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Effects of Social Support on Cardiac Recurrence among African Americans

Yolanda Phillips
Walden University

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Walden University

College of Health Sciences

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Yolanda Phillips

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Walden University
2016

Abstract

Effects of Social Support on Cardiac Recurrence among African Americans

by

Yolanda Denise Phillips

MS, Capella University, 2006

BS, Meredith College, 1992

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Public Health

Walden University

August 2016

Abstract

Heart disease is the leading cause of death among African Americans. Despite advances in treatment modalities, based on better understanding of the disease's pathology and access to health care, African Americans continue to die from heart disease at rates significantly higher than other races. The available literature on cardiovascular disease among African Americans does not adequately explore how social support affects heart health in this group. The purpose of this study was to examine the effects of social support on cardiac recurrence among African American adults. Cohen's ISEL support system variables: tangible, appraisal, belonging, and self-esteem; and five demographic variables: age, marital status, educational level, household income, and gender provided the conceptual/methodological base for data collection and analysis. The sample consisted of 83 African American men and women ages 22 to 84 that had experienced at least one cardiac event. Chi-square analysis showed a positive correlation between marital status and cardiac recurrence. Results suggest that living alone may increase an individual's chances of having a second cardiac event. Social change implications include (a) identification of essential social support elements and tailored treatment plans for heart patient and caregiver in order to promote better heart health outcomes for African Americans living with someone or alone; and (b) policy change that fosters effective prevention and treatment.

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Dedication

I dedicate this work to several people who supported me. My first dedication goes to my family. Samuel and Dorothy Phillips always gave me words of encouragement during my dissertation journey, and their support is deeply appreciated. To my oldest sister, LaDonna, thank you being a supportive platform during the process of recruiting my study participants.

To Dr. Cook, I thank you for allowing me to have access to your patient population during my recruitment of study participants. I would also like to extend a special thank you to all participants who believed in what I was doing and took the time to complete questionnaires. Last, but certainly not least, a special thanks to my colleagues who continued to encourage me not to give up.

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Chapter 1: Introduction to the Study

Heart disease is the leading cause of death among men and women in the United States with over 370,000 people dying annually (Centers for Disease Control and Prevention [CDC], 2014) from some type of cardiovascular/coronary artery disease (CDC, 2016). According to the American Heart Association (AHA, 2016), the number of deaths from heart disease is expected to grow from 17.3 million deaths per year to 23.6 million deaths per year by 2030. The American Heart Association (2016) estimated the burden of heart disease to be \$316.6 billion through medications, loss of productivity, and health care services.

For African Americans, this heart disease burden is disproportionately high. According to the CDC (2014), African Americans suffered more than 1.5 million heart attacks and strokes annually. Approximately 44% of this population is men who have cardiovascular disease and 48% women (CDC, 2014). Forty-nine percent of African American women and 44% of African American men have higher rates of heart disease when compared to Caucasian women (32%) and men (37%) (AHA, 2014). Furthermore, in 2009, 46,334 black males and 48,070 females died from cardiovascular disease (AHA, 2013). Finally, African American men are 30% more likely to die from heart disease in comparison to Caucasian males, and heart disease remains the leading cause of death among African American women (CDC, 2013).

Currently, a number of factors contribute to heart disease among all racial groups. These factors include obesity, diabetes, and genetics. CDC (2016) defines obesity/overweight as weight that is higher than what is considered as a healthy weight

for a given height. This excess body fat creates health problems such as high cholesterol, high blood pressure levels, and diabetes. Diabetes occurs when an individual has a resistance to insulin. Individuals with diabetes have an increased risk for heart disease because they usually have conditions such as obesity, high blood pressure, and high cholesterol levels. Finally, genetics has also been shown to have a direct effect on heart health. According to the American Heart Association (2012), African Americans may have a gene that makes them more sensitive to salt.

According to the National Association of the Advancement of Colored People (2009-2013), these factors affect heart health disproportionately because access to health care remains limited (NAACP, 2009-2013), receipt of substandard treatment from health care providers (Waldman et al., 2009), lack of physical activity (Williams et al., 2006), low socioeconomic status (Ostfeld, 1992), lifestyle (i.e., smoking, excessive alcohol consumption, and poor nutrition) (American Heart Association, 2013; Costanzo, Di Castelnuovo, Donati, Iacoviello, and de Gaetano, 2010), geography (Greer, S., Kramer, M. R., Cook-Smith, J. N. and M.L. Casper, 2012), and cultural differences (Lincoln, Chatters, and Taylor, 2003).

In spite of researchers taking a closer look at heart health disparity among African Americans in the 1970s (Ostfeld, 1992), a gap in knowledge as to why African Americans suffer disproportionately remains. Past studies that have examined how social support effects heart health (specifically recurrence) among African Americans has been inadequate, and studies that examined how certain types of social support affected heart have been even more limited (Allen, Markovitz, Jacobs, and Knox, 2001; Bean, Gibson,

Flattery, and Hess, 2009; Davis et al., 2012; Lincoln et al., 2003; Ostfeld, 1992; Strickland, Giger, Nelson and Davis, 2007; Warren-Findlow and Prohaska, 2008; Williams and Leavell, 2012).

In order to address this disparity on a more in depth level, I examined the effects of social support on cardiac recurrence among African Americans. Social change implications for my study include (a) identification of essential social support elements and tailored treatment plans for heart patient and caregiver in order to promote better heart health outcomes for African Americans living with someone or alone; and (b) policy change that fosters effective prevention and treatment.

Background

Social support is defined as physical or emotional support given to a person by family, friends, coworkers, and others. For example, Cobb (1976) defined social support as “the individual belief that one is cared for and loved, esteemed and valued, and belongs to a network of communication and mutual obligations” (p. 300). Despite variations in definition and perception of this concept, there appears to be a general consensus that social support is a very important factor in regards to a positive health outcome.

Studies addressing the relationship between social support and health status began to appear in the early to mid-1970s (House, 1987; Uchino, 1996). Such studies provided evidence that social support reduces morbidity and mortality in a diverse pool of health issues. For example, Tehran, Farajzadegan, Rajabi, and Zamani (2011) showed that peer support groups were positively associated with improved quality of life among women

with non-metastatic breast cancer. Mann and Lin (2012) found that social support was beneficial in fostering self-efficacy for diabetes. Levers-Landis et al. (2003) showed that social support from family fostered self-efficacy with calcium intake among female adolescents. In relation to heart health, findings from several studies indicated a positive correlation between implementation of social support and improved heart health (Anderson, Petersen, Kistner, Soltero, and Wilson, 2006; Blumenthal et al., 1987; Gerin, Pieper, Levy, and Pickering, 1992; Leifheit-Limson et al., 2009; Seeman and Syme, 1987).

In past studies where researchers investigated African Americans and the status of their heart health, results supported a dire need for revised treatment and preventive approaches. In the first large-scale study that addressed the race gap in heart disease, Park (2009) found that 1 in 100 African American adults developed heart failure in their 30s and 40s. This rate was 20 times higher in comparison to Caucasians (male and females) in the same age group. Davis et al. (2012) examined the effects of self-care, heart failure knowledge, and social support on cardiac outcome, and found that African Americans had significantly lower knowledge of heart failure in comparison to other racial/ethnic groups. Therefore, a need exists to provide the public with more information about how African Americans can overcome heart health disparity.

Several researchers found a positive association between social support and health, but mostly for Caucasians. For African Americans, research addressing social support and its effect on cardiac recurrence is limited to date. African Americans continue to have incidence, prevalence, morbidity, and mortality rates that are

significantly higher in comparison to other races, and as a result they continue to die at disproportionately higher rates. According to Ostfeld (1992), a major gap in the knowledge of heart disease among African Americans has existed since the early 1970s. Over the years, researchers have conducted studies on cardiovascular heart disease (causes, races/ethnicities affected, prevention, and intervention approaches to decrease incidence and prevalence) and social support ties to a positive health outcome. For African Americans, literature on cardiovascular disease is ample; however, literature on the types of social support African Americans use to combat heart health disparities and how social support can affect cardiac recurrence is limited. In order to address this gap, I explored the effects of social support on cardiac recurrence among African Americans.

Statement of the Problem

Although heart disease is the leading cause of death for all racial and ethnic groups in the United States, the rate of heart related deaths for African Americans is higher than all other groups. African Americans experience disproportionately higher rates of cardiac incidence, prevalence, and morbidity and mortality in comparison to other populations. African Americans make up approximately 13% of the U.S. population; however, 26% of African Americans die each year from cardiovascular heart disease, and nearly 46% ages 20 and older suffer from some type of heart disease.

Despite advances in medicine including psychosocial and physical treatment that addresses the heart disease disparity among African Americans, this population continues to have a higher heart disease prevalence and higher heart mortality rate in comparison to Caucasians. African Americans are twice as likely to die from a stroke in comparison to

Caucasians, African American women have a lower 1-year stroke survival rate in comparison to Caucasians (National Stroke Association, 2014), African Americans are more likely to die after cardiac procedures in comparison to Caucasians and Hispanics (Trivedi et al., 2006), and African Americans tend to have worse outcomes after a heart attack (Spertus et al., 2005).

Rankin (2002), examined recovery trajectories in African American and Caucasian female heart attack patients, and found that African American women received more instrumental support ($p < .01$ for medication and $p < .05$ for bathing), but not emotional support ($p = .433$) in comparison to Caucasian women. In Rankin's comparative, longitudinal, convenience sample study, there were no data on whether participants suffered additional myocardial infarctions. In a study by Davis et al., (2012), social support in the form of cardiac knowledge was low for Blacks ($p = .030$), and the 30-day readmission rates (21%) showed no significant change. In another mixed-methods study by Dickson, McCarthy, Howe, and Schipper (2013), results showed that self-care was poor for African American heart failure participants ($p = 0.01$). There was no information provided on readmission rates to the hospital.

The role of social support in heart health has been positively associated with improved health outcome. There is a fair amount of literature on social support and how it affects heart health among African Americans; however, research on the types of social support African Americans use to combat heart disease and its effect on cardiac recurrence is limited.

Purpose of the Study

The primary goal of this study was to assess the effects of social support on cardiac recurrence among African American adults who had experienced at least one cardiac event. Social change implications include (a) identification of essential social support elements and tailored treatment plans for heart patient and caregiver in order to promote better heart health outcomes for African Americans living with someone or alone; and (b) policy change that fosters effective prevention and treatment.

Nature of the Study

I used a correlational design and collected data from 83 African American men and women ages 18 and older who had experienced at least one cardiac event. I used a two-part questionnaire containing demographic questions and the Interpersonal Support Evaluation (ISEL) List (Cohen, Mermelstein, Kamarck, and Hoberman, 1985) to collect data that I analyzed using the chi-square statistical test, t-test, non-parametric mann-whitney and pearson correlation.

The ISEL consisted of four subscales that were defined as follows: Self-esteem (emotional) support was defined as the perceived availability of a positive self-evaluation when comparing one's self to others. Tangible (instrumental) support was defined as taking on the responsibilities of someone else so he or she can manage or deal with a problem he or she is experiencing. The belonging subscale was defined as having someone to do things with. The appraisal subscale was defined as having someone available to talk to.

Research Questions and Hypotheses

The following research questions were used to guide the study, which addressed the effects of social support on cardiac recurrence. Analysis of data indicated whether the null hypotheses to these research questions would be accepted or rejected. The following research questions were answered using chi-square analysis:

Research Question 1: Is there a correlation between social support subscales (appraisal, tangible, belonging, and self-esteem) and cardiac recurrence? H_01 : There is no correlation between social support subscales (appraisal, tangible, belonging, and self-esteem) and cardiac recurrence. H_a1 : There is a correlation between social support subscales (appraisal, tangible, belonging, and self-esteem) and cardiac recurrence.

Research Question 2: Is there a correlation between gender and cardiac recurrence? H_02 : There is no correlation between gender and cardiac recurrence. H_a2 : There is a correlation between gender and cardiac recurrence.

Research Question 3: Is there a correlation between socioeconomic status and cardiac recurrence? H_03 : There is no correlation between SES and cardiac recurrence. H_a3 : There is a correlation between SES and cardiac recurrence.

Research Question 4: Is there a correlation between age and cardiac recurrence? H_04 : There is no correlation between age and cardiac recurrence. H_a4 : There is a correlation between age and cardiac recurrence.

Research Question 5: Is there a correlation between marital status and cardiac recurrence? H_05 : There is no correlation between marital status and cardiac recurrence. H_a5 : There is a correlation between marital status and cardiac recurrence.

Research Question 6: Is there a correlation between educational level and cardiac recurrence? H₀6: There is no correlation between educational level and cardiac recurrence. H_a6: There is a correlation between educational level and cardiac recurrence.

Research Question 7: Does a general availability of social support use affect cardiac recurrences in this population? H₀7: There is no correlation between general availability of social support use and cardiac recurrence. H_a7: There is a correlation between general availability of social support use and cardiac recurrence.

Research Question 8: Is there a correlation between time passed between cardiac events and social support? H₀8: There is no correlation between cardiac events (1 and 2) and social support. H_a8: There is a correlation between cardiac events (1 and 2) and social support.

Theoretical Frameworks

Theory of Social Support and Social Networks

The first theoretical framework used for this research was the social support/network theory. Barnes (1954) created the term social network to explain how individuals used friends of their friends to get the things that they needed (i.e., jobs). Cassel (1976) applied this theory to health (morbidity and mortality). According to Cassel (1976), social support was a protection mechanism for individuals who felt vulnerable to the effects of health stressors.

The social support/network theory is linked to how networking helps individuals cope with stressful events in life, thereby enhancing individuals' psychological and physical state of health. Kelsey et al. (2006) cited House's (1981) classification of social

support into four types of supportive behavior: (a) instrumental support, including tangible aid and services that directly assist a person in need, usually provided by close friends, colleagues, and neighbors; (b) emotional support including sharing life experiences with the provision of empathy, love, trust, and caring; (c) informational support including advice, suggestions, and information that a person can use to address problems; and (d) appraisal support including information for self-evaluation purposes. Previous studies on cardiac patients attributed increased survival rates to the close social ties patients had with family and friends (Schwarzer and Rieckman, 2002). In my study, I used House's (1981) classification system to define social support (Figure 1).

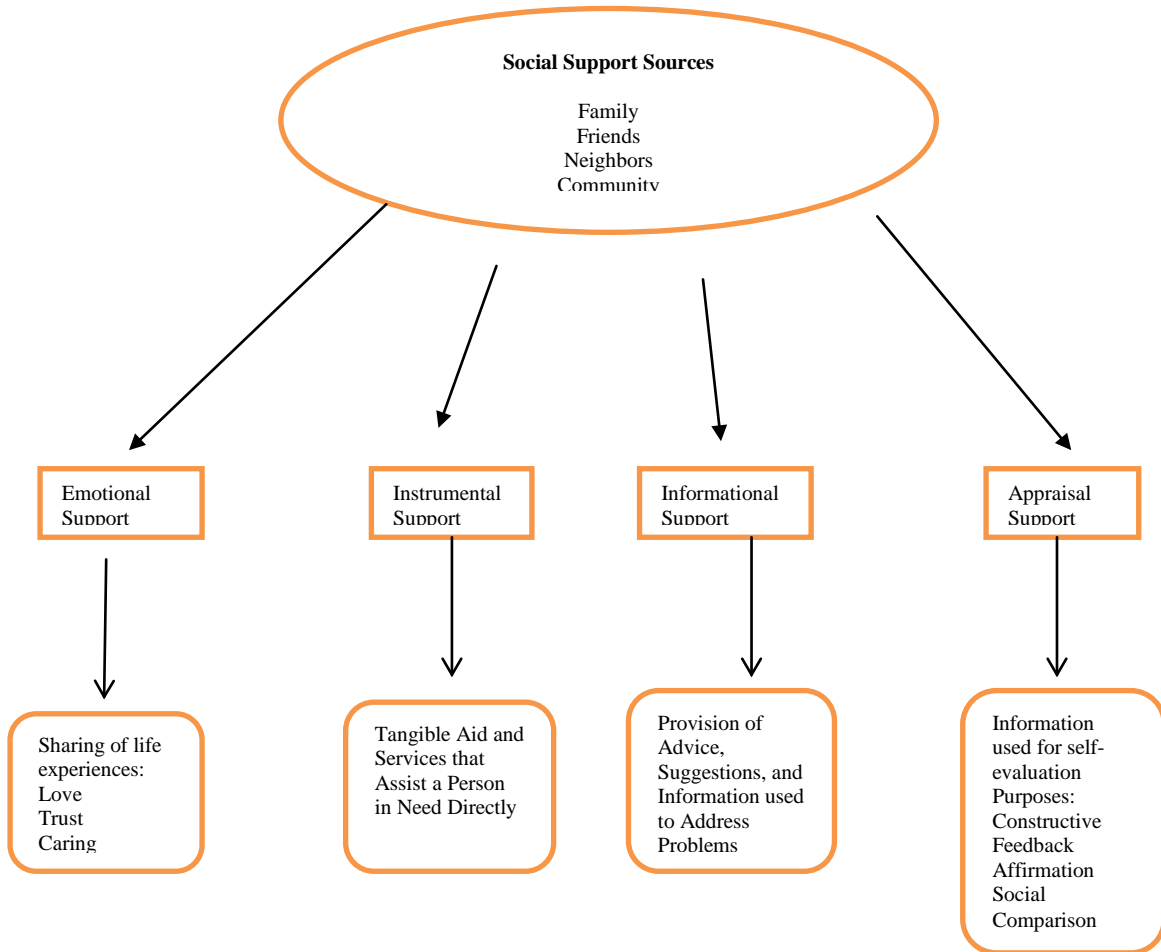


Figure 1. Four types of social support.

Note: Descriptive social support examples. Adapted from House, J.S. (1981).

Work stress and social support. Reading, Mass: Addison-Wesley. *Theory of Social Learning.*

Bandura's (1977) social learning theory represents one of the most prominent theories of learning and development that was applied to the field of health. According to Bandura, three foundational concepts were at the center of social learning theory: (a)

observational learning, in which participants observe desired behavior; (b) imitation, in which the individual demonstrate the desired behavior; and (c) modeling, in which individuals learn behavior through the media (e.g., television, radio, etc.). For this to take place, the individual must (a) remember what was observed, (b) reproduce that behavior, and (c) have a reason for wanting to adopt that particular behavior.

For cardiac patients, self-efficacy and perception (Bandura, 1977) are very important aspects of social learning theory in that they foster a quicker recovery, decrease chances of a second cardiac event, and encourage preventive behavior. For example, Bandura (1977) worked on a project with physicians from Stanford to find ways to show that social learning theory could be applied to improve the recovery of heart attack patients. One significant finding in Bandura's study was that if the spouse of a heart attack patient believed that he or she had a strong heart, the spouse would encourage the type of exercise that would speed up or delay recovery (Taylor, Bandura, Ewart, Miller, and DeBusk, 1985). This study provides solid evidence of the importance of social support use among cardiac patients in relation to recovery and decreased chances of a second cardiac event.

Bandura's social learning theory was applicable to my study in that robust support systems (i.e. family, friends, health care providers, etc.) can help African American cardiac patients by giving them the physical and emotional support needed to create a positive mind-set toward healing from a negative health event (i.e., heart attack) and focusing on maintaining a healthy lifestyle. In the case of African American cardiac

patients, this concrete influence may prove to be significant in having a positive effect on cardiac recurrence.

Definitions

Cardiac event: Defined as a type of cardiac disease/condition/diagnosis such as angina, stroke, coronary artery disease, heart attack, hypertension, enlarged heart, cardiomyopathy, and congenital heart disease, as all fall into the category of heart disease.

Recurrence: Defined as a patient having a second cardiac event (heart attack, stroke, heart failure) after being discharged from hospital and/or rehabilitation facility.

Self-esteem: Defined as the perceived availability of a positive self-evaluation when comparing one's self to others.

Tangible (instrumental) support: Defined as taking on the responsibilities of others so they can manage or deal with a problem they are experiencing.

Belonging subscale: Defined as having someone to do things with. The appraisal subscale was defined as having someone available to talk to.

Social support: Defined as physical or emotional support given by family, friends, coworkers, and others. Social support assessment was taken from Cohen et al.'s (1985) classification system used in the ISEL (Interpersonal Support Evaluation List). The subscales taken from the ISEL were categorized as appraisal, self-esteem, belonging, and tangible.

Socioeconomic status: Defined as a family's economic and social position in relation to others based on income, level of education, and profession.

Assumptions

I contained two assumptions in my study. First, because I am assessing the effects of social support on cardiac recurrence among African Americans, heart health outcome for this population will continue to be important in efforts to significantly reduce the heart health disparity this population faces. I assumed study participants would answer questions truthfully because anonymity and confidentiality was maintained throughout the data collection process. In addition, participants had no fear of negative ramifications for the answers they gave; participants could freely choose not to answer questions that they did not want to answer.

Limitations

My study contained four limitations. The first limitation was the ability to generalize study results to all African Americans. My second limitation was that my study sample was limited to one medical practice. My third limitation was that I was not able to administer the ISEL before the occurrence of a cardiac event (the initial cardiac event) to determine whether the participant's perspective about social support changed; administering the ISEL before and after would provide a better picture of the patient's perception after the first cardiac event and perception of social support after having a second cardiac event. My fourth limitation was time. I was not able to follow up with the study participants because this study was time sensitive (an academic program requirement).

Significance of Study

Findings may show whether implementation of certain social support variables are associated with cardiac recurrence among African Americans. Results may provide for re-evaluation of policy that will provide health care providers with new information that will allow for a more tailored approach to combating heart health disparity within this population.

Heart disease is a major burden on the U.S. economy and an even bigger burden on the African American population. Findings from this study may contribute to a decrease in expenses for the treatment of heart disease, such as shorter hospital days and fewer return visits to the hospital or emergency room. Results may provide the public with additional information about how African Americans can overcome this heart health disparity.

Summary

Heart disease has plagued the African American population for years, and although progress has been made, African Americans still suffer at a disproportionate rate from heart disease. Factors such as limited access to health care providers, substandard treatment from health care providers (Waldman et al., 2009), lack of physical activity (Williams et al., 2006), low socioeconomic status (Ostfeld, 1992), lifestyle (e.g., smoking, excessive alcohol consumption, and poor nutrition) (American Heart Association, 2013; Costanzo et al., 2010), geography (Greer et al., 2012), and cultural differences (Lincoln et al., 2003) are believed to be contributors.

Social support and its effect on health have been studied since the 1970s and have proven to be supportive in improving health outcomes (Cobb, 1976; House, 1987; Uchino, 1996). Although, factors such as diet, genetics, lifestyle, and culture have been social support and the effect on cardiac recurrence is warranted to provide the public with insightful information assessed in efforts to address heart health disparity, a closer examination of the types of about African Americans and their struggle to overcome heart health disparity.

Chapter 2: Literature Review

African Americans suffer from heart disease at a disproportionate rate in comparison to other race/ethnic groups. Despite progress made in the medical field, this population continues to be at a significant disadvantage when it comes to battling heart health disparities. To determine what studies have been conducted in this area, I examined literature that links social support and social networks to improved cardiac health outcomes among populations.

This literature review includes scientific peer-reviewed articles from the PubMed.gov database and the Thoreau multiple database containing ProQuest, SAGE, Science Direct, and others. The Thoreau multiple database and the Medline database were accessed through the Walden University library. Key words that I used to find articles related to my topic included *heart disease*, *African Americans*, *black*, *hypertension*, *quality of life*, *social support*, *social network*, *social support perception*, and *cardiovascular heart disease*. These key words were entered in various combinations while conducting the literature search. These key words, with the exception of placing African American, heart disease, and social support together, resulted in a large number of peer-reviewed articles. Efforts were made to use articles published within the last 10 years. This literature search revealed that few researchers focused on the different types of social support that are pertinent for the African American population to overcome heart health disparity. In addition, assessing the effects of cardiac recurrence in reference to social support was limited.

My literature review is organized according to background knowledge on the social support and network theories and how they affect health outcome among populations. These discussions are followed by discussions on how behaviors affect health, how use of social and network methods affects cardiac health, and the role ethnicity plays.

Social Support and Social Network Background

Social support has been studied in a number of disciplines such as medicine, sociology, nursing, public health psychology, and social work. In addition, the social support theory has a number of ties to mental and physical health. For example, social support has been shown to significantly reduce psychological stress among individuals with depression (Eom et al., 2012; Shim et al., 2012) as well as help with adjustment to health conditions such as HIV, stroke, coronary heart disease, and cancer (Emilsson, Svensk, Tavelin, and Lindh, 2012; Evans and Northwood, 1983; Morris and Morris, 2012; Salonen et al., 2012; Su et al., 2012; Wouters, Van Damme, van Rensburg, Masquiller, and Meulemans, 2012). Studies have indicated that those who have a higher social support system often have better chances of survival compared to those who have low social support and higher risks of death from diseases such as cancer and heart disease (Uchino, 2003, 2009). More recent studies (Aggarwal, Liao, Allegrante and Mosca, 2010; Sayers, Riegel, Pawlowski, Coyne, and Samaha, 2008; Thomson, Molloy, and Chung, 2012) have demonstrated the same positive correlation between social support and positive health outcomes. The social network theory (i.e., size of support system, closeness to people in the network, and number of support systems in place) has

also proven to be as important as the social support theory in terms of improved health outcome. Studies have indicated that network properties such as strength of ties, reciprocity, and network size are very important when it comes to the design of programs that will foster improved health status for illnesses (Minkler, 1981). For example, McKechnie, Barker, and Stott (2014) examined the effects of Internet support forums for caregivers of people with dementia, and was found that there was an improved quality of relationship with the person with dementia and caregiver ($p = 0.003$). Tkatch et al. (2011) and Prasad et al. (2013) also showed a positive correlation between social networks and improved heart health. In 1937, Moreno introduced the sociogram (as cited in Hollander, n.d.), which is a graphic representation of social links or ties that an individual has. By the 1950s and 1960s, research by was being introduced and by the 1970s, the field of social network analysis had materialized (Freeman, 2000).

Barnes (1954) was the first to describe social relationships. Barnes used the term social networks to explain how individuals used friends of their friends to get the things that they needed. Cassel (1976) was the first to discover an association with health (morbidity and mortality). According to Cassel, social support was a protection mechanism formed by groups of individuals who felt vulnerable to the effects of health stressors. As a result, a person's psychological and physical state of health was significantly enhanced, thereby increasing the chances of survival from particular illnesses.

Social support and social networks are two important components of health-oriented social relationships (Berkman and Kawachi, 2000). Social networks refer to the

netting of social relationships around individuals in an environment that creates links between people who may provide social support and who may serve functions other than providing support (Glanz, Rimer, and Lewis, 2002).

Types of Social Support

According to House (1981), there are four types of support that make up the social support theory. Emotional/self-esteem support is associated with sharing life experiences that provide empathy, love, trust, and caring. This type of social support is often shown through expressions of confidence or encouragement. This type of support is also used by many therapists who want their clients to know that they believe in them, which leads to clients believing in themselves. Tangible support (instrumental support) consists of taking on the responsibilities of someone else so the person can manage or deal with a problem he or she is experiencing. For example, an individual may offer an ill person tangible support by cooking dinner, running errands, or helping the person find a solution to a problem. This type of support is usually provided by close friends, colleagues, and neighbors. Informational support is provided through advice, suggestions, and information that an individual can use to address problems. Appraisal support is information that is useful for self-evaluation purposes. In short, it is having someone to talk to.

In terms of the types of social support that were found to be beneficial when it came to recovery from a cardiac event, literature studies indicated emotional and instrumental support were most significant (Rankin, 2002). In Rankin's (2002) study, the *p* value for emotional and instrumental support at Time 1 (the day before hospital

discharge) at 6 weeks for the Duke Activity Status Index (a measure of cardiac and physical functional capacity) was .013 for African American women who had suffered acute myocardial infarction. Rankin (2002) acknowledged the crucial need for more studies to be conducted that addressed African Americans. Limited information is available about the recovery from an acute myocardial infarction among females, and even less is known about how social support affects the recovery process after an acute myocardial infarction (Rankin, 2002).

Fontes et al. (2013) examined factors that modulated patients' cognitive recovery after cardiac surgery. Of the patients experiencing cognitive decline after cardiac surgery, nearly 50% experienced cognitive recovery after 6 weeks of instrumental activities of daily living. The nine quality of life testing assessments, including the Duke Activity Status Index, the Duke Older Americans Resources and Services Procedures-Instrumental Activities of Daily Living, the Medical Outcomes Study 36-item Short Form Health Survey, social activities, symptoms limitations checklist, the Center for Epidemiological Studies Depression Scale, the State-Trait Anxiety Inventory, the Perceived Social Support Scale, and the Cognitive Difficulties Scale showed a significant ($p = .02$) predictor of cognitive recovery. The subjects in this study were mostly Caucasian.

Aggarwal et al. (2010) looked at how social support reduced cardiovascular disease risk. The Enhancing Recovery in Coronary Heart Disease Patients (ENRICH) Social Support Instrument (ESSI) was used to calculate social support. There was a positive association between high instrumental support and physical activity as well as a

high emotional support. Higher instrumental social support was positively and significantly associated with minutes of physical activity per week ($p = .007$) and higher emotional social support was also positively and significantly correlated with number of days of physical activity per week ($p = .023$). Aggarwal et al. concluded that emotional and instrumental components of social support could be beneficial in improving risk factors for CVD. The study population from this cross-sectional study that included data from the National Heart, Lung, and Blood Institute Family Intervention Trial for Heart Health was approximately 36% non-White.

Types of Social Networks

Social networks have been examined more closely in terms of the effects that they have on health outcome (Doubova, Perez-Cuevas, Espinosa-Alacron, and Flores-Hernandez, 2010). According to Doubova et al. (2010), a social network is the compilation of interpersonal and collective bonds that people have developed throughout their lives to establish social relations that satisfy certain needs and maintain their well-being. This type of network is usually characterized by its structure (number of members, frequency of contacts, variety of links, and proximity), function (type and frequency of support provided), and quality (how an individual perceives the structure and function of the network itself). There are four different types of networks that mostly affect individual health outcome: family, friends, neighbors, and community, as shown in Table 1.

Table 1

Types of Networks

Four Types of Networks
<p><i>Family</i></p> <p>Family is usually defined as any group of persons closely related by blood, marriage, and adoption. These persons include parents, children, uncles, aunts, grandparents, and cousins. This relation does not have to be immediate. A family is basically all the descendants of a common progenitor.</p>
<p><i>Friends</i></p> <p>A friend is defined as someone who is attached by feelings of affection, who gives assistance, or who is a supporter. This relationship can be established at any point in life.</p>
<p><i>Neighbors</i></p> <p>A neighbor is defined as a person who lives near and is dear to another. Character or inhabitation often describes the type of neighbor one has. A neighbor shows generosity and helpfulness in times of distress to other neighbors.</p>
<p><i>Community</i></p> <p>A community is defined as a social group of individuals (any size) whose members reside in a specific locality, share government, and usually have a common cultural and historical heritage. Within this group it is believed that characteristics shared are distinct, to a certain degree, from the larger society within which it exists.</p>

Social Support and Health Outcomes for Illnesses

Literature reviewed in this section here addressed the positive effects of social support for illnesses outside of cardiac events. Kelsey et al. (1996) conducted a mixed-methods study that addressed the effects of social support on dietary change in low-income populations with hypercholesterolemia. Five telephone questionnaires were administered to 443 patients. Two sets of multiple regressions were used to analyze friend, family, and negative support variables for dietary change and interactions of social support with motivation to change. Results showed that motivation to change was

significant ($p < 0.05$) as well as age ($p = 0.06$) in a 4-month follow up. Stratified gender analysis showed that friend support was significant ($p < 0.05$) and motivation to change was significant for men ($p < 0.09$).

The sample in this population was mostly White (48.5%) and mostly women (68.4%). The percentage of Blacks was 40.7%. The methods of analysis in this study appeared to be adequate for the research question. Kelsey et al. made it clear that only an associative conclusion could be drawn and that a confounding factor, personality, could influence social support reception and dietary outcome.

Overall, this study addressed very important concepts in relation to ways to improve dietary health such as use of the buddy system, group pot-luck meals, and group sharing sessions of healthy recipes. Kelsey et al. noted that existing natural support systems such as churches may prove more advantageous in comparison to ideas suggested.

A positive correlation between use of social support and improved bone health among preadolescent females was also demonstrated in a mixed-methods study by Levers-Landis et al. (2003), who developed and tested a model that would be used to predict behavior change for the prevention of osteoporosis. Based on Bandura's social cognitive theory, 354 girls ages 8 to 11 were selected from girl scout troops. Baseline data were collected from a random trial of behavior interventions. Interviews and self-administered questionnaires were used to measure social support, knowledge, self-efficacy, dietary calcium intake, and weight-bearing physical activity (WBPA). Results showed that perceived family social support fostered self-efficacy for eating a diet rich in

calcium, knowledge of WBPA was a significant predictor of calcium intake, friend and family support for exercise predicted WBPA, and self-efficacy partially mediated the relationship between family support and calcium intake.

The following limitations were addressed: (a) higher calcium scores for study participants in comparison to scores for girls in other literature; (b) sample consisted mostly of Caucasian girls (84.2%), which limited ability to generalization; (c) use of single respondent data for analyses conducted; and (d) weak influences on the intake of calcium with path coefficients ranging from 0.11 to 0.25 in spite of a structural equation model that was a good fit.

More recent research also conveyed the same positive correlation between social support and improved health outcomes outside of cardiac health. For example, in a study conducted by McKechnie et al. (2014) that examined the effects of internet support forums for caregivers of people with dementia, it was found that there was an improved quality of relationship with the person with dementia and caregiver ($p = 0.003$). Although there was no significant change in the caregivers' depression or anxiety, they did report a range of positive experiences and benefits from using the forum. In conclusion, this study still shows the importance of looking at social support as a way to help improve mental health.

The next example illustrated the importance of social support regardless of geographical location. In a study conducted by Shishehgar, Mahmoodi, Dolatian, Mahmoodi, Bakhtiary and Majd (2013), results showed that social support (Beta = .088) indirectly and the quality of life questionnaire (Beta = -0.2) directly reduced stress during

pregnancy. Questionnaires completed by 210 pregnant women showed that social support is a very important factor when looking a health outcome. A study examining social belonging and academic and health outcomes (Walton and Cohen, 2011), showed that social belonging was a psychological lever where targeted intervention lessened the inequalities in academic achievement and health.

Social Support and Cardiac Health Outcomes

Literature has shown that use of social support in patient prevention and intervention has also shown promise in protection against cardiac relapse. In a study conducted by Rankin et al. (2002), social support was deemed to be very valuable in the recovery of African American and Caucasian women who had suffered an acute myocardial infarction. The p value for emotional and instrumental support at time 1 (the day before hospital discharge), at 6 weeks for the Duke Activity Status Index (DASI), which is a measure of cardiac and physical functional capacity, was 0.013 (as predicted by race, age, master, co-morbidities, and social support). Mood disturbance score (POMS) at 6 weeks (as by race, age, master, co-morbidities, and social support) was 0.530. The design for this study was a mixture of prospective, comparative, longitudinal, and convenience with a sample size of 76 women from five West Coast medical centers and one northeastern medical center. The sample size was small and the percentage of African Americans in the sample was only 19% versus Caucasians which was 81%. However, the p value for social support (emotional, $p = 0.02$ and total $p = 0.01$) at 6 weeks was indicative of the researcher's conclusion that healthcare providers should focus more on the particular cardiovascular needs of African American and Caucasian

patients. While this perspective showed that African American women and Caucasian women had similar recovery trajectories in terms on psychosocial recovery from acute myocardial infarction, different physical recovery trajectories were observed (African American women recovered at a slower rate in comparison to Caucasian women). These findings warrant a closer look into why this is the case for African American women.

Another study that examined African Americans and the role of social support on cardiovascular health was conducted by Sayers et al. (2008). This quantitative study illustrated the importance of social support amongst cardiac patients in the area of self-care. The researchers of this study examined the effects of social support on self-care (medical adherence, dietary adherence, and heart failure symptom monitoring functions) among African Americans. Seventy four heart failure patients (54% were African American; 40.5% were Caucasian; 2.7% were Native American; and 1.4% were listed as Other) from a Veterans Affairs Medical Center and a university affiliated hospital participated in this study. Researchers hypothesized that relatively high levels of social support from friends, a significant other, and family members would result in high levels of self-care among heart failure patients. Results showed self-care to be generally poor; however perceived social support was moderately associated with relatively higher self-reported medication and dietary adherence, and other aspects of self-care such as daily weighing. The measures in this study were : (a) demographic and clinical characteristics such as age, race, marital status, number of individuals in household, education, income, etiology of heart failure, minimum LVEF value, NYHA functional class, and an un-weighted index of number of co-morbid medical conditions; (b) blessed test of

orientation, memory, and concentration; (c) family involvement; (d) multidimensional scale of perceived social support; (e) self-care of heart failure index; (f) medication non-adherence; (g) and eating behavior questionnaire. All of these measures had a *p* value less than .01 and .0001 indicating they were significantly associated with self-care?

The limitations for this study included (a) use of male patients only, as there may be different patterns of self-care and social support amongst women (b) the possibility of other psychological factors being the reason for the different levels of self-care observed, and, (c) the use of self-reporting to assess self-care (medication and dietary adherence), as this type of reporting could be biased. The significant strength of this study was the large number of African Americans used as this ethnic group is typically underrepresented and have a low socioeconomic status.

The results from this study illustrated that social support is associated with improved self-care among heart failure patients. Being married was a significant factor in patients adhering to medication as well as heart failure patients living alone. This was more the case for African Americans than Caucasians, which lends to the suggestion that African Americans have tighter ties (more frequent contact) with kin, and that physicians should be more aware and implement higher levels of social support into the recovery regimen of heart patients (Sayers et al., 2008).

Social support also proved to be beneficial in a study conducted by Aggarwal et al. (2010). Researchers in this study examined the effects of low social support on diet adherence in a cardiovascular disease lifestyle intervention trial for recovering coronary heart disease patients. Results showed that low social support was positively associated

with non-adherence to diet recommendations at 1 year. Participants with low social support were more apt to be noncompliant when it came to eating healthy, which may have increased their chances of cardiovascular disease. The majority of participants in this study were female (66%) and Caucasians (65%).

Thomson et al. (2012) examined the effects of perceived social support on the quality of life in patients waiting for coronary artery bypass grafting and their partners. Perceived social support was assessed using the Medical Outcomes Study Social Support survey (subscales for information/emotional support, affectionate support, tangible support and positive social interaction). Low knowledge of informational and emotional support for patients had a significant effect on mental health ($p = 0.001$). The same was also true for the partners of the patients ($p = .024$). These results showed the importance of social support in heart patients taking care of themselves and maximizing quality of life before and after bypass surgery. Seventy-one percent of the patients were male and 13 percent were female. Study participant race and ethnicity were not disclosed in this study.

Social Network and Cardiac Health Outcomes

A study conducted by Tkatch et al. (2011) examined the role of a social network on the health outcome of cardiac rehabilitation patients. Results from this study were similar to results seen in the Thomson et al. (2012). In this cross sectional study, the effects of close social networks and how these networks affected coping efficacy and health behaviors among cardiac patients was examined by researchers. The study was conducted using an African American sample ($N = 115$) that was recruited from a cardiac

rehabilitation center. Variables measured were social network and social network health support; health behaviors, patient coping efficacy, and mental and physical well-being. Results are as follows: (a) between the number of inner network members and coping efficacy ($p < .05$), (b) health behaviors ($p < .06$), (c) relationship between health related support and coping efficacy ($p = .05$), and (d) health behaviors ($p = .001$). The researchers hypotheses (close network members predicted better coping efficacy ($p < .05$) and health behaviors ($p < .05$). In addition health related support predicted coping efficacy ($p < .05$) and health behaviors ($p < .01$) was supported using regression analyses. Although limitations were discussed, such as recall bias, small variances, additional variables affecting and health behaviors, serious implications for cardiac patients were valid. First, healthcare providers need to be aware of the need to seriously consider use of strong networking support groups as this type of support system may prove to be very valuable for cardiac recovery. Second, gender should be a focus as well, being that in the study more females reported better health behaviors. This study shows that there is a valid need for additional research on the effects of social networks and how it affects cardiovascular health outcome; particularly amongst male and female African American (Tkatch et al., 2011).

Seeman and Syme (1987) had views that were similar to Tkatch et al. (2011), concerning social networks. In spite of differences in beliefs about structural characteristics such as network size, their research showed that social networks were strongly associated with improved health support, health behaviors, and coping efficacy amongst African American cardiac rehabilitation patients as well as improved host

resistance to coronary atherosclerosis. In addition to these two studies conducted by Tkatch et al., (2011) and Seeman and Syme (1987) other studies also showed a positive correlation between strong social networks and a positive health outcome with heart health.

For example, Prasad et al. (2013) conducted a study that examined the effects of using the Urban Health Equity Assessment and Response Tool (Urban HEART) on health equity. Use of this social network gave local governments a way to assess and respond to health inequities, and this tool was successful in directing local action on improving local health inequities through social determinants of health. Cameron et al. (2014) examined a social network program called Timing it Right Stroke Family Support Program (TIRSFSP) that helped caregivers of stroke patients. This study illustrated the importance of a program guide in helping caregivers, which in turn, affects the healing of the stroke patient. Dracup (2014) examined the effects of peer support on heart failure. Patients who were discharged from the hospital or unwilling to attend outpatient heart failure group were randomized to two groups (a) peer-support intervention with weekly phone calls or (b) enhanced engagement group sessions with nurse practitioners who were experts in heart failure patients. These patients were matched by a third party who was aware of the health condition of the patient. In conclusion, this study gave valuable insight about how to care for heart failure patients using social networks that decreased patient care costs.

These studies were imperative examples of how strong social networks improve health status; however, the extent to which close network members actually promote

health needs further analysis, which lends to the need for further research examining the longitudinal effects of social networks on patients with cardiovascular heart disease as they learn how to improve their coping and management skills.

Ethnicity, Social Support, and Heart Health

In terms of race or ethnicities being examined for social support effects on cardiac health outcome, Caucasians, in the past, have dominated the participant pool. According to Ostfeld (1992), the majority of the studies conducted on heart disease during the 70s and 80s, used mostly Caucasian subjects. As time progressed, the use of African Americans as participants in studies that examined heart disease has increased; however the types of social support its effect on cardiac recurrence needs attention.

Studies conducted by (Bean et al., 2009; Cruz-Flores et al., 2011; Davis et al., 2012; Popa, Branch and Andel, 2008; Rankin, 2002; Sayer et al., 2008); Seeman and Syme, 1987; Strickland et al., 2007; Tkatch's, 2011; Warren-Findlow et al., 2008) have all examined the effects of social support on African American heart health outcome. The general theme in these studies was that social support did exhibit a positive influence on heart health outcome among African Americans. Some benefits associated with social support included improved heart knowledge (Davis et al., 2012 and Warren-Findlow et al., 2008), host resistance to heart disease (Seeman & Syme, 1987), and improved coping skills (Bean et al., 2009 and Strickland et al., 2007), improved compliance with medications (Sayer et al., 2008), and quicker recovery from myocardial infarction (Rankin, 2002). In the case of African American cardiac patients, positive influence from a strong support system may contribute to a decrease in cardiac recurrence/hospital re-

admission. Unfortunately, in comparison to Caucasians, disparities in heart disease/health still exist in the areas of self-care, emotional social support, longer hospital stays, and re-admission. In addition, African American study participants were the majority in only a few of the studies listed above and these studies did not assess cardiac recurrence or specific types of social support that may be important to the African American population in battling heart disparity.

Social change implications include (a) identification of essential social support elements and tailored treatment plans for heart patient and caregiver in order to promote better heart health outcomes for African Americans living with someone or alone; and (b) policy change that fosters effective prevention and treatment.

Research Methodologies from Previous Studies

In terms of measuring social support, a variety of instruments have been developed by researchers in the past in order to assess individual perception. My literature research showed that the majority of researchers utilized instruments such as interviews (Levers-Landis et al., 2003), telephone questionnaires (Kelsey et al., 1996), and self-administered questionnaires (Cadzow and Servoss, 2009; Levers-Landis et al., 2003; Tkatch et al., 2011) in order to measure social support and its effect on health outcome. There are seven studies that I will discuss in terms of supportive documentation methods used to assess social support. The methodologies used in these past studies illustrated the positive effects of utilizing social support systems to help improve health.

Kelsey et al., (1996) used telephone questionnaires to analyze friend, family and negative support variables for dietary change along with interactions of social support

with motivation to change. Use of telephone questionnaires revealed that support from friends was very effective in helping these women improve their state of health. The scales in this study were tested for reliability and validity and shown to be effective.

Rankin et al. (2002), used outcome measures such as the mood disturbance scale called Profile of Mood States (POMS) and a Duke Activity Status Index (DASI) scales (a measure of cardiac and physical functionality), and interviews to measure instrumental support in cardiac patients (African American and Caucasian) at the day of discharge from the hospital and 6 weeks afterwards. Results from this study revealed a positive outcome for cardiac and physical functionality (more so for Caucasians than African Americans). Nevertheless, the measurement instruments used depicted a positive health outcome for psychosocial and physical recovery in general. Questionnaires used in this study were also assessed for validity and reliability and were shown to be appropriate.

Levers-Landis et al. (2003) used interviews and self-administered questionnaires to measure social support, knowledge, self-efficacy, dietary calcium intake, and weight bearing physical activity in bone health outcome. Results showed family support, and knowledge of weight bearing physical activity significantly predicted calcium intake. These results were suggestive of interventions involving parents and peers to result in positive health behavior change. Questionnaires used in this study were previously developed and used by other researchers and were shown to be valid and reliable.

Sayers et al. (2008), measured social support amongst cardiac patients in self-care among African Americans. The semi-structured interviews and medical questionnaire results showed that social support positively affected self-care in these heart failure

patients. These instruments of measure demonstrated reliability and validity in comparison to other methodologies discussed in this section.

Tkatch et al. (2011), measured social network and social network health support, health behaviors patient coping efficacy and mental and physical well-being using questionnaires (the Social Interaction Questionnaire, the Social Convoy Questionnaire, the Patient Self-Efficacy Questionnaire, and an investigator-developed assessment of health behaviors). All of the questionnaires used in this study were shown to be valid in this study and other studies (Tkatch et al., 2011).

Cameron et al. (2014) was multi-sited and randomized 300 family caregivers of stroke survivors. Participants were randomized into one of the following groups: (a) TIRSFSP (Timing it Right Stroke Family Support Program) led by a stroke support person during acute care and by telephone for months six to twelve, (b) self-directed care giver guided by the program stroke support person, and (c) basic care through educational material prepared by the Heart and Stroke Foundation. Follow up quantitative assessments (for depression, social support, psychological well-being, stroke knowledge, caregiving assistance, care giving impact on daily living, and indicators of stroke severity and disability) were used at 3, 6, and 12 months post stroke along with qualitative methods to assess the caregivers' perception about being supported. Use of this mixed methodology allowed researchers to demonstrate that information obtained about caregivers and stroke victims from these quantitative and qualitative methods can be very helpful in showing health care policy makers the importance of the TIR Stroke Family

Support Program in meeting changing needs of stroke families during the transitioning across care environments.

Hunte et al. (2012) used data from the Chicago Community Adult Health Study (CCAHS) in order to understand hypertension related outcomes in African Americans ($N = 1240$), Hispanics ($N = 802$) and Caucasians ($N = 983$). Data was analyzed from the National Health and Nutrition Examination Survey (NHANES) 1999-2002, CCAHS (2001-2003), and the Detroit Michigan Healthy Environment Project 2002-2003 (HEP). Results from this methodology using standardized and unstandardized hypertension related outcomes showed that racial/ethnic differences in prevalence, awareness, treatment, and control of hypertension is still a major public health problem. African Americans were more likely to have hypertension and be aware of their hypertension status in comparison to Caucasians. African Americans were less likely to get treatment for hypertension as well. The data came from reliable data collected by the CDC, the CCAHS and the HEP. Data collected from these programs are reliable and valid lending a solid credibility to the study results.

Conclusion

In summary, literature examining the application of the social support and social network theory and their effect on various health outcomes was quite extensive. Past and current literature has provided the public with significant results that show promising implications for practical use of social support in the health field. For example, studies conducted by (Anderson et al., 2006; Rankin et al., 2002; Rodriguez et al., 2011; Sayers et al., 2008; Warren-Findlow et al., 2008) showed that use of social support among

cardiac patients significantly improved survival (i.e., quicker recovery and improved self-care) after suffering a cardiac event. Social support and social networks helped these patients improve in self-care. In the Cadzow et al. (2009) study, 289 patients were assessed to examine the association between perceived social support and the prevalence of physical and mental health conditions. Patients completed a health risk assessment questionnaire that addressed social and medical issues. Results revealed that insufficient social support perception amongst patients resulted in high rates of obesity, heart conditions, a previous heart attack, anxiety, and depression. It was concluded that use of social support and social networks may act as buffers, teaching African Americans how to cope and improve health behaviors that result in decreased health problems. Research in this area has shown that social support can have a very positive impact on health outcomes.

Unfortunately, this literature leaves a gap in relation to exploring types of social support and the effect social support has on cardiac recurrence among African Americans. These results warrant further research into looking at how African Americans perceive different types of social support and how it can be used to combat heart disparities.

Chapter 3: Research Method

The purpose of this correlational study was to determine whether a relationship existed between social support and cardiac recurrence among African American adults who had experienced at least one cardiac event.

This chapter presents the research methodology for this study including the population and sample; methodology and design; data collection procedures; data organization and analysis; and reliability, validity, and ethical considerations.

Research Population/Sample

Study participants were recruited from a physician's office in North Carolina. Inclusion criteria for participants were African American, male or female, cardiac disease/condition/diagnosis/, occurrence of at least one cardiac event, and 18 years of age or older. Cardiac disease/condition/diagnosis was defined as angina, stroke, coronary artery disease, heart attack, hypertension, enlarged heart, cardiomyopathy, and congenital heart disease.

Research Methodology

I used a correlational design for my study. A correlational design was appropriate to measure an association between two or more variables. I was not able to conduct an actual experiment, so I planned to measure associations between two or more quantitative variables. In addition, I wanted to measure for association, not causation, so a correlational design was appropriate for testing the association between social support and cardiac recurrence.

The literature search indicated that previous studies included scales to measure social support and its effect on health in general. I chose a correlational design to assess the influence of social support on heart health among African Americans. Questionnaires had been shown to be reliable instruments when looking at individual perception (Cadzow and Servoss, 2009; Coutinho-Myrrha et al., 2014; King, 1986; Spitzer, Williams, Kroenke, Hornyak, and McMurray, 2000).

To examine this relationship, I collected empirical data using a demographic questionnaire and the ISEL Interpersonal Support Evaluation List (ISEL). The continuous variables were measured for mean, median, range, variability, and standard deviation yielding descriptive results. Data collected from the demographic questionnaire were analyzed using the chi-square test because the variables were categorical (nominal) in nature. These variables were analyzed for confounding effect on cardiac recurrence. For the ISEL, each participant answered (0) definitely false; (1) probably false; (2) probably true; or (3) definitely true for each question. Although ordinal in nature, the distance between the answers in this 4-point Likert scale was unknown, so use of chi-square for analysis was appropriate.

In calculating my sample size, I used a confidence interval of 90%, a standard deviation of 0.5, and a margin of error of 8%. These parameters resulted in a population sample size of 105.704. The margin of error and confidence interval indicated how well the sample represented the entire population, meaning the responses reported would not differ from the entire population more than 5%, 90% of the time.

Research Design and Data Collection Process

I used a convenience sample of participants ($N = 83$) who elected to participate after reading the study summary. Permission to recruit participants was granted by Dr. Charles A. Cook (Appendix D).

The data collection instruments consisted of a demographic questionnaire and the ISEL questionnaire (Appendix A). I set up a table at the physician's office along with a poster attached to the table with my study title. The study summary was read by potential participants and, if they chose to participate, they completed consent forms and placed them in a covered box.

Participants were given the investigator-developed demographic/health status questionnaire along with the ISEL (Cohen et al., 1985) to complete. The ISEL was modified to contain only 20 questions instead of the original 40 questions. I chose the first question of each subscale question (appraisal, belonging, self-esteem, and tangible) from the original ISEL questionnaire and proceeded to select every other question for each subscale, which resulted in a total of five questions for each subscale. The last page indicated what numbers made up each subscale. My modified subscale contained questions that were numbered 1-20. Each of those numbers corresponded to the original numbered question in Cohen's (1985) ISEL. Each participant placed his or her completed set of forms in a covered box. All research forms and questionnaires were completed on site. When the data collection process was completed, forms were taken from boxes and separated for analysis. During the analysis process, all materials (consent forms, permission forms, and questionnaires) were locked in a steel safe that required a

numerical combination key to be opened. The study design for my research allowed me to answer the following research questions:

Research Question 1: Is there a correlation between social support subscales (appraisal, tangible, belonging, and self-esteem) and cardiac recurrence?

Research Question 2: Is there a correlation between gender and cardiac recurrence?

Research Question 3: Is there a correlation between SES and cardiac recurrence?

Research Question 4: Is there a correlation between age and cardiac recurrence?

Research Question 5: Is there a correlation between marital status and cardiac recurrence?

Research Question 6: Is there a correlation between educational level and cardiac recurrence?

Research Question 7: Does a general availability of social support use affect cardiac recurrences in this population?

Research Question 8: Is there a correlation between time passed between cardiac events and social support?

Instrumentation

Demographic and Cardiac Health Status

Demographic and cardiac health data were collected from an eight question form. The demographic portion of the questionnaire included the following factors: race/ethnicity, age, marital status, gender, type of cardiac diagnosis/cardiac event and

hospitalization if required, occurrence of a second cardiac diagnosis and hospitalization if required, socioeconomic status, and education level.

Interpersonal Support Evaluation List (ISEL)

The ISEL, which consists of 40 questions, was used to evaluate the functional components of social support. Half of the list includes positive statements about social relationships, and the other half contains negative statements (Cohen et al., 1985). The four 10-item subscales for this list are (a) appraisal, which is the perceived availability of having someone to talk to about one's problems; (b) tangible, which is the perceived availability of receiving material aid; (c) self-esteem, which is the perceived availability of a positive self-image when compared to someone else; and (d) belonging, which is the perceived availability of having someone to do things with (Cohen et al., 1985). Due to high cost of creating survey tools (Kamau, Olson, Zipp, and Clark, 2011) to measure social factors, I used the survey created by Cohen et al (1985). The ISEL questionnaire is available to the public. Permission for use of this document was not required because it was used for nonprofit academic research.

The following question were grouped into each subscale accordingly: appraisal support subscale Questions 1, 7, 11, 14, and 20; tangible support subscale Questions 2, 8, 10, 16, and 18; self-esteem support subscale Questions 3, 5, 12, 15, and 19; belonging support subscale Questions 4, 6, 9, 13, and 17. Questions 3, 6, 7, 8, 9, 13, 15, 16, and 18 were reverse scored.

The ISEL was an appropriate tool to use in my study because it allowed me to measure the perceptions of social support among study participants and see how it

affected their reaction to a health stressor (i.e., cardiac event). This questionnaire has been used since the mid1980s and has been shown to be an internally consistent instrument in measuring correlations between ISEL subscales. It has proven to be a valid and reliable tool for assessing social support perception (Cadzow and Servoss, 2009; Coutinho-Myrrha et al., 2014; King, 1986; Spitzer et al., 2000).

For example, Payne et al. (2012) used a short form of the ISEL-12 (a short form of the ISEL-40) to evaluate participants in the atherosclerosis risk communities. Payne et al. found the following correlation among the subscales: appraisal (.8), tangible (.79), self-esteem (.7), and belonging (.8). This scale was shown to be reliable in that the original scale in this study was replicated, it was found to be internally consistent, and the differences across the population subgroups were identified.

This instrument was also used to address social support perception among English and Spanish speaking Hispanics/Latinos in the HCHS/SOL (Hispanic Community Health Study/Study of Latinos) sociocultural ancillary study (Merz et al. (2013). In this study Cronbach's alphas for the ISEL-12 were all above 0.70. Cronbach's alpha is a statistical coefficient of internal consistency that estimates the reliability of a psychometric test. A Cronbach's alpha of 0.6 to 0.7 is acceptable, 0.7 to 0.9 is good, and 0.9 or greater is excellent. A Cronbach's alpha of 0.5 or less is unacceptable. For the subscale scores, Cronbach's alpha was as follows: .65 for appraisal; .62 for belonging; and .57 for tangible. The internal consistency for the English speaking participants was .71 for appraisal and .76 for belonging. The internal consistency for the Spanish speaking

responders ranged from .54 to .63 for all three subscales, but there were more Spanish participants ($N = 4166$) than English ($N = 1138$), so this could have contributed to the low internal consistency amongst the Spanish participants.

According to Cohen et al. (1983, 1985), the ISEL was shown to be a reliable measure of social support, and the subscales were independent of each other. The subscale independence was maximized by selection items that were highly correlated with items in their own subscale and at the same time minimally correlated with other subscales. Results showed that the mean correlations between each subscale and subscale were related. Results also showed that the belonging subscale was moderately correlated with both tangible and appraisal subscales. The internal reliabilities (Cronbach's alpha) of these subscales were as follows: tangible (.71), belonging (.75), self-esteem (.60), appraisal (.77), and total scale (.77).

Data Organization and Analysis

Collected data from the demographic questionnaire and ISEL were entered into Excel for organization and analysis purposes using SPSS version 22. SPSS is a statistical software program created by IBM that is used for statistical analysis. For demographic data, each completed form was given a number, and demographic data was entered into Excel and analyzed on a univariate level (i.e., frequency, percent, mean, median, mode, etc.) to yield a descriptive summary of the sample population.

Each completed ISEL was entered into an Excel spreadsheet, and responses to each question, for each subscale were recorded as follows: 0 definitely false, 1 probably

false, 2 probably true, and 3 definitely true. I then measured results for each subscale for association with cardiac recurrence.

I used a *t* test was used to measure the association and answer Research Question 1: Is there a correlation between social support subscales (appraisal, tangible, belonging, and self-esteem) and cardiac recurrence? The social support subscale percentages were correlated with overall cardiac recurrence. Chi-square was used to measure the strength of association for each subscale.

For Research Question 2, which addressed the correlation between gender and cardiac recurrence, previous studies had indicated evidence of gender differences in reference to social ties and health outcome (House, Robbins, and Metzner, 1982). According to Leifheit-Limson et al. (2009), women deemed social support to be very important in recovery from a cardiac event in comparison to men. To answer this research question, male was coded as 0 and female was coded as 1. Chi-square was applied to the two-way contingency table and was used to measure the association between gender and second cardiac event to determine whether females perceived social support differently than males. I wanted to determine whether one gender had experienced more cardiac events than the other.

For Research Question 3, which addressed the correlation between SES and cardiac recurrence, these two variables were measured for association by comparing the means of the nonrecurring and recurrent groups on the household income scale. The nonparametric Mann-Whitney test was used to compare groups). In a study conducted by Franks, Winters, Tancredi, and Fiscella (2011), results showed that low SES was

associated with increased heart disease (HR = 1.53) with a 95% CI of .27 to 1.85. This association was independent of traditional risk factors. In addition, in a 10-year follow up, CHD incidence was 3.1% in high SES and 5.2% in low SES subjects.

Research question 4, is there a correlation between age and cardiac recurrence? This question was addressed by comparing the mean ages for the recurrent and non-recurrent groups. The Leven test for homogeneity of variances was used to determined significance. In terms of age, research did not show age to have a significant association to heart health, but SES, marital status and educational level did have significant associations. In a study conducted by Bucholz, Strait, Dreyer, Geda, Spatz, Bueno et al. (2014), age was not a significant (p value = 0.1762) factor in assessing acute myocardial infarctions (AMI), however social support (p value = 0.0001), SES (p value = 0.0001) and marital status (p value = 0.0001) were significant in relation to heart health. Study participants were Spanish. In a study conducted by Ranasinghe, Wang, Dharmarajan, Hsieh, Bernheim and Krumholz (2014) where readmission after hospitalization for heart failure and AMI was assessed, results showed that readmission rates for patients aged 18-64, exceeded (23.4% versus 22.0%, $p < 0.001$). However when it came to AMI, readmission rates were lower (11.2% versus 17.5%, $p < 0.001$). African Americans were participants in the study; however, the majority of study participants were Caucasian. So contrary to Buchloz et al. (2014) results, there is a generalized risk for readmission after hospitalization regardless of age.

Research question 5, is there a correlation between marital status and cardiac recurrence? This question was addressed by evaluating the chi-square obtained for the

contingency table resulting from the cross-classification of the marital status groups and cardiac event recurrence groups. Marital status was reduced from its original seven groups down to two groups representing either living alone and living with a spouse, domestic partner, or significant other.

Research question 6, is there a correlation between educational level and cardiac recurrence? This question was addressed by evaluating the chi-square obtained for the contingency table resulting from the cross-classification of the educational level groups and cardiac event recurrence groups.

Research question 7, overall, does a general availability of social support use affect cardiac recurrence in this population? This question was addressed by comparing the mean overall ISEL support scores for the recurrent and non-recurrent groups. A general inference will be drawn to answer question 7 after chi-square analysis.

Research question 8, is there a correlation between time passed between cardiac events and social support? This question was addressed by computing the Pearson correlation between the ISEL scale scores (i.e., subscales and overall) and the amount of time between cardiac events. This test only applied to the subset of the sample which had recurrences of adverse cardiac events, which amounted to only 12 participants. A summary of data outcome results is provided below in Table 2.

Table 2

Data Outcome Summary

Research Questions	Test	Significance
relationship between the social support subscales (appraisal, tangible, belonging, and self-esteem) and recurrence of an adverse cardiac event	T-test	Appraisal=.121 Tangible=.383 Self-esteem=.395 Belonging=.456
relationship between gender and recurrence of an adverse cardiac event	Chi-square	P=.884
relationship between SES and cardiac event recurrence	Non-parametric Mann-Whitney	P=.71
relationship between age and cardiac event recurrence	Leven test for homogeneity of variances t-test	P=.13 t-test P=.887
relationship between marital status and cardiac event recurrence	Chi-square	P=.01
correlation between educational level and cardiac event recurrence	Chi-square	P=.891
relationship between overall level of social support and cardiac event recurrence	Leven test t-test	P=.201 P= .161
relationship between amount of time between cardiac events and degree of social support	Pearson Correlation	Overall Support P=.942

Reliability and Validity

In order to ensure the reliability and validity of my findings I will discuss the methodology used. In relation to the reliability and validity of participant sampling, my participants chosen were a convenience sample. Participants had the choice of participating or not). The sample size was calculated using a fairly simple formula which I located online. The formula is as follows: $(z \text{ score})^2 \cdot \text{Std. Dev} \cdot (1 - \text{Std. Dev}) / (\text{Margin of Error})^2$ (Smith, 2013).

The original sample size was calculated to be 105.74 ($N = 106$). I chose a confidence interval of 90%, a standard deviation of 0.5 and a margin of error of 8%. As the researcher, I was blind to the identification of participants who completed each of the questionnaires. Blinding reduces bias and will help to ensure that I, as the researcher, will not be able to influence outcome. However, that sample size was not able to be achieved. Sample size was reduced to 83, with a confidence interval of 90% and a margin of error of approximately 9%.

In terms of the instrumentation used and the level of reliability and validity of these instruments, the questions asked in the demographic/health status and ISEL questionnaires are closed ended, which requires the participant to answer from predetermined choices. This questionnaire allowed me to measure the perceptions of social support amongst study participants in order to see how it affects reaction to a health stressor (i.e. cardiac event). This questionnaire has been used since the mid-1980s in studies and has been shown to be an internally consistent instrument in measuring correlations between ISEL subscales.

With regard to other scales being used to examine social support and heart health outcome, Cadzow and Servoss (2009) utilized a questionnaire to assess social support perception. Cadzow and Servoss (2009) used two validated instruments which are the PRIME-MD for mental health disorder assessment, and the CAGE for alcohol risk assessment (Spitzer, Williams, Kroenke, Hornyak, and McMurray (2000) and King (1986) and a health risk assessment (HRA) questionnaire in order to examine perceived social support. Results showed an association between

perceived social support and cardiovascular health in women only. In addition, high SES, not smoking, and high fiber diets were also associated with adequate social support.

Coutinho-Myrrha, et al. (2014) used the DASIS (Duke Activity Status Index) to access the functional capacity of Portuguese patients with cardiovascular disease. The instrument was shown to very reliable and valid. The intra-class correlation coefficient for test-retest reliability was 0.87 and 0.84 for the inter-rater reliability. Internal consistency (Cronbach's alpha) was 0.93. Significant and positive correlations of DASIS scores and oxygen uptake ($r = 0.51$, $p < 0.001$) confirmed concurrent validity. In summary, the cross-culturally adapted DASIS appeared to a valid and reliable instrument for measuring functional capacity amongst patients with CVD.

In summary, the results from the use of these self-report scales assessing social support demonstrated that these instruments were internally reliable and valid. I believe that these results warrant at closer look into using more of these types of scales in the future to assess social relationships and the effect on cardiac recurrence. According to a recent article by Cyranowski et al. (2013), use of brief and precise instruments that measure social relationship concepts are still limited. In the Cyranowski et al. (2013) study, literature searches were done to identify self-report scales that measured relevant social relationship constructs. In addition to other scales assessed in this study, the ISEL was used to assess a community dwelling U.S. internet sample ($N = 692$) of adults 18 years of age and older. The ISEL displayed good reliability with a Cronbach's alpha of 0.912 when assessed for measuring social support, companionship and distress, literature

searches stressed the importance of the need for unidimensional scales that will assess social support.

Ethical Concerns

Informed Consent

Participants were allowed to read the study consent form, which consisted of a brief synopsis of the research proposal, risks and benefits, and sample questions to be completed via questionnaires. Participants were informed that there was no compensation for participation in this study and that participation will be completely voluntary. The subjects were informed that participation in the study equates to informed consent. Participants were given one instrument that measured social support subscale responses. Part I of the questionnaire presented demographic and health status questions and part II will present the ISEL (Cohen, 1985) questions. After completion of the survey, each participant placed his or her form into a covered box. This ensured complete anonymity. After collection of data is complete, forms were removed from box and answers recorded using Microsoft Excel 2010. Data was stored on a flash drive that would, in turn, be stored in a steel safe that required a numerical combination key to be opened. Paper copies and flashdrive will be kept for 5 years in the safe, after which both will be destroyed.

Ethical concerns associated with conducting this research include participants being informed that emotional risks could be experienced when completing the Interpersonal Support Evaluation List (ISEL). These emotional risks included remembrance of “bad” experiences when needing the help of others; remembrance of the

psychological and physical emotions associated with the cardiac diagnosis/event. There were no unethical treatment of potential study participants, as participation was completely up to each individual. There was no influence the investigator, to influence potential participants to participate in the study. After completion of the questionnaires, study participants did not receive any follow up.

Summary

In summary, this correlational study design was used to investigate the effects of social support on cardiac recurrence. Tools used to measure these effects included a demographic/health status survey and Cohen's (1985) ISEL questionnaire. Chi-square was used for data analysis. Participants will be provided informed consent and made aware of any potential risks associated with participation. The results from these measurement tools will assess four subscales: tangible, appraisal, belonging, and self-esteem. In addition, gender, socioeconomic status, age, marital status and educational level will also be assessed to examine their effects on cardiac recurrence.

This study was designed to answer the following research questions.

Research Question 1: Is there a correlation between social support subscales (appraisal, tangible, belonging, and self-esteem) and cardiac recurrence?

Research Question 2: Is there a correlation between gender and cardiac recurrence?

Research Question 3: Is there a correlation between SES and cardiac recurrence?

Research Question 4: Is there a correlation between age and cardiac recurrence?

Research Question 5: Is there a correlation between marital status and cardiac recurrence?

Research Question 6: Is there a correlation between educational level and cardiac recurrence?

Research Question 7: Does a general availability of social support use affect cardiac recurrences in this population?

Research Question 8: Is there a correlation between time passed between cardiac events and social support?

The next chapter will discuss data collection and study results.

Chapter 4: Results

The purpose of this correlational study was to examine the association between social support and cardiac recurrence among African American adults who had experienced at least one cardiac event. The variables examined were the ISEL social support subscale, demographic variables (age, marital status, socioeconomic status, education, and gender), overall social support received and time between cardiac events in relation to cardiac recurrence among African American men and women aged 18 years of age and older. Eight hypotheses were tested using chi-square. Coding of the variables allowed for easy manipulation of data collected. Cohen's ISEL scale was shortened from 40 to 20 questions. Refer to Chapter 3 and Appendix A for a detailed description of variable coding and ISEL coding.

In Chapter 4, I provide the results of this study and explain how these results may impact social change in the realm of social support and heart health for African Americans.

Overview of Study

This correlational quantitative study consisting of 83 African American heart disease patients from Raleigh Associate Medical Specialists in North Carolina was conducted with the hypotheses that certain variables were predictive of heart health outcome for this population. The independent variables included age, marital status, socioeconomic status, educational level, gender, occurrence of a second cardiac event and time passed between first and second cardiac event, and social support. The dependent

variable was cardiac recurrence. The social support variable consisted of four ISEL subscales: (a) appraisal, (b) belonging, (c) self-esteem, and (d) tangible.

The four subscales were defined as follows: self-esteem (emotional) support was defined as the perceived availability of a positive self-evaluation when comparing one's self to others. Tangible (instrumental) support was defined as taking on the responsibilities of someone else so he or she can manage or deal with a problem he or she is experiencing. The belonging subscale was defined as having someone to do things with. The appraisal subscale was defined as having someone available to talk to. For the ISEL, each participant answered 0 (definitely false), 1 (probably false), 2 probably true, or 3 (definitely true) for each question.

The ISEL was modified to contain only 20 questions instead of the original 40 questions. I chose the first question of each subscale question (appraisal, belonging, self-esteem, and tangible) from the original ISEL questionnaire and selected every other question for each subscale, thereby selecting a total of 5 questions for each subscale. The last page of the ISEL questionnaire disclosed what numbers made up each subscale. My modified subscale contained questions that were numbered 1-20. Each of those numbers corresponded to the original numbered question in Cohen's (1985) ISEL. Marital status was reduced from its original seven groups down to two groups representing either living alone and living with a spouse, domestic partner, or significant other.

Results showed that age, gender, socioeconomic status, educational level, occurrence of a second cardiac event and time passed between first and second cardiac

event, and ISEL subscales showed no significant correlation to use of social support. Only one variable, marital status, showed a positive correlation to cardiac recurrence.

Sample Description

Demographic Variables

The sample consisted of 83 participants. The mean age of the participants was 56.8 years with a range from 22 to 84. The sample was predominantly female and predominantly composed of people who do not live alone (59%). The majority of people in the sample (68.3%) live in households having incomes ranging from \$30,000 to \$120,000, and 65.1% of the sample has a high school education or less. Further demographic characteristics of the sample are reported in Table 3.

Table 3

Demographic Characteristics of the Sample (N = 83)

Characteristic	Category	Frequency	Percent Non-missing	Percent of Total
Gender	Female	50	60.2	60.2
	Male	33	39.8	39.8
	Total	83	100	100
Marital Status	Married	43	51.8	51.8
	Domestic partnership or civil union	1	1.2	1.2
	Cohabiting with a significant other	5	6	6
	Single, never married	13	15.7	15.7
	Separated	2	2.4	2.4
	Divorced	8	9.6	9.6
	Widowed	11	13.3	13.3
	Total	83	100	100
Household Income	\$0 to \$29,999	16	19.5	19.3
	\$30,000 to \$59,999	35	42.7	42.2
	\$60,000 to \$89,999	16	19.5	19.3
	\$90,000 to \$119,999	5	6.1	6
	\$150,000 to \$179,000	1	1.2	1.2
	prefer not to answer	9	11	10.8
	Total non-missing	82	100	98.8
	Missing	1		1.2
	Total	83		100
Education Level	Less than HS	7	8.8	8.4
	High School Graduate	45	56.3	54.2
	1 to 3 years of college	6	7.5	7.2
	Undergraduate degree or higher	22	27.5	26.5
	Total non-missing	80	100	96.4
	Missing	3		3.6
	Total	83		100

Social Support and Cardiac Recurrence Variables

This study included two dependent variables, recurrence/non recurrence of cardiac event and time interval between cardiac events for those who had a recurrence, and nine independent variables. Four of the independent variables were demographic

variables (age, marital status, educational level, and household income), and four were the four subscales of the ISEL questionnaire (appraisal support, tangible support, self-esteem support, and belonging support). The mean overall score on the support scales was also used as an independent variable in one of the research questions. The frequency distribution for the dichotomous cardiac event recurrence variable is reported in Table 4. The descriptive statistics for the other dependent variable and the five non demographic independent variables are reported in Table 5

Table 4

Frequency Distribution of the Cardiac Event Recurrence Dependent Variable

Cardiac Event Recurrence	Frequency	Percent
No	71	85.5
Yes	12	14.5
Total	83	100.0

Table 5

Descriptive Statistics for Time Interval Between Cardiac Events and the Five Interpersonal Support Measures

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Time between events (months)	12	3.00	106.00	36.67	37.98
Appraisal Support	83	1.00	4.00	1.98	.87
Tangible Support	83	1.00	4.00	2.01	.83
Self-Esteem Support	81	1.00	3.80	2.18	.53
Belonging Support	83	1.00	4.00	2.25	.74
Overall Support	83	1.00	4.00	2.11	.71

The Shapiro-Wilk test for departure from normality produced a statistic value of .90 or higher for all of the support variables, indicating that the departures from

normality, although statistically significant, were not of a severity that could cause nontrivial errors in the estimated p values for type I error.

The reliabilities of the ISEL subscales and of the overall ISEL score are presented in Table 6. The reliabilities were high for all scales except for self-esteem support. However, the reliability level for the latter scale nevertheless fell within the range of adequacy for scales employed for research purposes (Nunnally, 1978, pp. 245-246).

Table 6

Alpha Reliabilities for the Four ISEL Subscales and the Overall ISEL Score

Scale	Cronbach's Alpha	N of Items
Appraisal Support	.937	5
Tangible Support	.887	5
Self-Esteem Support	.774	5
Belonging Support	.871	5
Overall Support	.963	20

The first research question asked whether there was a relationship between the social support subscales (appraisal, tangible, belonging, and self-esteem) and recurrence of an adverse cardiac event. This question was answered by comparing the mean ISEL scale scores for the recurrent and nonrecurrent groups via the independent t test. The results indicate that the recurrent and nonrecurrent groups did not differ in their mean levels on any of the four ISEL support type subscales. The results are presented in Table 7.

Table 7

T- test: Social Support Subscales and Cardiac Recurrence

Scale	t	df	Sig. (2-tailed)	Group Means	
				No recurrence	Recurrence
Appraisal Support	-1.663 ^b	12.83	.121	1.89	2.47
Tangible Support	-.878 ^a	81	.383	1.97	2.20
Self-Esteem Support	-.854 ^a	79	.395	2.16	2.31
Belonging Support	-.749 ^a	81	.456	2.23	2.40

^a Equal variances assumed^b Equal variances not assumed

Research Question 2 asked whether there was a relationship between gender and recurrence of an adverse cardiac event. This question was answered by applying the chi-square test to the two-way contingency table of gender by cardiac event recurrence. The calculated value of the chi-square for association was only .021 (1 df), for which $p = .884$. Thus, there was no evidence in support of a relationship between gender and cardiac event recurrence. Results are presented in Table 8.

Table 8

Gender and Cardiac Event Recurrence

Gender	Cardiac Event Recurrence		Total
	No	Yes	
Female	43	7	50
Male	28	5	33
Total	71	12	83

Research Question 3 asked whether there was a relationship between SES and cardiac event recurrence. Income was measured on a 7-point scale of dollars per year in \$30,000 increments. This question was answered by comparing the means of the non recurrent and recurrent groups on the household income scale. The scores on this scale

were substantially positively skewed, causing the distribution to depart substantially from normality (Shapiro-Wilk $W = .841, p < .001$). Consequently, the nonparametric Mann-Whitney test was used to compare the groups on this variable. This test produced a $U = 318.5$ for which $p = .71$. Thus, there was no evidence to support the existence of a relationship between household income and cardiac event recurrence. Results are reported in Table 9.

Table 9

Means of Non recurrent and Recurrent Groups on the Household Income Scale

Group	N	Mean	Std. Deviation	Std. Error Mean
No recurrence	62	2.21	.960	.122
Recurrence	11	2.09	.944	.285

Research Question 4 asked whether there was a relationship between age and cardiac event recurrence. This question was answered by comparing the mean ages for the recurrent and non recurrent groups. The distribution of age conformed closely to normality (Shapiro-Wilk $W = .99, p = .799$). Consequently, the means were compared via the independent t test. The Levene test for homogeneity of variances was not significant at $p = .13$. The test produced a $t(81) = -.155$ for which $p = .877$. I found no evidence to support the existence of a relationship between age and cardiac event recurrence. The means and other descriptive statistics for age for the two recurrence groups are reported in Table 10.

Table 10

Descriptive Statistics for Age by Cardiac Event Recurrence Group

Cardiac Event Recurrence?	<i>N</i>	Mean	Std. Deviation	Std. Error Mean
No	71	56.75	14.16	1.68
Yes	12	57.42	11.82	3.41

Research Question 5 asked whether there was a relationship between marital status and cardiac event recurrence. This question was answered by evaluating the chi-square obtained for the contingency table resulting from the cross-classification of the marital status groups and cardiac event recurrence groups. Marital status was reduced from its original seven groups down to two groups representing either living alone or living with a spouse, domestic partner, or significant other. The calculated value of chi-square for association was 6.72 (1 df), for which $p = .01$. Thus, there was significant evidence for a positive relationship between living alone and the recurrence of adverse cardiac events. Results are presented in Table 11.

Table 11

Marital Status by Cardiac Event Recurrence

Living alone	Cardiac Event Recurrence		Total
	No	Yes	
No	46	3	49
Yes	25	9	34
Total	71	12	83

Research Question 6 asked whether there was a correlation between educational level and cardiac event recurrence. This question was answered by evaluating the chi-square obtained for the contingency table resulting from the cross-classification of the

educational level groups and cardiac event recurrence groups. The chi-square for association was .891 (3 df) for which $p = .891$. Consequently, there was no evidence in support of a relationship between educational level and cardiac event recurrence. Results are presented in Table 12.

Table 12

Cross-Classification of Educational Level by Cardiac Event Recurrence

Education level	Cardiac Event Recurrence		Total
	No	Yes	
Less than High School	6	1	7
High School Graduate	37	8	45
1 to 3 years of college	5	1	6
Undergraduate degree or higher	20	2	22
Total	68	12	80

Research Question 7 asked whether there was a relationship between overall level of social support and cardiac event recurrence. This question was answered by comparing the mean overall ISEL support scores for the recurrent and non recurrent groups. The distribution of the overall ISEL support scores conformed closely to normality (Shapiro-Wilk $W = .956$, $p = .007$). Consequently, the means were compared via the independent t test. The Levene test for homogeneity of variances was nonsignificant at $p = .201$. The test produced a $t(81) = -1.415$ for which $p = .161$. Consequently there was no evidence to support the existence of a relationship between the overall ISEL support score and cardiac event recurrence. The means and other descriptive statistics for the overall ISEL support scores for the two recurrence groups are reported in Table 13.

Table 13

Descriptive Statistics for the Overall ISEL Support Scores for the Two Recurrence Groups

Event Recurrence Group	N	Mean	Std. Deviation
No recurrence	71	2.07	.679
Recurrence	12	2.38	.864

Finally, Research Question 8 asked whether there was a relationship between amount of time between cardiac events and degree of social support. This question was answered by computing the Pearson correlation between the ISEL scale scores (i.e., subscales and overall) and the amount of time between cardiac events. This test only applied to the subset of the sample that had recurrences of adverse cardiac events, which amounted to only 12 participants. Thus, the power of this test was very low. The resulting correlations and their p values are reported in Table 14.

Table 14

Pearson Correlations Between ISEL Support Scales and Time Between Adverse Cardiac Events

Support Scale	N	Correlation with Recurrence Interval	p
Overall Support	12	.024	.942
Appraisal Support	12	-.058	.857
Tangible Support	12	.066	.84
Self-Esteem Support	11	-.358	.28
Belonging Support	12	.091	.778

These results indicated that none of the correlations reached statistical significance, and in fact all but one of the correlations was near zero. Consequently, there was no evidence of a relationship between any of the ISEL support scales and the amount of time that transpired between adverse cardiac events.

Summary

This chapter consisted of analytical findings that were used to test eight hypotheses. Analysis of the independent variables against cardiac recurrence showed that marital status had a positive correlation (chi-square of 6.72 (1 df) and a p value=0.01). The variable was reduced from its original seven groups down to two groups: living alone and living with someone (i.e. spouse, domestic partner, or significant other). Therefore, the p -value suggests that there is a positive relationship between living alone and the recurrence of cardiac events. Recommendation for future action and research will be discussed in chapter 5.

Chi-square analysis for age, socioeconomic status, gender, educational level, overall social support, and ISEL subscales (appraisal, tangible, belonging, and self-esteem) resulted in no association with cardiac recurrence. For the subscale analysis, the mean ISEL scale score was compared to the recurrent and non-recurrent groups using the independent t-test which resulted in the following p values: (a) appraisal = 0.121, (b) tangible = 0.383, (c) self-esteem = 0.395, and (d) belonging = 0.456. Gender was analyzed by applying the chi-square test to the two-way contingency table which resulted in a chi-square of .021(1 df) and p value of .884, thus suggesting no relationship and did not differ in their mean levels on any of the four ISEL support subscales. There was no correlation between ISEL subscales and cardiac recurrence. The p value for the four subscales are as follows are (a) appraisal = .121, (b) self-esteem = .395, (c) tangible = .383, and belonging = .456. Socioeconomic status was analyzed by comparing the means of the non recurrent and recurrent groups on the household income scale. The scores were

positively skewed thus resulting in an abnormal distribution (Shapiro-Wilk $W = 0.841$, $p < 0.001$). The nonparametric Mann-Whitney test was used for comparison and resulted in a $U = 318.5$ and a p value of 0.71. Age was analyzed in the same manner as SES for distribution with the following results: ($W = .99$, $p = 0.799$). Comparison of the means were then compared using the independent t -test: $t(81)$ and a p value of 0.877. The Levene test for homogeneity analysis resulted in a p value of 0.13 which suggested no relationship between age and cardiac recurrence. Educational level was analyzed using chi-square obtained for the contingency table resulting from the cross-classification of the educational level groups and cardiac recurrence groups. A chi-square value of 0.891 (3df) and a p value of 0.891 also suggested no relationship between educational level and cardiac recurrence. In terms of assessing the association between overall level of social support and cardiac recurrence, distribution was close to normal with a Shapiro-Wilk value of 0.956 and a p value of 0.007. The Levene test for homogeneity of variances was not significant ($p = 0.201$) and t -test at $t(81)$ produced a value of -1.415 and a p value of 0.161, which suggested no association. Finally, analysis (Pearson Correlation) of amount of time between cardiac events and degree of social support resulted in an overall p value on 0.942, thus suggesting no relationship between the two variables.

Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this correlational study was to determine whether a relationship existed between social support and cardiac recurrence among African American adults who had experienced at least one cardiac event. The following variables provided the means to assess this association: ISEL social support subscale, demographic variables (age, marital status, socioeconomic status, education, and gender), and overall social support received and time between cardiac events in relation to cardiac recurrence among African American men and women ages 18 year and older. The ISEL subscale analysis showed no association between appraisal, self-esteem, belonging, tangible, and cardiac recurrence. Age, gender, socioeconomic status, and education had no significant association to cardiac recurrence. Time between cardiac events and social support given also showed no relation. Marital status was the only variable that had a positive association with cardiac recurrence.

Interpretation of the Findings

Marital Status (Living Alone or With Someone)

Analysis of data suggests that having a social support system, mainly living with someone (spouse, domestic partner, a friend/roommate, or significant other) plays a central role in cardiac health of African Americans. A study conducted by Sayer et al. (2008) yielded similar results. Sayer et al. examined the effects of social support on patient self-care that included medical adherence, dietary adherence, and heart failure symptom monitoring functions among African Americans. Ninety-six percent of the study participants were male. Fifty-five percent were African American males. Results

showed that heart failure patients living with someone had higher levels of self-care ($p < .01$). Those not married and not living alone and those living alone also had p values under 0.05. As with my results, these results indicated the importance of having another person in the household who could offer social support tailored to the patient's needs.

Other Demographic Variables and Social Support Received

Analysis of the remaining variables showed that age, gender, SES, education, social support subscales, and overall support received had no significant effect on cardiac recurrence. A study conducted by Thomson et al. (2012), in which patients awaiting coronary artery bypass grafting, partner's perceived social support, and quality of life were assessed, produced similar results. Thomson et al. examined whether patients' and partners' perceived social support predicted their own and their partner's quality of life. In this study, 84% of patients were male and 94% of partners were female. Race was not disclosed. Patients' perceived social support proved to be significant for improved mental health for heart patients ($p = 0.001$) and partners ($p = 0.024$) while other social support variables (affectionate support, tangible support, and positive social interaction subscales) did not exhibit a patient or partner effect in terms of mental or physical health.

Rankin's study (2002) showed that age ($p = 0.001$) and social support ($p = 0.01$) were significant factors in recovery from AMI (acute myocardial infarction). Participants were female, 81% were Caucasian, and 19% were African American.

In terms of social support subscales and overall support received, my study showed no significant association. To the contrary, other studies have indicated the opposite. Aggarwal et al. (2010) found that low social support ($p = 0.05$) resulted in poor

adherence to diet in cardiac patients. In addition, a strong correlation was seen between social networks and a positive health outcome in studies conducted by Tkatch et al. (2011), Seeman and Syme (1987), Prasad et al. (2013), and Cameron et al. (2014). The majority of the studies conducted on the effects of social support on heart health did not address how cardiac recurrence was affected; however, the general conclusion in these studies confirmed that social support did have positive benefits on heart health outcome.

Study Limitations

The lack of significance is believed to be due to several factors: (a) The sample source came from one location, and (b) Study design

First, I only had one source to collect my sample from. This limitation may have reduced my chances of collecting an adequate sample size, which affected the power of my study results. The study originally was powered with a confidence interval of 90%, a standard deviation of 0.5, and a margin of error of 8%, (meaning the responses reported would not differ pertaining to social support subscale variables being associated with cardiac recurrence for the whole population more than 8%, 90% of the time) with the intent of these parameters resulting in a population sample size of 106. A final sample size of 83 could have affected my overall study power, thus affecting interpretation of findings.

Second, I reduced the number of ISEL questions from 40 to 20 in an effort to offset the lack of interest by participants (participants stated that there were too many questionnaires) in completing the questionnaire. Cronbach's Alpha for the ISEL subscales were within acceptable ranges of reliability for research purposes; however,

reducing the number of questions may have affected the reliability and validity of the questionnaire.

Because I only looked at African American heart patients, my results may not translate to patients of other ethnicities.

The scores for the SES variable were positively skewed using Shapiro-Wilk (.841, $p < .001$); however, the Mann-Whitney test ($p = .71$) was used to accept the null hypothesis. The skewed results could be due to small sample size, participants not answering questions honestly, and poor recall.

Limitations for use of the t-test are that only two groups could be tested at a time for differences, only the effects of one independent variable on one dependent variable could be examined, and only with a single group or repeated measures. However the Levene test for homogeneity was used to verify acceptance of the null hypothesis for age ($t(81) = -.155$, $p = .877$) and overall level of support ($t(81) = -1.415$, $p = .161$).

Although social support subscales showed no association, other studies indicated that living with someone does provide the patient with a form of social support that is beneficial to heart health, in terms of experiencing a subsequent cardiac event.

Social Change Implications

The purpose of my study was to examine how use of social support affected heart health disparity among African American men and women. Despite only one variable being significant (marital status/living alone) in my study, implications for social change warrant further discussion. Marital status/living alone was found to be significant ($p = 0.01$) in terms of cardiac recurrence among African American adults. My study was

conducted on a small scale, but the significance of this variable warrants an in-depth look at how living arrangements affect cardiac health among this population. Looking at the following factors that were not addressed in this study may provide a clearer picture of how marital status/living alone affects cardiac recurrence among African Americans: (a) short-term and long-term effects, (b) patient stress levels associated with living alone (divorced, widowed, separated, and single), (c) other types of social support received by the heart patient, (d) perception of social support among this population, and (e) the quality of life experienced.

Previous studies indicated that marital status plays a significant role in heart health outcome, so further research assessing the factors listed in the paragraph above, may prove valuable in efforts to reduce the heart health disparity for African Americans.

Social support subscales reflecting age, gender, educational level, and socioeconomic status were not significant in affecting cardiac recurrence among African Americans. However, an in-depth assessment is warranted using these variables as well. Adjustment of study design factors like increasing sample size and using different measurement tool(s) may yield different results. Researchers who assessed heart health found significant associations in terms of age (Rankin, 2002) and social support (Aggarwal et al., 2010; Prasad et al., 2013; Tkatch et al., 2011). Perhaps assessing these variables on a larger scale with a different study design may affect significance. Today, this population continues to suffer from heart health disparities. Data gathered in this study may provide the public with additional baseline information about the role social support plays in heart health. The more knowledge scientists have about African

Americans and heart health disparity, the better equipped they may be to find tailored approaches to reducing these disparities. Other study results have shown a need for a detailed examination of how African Americans perceive social support, whether the perception differs based on gender, how they define social support, and how African Americans perceive heart disease and illness in general. A better understanding of these factors may help health care providers find new approaches to reducing heart health disparities among this population, thereby providing for a better treatment platform resulting in improved heart health outcomes. An example of such would be the implementation of effective and tailored social support treatment plans (upon discharge) and the use of health advocates for heart patients who live with someone and for heart patients who live alone.

Conclusion

African Americans suffer a huge disparity with heart disease. Although there is ample literature currently available on cardiovascular disease for this population, literature is limited on how social support affects heart health outcome. My study assessed the effects of social support on cardiac recurrence among this population. Variables assessed were social support subscales (appraisal, belonging, self-esteem, and tangible), age, education, gender, marital status, and SES. Marital status was the only variable that showed a significant association with cardiac recurrence. Although this was the only significant finding, it warrants further examination. Marital status (living with someone or alone) should be further investigated, with adequate sources of data, in order to examine the African American population on a larger scale in order to see how

different households perceive and implement social support for cardiac patients. Communication between health care provider, patient, caregiver and health advocates should also be assessed.

Recommendations for Action

This study indicated that marital status or living with a significant other was related to a decrease in cardiac recurrence. Therefore, support groups/programs for spouses, significant others, and friends who live with cardiac patients should be a consideration for health care providers when assessing the road to recovery from a cardiac event for African American adults. This action would be a step in the direction of finding out, on a more detailed level, how having someone live with a cardiac patient positively influences cardiac recurrence.

My study results also lend to the need for further assessment of policy (creation and implementation of a health care system that specifically focuses on prevention and treatment for populations burdened by heart disease).

Recommendations for Further Study

Future studies may include assessment of the same variables on a larger scale with multiple sources of data in order to determine whether the same results are obtained. A study with a larger sample size may provide more reliable data and results, thereby providing a more solid basis in terms of recommendations for action presented in this study. Other questions that should be assessed in studies on a larger scale include the following: (a) How do African Americans perceive social support? (b) What does a diagnosis of heart disease mean to individuals in the African American community? (c)

Does social support perception differ based on gender in this population? (d) Is there another social support instrument available that provides a better measure of social support subscales? (e) Should additional social support subscales be measured for this population?

Development of a measuring instrument that is more appropriate for African Americans may yield results that are more beneficial to health care providers in their efforts to inform and treat this population. If a better understanding of how the African American culture views social support and heart disease could be obtained, this knowledge could provide guidance to health care providers in their treatment approaches and policy change.

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Appendix A: Demographic & ISEL Questionnaire

This survey contains questions about you and your health status. Please complete by choosing the answers that best represent you. Please answer all questions and circle only one choice per question.

DEMOGRAPHIC/HEALTH STATUS

1. Race/Ethnicity
 - a. African American
 - b. Caucasian
 - c. Hispanic
 - d. Other

2. Age (no range/exact)_____

3. Gender
 - a. Male
 - b. Female

4. Marital Status
 - a. Married
 - b. Single, Never been Married
 - c. Divorced
 - d. Widowed

5. Have you been diagnosed with heart disease (i.e. hypertension, coronary artery disease, atherosclerosis, heart failure, angina, etc.) or had any type of cardiac event (i.e. heart attack, stroke, heart failure, heart disease)?

If No, proceed to question 7.

- a. Yes
- b. No

If yes, please specify type_____

Date (i.e. mm/yyyy) _____

Hospitalization required_____

6. Occurrence of a second cardiac event? (Answer only if “yes” to Q5 was selected)

- a. Yes
- b. No

If yes, please specify type_____

Date (i.e. mm/yyyy) _____

Hospitalization required_____

7. What is the highest level of education you have completed?

- a. Less than High School (elementary, middle school)
- b. High School/GED
- c. Some College

- d. College Degree
- e. Graduate Degree
- f. Professional Degree (MD, JD)

8. Annual household income:

- a. \$0 to \$25,000
- b. \$25,000 to \$50,000
- c. \$50,000 to \$75, 000
- d. \$75,000 to \$100,000
- E. \$100,000 or more
- f. Prefer not to answer

Appendix B: Modified ISEL Questionnaire

INSTRUCTIONS: This scale is made up of a list of statements each of which may or may not be true about you. For each statement check “definitely true” if you are sure it is true about you and “probably true” if you think it is true but are not absolutely certain. Similarly, you should check “definitely false” if you are sure the statement is false and “probably false” if you think it is false but are not absolutely certain.

1. There are several people that I trust to help solve my problems.

___ definitely true (1) ___ definitely false (4)

___ probably true (2) ___ probably false (3)

2. If I needed help fixing an appliance or repairing my car, there is someone who would help me.

___ definitely true (1) ___ definitely false (4)

___ probably true (2) ___ probably false (3)

3. Most of my friends are more interesting than I am.

___ definitely true (1) ___ definitely false (4)

___ probably true (2) ___ probably false (3)

4. When I feel lonely, there are several people I can talk to.

___ definitely true (1) ___ definitely false (4)

___ probably true (2) ___ probably false (3)

5. Most people I know think highly of me.

___ definitely true (1) ___ definitely false (4)

___ probably true (2) ___ probably false (3)

6. I feel like I'm not always included by my circle of friends.

___ definitely true (1) ___ definitely false (4)

___ probably true (2) ___ probably false (3)

7. There really is no one who can give me an objective view of how I'm handling my problems.

___ definitely true (1) ___ definitely false (4)

___ probably true (2) ___ probably false (3)

8. If I were sick and needed someone (friend, family member, or acquaintance) to take

me to the doctor, I would have trouble finding someone.

___ definitely true (1) ___ definitely false (4)

___ probably true (2) ___ probably false (3)

9. If I wanted to go on a trip for a day (e.g., to the mountains, beach, or country), I would have a hard time finding someone to go with me.

___ definitely true (1) ___ definitely false (4)

___ probably true (2) ___ probably false (3)

10. If I were sick, I could easily find someone to help me with my daily chores.

___ definitely true (1) ___ definitely false (4)

___ probably true (2) ___ probably false (3)

11. There is someone I can turn to for advice about handling problems with my family.

___ definitely true (1) ___ definitely false (4)

___ probably true (2) ___ probably false (3)

12. I am as good at doing things as most other people are.

___ definitely true (1) ___ definitely false (4)

___ probably true (2) ___ probably false (3)

13. Most people I know do not enjoy the same things that I do.

___ definitely true (1) ___ definitely false (4)

___ probably true (2) ___ probably false (3)

14. There is someone I could turn to for advice about making career plans or changing my job.

___ definitely true (1) ___ definitely false (4)

___ probably true (2) ___ probably false (3)

15. Most of my friends are more successful at making changes in their lives than I am.

___ definitely true (1) ___ definitely false (4)

___ probably true (2) ___ probably false (3)

16. If I had to go out of town for a few weeks, it would be difficult to find someone who would look after my house or apartment (the plants, pets, garden, etc.).

___ definitely true (1) ___ definitely false (4)

___ probably true (2) ___ probably false (3)

17. If I wanted to have lunch with someone, I could easily find someone to join me.

____definitely true (1) ____definitely false (4)

____probably true (2) ____probably false (3)

18. It would be difficult to find someone who would lend me their car for a few hours.

____definitely true (1) ____definitely false (4)

____probably true (2) ____probably false (3)

19. I am closer to my friends than most other people are to theirs.

____definitely true (1) ____definitely false (4)

____probably true (2) ____probably false (3)

20. There is at least one person I know whose advice I really trust.

____definitely true (1) ____definitely false (4)

____probably true (2) ____probably false (3)

Scoring:

Items 3, 6, 7, 8, 9, 13, 15, 16 and 18 will be reverse scored.

Items 1, 7, 11, 14 and 20 make up the Appraisal Support Subscale.

Items 2, 8, 10, 16 and 18 make up the Tangible Support Subscale.

Items 3, 5, 12, 15 and 19 make up the Self-Esteem Support Subscale.

Items 4, 6, 9, 13 and 17 make up the Belonging Support Subscale.

All scores are kept continuous.

This scale was modified from Cohen's original scale:

Cohen, S., & Hoberman, H. (1983). Positive events and social supports as buffers of life change stress. *Journal of Applied Social Psychology*, 13, 99-125.

<http://www.psy.cmu.edu/~scohen/ISEL.html>

Cohen, S., Mermelstein, R., Kamarck, T., & Hoberman, H. (1985). Measuring the functional components of social support. In I. G. Sarason & B. R. Sarason (Eds.), *Social support: Theory, research, and application*. The Hague, Holland: Martinus

Nijhoff. <http://www.psy.cmu.edu/~scohen/ISEL.html>

Appendix C: Permission to Use Cohen Scale

Carnegie Mellon

Department of Psychology
Carnegie Mellon University
Pittsburgh, PA 15213-3890
Phone: (412) 268-3133
Email: cdetrick@andrew.cmu.edu

April 15, 2015

Yolanda Phillips
Walden University

Dear Ms. Phillips:

This letter is in regard to your request (April 14, 2015) for permission to use and modify the Perceived Stress Scale in your academic research study (dissertation). For not-for-profit research purposes, permission is not necessary and does not require fees. We grant you permission to use and modify the PSS in your research project.

If you wish to reprint the scale, items from it, or a translation in a publication (including a dissertation) or online, you should also acquire permission from the American Sociological Association (ASA):

The American Sociological Association's (ASA) website is <http://www.asanet.org> and their copyright request page is: http://www.asanet.org/journals/reprint_permissions.cfm. There is an online form (pdf) available through a link on that page, which you may complete and submit to ASA. ASA may/may not later ask for Dr. Cohen's signature on their form; if so, you may e-mail it to me (CommonColdProject@andrew.cmu.edu).

The appropriate reference for the 10-item scale is:
Cohen, S., & Williamson, G. (1988). Perceived stress in a probability sample of the United States. In S. Spacapan & S. Oskamp (Eds.), The social psychology of health: Claremont Symposium on applied social psychology. Newbury Park, CA: Sage.

The appropriate reference for both the 4- and 14-item scales is:
Cohen, S., Kamarck, T., & Mermelstein, R. (1983). A global measure of perceived stress. Journal of Health and Social Behavior, 24, 385-396.

Scoring information is available at our website, <http://www.psy.cmu.edu/~scohen/>. Once there, click on "Scales". Thank you for your interest in the Perceived Stress Scale. I wish you the best of luck with your project.

Sincerely,



Chloe Detrick
Assistant to Dr. Sheldon Cohen, Robert E. Doherty Professor of Psychology

Appendix D: Letter of Cooperation

Dear Yolanda Phillips,

Based on my review of your research proposal I, Dr. Charles A. Cook, give permission for you to recruit participants for your research entitled "Cardiac recurrence amongst African Americans: does use of social support make a difference?" As part of this study, I authorize you to set up a recruitment table and have a banner with the title of your study on it, attached to the table.

You will also provide participants with a brief summary of the study details (why I'm conducting the research, how this study can benefit African Americans battling heart disparity, and research questions) to read before deciding to participate. A Demographic & ISEL (social support) Questionnaire will be completed at the recruitment table by those choosing to participate. You have informed me that completing the questionnaire implies informed consent from participants. Individuals' participation will be voluntary and at their own discretion. A covered box labeled "Demographic & Social Support Questionnaire" is where completed questionnaires will be placed before leaving Dr. Cook's facility. Questionnaires will remain in covered boxes and transported to researcher's residence (by automobile) where they will be stored in a locked safe until ready for analysis.

We understand that our organization's responsibilities include: A space where Yolanda Phillips will be able to set up her table. We reserve the right to withdraw from the study at any time if our circumstances change.

I confirm that I am authorized to approve research in this setting and that this plan complies with my practices' policies.

I understand that the data collected will remain entirely confidential and may not be provided to anyone outside of the student's supervising faculty/staff without permission from the Walden University IRB.

Sincerely,

Charles A. Cook 3-3-15

Authorization Official

Walden University policy on electronic signatures: An electronic signature is just as valid as a written signature as long as both parties have agreed to conduct the transaction electronically. Electronic signatures are regulated by the Uniform Electronic Transactions Act. Electronic signatures are only valid when the signer is either (a) the sender of the email, or (b) copied on the email containing the signed document. Legally an "electronic signature" can be the person's typed name, their email address, or any other identifying marker. Walden University staff verifies any electronic signatures that do not originate from a password-protected source (i.e., an email address officially on file with Walden).