that they will not seek any help, participants that noted it is unlikely that they would not seek any help, and participants that noted it was likely they will not seek any help in the future. Participants that noted extreme unlikelihood, unlikelihood or likely had higher odds of having a high social network size, compared to participants that noted extreme likelihood to not seek help (reference group). Interestingly, participants that noted that they were unlikely to seek help had higher odds of having a high social network, compared to participants that noted that it is extremely unlikely that they not have intention to seek help, and participants that noted likelihood of no intention to seek help in the future. Secondly, a significant value was observed

in terms of association between network size and no intention to seek help in the future, among participants of Ghanaian descent. Participants that were of Ghanaian descent were more likely to have no intention to seek help in the future compared to participants of Nigerian descent. There was no significant difference between participants of Liberian and Nigerian descent. Lastly, a significant value was observed in terms of association between network size and no future intention to seek help, with respect to participants that earned an annual income between $0 and 50,000. Participants that noted an annual income between $0 and $50,000 were least likely to have a high social network size and were least likely to have no future intention to seek help.

Table 32

Association between Network Size and No Intention to Seek Help in the Future having adjusted for Age, Ethnicity, Nativity, Education, Income and Employment

		Parameter Estimates					
		Estimate	Std. Error	df	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Threshold	[Network size = 1]	.283	1.071	1	.791	-1.815	2.382
	[Network size = 2]	3.307	1.089	1	.002	1.173	5.441
Location							
	No intention to seek help in the future = Extremely Unlikely	1.226	.494	1	.013	.258	2.194
	No intention to seek help in the future = Unlikely	1.851	.586	1	.002	.703	2.999
	No intention to seek help in the future =Likely	1.477	.592	1	.013	.317	2.637
	No intention to seek help in the future =Extremely Likely	0a	.	0	.	.	.
	Age=18-29	.475	.813	1	.559	-1.119	2.070
	Age=30-45	.574	.692	1	.407	-.782	1.930
	Age=46-59	.460	.671	1	.493	-.855	1.776
	Age=60+	0a	.	0	.	.	.
	Ethnicity=Ghanaian	-1.270	.500	1	.011	-2.250	-.289
	Ethnicity=Liberian	-.523	.392	1	.181	-1.291	.244
	Ethnicity=Nigerian	0a	.	0	.	.	.
	Nativity=Foreign-born	.754	.437	1	.085	-.103	1.611
	Nativity=U.S-born	0a	.	0	.	.	.
	Education=Less than high school & Some high school	-.616	.911	1	.499	-2.402	1.169

Education=High school graduate	-.790	1.028	1	.442	-2.804	1.225
Education=Some college	.489	.623	1	.432	-.732	1.710
Education=College graduate	-.107	.571	1	.851	-1.227	1.013
Education=Graduate, professional degree and others	0a	.	0	.	.	.
Income=Less than $20,000	-2.090	.804	1	.009	-3.665	-.514
Income=$20,000-35,000	-3.442	.719	1	.000	-4.850	-2.033
Income=$35,000-50,000	-2.655	.666	1	.000	-3.960	-1.349
Income=$50,000-75,000	.708	.751	1	.346	-.764	2.180
Income=$75,000-100,000+	0a	.	0	.	.	.
Employment=No	.538	.527	1	.307	-.495	1.571
Employment=Yes	0a	.	0	.	.	.

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level less than 0.05

(continued)

In regards to the association between network size and past help sought from formal help, having adjusted for the covariates (Table 33), there were selected significant categories. Significant value was observed in terms of association between network size and participants who noted no past help sought from a formal help source. These participants were more likely to have a low social network size, compared to participants who had sought help in the past from a formal help source. Secondly, a significant value was observed in terms of association between network size and past help sought from a formal help source, with respect to participants being of the Ghanaian ethnic group. The odds ratio of these individuals having a high network size is 0.24 less than that of participants of Nigerian descent. Participants that are of Ghanaian descent were least likely of the three ethnic groups represented to have sought help in the past from a formal help source. There was no significant difference between participants of Liberian descent and those of Nigerian descent. However, participants of Liberian descent are more likely to have

a low social network size, with respect to the abovementioned association. In regards to nativity, a significant value was observed in terms of association between network size and past help sought from a formal help source, with respect to foreign-born participants. Foreign-born participants were more likely to have sought help from a formal help source in the past and have a high social network size, compared to their U.S-born counterparts. Lastly, a significant value was observed in terms of association between network size and past help sought from a formal help source, with respect to participants' annual income. Participants that noted an annual income between $0 and $50,000 were least likely to have a high social network size, and were least likely to have had had a past experiences with a formal help source, compared to participants that noted an annual income above $50,000.

Table 33

Association between Network Size and Past Help Sought from Formal Help Source having adjusted for Age, Ethnicity, Nativity, Education, Income and Employment

		Parameter Estimates					
		Estimate	Std. Error	df	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Threshold	[Network size = 1]	-.872	1.019	1	.392	-2.868	1.125
	[Network size = 2]	2.083	1.014	1	.040	.095	4.071
Location							
	Past help sought from formal help source=No	-.855	.426	1	.045	-1.690	-.020
	Past help sought from formal help source =Yes	0a	.	0	.	.	.
	Age=18-29	.554	.789	1	.483	-.992	2.100
	Age=30-45	.445	.681	1	.513	-.889	1.779
	Age=46-59	.410	.663	1	.537	-.890	1.709
	Age=60+	0a	.	0	.	.	.
	Ethnicity=Ghanaian	-1.403	.488	1	.004	-2.360	-.447
	Ethnicity=Liberian	-.655	.387	1	.091	-1.414	.104
	Ethnicity=Nigerian	0a	.	0	.	.	.

Nativity=Foreign-born	.886	.436	1	.042	.031	1.741
Nativity=U.S-born	0a	.	0	.	.	.
Education=Less than high school & Some high school	-.634	.842	1	.452	-2.285	1.017
Education=High school graduate	-.747	1.017	1	.463	-2.741	1.247
Education=Some college	.108	.611	1	.860	-1.091	1.306
Education=College graduate	-.203	.558	1	.716	-1.297	.891
Education=Graduate, professional degree and others	0a	.	0	.	.	.
Income=Less than $20,000	-1.728	.803	1	.031	-3.301	-.155
Income=$20,000-35,000	-3.124	.699	1	.000	-4.493	-1.754
Income=$35,000-50,000	-2.253	.658	1	.001	-3.543	-.963
Income=$50,000-75,000	.933	.733	1	.203	-.503	2.370
Income=$75,000-100,000+	0a	.	0	.	.	.
Employment=No	.594	.511	1	.245	-.407	1.595
Employment=Yes	0a	.	0	.	.	.

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level less than 0.05

(continued)

In regards to the association between network size and past experiences from a formal help source, having adjusted for the covariates (Table 34), there were selected significant categories. A significant value was observed in terms of association between network size and no experience, extremely unhelpful past experiences, and somewhat helpful past experiences, from a formal help source. Participants that noted that they had no past experiences with a formal help source, extremely unhelpful experiences, or somewhat helpful past experiences from a formal help source were least likely to have a high social network compared with participants that noted their past experiences from a formal help source to be extremely helpful. Secondly, a significant value was observed in terms of association between network size and past experiences from a formal help source, with respect to participants being of the Ghanaian ethnic group. The odds of participants that are of Ghanaian descent having a high network size was 0.25 less than that of participants of Nigerian descent. In addition, participants that are of Ghanaian descent were least

likely to have sought help in the past from a formal help source. There was no significant difference between participants of Liberian descent and those of Nigerian descent. However, participants of Liberian descent are more likely to have a low social network size. In regards to nativity, a significant value was observed in terms of association between network size and past experience from a formal help source, with respect to foreign-born participants. Foreign-born participants were more likely to have high social network size and have had a past experiences with a formal help source, compared to their U.S-born counterparts. Lastly, a significant value was observed in terms of association between network size and past experiences from a formal help source, with respect to participants' annual income. Participants that noted an annual income between $0 and $50,000 were least likely to have a high social network size, and were least likely to have had a past experience with a formal help source, compared to participants that noted an annual income above $50,000.

Table 34

Association between Network Size and Past Experience from Formal Help Source having adjusted for Age, Ethnicity, Nativity, Education, Income and Employment

		Parameter Estimates					
		Estimate	Std. Error	df	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Threshold	[Network size = 1]	-1.806	1.097	1	.100	-3.956	.344
	[Network size = 2]	1.467	1.060	1	.166	-.611	3.544
Location							
	Experience from a formal help source =None	-1.526	.504	1	.002	-2.513	-.539
	Experience from a formal help source =Extremely Unhelpful	-2.370	.806	1	.003	-3.950	-.790
	Experience from a formal help source =Unhelpful	.413	.636	1	.516	-.834	1.659
	Experience from a formal help source =Somewhat Helpful	-1.342	.608	1	.027	-2.533	-.151
	Experience from a formal help source =Helpful	-.687	.509	1	.177	-1.684	.310

Experience from a formal help source =Extremely helpful	0a	.	0	.	.	.
Age=18-29	.838	.829	1	.312	-.787	2.463
Age=30-45	.542	.708	1	.444	-.846	1.930
Age=46-59	.462	.682	1	.498	-.875	1.798
Age=60+	0a	.	0	.	.	.
Ethnicity=Ghanaian	-1.384	.499	1	.006	-2.362	-.406
Ethnicity=Liberian	-.663	.405	1	.102	-1.456	.130
Ethnicity=Nigerian	0a	.	0	.	.	.
Nativity=Foreign-born	.865	.449	1	.054	-.016	1.746
Nativity=U.S-born	0a	.	0	.	.	.
Education=Less than high school & Some high school	-1.024	.876	1	.242	-2.740	.692
Education=High school graduate	-.870	1.020	1	.394	-2.870	1.130
Education=Some college	-.097	.639	1	.879	-1.349	1.154
Education=College graduate	-.377	.580	1	.516	-1.515	.761
Education=Graduate, professional degree and others	0a	.	0	.	.	.
Income=Less than $20,000	-2.122	.861	1	.014	-3.809	-.435
Income=$20,000-35,000	-3.490	.758	1	.000	-4.976	-2.004
Income=$35,000-50,000	-2.443	.704	1	.001	-3.824	-1.063
Income=$50,000-75,000	.638	.757	1	.400	-.846	2.121
Income=$75,000-100,000+	0a	.	0	.	.	.
Employment=No	.697	.543	1	.199	-.367	1.761
Employment=Yes	0a	.	0	.	.	.

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level less than 0.05

(continued)

In summary, the results of the model evaluation and interpretation, with respect to the association between network size, future intention to seek help from (formal, informal, and no) help source and past help sought and experience from (formal) help source adjusted for age, ethnicity, nativity, education, income, and employment ascertain several positive associations as noted in the respective sections.

In the following section i address the association between network diversity, future intention to seek help from (formal, informal and no) help-source and past help sought and

experience from (formal) help source adjusted for age, ethnicity, nativity, education, income and employment.

(a) Does network diversity correlate with past help sought and experience with a formal help source and future intention to seek help from (formal, informal, no) help source among foreign-born and U.S.-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income?

H_o2: There is no relationship between network diversity and past help sought and experience from a formal help source and future intention to seek help from a (formal, informal, no) help source among foreign-born and U.S.-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income.

H_a2: There is a relationship between network diversity and past help sought and experience from a formal help source and future intention to seek help from a (formal, informal, no) help source among foreign-born and U.S.-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income.

The Model-fitting information results, in regards to network diversity and future intention to seek help from (formal and informal) help-source and past help sought and experience with formal help source, reveal that the differences between the -2 log-likelihoods chi-squares did observe significance values (p <0.05) between network diversity and future intention to seek help from formal and informal help sources, no intention to seek help in the future, past help sought from formal help sources (particularly a medical care professional), and experience of past help

sought from formal help sources. This means that the null hypothesis can be rejected, which indicated that the model without the independent variable, network diversity, is as good as the model with the independent variable. Results of model fitting information test for association between network diversity, general help seeking characteristics and covariates are demonstrated in Tables 35 and 36.

Table 35

Association between Network Diversity and Future Help Seeking Intention having adjusted for Age, Ethnicity, Nativity, Education, Income and Employment) (N=213)

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level less than 0.05

	Future Intention to Seek Help from Formal Help Source		Future Intention to Seek Help from Informal Help Source		No intention to seek help in the future	
	p	X^2	p	X^2	p	X^2
Network Diversity	.001	43.835	.001	43.674	.000	49.014

Table 36

*Association between Network Diversity and P*ast help sought *and Experience and Covariate, having adjusted for Age, Ethnicity, Nativity, Education, Income and Employment*

	Past Help Sought from Formal Help source		Experience of Past Help Sought from Formal Help Source	
	p	X^2	p	X^2
Network Diversity	.001	40.868	.001	45.653

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level less than 0.05

Results of the Goodness-of-Fit test addressed the consistency of relationship between network diversity, dependent variables and covariates fit the OLR model. There were significant values observed between network diversity and the general help seeking variables, which are demonstrated in Tables 37 and 38.

Table 37

Association between Network Diversity and Future Help Seeking Intention having adjusted for Age, Ethnicity, Nativity, Education, Income and Employment

	Future Intention to Seek Help from Formal Help Source		Future Intention to Seek Help from Informal Help Source		No intention to seek help in the future	
	p	X^2	p	X^2	p	X^2
Network Diversity	.316	155.727	.548	134.371	.253	150.723

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level greater than 0.05

Table 38

*Association between Network Diversity and P*ast help sought *and Experience and Covariate, having adjusted for Age, Ethnicity, Nativity, Education, Income and Employment*

	Past Help Sought from Formal Help source		Experience of Past Help Sought from Formal Help Source	
	p	X^2	p	X^2
Network Diversity	.342	131.905	.554	155.936

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level greater than 0.05

In regards to the proportional odds assumptions, results of the analysis indicate that the general model gives a significantly better fit to the data than proportional odds, for relationship between network size and future intention to seek help from formal help sources, future intention to seek help from informal help sources, no intention to seek help in the future, past help sought from formal help sources, and experience of past help sought from formal help source. Results are demonstrated in Tables 39 and 40.

Table 39

Association between Network Diversity and Future Help Seeking Intention having adjusted for Age, Ethnicity, Nativity, Education, Income and Employment

	Future Intention to Seek Help from Formal Help Source		Future Intention to Seek Help from Informal Help Source		No intention to seek help in the future	
	p	X^2	p	X^2	p	X^2
Network Diversity	.	.000	.	.000	.	.000

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level less than 0.05

(continued)

Table 40

*Association between Network Diversity and P*ast help sought *and Experience and Covariate, having adjusted for Age, Ethnicity, Nativity, Education, Income and Employment*

	Past Help Sought from Formal Help source		Experience of Past Help Sought from Formal Help Source	
	p	X^2	p	X^2
Network Diversity	0.001	.000	0.001	.000

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level less than 0.05

In the following section I address the *a*ssociation between network diversity, future intention to seek help from (formal, informal, and no) help-source and past help sought and experience from (formal) help source adjusted for age, ethnicity, nativity, education, income and employment. In regard to the association between network diversity and future intention to seek help from a formal help source, having adjusted for the covariate (Table 41), there were selected significant categories. Significant value was observed in terms of association between network diversity and future help seeking intention from a formal help source, with respect to some college level education. Participants that indicated that they had some college education were more likely to have future intention to seek help from a formal help source, in addition they were more likely to have high social network diversity compared to participants that indicated graduate and professional academic background. Significant value was observed in terms of

association between network diversity and future help seeking intention from formal help source, with respect to those individuals earning an annual income between $0 and $50,000. Participants that noted an annual income between $0 and $50,000 were least likely to have a high social network diversity and were least likely to have future intention to seek help from a formal help source. Lastly, a significant value was observed in terms of association between network diversity and future help seeking intention from a formal help source, with respect to participants' employment status. Participants that indicated no form of employment were least likely to have a high social network diversity compared to their employed counterparts. In addition, they were least likely to indicate future intention to seek help from a formal help source.

Table 41

Association between Network Diversity and Future Help Seeking Intention from Formal Help Source having adjusted for Age, Ethnicity, Nativity, Education, Income and Employment

		Parameter Estimates					
		Estimate	Std. Error	df	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Threshold	[Network diversity = 1]	-22.055	1.506	1	.000	-25.007	-19.103
Location							
	Future intention to seek help from formal help source= Extremely Unlikely	-1.614	1.125	1	.151	-3.820	.591
	Future intention to seek help from formal help source= Unlikely	-.405	.681	1	.552	-1.740	.930
	Future intention to seek help from formal help source=Likely	-.899	.650	1	.166	-2.173	.374
	Future intention to seek help from formal help source=Extremely Likely	0a	.	0	.	.	.
	Age=18-29	-1.291	1.005	1	.199	-3.262	.679
	Age=30-45	-.863	.972	1	.375	-2.768	1.043
	Age=46-59	.753	1.096	1	.492	-1.395	2.901

Age=60+	0a	.	0	.	.	.
Ethnicity=Ghanaian	-.919	.517	1	.076	-1.932	.095
Ethnicity=Liberian	-.513	.519	1	.323	-1.530	.504
Ethnicity=Nigerian	0a	.	0	.	.	.
Nativity=Foreign-born	-.204	.467	1	.662	-1.120	.712
Nativity=U.S-born	0a	.	0	.	.	.
Education=Less than high school & Some high school	.621	1.084	1	.567	-1.504	2.745
Education=High school graduate	.816	1.008	1	.418	-1.160	2.792
Education=Some college	1.733	.794	1	.029	.178	3.289
Education=College graduate	1.234	.742	1	.096	-.221	2.688
Education=Graduate, professional degree and others	0a	.	0	.	.	.
Income=Less than $20,000	-19.228	1.291	1	.000	-21.758	-16.699
Income=$20,000-35,000	-19.566	1.269	1	.000	-22.053	-17.079
Income=$35,000-50,000	-20.411	1.227	1	.000	-22.817	-18.005
Income=$50,000-75,000	-18.283	.000	1	.	-18.283	-18.283
Income=$75,000-100,000+	0a	.	0	.	.	.
Employment=No	-1.385	.594	1	.020	-2.549	-.221
Employment=Yes	0a	.	0	.	.	.

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level less than 0.05

(continued)

In regard to the association between network diversity and future intention to seek help from an informal help source, having adjusted for the covariate (Table 42), there were selected significant categories. Significant value was observed in terms of association between network diversity and future help seeking intention from an informal help source, with respect to some college level education. Participants that indicated that they had some college education were more likely to have future intention to seek help from a formal help source; in addition, they were more likely to have a high social network diversity compared to participants that indicated graduate and professional academic background. Significant value was observed in terms of association between network diversity and future help seeking intention from a formal help source, with respect to those individuals earning an annual income between $0 and $50,000.

Participants that noted an annual income between $0 and $50,000 were least likely to have a high social network diversity and were least likely to have future intention to seek help from a formal help source. Lastly, a significant value was observed in terms of association between network diversity and future help seeking intention from formal help source, with respect to participants' employment status. Participants that indicated no form of employment were least likely to have a high social network diversity compared to their employed counterparts. In addition, they were least likely to indicate future intention to seek help from a formal help source.

Table 42

Association between Network Diversity and Future Help Seeking Intention from Informal Help Source having adjusted for Age, Ethnicity, Nativity, Education, Income and Employment

		Parameter Estimates					
		Estimate	Std. Error	Df	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Threshold	[Network diversity = 1]	-21.002	1.504	1	.000	-23.950	-18.054
Location							
	Future intention to seek help from informal help source= Extremely Unlikely	-1.182	1.366	1	.387	-3.860	1.496
	Future intention to seek help from informal help source= Unlikely	-.142	.744	1	.849	-1.599	1.316
	Future intention to seek help from informal help source=Likely	.501	.714	1	.483	-.898	1.899
	Future intention to seek help from informal help source=Extremely Likely	0a	.	0	.	.	.
	Age=18-29	-1.045	.992	1	.292	-2.989	.899
	Age=30-45	-.502	.940	1	.593	-2.345	1.340
	Age=46-59	1.054	1.076	1	.327	-1.054	3.162
	Age=60+	0a	.	0	.	.	.
	Ethnicity=Ghanaian	-.995	.535	1	.063	-2.044	.055
	Ethnicity=Liberian	-.551	.535	1	.303	-1.599	.498
	Ethnicity=Nigerian	0a	.	0	.	.	.

Nativity=Foreign-born	-.165	.471	1	.725	-1.088	.757
Nativity=U.S-born	0a	.	0	.	.	.
Education=Less than high school & Some high school	.271	1.120	1	.809	-1.925	2.467
Education=High school graduate	.406	1.036	1	.695	-1.624	2.436
Education=Some college	1.563	.828	1	.059	-.059	3.185
Education=College graduate	1.019	.769	1	.185	-.488	2.525
Education=Graduate, professional degree and others	0a	.	0	.	.	.
Income=Less than $20,000	-19.167	1.300	1	.000	-21.715	-16.619
Income=$20,000-35,000	-19.570	1.279	1	.000	-22.076	-17.064
Income=$35,000-50,000	-20.112	1.235	1	.000	-22.532	-17.692
Income=$50,000-75,000	-17.758	.000	1	.	-17.758	-17.758
Income=$75,000-100,000+	0a	.	0	.	.	.
Employment=No	-1.347	.587	1	.022	-2.498	-.196
Employment=Yes	0a	.	0	.	.	.

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level less than 0.05

(continued)

In regard to the association between network diversity and no intention to seek help in the future, having adjusted for the covariate (Table 43), there were selected significant categories. Significant value was observed in terms of association between network diversity and unlikelihood and likelihood of no intention to seek help in the future. Participants that noted unlikelihood and likelihood of no intention to seek help in the future had higher odds of having a high social network diversity compared to participants that noted extreme likelihood to not seek help. In regards to the two significant values, participants that noted unlikelihood of no intention

to seek help in the future had higher social network diversity are more likely to seek help in the future, compared to participants who had indicated likelihood of no intention to seek help in the future. Significant value was observed in terms of association between network diversity and no intention to seek help in the future, with respect to some college level education. Participants that indicated that they had some college education were more likely to have no intention to seek help in the future; in addition, they were more likely to have high social network diversity compared to participants that indicated graduate and professional academic background. Significant value was observed in terms of association between network diversity and no intention to seek help in the future, with respect to participants earning an annual income between $0 and $50,000. Participants that noted an annual income between $0 and $50,000 were least likely to have a high social network diversity, and were least likely to have no intention to seek help in the future. Lastly, a significant value was observed in terms of association between network diversity and no intention to seek help in the future, with respect to participants' employment status. Participants that indicated no form of employment were least likely to have a high social network diversity compared to their employed counterparts. In addition, they were least likely to indicate no intention to seek help in the future.

Table 43

Association between Network Diversity and No Intention to Seek Help in the Future having adjusted for Age, Ethnicity, Nativity, Education, Income and Employment

		Parameter Estimates					
		Estimate	Std. Error	df	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Threshold	[Network diversity = 1]	-20.742	1.468	1	.000	-23.620	-17.865
Location							

No intention to seek help in the future = Extremely Unlikely	.597	.502	1	.235	-.387	1.581
No intention to seek help in the future = Unlikely	2.017	.903	1	.025	.247	3.787
No intention to seek help in the future =Likely	1.460	.744	1	.050	.002	2.919
No intention to seek help in the future =Extremely Likely	0a	.	0	.	.	.
Age=18-29	-1.640	1.044	1	.116	-3.686	.406
Age=30-45	-.790	.980	1	.420	-2.712	1.132
Age=46-59	.580	1.117	1	.603	-1.609	2.769
Age=60+	0a	.	0	.	.	.
Ethnicity=Ghanaian	-.851	.537	1	.113	-1.904	.202
Ethnicity=Liberian	-.670	.529	1	.205	-1.707	.367
Ethnicity=Nigerian	0a	.	0	.	.	.
Nativity=Foreign-born	-.329	.475	1	.489	-1.260	.603
Nativity=U.S-born	0a	.	0	.	.	.
Education=Less than high school & Some high school	.889	1.148	1	.439	-1.362	3.140
Education=High school graduate	.680	1.067	1	.524	-1.412	2.772
Education=Some college	2.213	.883	1	.012	.483	3.943
Education=College graduate	1.427	.786	1	.069	-.113	2.967
Education=Graduate, professional degree and others	0a	.	0	.	.	.
Income=Less than $20,000	-19.170	1.334	1	.000	-21.783	-16.556
Income=$20,000-35,000	-19.529	1.269	1	.000	-22.016	-17.043
Income=$35,000-50,000	-20.332	1.219	1	.000	-22.722	-17.942
Income=$50,000-75,000	-18.298	.000	1	.	-18.298	-18.298
Income=$75,000-100,000+	0a	.	0	.	.	.
Employment=No	-1.538	.599	1	.010	-2.711	-.364
Employment=Yes	0a	.	0	.	.	.

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level less than 0.05

(continued)

In regards to the association between network diversity and past help sought from a formal help source, having adjusted for the covariate (Table 44), there were selected significant categories. Significant value was observed in terms of association between network diversity and

past help sought from a formal help source, with respect to some college level education. Participants that indicated that they had some college education were more likely to have past help sought from a formal help source; in addition, they were more likely to have a high social network diversity compared to participants that indicated graduate and professional academic background. Significant value was observed in terms of association between network diversity and past help sought from a formal help source, with respect to those individuals earning an annual income between $0 and $50,000. Participants that noted an annual income between $0 and $50,000 were least likely to have a high social network diversity, and were least likely to have past help sought from a formal help source. Lastly, a significant value was observed in terms of association between network diversity and past help sought from a formal help source, with respect to participants' employment status. Participants that indicated no form of employment were least likely to have a high social network diversity compared to their employed counterparts. In addition, they were least likely to indicate past help sought from formal help source.

Table 44

Association between Network Diversity and Past Help Sought from Formal Help Source having adjusted for Age, Ethnicity, Nativity, Education, Income and Employment

		Parameter Estimates					
		Estimate	Std. Error	df	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Threshold	[Network diversity= 1]	-21.246	1.432	1	.000	-24.052	-18.439
Location							
	Past help sought from formal help source=No	-.286	.428	1	.505	-1.126	.554
	Past help sought from formal help source =Yes	0a	.	0	.	.	.
	Age=18-29	-1.126	.986	1	.254	-3.058	.807
	Age=30-45	-.618	.939	1	.510	-2.459	1.222
	Age=46-59	.913	1.070	1	.394	-1.184	3.009

Age=60+	0a	.	0	.	.	.
Ethnicity=Ghanaian	-.926	.520	1	.075	-1.945	.094
Ethnicity=Liberian	-.542	.515	1	.293	-1.551	.467
Ethnicity=Nigerian	0a	.	0	.	.	.
Nativity=Foreign-born	-.284	.453	1	.532	-1.172	.605
Nativity=U.S-born	0a	.	0	.	.	.
Education=Less than high school & Some high school	.606	1.073	1	.572	-1.498	2.709
Education=High school graduate	.743	1.000	1	.458	-1.218	2.703
Education=Some college	1.736	.786	1	.027	.195	3.276
Education=College graduate	1.263	.725	1	.082	-.159	2.684
Education=Graduate, professional degree and others	0a	.	0	.	.	.
Income=Less than $20,000	-19.131	1.289	1	.000	-21.658	-16.604
Income=$20,000-35,000	-19.515	1.269	1	.000	-22.003	-17.028
Income=$35,000-50,000	-20.159	1.233	1	.000	-22.576	-17.743
Income=$50,000-75,000	-17.978	.000	1	.	-17.978	-17.978
Income=$75,000-100,000+	0a	.	0	.	.	.
Employment=No	-1.378	.578	1	.017	-2.511	-.246
Employment=Yes	0a	.	0	.	.	.

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level less than 0.05

(continued)

In regards to the association between association between network diversity and past experiences from a formal help source, having adjusted for the covariate (Table 45), there were selected significant categories. Significant value was observed in terms of association between network diversity and past experiences from a formal help source, with respect to some college level education. Participants that indicated that they had some college education were more likely to have past experiences from a formal help source; in addition, they were more likely to have a high social network diversity compared to participants that indicated graduate and professional academic background. Significant value was observed in terms of association between network diversity and past experiences from a formal help source, with respect to those individuals earning an annual income between $0 and $50,000. Participants that noted an annual

income between $0 and $50,000 were least likely to have a high social network diversity and were least likely to have past experiences from a formal help source. Lastly, a significant value was observed in terms of association between network diversity and past experiences from a formal help source, with respect to participants' employment status. Participants that indicated no form of employment were least likely to have a high social network diversity compared to their employed counterparts. In addition, they were least likely to indicate past experiences from a formal help source. Significant value was observed in terms of association between network diversity and past experiences from a formal help source, with respect to some college level education. The estimate of the significant value noted indicated that the odds of these individuals having a high network diversity is 5.82. Significant value was observed in terms of association between network diversity and past experience from a formal help source, with respect to those individuals earning an annual income of less than $75,000. The estimate of the significant values noted indicated that the odds of individuals earning an annual income less than $75,000 having a high network diversity is less than the reference group. Significant value was observed in terms of association between network diversity and past experiences from a formal help source, with respect to participants that noted that they were not employed during the duration of the study. The estimate of the significant values noted indicated that the odds of individuals that noted no employed having a high network diversity is 0.20 less than the reference group.

Table 45

Association between Network Diversity and Past Experience from Formal Help Source having adjusted for Age, Ethnicity, Nativity, Education, Income and Employment

	Parameter Estimates					
	Estimate	Std. Error	df	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound

Threshold	[Network diversity= 1]	-22.110	1.534	1	.000	-25.116	-19.103
Location							
	Experience from a formal help source =None	-.505	.591	1	.393	-1.662	.653
	Experience from a formal help source =Extremely Unhelpful	-1.500	.916	1	.102	-3.296	.296
	Experience from a formal help source =Unhelpful	-.726	.963	1	.450	-2.613	1.160
	Experience from a formal help source =Somewhat Helpful	.498	.747	1	.505	-.965	1.962
	Experience from a formal help source =Helpful	-.179	.713	1	.802	-1.575	1.218
	Experience from a formal help source =Extremely helpful	0a	.	0	.	.	.
	Age=18-29	-1.422	1.059	1	.179	-3.498	.654
	Age=30-45	-.959	.975	1	.325	-2.871	.952
	Age=46-59	.689	1.104	1	.532	-1.474	2.852
	Age=60+	0a	.	0	.	.	.
	Ethnicity=Ghanaian	-.977	.531	1	.066	-2.019	.064
	Ethnicity=Liberian	-.586	.525	1	.264	-1.614	.442
	Ethnicity=Nigerian	0a	.	0	.	.	.
	Nativity=Foreign-born	-.311	.462	1	.501	-1.216	.594
	Nativity=U.S-born	0a	.	0	.	.	.
	Education=Less than high school & Some high school	.396	1.097	1	.718	-1.754	2.546
	Education=High school graduate	.707	1.034	1	.494	-1.321	2.734
	Education=Some college	1.762	.826	1	.033	.143	3.382
	Education=College graduate	1.250	.761	1	.100	-.241	2.741
	Education=Graduate, professional degree and others	0a	.	0	.	.	.
	Income=Less than $20,000	-19.407	1.283	1	.000	-21.922	-16.892
	Income=$20,000-35,000	-19.759	1.256	1	.000	-22.221	-17.298
	Income=$35,000-50,000	-20.479	1.236	1	.000	-22.902	-18.057
	Income=$50,000-75,000	-18.246	.000	1	.	-18.246	-18.246
	Income=$75,000-100,000+	0a	.	0	.	.	.
	Employment=No	-1.617	.614	1	.008	-2.821	-.413
	Employment=Yes	0a	.	0	.	.	.

Notes and Abbreviation: $\chi 2$ = Chi Square, p = Significance level less than 0.05

(continued)

In regards to the Parameter Estimates for the network diversity, the threshold estimate for network diversity= 1.00 is the cutoff value between low and high network diversity. As noted in

previous section of the chapter, the model sets a default indicator for the reference group; for each category, the reference group level is set to zero. From the observed significant levels, network diversity did not contribute significantly to the predictive ability of the model for the categories of general help seeking characteristics (see Tables 41, 42, 43, and 44). However, network diversity did contribute significantly to the predictive ability of the model for no intention to seek help in the future, particularly among participants that indicated "unlikely and likely" (see Table 43). In regards to the covariate variables, network diversity also did contribute significantly to the predictive ability of the model for several demographic characteristics, namely some college education, income levels (less than $20,000, $20,000-35,000, $35,000-50,000 and $50,000-75,000), and no employment status, with regards to the following general help seeking characteristics: future intention to seek help from formal and informal help sources, no intention to seek help in the future, and past help sought and experience from help source (see Tables 41, 42, 43, 44, and 45). Network diversity did not contribute significantly to the predictive ability of the model for all age categories; there is no significant value (see Tables 41, 42, 43, 44, and 45).

Summary

In regards to the results of the bivariate analysis, namely chi-square results, there were several relationships between the independent, dependent, and covariate variables. In regards to the results of the multivariate analysis, although the OLR was overall suited for the data, as indicated in the results from the Model Fitting, Goodness of Fit and Test of Parallel Lines, the Parameter Estimates interpretation indicated that there were several independent variables that were significantly associated with two network measures. In addition, demographic variables, such as nativity, ethnicity, level of education, income level, and employment status were

significantly associated with the to the dependent variable. In Chapter 5, discussion and summary of the study results are provided along with the study limitations, recommendations, future research recommendation, implications of the results of the are discussed, and conclusion are drawn.

Chapter 5: Conclusion

Introduction

In this chapter, I provide the interpretation of the results, limitations of the study, recommended actions based on the observed results, suggestions for future study, implications of the study for bringing positive social change, and conclusions. In this study, I examined the relationship between social network measures (network size and network diversity) and help-seeking measures, future intention to seek or not seek help from both formal and informal sources, past help sought, and experience with formal help sources for health-related needs among U.S.-born and foreign-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income. I examined the relationship between social networks measures and general help-seeking measures from the social epidemiological perspective based on the notions of the social network theory (SNT). Researchers have noted with use of SNT that an individual's social network is "responsible for determining an individual's behavior and attitude" (Berkman, et al., 2000, p. 846). As observed in the results of the study in Chapter 4, there are variabilities within the Black American male population; variation exists with respect to attitudes, beliefs, and perceptions toward different aspects of health. Researchers generally aggregate all Black Americans as one group in studies; however, aggregating all of the Black American male population as one group leads to an incomplete understanding of their attitudes, beliefs, and perceptions as related to health help-seeking behavior. Therefore, for the current I focused on a subgroup of Black American men of West African descent (namely Ghanaians, Liberians, and Nigerians) that reside in the state of Rhode Island.

The dependent variables that I considered in the current study were future intention to seek or not seek help from formal and informal sources, past help seeking or not seeking behavior from formal sources, and experience with past help seeking effort from a formal source, for health-related needs. In the current study, formal sources included medical health professionals, help-lines and faith-based organizations; whereas, informal sources include intimate partners, friends, parents, and other relatives. The independent variables considered in the current study were social network diversity and social network size. Social network diversity reflects the range of different social network members (i.e. intimate partners, children, parents, in-laws, relatives, friends, faith-based organizations, classmates, co-workers, neighbors, volunteer-groups, and non-volunteer groups) associated with a participant (Berkman et al., 2005 Christakis et al., 2007). Social network size reflects the number of social network members (i.e. friends, faith-based organizations, classmates, co-workers, neighbors, volunteer-groups, and non-volunteer groups) associated with a participant. I discuss the following topics in this chapter: (a) interpretation of findings (b) study limitations (c) recommendations for action and future study, (d) implications for social change and (f) conclusion.

Interpretation of Findings

Based on the findings presented in Chapter 4, there is an association between social network measures and selective categories of general help-seeking measures among foreign-born and U.S-born Black American men of West African descent. Moreover, I made adjustment for the following demographic variables ethnicity, nativity, level of income, level of education, and employment status, which contributed significantly to the association between the independent and dependent variables.

These findings were central to addressing the research question and subsequent hypothesis which includes: Does the social network measures (i.e. network size and diversity) correlate with past help sought and experience from a formal help source and future intention to seek help from a (formal, informal, or no) help source?

H_o1: There is no relationship between network size and past help sought and experience from a formal help source and future intention to seek help from (formal, informal, no) help source, among foreign-born and U.S.-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income.

H_a1: There is a relationship between network size and past help sought and experience from a formal help source and future intention to seek help from a (formal, informal, no) help source, among foreign-born and U.S.-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income.

H_o2: There is no relationship between network diversity and past help sought and experience from a formal help source and future intention to seek help from a (formal, informal, no) help source among foreign-born and U.S.-born Black American men of West African descent, having accounted for differences in age, educational status, employment status, and income.

H_a2: There is a relationship between network diversity and past help sought and experience from a formal help source and future intention to seek help from a (formal, informal, no) help source among foreign-born and U.S.-born Black American men of

West African descent, having accounted for differences in age, educational status, employment status, and income.

In regard to the association between social network size and the different responses in the scale (i.e. extremely unlikely, unlikely, likely, and extremely likely) of future intention to seek help from a formal help source, there were no significant associations (Table 30). Findings from prior studies that examined the association between social network size and help-seeking from a formal help source (i.e. medical care provider) are inconclusive with regard to Black American men in general (Griffith et al., 2011; Lucas et al., 2003 & Neighbor et al., 2011). Prior studies have suggested that future studies of the foreign-born and U.S-born Black population explore variables addressed in the current study to add to the growing data pertaining to the population of interest. The findings of the current study further contribute to the growing literature that examines the health-related issues of Black American men in general and in particular the foreign-born and U.S-born Black American men of West African descent.

There was an association between social network size and future intention to seek help from an informal help source. These findings were associated with participants who were most likely to have a high social network size. Even though these participants were most likely to have a high social network size, the help seeking response scale indicated an extreme unlikelihood to have a future intention to seek help from members of their informal social network (Table 31). Analysis indicated that a sizable percentage of participants had a low social network size (Table 17). Therefore, the findings reflect a portion of the participants with medium to high social network size.

The results concerning associations between informal social network and future intention to seek help is counter to findings from previous studies that have examined similar associations

(Alexander, 2003; Bierman, 2006; Deering & Harris, 1996; Dilsworth-Anderson et al., 2002; Duncan, 2005; Grier-Reed, 2013; Hill, 1998; Holley, 2011; Mills, 2005; Neighbors et al., 1984; Tovar-Murray, 2010; Waites, 2009). It is important to note, however, that social network size variable reflects the sum of all individuals with whom a participant has contact at least once every 2 weeks (Cohen et al., 1997). A sizable percentage of the participants were foreign-born; therefore, there may be relative contact with members of their social network that reside overseas, which may have reflected on participants that indicated extreme unlikelihood of future intention to seek help from their informal social network. Moreover, only 32% of the participants were U.S-born Black American men of West African descent. Considering that a majority of these participants may fall into the category of second generation Black American men of West African descent, there is a likelihood, with respect to age, that they represented participants between the ages of 18-29 (Table 15).

Researchers have noted that adolescents and young adults tend to belong to larger and more diverse social networks (Halkitis & Figueroa, 2013; Rickwood et al., 2005). The findings in this study did note that such participants had a high social network size; however, their future intention to seek help was extremely unlikely. From the standpoint of age, evidence has indicated in prior research that young people seek help less for health-related needs (Ajrouch et al., 2005; Halkitis & Figueroa, 2013; Rickwood et al., 2005). Lastly, in regard to no intention to seek help in the future, participants who had a high social network size indicated an extreme unlikelihood to not have future intention to seek help (Table 32). This finding indicates that participants do have some type of future intent to seek help.

In regard to the association between network size and past help sought from a formal help source, findings indicate that there was a significant relationship. In particular, the significant

value was among participants that had not sought help in the past from a formal help source (Table 33). These participants were more likely than their counterparts who had sought help in the past to have a low social network size. This trend supports evidence from previous studies, which was noted in a study that examined the correlation between the social network size and likelihood that participants attended cardiac rehabilitation post operation (Molloy et al., 2008). The researcher noted that participants that had a large number of social contacts were three and half times more likely to attend cardiac rehabilitation compared to individuals with a small number of social contacts (Molloy et al., 2008).

Furthermore, among individuals who had indicated they have sought help in the past from a formal help source, there were significant relationships between social network size and several of the response scales of general help seeking measure with respect to past experience from a formal help source (Table 34). Participants found their past experiences to be extremely unhelpful and somewhat helpful. It is important to note that these participants were least likely to have a high network size.

Several researchers have noted a number of factors that influence patients' past experiences with health-care providers, which include but are not limited to race, nativity, and gender (Akpuaka et al, 2012; Griffith et al., 2012; Johnson et al., 2012; Ojikutu et al., 2013). The current study considered some of these demographic factors, in order to explore their interaction with the two primary variables. I addressed their association in the following sections.

There were no significant associations between social network diversity and the different response scales (i.e. extremely unlikely, unlikely, likely and extremely likely) of future intention to seek help from both formal and informal help sources (Tables 41 and 42). However, there was a significant relationship between social network diversity and the different response levels of no

intention to seek help in the future (Table 43). These participants were more likely to have a high social network diversity. These participants had varying responses, which included extreme unlikelihood, unlikelihood, and likelihood to not have future intention to seek help (Table 43). Conclusively, these participants had future intent to seek help for health-related needs, although this was not reflective in the findings associated with future intention to seek help from their informal and formal social networks. Lastly, there were no significant associations between social network diversity and the different response scales of past help sought and experience with a formal help source (Tables 44 and 45). These findings are contrary to previous studies, although there is inconclusive evidence as to the association between the diversity of Black American men's social networks and their help seeking for health-related needs. Prior findings have noted a positive correlation between social network diversity and help seeking behavior (Barefoot, Grønbæk, Jensen, Schnohr, & Prescott, 2005).

Beyond the abovementioned findings, selected demographic variables contributed to the association observed between social network size and the two primary variables. Adjusting for ethnicity, being of the Ghanaian ethnic group contributed to the association between social network size and future intent to seek help from an informal help source, formal help source, and no future intention to seek help (Tables 30, 31, and 32). Participants of Ghanaian descent were less likely to have a large social network size, and were least likely to have future intention to seek help from formal and informal help sources; they were more likely to have no intention to seek help in the future. In addition to future intent to seek help, participants of Ghanaian descent were least likely to have sought help in the past from a formal help source. Researchers have noted in similar studies that social networks that consist of members of similar enclave (i.e. ethnicity) are generally smaller (Griffith et al., 2011; Marsden, 1988).

Adjusting for nativity, foreign-born status contributed to the association between social network size and future intent to seek help and past help sought and experience. Findings show that foreign-born participants were more likely to have a high social network size, with respect to future intent to seek help from both formal and informal help sources (Tables 30 and 31). In addition, foreign-born participants were more likely to have sought help in the past from a formal help source (Table 33). Lastly, among participants who had sought help in the past from a formal help source, their foreign-born status was noted to have contributed to their experience (Table 34). These finding do not reflect prior studies that focused on comparative health-related behavior among foreign-born and U.S-born Black American men. Although foreign-born participants were noted to have had a larger social network size, several researchers have noted that their health help-seeking behavior are minimal compared to their U.S-born counterparts (Griffith et al., 2011; Malat et al, 2009; Marsden, 1988; Ojikutu et al., 2013; Vanderpool et al., 2009). For example, in a comparative study of foreign-born and U.S.-born Black American men, regarding the use of community-based programs for preventive health screenings, a lower rate of foreign-born participants was noted to make use of preventive health services available to them (Ojikutu et al., 2013). It is important to note, however, that the U.S-born participants represented a sizable portion of those between the ages of 18-29. Therefore, their social network size may reflect their life stage, which may limit their awareness of health-related resources. Researchers have noted that relationships formed between an ego and alters within their network at a specific life stage influence attitudes, beliefs, and perceptions toward health (Griffith et al. 2012; Schonert-Reichl & Muller, 1996; Umberson et al. 2010).

Adjusting for income level, selected categories of significances were noted between social network measures and help-seeking measures. In regards to social network size,

participants who earned between $0 and $50,000, were less likely to have a high social network size compared to participants who earned more than $50,000; moreover, these participants were less likely to have future intention to seek help from both informal and formal help sources, and were least likely to have sought help in the past from a formal help source (Tables 30, 3, 32, 33, and 34).

As previously noted, similar findings were observed with respect to social network diversity across all levels of general help-seeking variables (Tables 41, 42, 43, 44, and 45). In the current study, a sizable percentage of the participants had an annual income of less than $35, 000 (Table 15). Researchers have indicated that a higher level of income provides purchasing power to access health care service and has been correlated to increased overall health (Wilkinson, 2006). As a group, Black Americans are more likely to belong to lower tiers of socioeconomic status (SES) groups (Griffith et al., 2011; Oyeyemi & Sedenu, 2010), and similar findings are reflected in the current study. These findings may be associated with the results of participants being least likely to have future intention to seek help from a formal help source. Furthermore, it has been noted that social network members of similar levels of income generally sought help and advice from one another (Cook-Craig, Ely, Flaherty, Dignan, & White, 2012). It has been documented that greater resources (i.e. income) may influence help-seeking behavior, and may increase the size and diversity of help sources (Song et al., 2012). These findings are similar to the current study's findings, as participants that earned less income were least likely to have future intent to seek help, and least likely to have high social network and diversity. On the other hand, studies have also indicated that levels of income may not be associated with help-seeking, because evidence has shown that foreign-born minimally use the health care system even if they have the purchasing power (Oyeyemi et al., 2010).

I adjusted for level of education, and observed associations with regards to social network diversity and all categories of general help-seeking measures. Participants who had some college education were more likely to have a high network diversity across all categories of general help seeking measures. In addition, participants with some college education were more likely to have future intent to seek help from both formal and informal help sources, and were more likely to not have future intention to seek help (Tables 41, 42, and 43). Furthermore, in regard to past help sought and experience from a formal helps source, these participants were likely to have sought help in the past and had a somewhat helpful experience with a formal help source (Tables 44 and 45). The findings in this study correlate with previous studies that have noted association between level of education and seeking help for health information (Tu & Hargraves, 2003). For instance, researchers have documented that Black American men who had some college education or higher, when compared with their counterparts with no level of education, had higher rates of Internet use as a source for seeking help for health-related information, and higher rates of discussion of family health history with their health service provider and relatives (Mitchell, Hawkins & Watkins, 2013). On the other hand, researchers have also noted that higher level of education is not necessarily associated with social network and help-seeking measures (Griffith et al., 2011; Lucas et al., 2003; Neighbor et al., 2011; William, 2003).

Adjusting for level of education, there was no significant value between social network size and general help-seeking measures (Tables 30, 31, 32, 33 and 34). Furthermore, the bivariate analysis affirmed that there was not a significant relationship between network size and level of education (Table 21).

It is important to highlight the difference between network diversity, which is the number of different types of social network members that participants engage with at least once every

two weeks, and network size, which is the number of social network members. A sizable percentage of participants had noted a high social network diversity and low social network size (Tables 16 and 17). The findings with regards to social network diversity may be limited to extended social network members only, due to interaction in places such as work, faith-based organization settings, and academic institutions, whereas, social network size is highly reflective of intimate social relationships. A sizable percentage of participants were foreign-born, therefore intimate social network members with a similar level education may still reside overseas.

Adjusting for employment status, there was a significant association between social network diversity and all categories of general help-seeking measures. Findings showed that having no employment status was associated with future intent to seek help from both formal and informal help sources. In addition, similar findings were associated with no future intention to seek help and past help sought and experience from a formal help source while adjusting for employment status. Importantly, non-employed participants were less likely to have a high social network diversity compared to their employed counterparts. In addition, nonemployed participants were less likely to have future intention to seek help from both formal and informal social networks (Tables 41 and 42). Furthermore, these participants were least likely to have sought help in the past from a formal help source (Table 44). Diversity within a social network has been noted to serve as a proxy for access to different types of help source and resources (Cook-Craig, Ely, Flaherty, Dignan, Griffith et al., 2011; Marsden, 1988 & White, 2012).

The findings in the current study do show a positive association between social network diversity and all categories of general help-seeking. However, some studies have indicated that although foreign-born Black American men have stable employment, they often hold two jobs and work long hours, and have been noted to seek less help for health-related needs due to the

demands of their occupations (Oyeyemi et al., 2010), whereas U.S-born Black American men tend to have less stable employment, which limits their access to diverse social networks needed for health-related information (Griffith et al., 2011).

Lastly, adjusting for age, there were no significant values with respect to association between social network measure and general help-seeking measures. There are several explanations for this finding, primarily, the age distribution indicates a relatively middle-aged cohort; a sizable percentage of participants are foreign-born, and a sizable percentage have a low social network size (Table 15 and Table 17). Evidence has been noted in a prior study that both social network size and diversity vary over the life course (Halkitis & Figueroa, 2013; Rickwood et al., 2005). In particular, older individuals generally have about half as many social ties as do younger individuals; however, their social network tends to be more stable and maintained (Luong, Charles & Fingerman, 2010). Although a sizable percentage of participants were noted to have a high social network diversity (Table 16), these findings may not be reflective of a stable and/or maintained social tie, as non-intimate interaction may exist between participants and members of their social network.

Overall, the findings of the current study indicated that there is an association between social network measure and selected categories of general help-seeking measures among foreign-born and U.S-born Black American men of West African descent (i.e. Ghana, Liberia, and Nigeria), having accounted for differences in age, educational status, employment, and income. In regard to the covariate accounted for, adjusting for age did not significantly contribute to the association between social network measures and general help-seeking measures. Several findings from the current study reflect evidence from previous studies that have focused on the relationship between the two primary variables considered for this study. In addition, new insight

with regards to the relationship between the two variables were evident, particularly concerning comparative evidence presented for Black American that are not of West African descent.

Limitations of the Study

This study was limited to foreign-born and U.S-born Black men of West African descent, particularly of Ghanaian, Liberian, and Nigerian descent, who were 18 years or older, and who live in the state of Rhode Island. Therefore, findings from this study cannot be generalized among other populations of different nativity, ethnicities, ages, and genders of Black Americans of West African descent. Although the findings of the current study may not be applicable to other Black men of West African descent and/or Black American men in general, recommendations from this study could be adopted in order to aid in the identification of high-valued help sources (i.e. formal or informal) for health-related needs, within the social networks of the participants of the current study.

Secondly, this study was cross-sectional in nature; therefore, caution should be used when drawing conclusions about the results. Due to the cross-sectional data, causal relationships between the social network measures and general help-seeking characteristics among the selected population, make it impossible to infer causality with the general population. In particular, for the state selected for the study, Rhode Island, the demographic composition of this region may not be representative of other regions of the United States. In addition, the study inclusion criteria was limited to individuals who are able to read and write in English in order to ensure that participants who were included in the study understood the objective of the study. Data collected are assumed to reflect the lived experiences of individuals that completed the survey; nonetheless, self-reported data are subject to recall bias. Furthermore, due to the nature of the compared variables, it cannot be determined whether social network measures influence

general help-seeking measures (i.e. future intention to seek help from different help sources (formal, informal, and no help), past help sought, and experience from a formal help source), for health-related needs among foreign-born and U.S.-born Black American men of West African descent. The same cannot be determined for general help-seeking measures and their influence on social network measures. It can only be determined that there are selected categories of association between social network measures and general help-seeking measures among participants. Although there were several significant relationships between several social network characteristics and general help seeking characteristics, these relationships need to be further explored. A number of researchers, namely Griffith et al. (2009, 2010, and 2011), have addressed the relationship between foreign-born and U.S-born African Americans, particularly Caribbean Americans, but the current study is the only study that focused on these relationships with this particular population of interest.

Social network characteristics have been assessed utilizing an array of measures; according to the literature, there is no single means for measuring social networks characteristics that is widely accepted. However, indicators such as formal, informal, and no help sources have been used to assess, characterize, and understand social networks. The assessment of social networks and their association with health-related indicators is a very complex process because of the various aspects and characteristics that can be included in social network research. Therefore, if different aspects are used, different results and findings may be yielded.

In regards to the framework used to examine the relationship between the social network measures and help-seeking measures for health-related needs, the social epidemiological framework suggests that an individual's social network is "responsible for determining an individual's behavior and attitude" (Berkman, et al., 2000). People are interconnected, and so are

the social determinants that shape their health status, health care, and particularly their health behavior (Smith & Christakis, 2008). Christakis, et al. (2007), noted that social network measures contributed to the adoption of health-related behaviors; therefore, it important to determine the location of high-valued alters that may influence attitudes, beliefs, and perceptions toward health within a social network. Therefore, the findings of the current study support the social epidemiology framework because the study examined the relationship between social network measures and help-seeking measures for health-related needs to determine the location of high-valued social network members that may influence attitudes, beliefs, and perceptions toward health.

Recommendations

Recommendation for action

As the Black American male population continues to increase, due in part to the growing numbers of foreign-born and U.S.-born Black American population of West African descent, this population will contribute to the health characteristics of the overall Black American population. Therefore, it is recommended that health-care providers and public health officials, focusing on preventive health, become familiarized with the current studies and similar studies, that focus on the relationship between the social network characteristics and help-seeking characteristics as they relate to health-related needs among the population of interest for the current study. The association between social network characteristics and help-seeking characteristics are complex, and it is challenging to design an appropriate social intervention. The design of effective intervention requires careful consideration of the processes occurring in social networks that influence help-seeking behavior – one that addresses health-behavior in a social-structural

context of how individual interact with members of their network will be effective. Therefore, it is recommended that the integration of multiple interventions should be utilized in order to address the health-related needs of the participants of the current study. For example, results from the study indicates that those with higher social network diversity had a higher likelihood of future intention to seek help from different types of help sources. For instance, using men that are high-valued members of informal social networks to influence the attitudes, beliefs, and perceptions toward health and can be very useful in increasing health-related awareness. In regards to high-valued formal help sources, the shift in health-care toward a patient-physician intervention that views patients as active and equal partners with healthcare providers in making health-related decisions may encourage the population for current study to seek out formal help sources (i.e. health-care providers) for health-related needs. In particular, the rise of health information technologies (i.e. health applications), which have increased health-consumer exposure to health information from more diverse resources, may serve as an adjunct bridge between the health care provider and health care consumer. For example, health applications "health apps" verified by informal help sources (i.e. health care providers) may be useful in building on patient-physician relationships in order to facilitate help-seeking for health-related needs.

In regards to general help-seeking from the viewpoint of nativity and ethnicity, health care service providers have to realize that what they say does not take precedent. Ethnic norms dictates the participants' approach to health management; therefore, it is pertinent to have a holistic understanding of the patient, in order to formulate an approach to address their health-related needs. As noted by Putsch, something as simple as asking a patient "How did you deal with this sort of condition in your country of origin?" may contribute positively to the patient-

provider relationship (Putsch et al., 1990). Furthermore, increasing the representation of Black Americans, particularly men, in the health professions will be critical to improving the health of African American men in general, and that of foreign-born and U.S-born Black American of West African descent, in particular. Researchers have noted that patient-provider race concordance influences the perception of the type of service received and comfort level with a health service provider (Malat et al., 2009)

Recommendations for further study

The health concerns of Black American men in general is an ongoing crisis, and with the increase of foreign-born and U.S-born Black American of West African descent in particular, this crisis will likely continue be problematic for health-care service providers, as well as the public health system. Intervention to mediate this health crisis must draw upon research from social epidemiology and population based strategies. In order to continue to produce effective intervention outcomes, existing knowledge needs to be incorporated appropriately into approaches that factor into the social-structural context of how individuals interact with members of their social networks. Therefore, understanding social network composition is critical for developing and sustaining appropriate intervention for help-seeking for health-related needs.

Historical mistreatment, whether witnessed and/or perceived from the health care system, is a barrier to Black American men's health help-seeking behavior (Gamble, 1997; Whitley et al., 2005; Griffith, Allen & Gunter 2011). Therefore, future studies should focus on the intersection of social network measures, past help sought, and experience with a formal health-care provider among foreign-born and U.S-born Black American of West African descent, as lived experiences have been indicated in several pieces of research to differ for foreign-born and second generation, U.S-born offspring of Black American men in general.

In addition, researchers have documented that a language barrier represents an obstacle for those who are foreign-born. As noted in prior chapters, Francophone speaking foreign-born from Africa, who are for the majority Muslims, do not have access to readily available sources of health information, which is typically available through established churches for Anglophone foreign-born Africans, who are for the majority Christians (Simbiri et al., 2010). There is a growing population of individuals of the Muslim faith that are foreign-born and U.S-born Black American of West African descent, that reflect participants that participated in the current study. Particularly, for foreign-born individuals who are elderly, limited in their mastery of the English language, and of the Muslim faith, future studies should examine their ability to access structurally available formal help sources (i.e. community health and faith-based organizations). Finally, a major limitation of the current study is that it may not generalize similar populations in the country. In other words, the study may not have very good external validity. Vogt (1993) reported that external validity or generalizability is important in assessing to what extent the findings of a study are relevant to subjects and settings beyond the confines of the study. Therefore, further studies with a larger demographic from several states are needed to improve on the current study's generalizability.

Implications for Social Change

The social epidemiological perspective provided a framework to examine and understand the relationship between the social network measures and help-seeking measures for health-related needs among U.S-born and foreign-born Black American men of West African descent residing in the state of Rhode Island. Findings in this study contributed to literature including social network characteristics and help-seeking characteristics, as it relates to the population of interest for the study. Christakis et al. (2008), noted that people are interconnected, and so are the

social determinants that shape their health status, health care, and particularly their health behavior. The study participants for the current study and their social network members share similar experience of living and may shape one another's attitudes, beliefs, and perceptions toward health practice. As noted in the report by the Rhode Island Department of Health (HEALTH) and African Alliance of Rhode Island (AARI) (2011), - "discussions concerning one's health are not done openly and as such, they tend to not be 'open' about their health care needs; and were less likely to seek medical help,"- however, "men who had been in the U.S. for an average of 24 years, before adopting behavior of seeking medical care had prior medical ailments (i.e. prostate cancer, colon polyps, high blood pressure, etc.)". As noted in the recommendations for action, the social network size and diversity of foreign-born and U.S-born Black Americans of West African descent needs to be expansive in order to expose them to relational networks, such as those that may provide them information regarding health-related needs.

The current research has significant implications for social change, in that in general, it highlighted selected relationships between social network measures and help-seeking measures, as presented in the findings. Moreover, it provided evidence that substantiates an association between the social networks and help-seeking of foreign-born and U.S-born Black Americans of West African descent. Therefore, as recommended for future studies, specific aspects of the significant associations noted should be examined further, to provide information for health care and public health officials in order to facilitate awareness of the health needs of the participants for the current study. In addition, findings from the current study can better equip the population of interest and health care providers about the association between members of their social networks, and their ability to influence their help-seeking for health-related needs.

Conclusion

The health-related concerns of Black American men are complex as they are multifaceted (Rich et al., 2002). As noted, prior factors that influence health help-seeking behaviors include education, employment, income, and the connection and/or relation an individual has in terms of social network with family members, friends, colleagues, and others (Glanz et al., 2008; Griffith et al., 2011; Kawachi et al., 2005; Lucas et al., 2003; Mount et al., 2012; Shi et al., 2005; Xanthos et al., 2013). The findings of the current study indicate that social network measures (i.e. network size and diversity) are associated with past help sought and experience from a formal help source and future intention to seek help from a (formal, informal, or no) help source, at selected categories of levels of the response scale, having adjusted for age, ethnicity, nativity, education, and employment. Black men in the U.S., which includes subgroups from Africa, West Indies, Central and South America, and native African-Americans, are the least likely to engage in preventive health behaviors, such as help-seeking for health-related needs, for a number of social factors, which include disproportionate levels of education, employment, socioeconomic status, and factors associated with their social network. However, because of the subgroup heterogeneity that exists within the Black American male population, the current study filled a gap in understanding by examining the relationship between the social network measures (i.e. size and diversity) and help-seeking (i.e. future intention to seek help and past help sought and experience) for health-related needs among U.S.-born and foreign-born Black American men of West African descent residing in the state of Rhode Island. Because of the limitations of the current study, continued research is necessary in hopes of providing pertinent and specific information which will continue to shed light on the social determinants of health among the fastest growing subgroup of the Black American male population, namely U.S.-born and foreign-

born Black American men of West African descent. Therefore, the proposed study drives positive social change to help health care service providers understand the health-related needs of Black American men in general, and Black American men of West African descent in particular. In addition, this study affirms the Healthy People 2020 goal of achieving health equity, elimination of disparities, and improving the health of all groups, particularly with a focus on future public health needs of the Black American male population (Aungst, 2011).

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Appendix A: Demographic Questionnaire

Directions: Read each statement carefully, and then check the box that best represent you.

1. What is your age in years?

☐ 18-29
☐ 30-45
☐ 46-59
☐ 60-70+

2. What is your ethnicity?
☐ Ghanaian
☐ Liberian
☐ Nigerian

3. Country of birth (nativity):
☐ Ghana
☐ Liberia
☐ Nigeria
☐ United State of America

4. What is your highest level of education?
☐ Less than High School
☐ Some High School
☐ high school graduate
☐ Some College
☐ College Graduate
☐ Graduate or Professional school
☐ If other, (specify) _____

5. What is your annual household income?
☐ Less than $20,000 a year
☐ $20,000 to $35,000 a year
☐ $35,000 to $50,000 a year
☐ $50,000 to $75,000 a year
☐ $75,000 to $100,000 a year
☐ $100,000 or higher a year

Appendix B: General Help-Seeking Questionnaire (GHSQ)

General Help-Seeking Questionnaire (GHSQ)

Direction: Please indicate your response by putting a tick on the number box that best describes your intention to seek help from each help source that is listed.

1. If you were having any health-related needs question which may include but not limited to the following (physical examination, health screening, stress reduction, safe-sex practice, and medication use (vitamins and supplements) **how likely is it** that would seek help from the following people in the **next 4 weeks**?

1= Extremely Unlikely	**3= Unlikely**	**5=Likely**	**7=Extremely Likely**

a. Intimate partner (e.g., wife, girlfriend, significant other)

☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7

b. Friend (not related to you, e.g., schoolmates, workmate, group member)

☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7

c. Parent

☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7

d. Other relative/family member (cousin, siblings, grandparents, etc.)

☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7

e. Medical care provider (e.g., nurse practitioner, medical doctor)

☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7

f. Phone helpline (e.g. Lifeline)

☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7

g. Minister or religious leader (e.g. Priest, Imam)

☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7

h. I would not seek help from anyone

☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7

i. I would seek help from another not listed above (please list in the space provided)

(e.g., work colleague. If no, leave blank) _____

☐1 ☐2 ☐3 ☐4 ☐5 ☐6 ☐7

2a Have you ever seen a medical care provider (e.g., nurse practitioner or medical doctor) for routine medical check-up in the **last year**?

☐ No ☐ Yes

If you checked "no" in question 2a, you are finished with this section.

If you check “yes”, please continue to the following questions:

2b) How helpful was the visit to the medical care provider?

☐ 1 Extremely Unhelpful

☐ 2 Unhelpful

☐ 3 Somewhat Helpful

☐ 4 Helpful

☐ 5 Extremely Helpful

Appendix C: Social Network Index

Instructions: This questionnaire is concerned with how many people you see or talk to on a regular basis including family, friends, workmates, neighbors, etc. Please read and answer each question carefully. Answer follow-up questions where appropriate

1. Which of the following best describes your marital status?

☐ Currently married & living together, or living with someone in marital-like relationship
☐ Never married & never lived with someone in a marital-like relationship
☐ Separated
☐ Divorced or formerly lived with someone in a marital-like relationship
☐ Widowed

2. How many children do you have? (If you don't have any children, check '0' and skip to question 3.)

- 0☐ 1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7 or more☐

2a. How many of your children do you see or talk to on the phone at least once every 2 weeks?

- 0☐ 1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7 or more☐

3. Are either of your parents living? (If neither is living, check '0' and skip to question 4)

- ☐ 0 neither ☐ 1(mother only) ☐ 2(father only) ☐ 3(both)

3a. Do you see or talk on the phone to either of your parents at least once every 2 weeks?

- ☐ 0 neither ☐ 1(mother only) ☐ 2(father only) ☐ 3(both)

4. Are either of your in-laws (or partner's parents) living? (If you have none, check the appropriate space and skip to question 5)

- ☐ 0 neither ☐ 1(mother only) ☐ 2(father only) ☐ 3(both) ☐ Not applicable

4a. Do you see or talk on the phone to either of your partner's parents at least once every 2 weeks?

- ☐ 0 neither ☐ 1(mother only) ☐ 2(father only) ☐ 3(both)

5. How many other relatives (other than your spouse, parents & children) do you feel close to? (If '0', check that space and skip to question 6)

- 0☐ 1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7 or more☐

5a. How many of these relatives do you see or talk to on the phone at least once every 2 weeks?

- 0☐ 1☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7 or more☐

6. How many close friends do you have? (meaning people that you feel at ease with, can talk to about private matters, and can call on for help)

- 0 ☐ 1 ☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7 or more☐

6a. How many of these friends do you see or talk to at least once every 2 weeks?

- 0 ☐ 1 ☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7 or more☐

7. Do you belong to a church, temple, mosque, or other religious group? (If not, check 'no' and skip to question

- ☐ No ☐ Yes

7a. How many members of your church or religious group do you talk to at least once every 2 weeks? (This includes at group meetings and services.)

- 0 ☐ 1 ☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7 or more☐

8. Do you attend any classes (school, university, technical training, or adult education) on a regular basis? (If not, check 'no' and skip to question 9)

- ☐ No ☐ Yes

8a. How many fellow students or teachers do you talk to at least once every 2 weeks? (This includes at class meetings.)

- 0 ☐ 1 ☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7 or more☐

9. Are you currently employed? (If not, check 'no' and skip to question 10.)

- ☐ No ☐ yes (self-employed, employed by others or student employment)

9a. How many people do you supervise?

- 0 ☐ 1 ☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7 or more☐

9b. How many people at work (other than those you supervise) do you talk to at least once every 2 weeks?

- 0 ☐ 1 ☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7 or more☐

10. How many of your neighbors do you visit or talk to at least once every 2 weeks?

- 0 ☐ 1 ☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7 or more☐

11. Are you currently involved in regular volunteer work? (If not, check 'no' and skip to question 12.)

- ☐ No ☐ Yes

11a. How many people involved in this volunteer work do you talk to about volunteering-related issues at least once every 2 weeks?

- 0 ☐ 1 ☐ 2☐ 3☐ 4☐ 5☐ 6☐ 7 or more☐

12. Do you belong to any groups in which you talk to one or more members of the group about group-related issues **at least once every 2 weeks**? Examples include social clubs, recreational groups and professional organizations)

- ☐ No ☐ Yes

Consider those groups in which you talk to a fellow group member at least once every 2 weeks. Please provide the name or type of group and the total number of members in that group that you talk to at least once every 2 weeks.

Name of group (or type of group)	Total number of members (2 weeks)

Thank You!

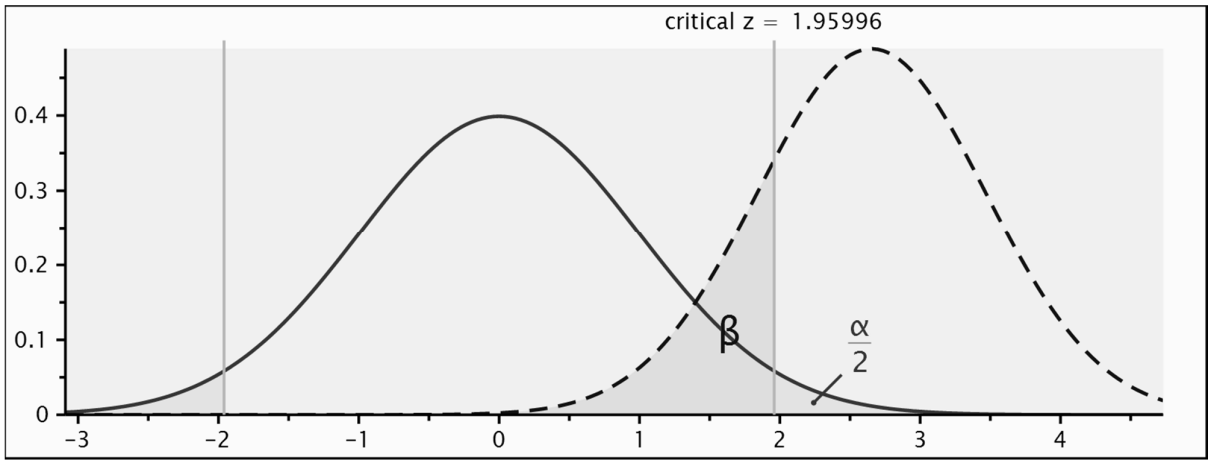
Appendix D: Rhode Island County & Cityafrican-American Resident Population

City/Town	2010 African American (Black) Population
State	**60,189**
Bristol County	**398**
Barrington	80
Bristol	194
Warren	124
Kent County	**2,405**
Coventry	226
East Greenwich	107
Warwick	1,387
West Warwick	635
West Greenwich	50
Newport County	**2,864**
Jamestown	31
Little Compton	21
Middletown	728
Newport	1,710
Portsmouth	234
Tiverton	140
Providence County	**53,040**
Burrillville	78
Central Falls	1,949
Cranston	4,226
Cumberland	486
East Providence	2,709
Foster	30
Glocester	34
Johnston	569
Lincoln	355
North Providence	1,531
North Smithfield	65
Pawtucket	9,534
Providence	28,557
Scituate	38
Smithfield	258
Woonsocket	2,621
Washington County	**1,482**
Charlestown	31
Exeter	76
Hopkinton	43
Narragansett	131
New Shoreham	7
North Kingstown	267
Richmond	36
South Kingstown	669
Westerly	222

Source: U.S. Census Bureau, 2014

Appendix E: Power Analysis & Sample Size Estimation

z tests - Logistic regression
Options: Large sample z-Test, Demidenko (2007) with var corr
Analysis: A priori: Compute required sample size
Input: Tail(s) = Two
Odds ratio = 1.25
Pr(Y=1|X=1) H0 = 0.2
α err prob = 0.05
Power (1-β err prob) = 0.80
R^2 other X = 0
X distribution = Manual
X Var(β|H0) = 1
X Var(β|H1) = 1.5
Output: Critical z = 1.9599640
Total sample size = 212
Actual power = 0.8019378



Appendix F: Permission: To Use an Existing Survey

12/2/2014

Dear Dr. Cohen,

I am a doctoral student from Walden University writing my dissertation tentatively titled Social networks and patterns of help-seeking behavior of foreign-born and U.S.-born African-American men of West African descent under the direction of my dissertation committee chaired by Dr. Gudeta Fufaa.

I would like your permission to use the Social Network Index scale in my research study. I would like to use and print your survey under the following conditions:

☒I will use this survey only for my research study and will not sell or use it with any compensated or curriculum development activities.
☒I will include the copyright statement in the publish research work.

If these are acceptable terms and conditions, please indicate so by providing an electronic signature of this letter and returning it to me through e-mail: osowater@gmail.com

Sincerely,
Opeyemi S. Odewale
Doctoral Candidate

Publisher's Signature
Chloe Detrick on behalf of Sheldon Cohen

Expected date of completion 9/1/2015

Appendix G: Frequency of Social Network Diversity

Question	Frequency	Percent
What is the respondent's marital status		
Not married	91	42.7
Married	122	57.3
Does respondent see or talk to on the phone at least once every 2 weeks with his children?		
No	98	46.0
Yes	115	54.0
Does respondent see or talk on the phone at least once every 2 weeks with either of their parents?		
No	42	19.7
Yes	171	80.3
Does respondent see or talk on the phone at least once every 2 weeks with either of their partner's parents?		
No	109	51.2
Yes	104	48.8
Does respondent see or talk to on the phone at least once every 2 weeks with their relatives?		
No	32	15.0
Yes	180	84.9
Does respondent see or talk to at least once every 2 weeks with their friends?		
No	19	8.9
Yes	194	91.1
Does respondent talk to at least once every 2 weeks with members of their faith-based organization?		
No	57	26.8
Yes	156	73.2
Does respondent talk to at least once every 2 weeks with fellow students or teachers?		
No	139	65.3
Yes	74	34.7
Does respondent visit or talk to at least once every 2 weeks with their coworkers?		
No	37	17.4
Yes	176	82.6
Does respondent visit or talk to at least once every 2 weeks with their neighbors?		
No	110	51.6
Yes	103	48.4
Does respondent talk to about		

volunteering-related issues at least once every 2 weeks with people in their volunteer group?		
No	145	68.1
Yes	68	31.9
Does respondent talk to at least once every 2 weeks with people in their non-volunteer group?		
No	157	73.7
Yes	56	26.3

Appendix H: Frequency of Social Network Size

Question	Frequency	Percent
What is the respondent's marital status		
Not married	91	42.7
Married	122	57.3
What is the number of children respondent visit or talk to on the phone at least once every 2 weeks?		
None	101	47.4
1-2	33	15.5
3+	30	14.1
3	22	10.3
4	16	7.5
5	8	3.8
7	3	1.4
What is the number of either parent respondent visit or talk on the phone at least once every 2 weeks?		
None	46	21.6
Mother only	66	31.0
Father only	58	27.2
Both	43	20.2
What is the number of either of partner's parent respondent visit or talk on the phone at least once every 2 weeks?		
None	133	62.4
Mother only	52	24.4
Father only	28	13.1
What is the number of relative (s) respondent visit or talk to on the phone at least once every 2 weeks?		
0	61	28.6
1	39	18.3
2	45	21.1
3	24	11.3
4	14	6.6
5	6	2.8
6	3	1.4
7+	21	9.9
What is the number of friend (s) respondent visit or talk to at least once every 2 weeks?		
0	22	10.3
1	70	32.9
2	34	16.0
3	40	18.8
4	15	7.0
5	8	3.8
6	10	4.7
7+	14	6.6
What is the number of member (s) of faith-based organization respondent visit or talk to at least once every 2 weeks?		
0	82	38.5
1	14	6.6
2	37	17.4
3	21	9.9
4	22	10.3
5	8	3.8
6	1	.5

7+	28	13.1
What is the number of fellow students or teachers respondent talk to at least once every 2 weeks?		
0	142	66.7
1	7	3.3
2	12	5.6
3	14	6.6
4	12	5.6
5	7	3.3
6	10	4.7
7+	9	4.2
What is the number of coworker (s) respondent talk to at least once every 2 weeks?		
0	64	30.0
1	23	10.8
2	32	15.0
3	25	11.7
4	14	6.6
5	8	3.8
6	4	1.9
7+	21	9.9
8	5	2.3
9	6	2.8
10	4	1.9
11	3	1.4
14	4	1.9
What is the number of neighbor (s) respondent visit or talk to at least once every 2 weeks?		
0	110	51.6
1	28	13.1
2	34	16.0
3	23	10.8
4	8	3.8
5	3	1.4
6	3	1.4
7+	4	1.9
What is the number of people in volunteer group respondent talk to about volunteering-related issues at least once every 2 weeks?		
0	148	69.5
1	4	1.9
2	18	8.5
3	16	7.5
4	7	3.3
5	7	3.3
6	5	2.3
7+	8	3.8
What is the number of people in non-volunteer group which respondent talk to at least once every 2 weeks?		
0	158	74.2
1	1	.5
2	1	.5
3	1	.5
4	3	1.4
5	1	.5
7+	47	22.1
8	1	.5