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Hope and Health Related Quality of Life of Older Women Who Have Had Heart Attacks

Alice Mary Kelly-Tobin

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HOPE AND HEALTH RELATED QUALITY OF LIFE
OF OLDER WOMEN WHO HAVE HAD HEART ATTACKS

by

Alice Mary Kelly-Tobin

A dissertation submitted to the Graduate Faculty in Nursing in partial fulfillment of the Requirements for the degree of Doctor of Philosophy, The City University of New York 2016
Hope and Health Related Quality of Life of Older Women who have had Heart Attacks

by

Alice Mary Kelly-Tobin

This manuscript has been read and accepted for the Graduate Facility in Nursing in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy

April 15, 2016

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THE CITY UNIVERSITY OF NEW YORK
Abstract

HOPE AND HEALTH RELATED QUALITY OF LIFE
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by

Alice Mary Kelly-Tobin

Advisor: Dr Martha Whetsell

Background: Heart disease is the number one cause of death and leading cause of disability in adults in the United States. Coronary heart disease (CHD) is the most common form of heart disease with heart attack as its acute manifestation. Health Related Quality of Life (HRQoL) is a multidimensional concept of self-perception of physical, emotional health, and overall sense of well-being. Hope, an inner process focusing on maintaining physical and mental well-being, is considered necessary for survival of chronic illnesses, such as CHD.

Method: Women age 65 and older who have had heart attacks (N=91) volunteered to participate in this quantitative non-experimental correlational study. They completed a demographic questionnaire, SF12 and HHI.

Findings: Marital status was related to HHI scores, $t(90) = -2.70, p = .041$, with married participants having greater mean score (40.87) compared to singles (38.39). General Health, $r(89) = .244, p = .02$; Mental Health, $r(89) = .352, p = .001$; Vitality, $r(89) = .221, p = .035$; Social Functioning, $r(89) = .333, p = .001$ and Role Emotion, $r(89) = .223, p = .034$ correlated with HHI. Marital Status, $t(89) = 2.07, p = .041$ and Mental Health, $t(88) = 3.40, p = .001$, best predicted the HHI and explained an adjusted total of 13.8% of variance in HHI scores, $R = .397, F(1,88) = 8.21, p = .001$. Relationship between HRQoL and HHI revealed significant findings pertaining to age and ethnicity. Cronbach's alpha on HHI ($\alpha=.838$) and SF 12 ($\alpha=.822$) revealed
internal consistency.

Keywords: Older women, heart attack, hope, health related quality of life
Acknowledgements

Over the past six years, I have received support and guidance from many individuals. Dr Martha Whetsell has been a mentor, colleague and friend. I will never forget what she said to me and members of my cohort on our first day in her class, “You are my students and I honor you.” Dr Whetsell’s kind facilitation, inspiration and encouragement was more helpful to me than she could ever know. I am most grateful to have had the opportunity to work with Dr Whetsell.

I would like to thank my dissertation committee of Dr Steven Baumann, Dr William Gallo, Dr Fran LaFauci and Dr John Jerome for being generous with their time and support as I moved from proposal to completed study. Their input was insightful and valuable. Dr La Faucci has been one of my mentors and she inspired me to obtain this doctoral degree.

I am grateful to the faculty of the Nursing Doctoral Program at CUNY Graduate Center. Dr Donna Nickitas provided strong leadership and she contributed her support for my study. Dr Eileen Gigliotti’s unique and effective way of teaching Statistics was beneficial. Dr Keville Frederickson offered encouragement and support that helped me start this process. Dr Marge Lunney was frequently “on my shoulder” as I wrote and re-wrote the chapters of my dissertation. Dr Violet Malinsky guided my understanding and application of theory and conceptual frameworks. Dr Alicia Georges widened my worldview and expanded my understanding of health disparities. Dr Kathleen Nokes introduced me to large datasets and that is where I found HRQoL which is a foundation of my study.

Special thanks go to my cherished colleague, Dr Miguel Villegas. He kindly devoted time to review my work and his focused advice was invaluable. I am appreciative of the support and proofreading assistance provided by my wonderful colleague and friend, Dee Fabian. My
friend and mentor, Dr Kathleen Burger provided me with excellent pointers throughout this endeavor.

The Suffolk County Department of Health and the Office of the Aging were most helpful in assisting me in gaining entry to the county senior centers where I recruited my study sample. I am very thankful to the wonderful women who volunteered to participate in my study. Many were so enthusiastic and willing to help.

Joy Borrero and Margarett Alexandre are colleagues, classmates and friends. We started this journey together and we have provided each other with support and encouragement along the way. This journey would have been lonely and much more difficult without them. My Suffolk County Community College colleagues have been steadfast supporters as they offered frequent encouragement. My students also have followed me with interest during my doctoral journey which invigorated me and my efforts.

I must thank Starbucks for providing me a safe and caffeine charged environment in which I accomplished much writing.

Finally I thank my parents. My Dad died on my first day of classes in the doctoral program. He was so pleased and proud that I was going to pursue a PhD. My strongest, most dedicated supporter, champion and advocate is my beloved spouse, Michael. He endured my spectrum of moods with love and unwavering cheerful acceptance. He is the best partner I could ever hope for. He has helped me more than I could express and I am most grateful.
Dedication

This is dedicated to the one I love, my amazing husband, Michael. His loving support and encouragement sees me through everything I do. My doctorate is his doctorate too because I could not have done this without him. I love you more every day.

*Everything that is done in the world is done by hope.*  Martin Luther King, Jr.
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Chapter One

Research Objective

Background

Heart disease is the number one cause of death in the United States and it is responsible for approximately 600,000 deaths annually (Santulli, 2013). Heart disease is also a leading cause of morbidity and disability in adults (Centers for Disease Control and Prevention [CDC], 2013). Coronary heart disease (CHD), the most common form of heart disease, causes more than 385,000 deaths or 1 in 5 deaths in each males and females, annually (CDC, 2013). CHD is a chronic condition in which atherosclerotic plaque builds up in coronary arteries and causes blockage of blood flow to cardiac muscle tissue. The blockage of blood flow to cardiac muscle and the resultant tissue death is called myocardial infarction, also known as heart attack (NIH, 2013). Each year over 700,000 heart attacks occur in the United States and over 500,000 are first time heart attacks (NIH, 2013).

Older adults have a disproportionately higher prevalence of CHD and heart attacks than any other age group (CDC, 2012a). Older adults with CHD and heart attack have varied health needs and they demonstrate different intervention outcomes, hence perceptions of their physical and mental well-being vary widely. Quality of life, leading health indicators and measures of well-being are tracked as Health Related Quality of Life (HRQoL) in the United States by the Centers for Disease Control and Prevention (CDC, 2012b).

HRQoL is the self-perception of an individual’s level of functional, well-being and overall evaluation of general health (Stewart & Ware, 1992). The CDC defines HRQoL as a multidimensional concept of self-perception of physical, emotional health, and the effect upon sense of well-being. Older adults report lower HRQoL scores than other age groups (CDC,
Tools that measure HRQoL focus upon physical symptoms, functional ability and mood, however, internal operations that influence perceptions and support physical and mental health such as hope, are not included in tools that measure HRQoL.

Hope has been identified as a significant emotional and intellectual attribute of individuals with chronic illnesses and it has been described as essential to life (Duggleby et al., 2012). Hope is defined by one nurse researcher as an inner process focusing on maintaining physical and mental well-being (Herth, 1993). Hope has many dimensions that change in different situations and hope has been identified as a positive attribute in chronic illness (Wiles, Cott, & Gibson, 2008; Duggleby, et al., 2012). Hope allows individuals to have positive expectations of their present and future circumstances (Herth, 2007). Attributes of hope include realistic understanding of circumstances, ability to consider alternatives and ability to set goals (Morse & Doberneck, 1995).

This study focuses upon the relationship between hope and HRQoL of community dwelling women, age 65 years and older, who have had heart attacks. The incidence and prevalence of heart attacks is greatest among women, age 65 and older, as approximately 200,000 women die from heart attacks in the US annually (CDC, 2013). However, there are few research studies that focus upon women who have had heart attacks and their consequent perceptions on the quality of their lives or their perceived levels of hope.

In order to understand the health related quality of life of women, age 65 years and older, who have had heart attacks, it is necessary to understand basic information about quality of life (QoL), surveillance of HRQoL, basic information about older women and the prevalence of chronic coronary heart disease and heart attacks. QoL is defined as a state of complete physical, mental and social well-being (World Health Organization [WHO], 2012). HRQoL is an aspect
of QoL that focuses on perceptions of health. HRQoL is measured and monitored internationally by the WHO (2012) and nationally by CDC (2012b).

HRQoL data is analyzed by Behavioral Risk Factor Surveillance System (BRFSS) and National Health and Nutrition Examination Survey (NHANES), in order to identify poor perceived health in specific groups or trends in specific regions. HRQoL data provides insight into the degree of disruption to physical and mental health and daily activities. This data enables nurses and other health care providers to predict outcomes of treatment, mortality and morbidity and to prevent functional limitations and disabilities (CDC, 2012b). HRQoL data informs public health policies and legislation in order to develop public health and legal actions and to monitor the effectiveness of the actions (CDC, 2012b). In fact, improving the HRQoL scores has been one of the goals of Healthy People 2000, 2010 and 2020.

Adults over age 65 years report fair to poor HRQoL scores more frequently than other age groups, according to BRFSS (CDC, 2012b). Women in all age groups were more likely to report fair to poor HRQoL scores than men (CDC, 2012b). Older adults suffered the poorest physical health and the most activity limitation (CDC, 2012b). There are 35 million adults, age 65 years and older, in the United States and women account for over 20 million (Howden & Meyer, May, 2011). Women live an average of six years longer than their male counterparts (Fowles & Greenberg, 2011). The life expectancy of women in 2012 was over 80 years; however, challenges of longevity frequently include disability related to chronic illness or inability to live alone in last years of life (Fowles & Greenberg, 2011). Approximately 45% of women over age 65 are widowed and they tend to be widowed for 15 to 20 years (Administration on Aging, [AOA], 2012). Many women, age 65 years and older, are divorced or were never married (Howden & Meyer, 2011). Nearly 80% of all older adults living alone are women
(Fowles & Greenberg, 2011). Additionally older minority women are more likely to be poor or near poor with annual incomes of less than $15,000 (Howden & Meyer, 2011). In summary, when compared to their male counterparts, women live longer; they are widowed earlier and they tend to live alone. They are often impoverished and they experience more years of chronic illnesses and disabilities.

CHD is one of the most prevalent chronic illnesses among adults, age 65 years and older, at 19.8% (CDC, 2011). Approximately 8 million women are diagnosed with heart disease annually (CDC, 2013). Over 700,000 men and women have heart attacks annually. More women than men die of heart attack; approximately 200,000 women die annually (American College of Cardiology, 2013). In fact 23% of women die within one year of a first heart attack and up to 32% who survive die within 5 years of a first heart attack (American College of Cardiology, 2013). Impairments and disabilities related to persistent symptoms of CHD and heart attack include decreased levels of physical and mental health, limitations in function and pain (CDC, 2011).

Recovery from a heart attack requires a positive attitude to make the lifestyle changes that promote stability of CHD (Boehm & Kubzansky, 2012). A comprehensive review by Boehm & Kubzansky (2012) focused on research studies that examined the effect of positive psychological well-being on health behaviors and biological attributes on cardiovascular health. They cited hope as an aspect of positive psychological well-being. Their findings suggest a link between positive attitude and the reduction in cardiovascular events with increased restorative health behaviors. Therefore, hope may have an indirect relationship with positive outcomes in CHD.
Problem Statement

Data shows many women, age 65 and older, report fair to poor HRQoL scores (CDC, 2012b). CHD is the leading cause of death in the US, results in an annual death rate of 200,000 women annually, according to research. However, there is a gap in research studies from 1990’s to 2014 that focus upon HRQoL or hope of women over age 65. The relationship between hope and HRQoL of older women who have had heart attacks has not been explored.

Research Question

1. Is there a relationship between hope and health related quality of life of older women, who have had heart attacks?

Purpose of the Study

The purpose of this research was the examination of hope and the HRQoL of older women who have had heart attacks in order to describe the relationship between hope and health related quality of life of this population. Previous studies of HRQoL have focused upon adults of all ages and gender with specific diseases such as heart disease, cancer, arthritis and diabetes mellitus type 2 (Khanna et al., 2011, White, Wheelwright, Fitzsimmons, & Johnson, 2012; Williams et al., 2012) or adults living in long term care facilities (Kanwar et al., August. 2013; Van Malderen, Mets, & Gorus, 2013). There is a gap in research studies from 1990’s and 2014 that focuses upon women, heart attacks and the relationship between hope and HRQoL.

Significance of Study

This study is significant because it focused on older women who have had heart attacks and it examined the relationship between HRQoL, as multidimensional assessment of health perceptions and hope, as an inner process related to physical and mental health. The population of women over age 65 is growing and they are a vulnerable group because they are likely to live
alone and in poverty. Healthy People 2020 and the Institute of Medicine have identified HRQoL as a focus of the US health agenda (Healthy People, 2013).

The HRQoL of older women who have had heart attacks reveals their most troubling problems and disruptions to their day to day function (CDC, 2012b). HRQoL is an indicator of unmet health needs. Increased assessments of HRQoL in older women who have had heart attacks provide nurses and other members of the health care team with information concerning priority problems such as functional status, pain and activity limitations.

Older women who have had heart attacks are faced with lifestyle changes as the result of the symptoms associated with CHD. Lifestyle changes influence stability of their disease. Studies suggest a relationship between positive psychological well-being and physical health (Pressman & Cohen, 2005; Diener & Chan, 2011; Duggleby, et al., 2012). Moreover, links between positive psychological well-being and coronary heart disease have also been noted (Boehm, Peterson, Kivimaki & Kubzansky 2011a; Boehm, Peterson, Kivimaki, Kubzansky, 2011b). Consequently, an indirect link between hope and positive CHD outcomes has been suggested by a comprehensive review of such studies. A better understanding of hope in older women who have had heart attacks assist nurses and other health care providers to foster hope and positive psychological well-being in order to promote positive CHD outcomes.

Health perceptions and levels of hope are aspects of health that contribute to effective treatment plans and better outcomes in CHD. HRQoL enables nurses and other health care providers to focus on the most troubling symptoms, functional level and unmet needs. Measurement of hope assists clinicians in applying aspects of positive psychology, hope and goal setting to treatment plans. Discovering a relationship between HRQoL and hope reveals additional links to positive outcomes in older women who have had heart attacks.
Definitions of Terms

Functional abilities: degree to which individuals can independently perform activities of daily living (ADL) and instrumental activities of daily living (IADL).

Health Related Quality of Life (HRQoL): The self-perception of an individual’s level of physical health mental well-being, functional abilities and overall evaluation of general health (Stewart & Ware, 1992). HRQoL was measured with the HRQoL SF 12.

Heart Attack: The blockage of blood flow to cardiac muscle and the resultant tissue death, also called myocardial infarction (NIH, 2013).

Herth Hope Index (HHI): Questionnaire that measures hope. The questions probe inner thoughts and feelings about outlook on life, goals and fears. Scores range from 12 to 48, with 12 as the lowest and 48 as the highest. Lower scores represent less hope and higher scores represent more hope.

Hope: An inner process focusing on inner thoughts and feelings about outlook on life, goals and fears in order to maintain physical and mental well-being (Herth, 1999). Hope was measured by the Herth Hope Index

HRQoL SF 12: Questionnaire that measures HRQoL. It is one of the most widely used tools to measure health status from the perspective of the individual participants. Scores range from 0 to 100, with 0 as lowest score and 100 as the highest. Lower scores indicate lower HRQoL and higher scores indicate higher HRQoL.

Theoretical Framework

Several theoretical frames (Ferrans, Zerwic, Wilbur & Larson, 2005; Sprangers & Schwartz, 1999; Zubritsky, Abbott, Hirschman, Bowles, Faust & Naylor, 2012.) pertaining to HRQoL exist, however, the Wilson and Cleary model supports this study and it is strongly
supported by repeated empirical testing (Costa & King, 2013). Wilson and Cleary (1995) devised a conceptual model of HRQoL that linked patient health, medical outcomes and clinical variables with quality of life. The conceptual model describes links between the five domains: biological/physiological, symptoms, functional status, general health perceptions and overall quality of life. Characteristics of the individual and the environment are also linked to HRQoL in Wilson and Cleary’s conceptual model. Wilson and Cleary (1995) posit that illness or disease disrupt biological/physiological functions which causes symptoms. Some symptoms disrupt function which influences general health perception and finally effects overall HRQoL.

Biological/physiological domain encompasses cellular, organ and organ systems functions such as height/weight, serum values, physiologic measures, medical history and medications. A symptom is the perception of physiological, psychological or cognitive abnormality as it relates to the biological/physiological domain, according to Wilson and Cleary (1995). Functional status refers to level of ability to carry out physical, social, role and psychological tasks as influenced by biological/physiological status and symptoms. General health perception is based upon the integration of biological/physiological domain, symptoms and functional status. Health related quality of life is the individual’s perception of their quality of life with relation to aspects of their physical and mental health (Zubritsky, et al., 2012).

Characteristics of the individual such as personality, values, motivation and preferences influence the response to the level of disruption that illness and symptoms cause and ultimately to the overall HRQoL (Nokes, et al., 2000; Wiles, Cott & Gibson, 2008; Ferguson, 2013). Additional individual characteristics that influence the response to illness include age, gender, education, race, ethnicity, marital status and cognitive status (Wilson & Cleary, 1995; Naylor, 2004; Ferguson, 2013).
Characteristics of the environment such as psychological support and social and economic supports also influence the overall HRQoL. Additional environmental characteristics include structural features of the home environment, support system provided by family, friends and community, accessibility to services (such as grocery for nutritious food, pharmacy for medications, hospital and health care providers), transportation, relationship with health providers and health delivery system (Beck, 2014).


Nursing theorists updated and clarified some aspects of Wilson & Cleary’s conceptual framework in 2005 (Ferrans, Zerwic, Wilbur & Larson, 2005). Ferrans and her colleagues posited that individual characteristics, lifestyle and environmental factors may have a stronger
influence than biological factors. For example, individuals who are sedentary or who consume high fat foods or those who live in areas with high levels of air pollution may account for higher risk for illness than hereditary or biological factors. Non-medical factors were removed from the model, as such attributes are included in the characteristics of the individual and the environment in the concept revised by Ferrans and her colleagues. The treatment of the Wilson & Cleary model by Ferrans and her colleagues has resulted in greater clarity and it facilitates more general application of the conceptual model.

Aging and chronic illness cause changes in the health domains of HRQoL: biological/physiological, symptoms, functional status, general health perceptions and overall quality of life. Older adults experience normal changes associated with aging such as loss of lean muscle mass, decreased muscle strength, diminishing near or close up vision and loss of skin elasticity (Fulop et al., 2010). In addition, many experience changes caused by chronic illnesses such as gait disturbances, low energy and sensory disturbances (Weiss, 2011). Women, age 65 and older, who have had a heart attack are likely to experience symptoms caused by CHD such as fatigue, chest pressure or pain and heart failure (Carney & Freedland, 2012).

Women with symptoms caused by CHD and changes associated with aging and other chronic illnesses also report decreased functional abilities and increased periods of depression and hopelessness (Carney & Freedland, 2012). Studies have shown that hopelessness is linked to functional decline (Muramatsu, Yin, & Hedeker, 2010; Huang, Dong, Lu, Yue, & Liu, 2010; Hirsch, Sirois, & Lyness, 2011). HRQoL data reveals a correlation between functional decline to quality of life. Greater functional decline results in lower quality of life and HRQoL. However, there are studies that suggest that individuals with positive attitudes and positive emotional affects such as happiness, optimism and hope, experience less functional decline and less
depression related to chronic illnesses (Wiles, Cott, & Gibson, 2008; Hirsch, Sirois & Lyness, 2011; Duggleby et al., 2012). Hope and higher HRQoL are linked to less functional decline and less depression in women with CHD.

Assumptions

(a) Each subject will respond truthfully; (b) their responses will reflect their perceptions of health related quality of life and hope; (c) most people do not think about health related quality of life; (d) hope is important to most people. Homogenous sample in the following areas: socioeconomic levels, access to health and geographic location.

Delimitations

For ethical, methodological and theoretical reasons this study has only included adult women, age 65 years and older, who are fluent in English and are free of the diagnosis or treatment of dementia. Therefore, the following were excluded: individuals who are not fluent in English and individuals who have been diagnosed with dementia. Translation of the HRQoL SF 12 questionnaire from English to some other languages may adversely affect the validity of the tool. Some studies suggest that proxy responses on HRQoL SF 12 may not accurately reflect the self-perception of health of older adults (Andresen, Vahle & Lollar, 2001; Sitoh et al., 2003; McPhail, Beller, & Haines, 2008; Gabbe, et al, 2015).

Limitations

Homogeneity of the sample was initially assumed to be a limitation, however, variability of the sample was noted. Variability may also be considered a limitation.

Organization of the Study and Chapter Summary

This research study has been organized into six chapters. Chapter One introduced the study and it included the statement of the problem, need for the study, purpose of the study,
significance of the study, definition of terms, theoretical framework, research questions, assumptions, delimitations and limitations of the study.

Chapter 2 presents the review of literature on HRQoL and hope related to older women. Chapter 3 outlines research methods. This includes selection of survey sample, tools to be used, data to be collected and data analysis procedure. Chapter 4 presents study results, which includes demographic information and results of data analysis. Chapter 5 presents summary of the study and interpretations of findings. Chapter 6 presents implications for practice, recommendations for future research and final conclusions.
Chapter 2

This chapter presents the review of literature pertaining to HRQoL and hope in older adults. Literature about HRQoL offers an overview, general trends and survey data specific to older adults and current HRQoL research. Literature concerning hope provides the definition, the role of hope and research findings concerning hope in older adults. The summary adds general demographic trends pertaining to women, age 65 and older, and pertinent US census data. Finally, the summary reviews similarities and differences in research findings and how they pertain to the relationship between hope and health related quality of life of women age 65 years and older.

Review of Literature

Health Related Quality of Life

Quality of life is defined as a holistic phenomenon of complete physical, mental and social well-being (Skevington, Lotfy, & O’Connell, 2004). HRQoL is an aspect of overall quality of life. HRQoL is the self-perception of an individual’s level of functional, well-being and overall evaluation of general health (Stewart & Ware, 1992). HRQoL is defined as the multidimensional concept of self-perception of physical and emotional health and the effect upon sense of well-being (CDC, 2012b). HRQoL provides information concerning health needs and areas in which additional supports are needed to optimize health and promote wellness. HRQoL is measured and monitored internationally by the WHO (Skevington et al., 2004; Visser, et al., 2014). nationally by the CDC (2012b).

It is the mission of the CDC to provide HRQoL data for analysis with and interpretation by public surveys such as the National Center for Health Statistics (NCHS), National Health and Nutrition Examination Survey (NHANES), Behavioral Risk Factors Surveillance Surveys
(BRFSS) and Healthy People 2020 in order to identify poor perceived health in specific groups or trends in specific regions (CDC, 2012b). HRQoL survey results are considered indicators of health needs and outcomes, as well as predictors of mortality and morbidity (CDC, 2012b).

Tracking of HRQoL results have exposed trends in health problems in adults of all ages. Most HRQoL research rely upon the SF 36 or SF 12 tool. Trends reveal that chronic illness, age, gender, socioeconomic status, ethnicity and level of education negatively impact HRQoL (Moriarty, Kobau, Zack, & Zahran, 2005; Visser, et al., 2014). The data reveals that adults, age 65 and older, report the lowest overall HRQoL scores, most physically unhealthy days per month, poorest physical health, high prevalence of pain and sleeplessness and most activity limitation of all respondents from 2000 to 2010 (CDC, 2012b).

HRQoL data as interpreted by BRFSS in 2003 revealed marked differences related to socioeconomics, gender and level of education (Moriarty et al., 2005). Men and women over age 65 years with college degrees and annual incomes of $50,000 or more per year, reported an average of 3.5 and 4.0 unhealthy days per month, respectively. Conversely, men and women over age 65 years without high school diplomas and annual incomes of $15,000/year or less reported lower health related quality of life and 8.8 and 10.1 unhealthy days, respectively each month on average. Specifically, women, age 65 years and older, with lower levels of education and low income reported the lowest health related quality of life due to physical illness, injury, stress, pain, sleeplessness, depression or emotional problems one out of three days in the preceding month.

Gender differences in health related quality of life were noted in a cross-sectional analysis of findings (n = 50,573) by 2004 BRFSS (Ford et al., 2008). The study investigated unhealthy days related to physical symptoms, mental symptoms and activity limitations in men
and women with coronary heart disease (CHD) as compared to those without CHD. The study revealed statistically significant differences in people with CHD and between men and women. In general, women reported experiencing the most unhealthy days and activity limitation. In addition, men and women with CHD reported approximately two times the number of physically unhealthy days and activity limitation days compared to those without CHD. Women with CHD reported more frequent physically and mentally unhealthy days and days of activity limitation when compared with men. The researchers concluded that individuals with CHD experience significantly lower health related quality of life.

Comprehensive comparative analysis of data collected in four national surveys from 1971 to 2007 (collective $n > 4,000$ to $400,000$ per study from 1993 to 2007) revealed gender differences in self-rated general health (Salomon, Nordhagen, Shefali, & Murray, 2009). Their analysis of data collected by BRFSS, Current Population Survey (CPS), National Health and Nutrition Examination Survey (NHANES) and National Health Interview Survey (NHIS) suggest health related quality of life is impacted by marital status, low income and level of education. The findings become even more significant when the following 2012 US Census data are considered: 45% of women over age 65 years are single (never married, widowed or divorced) and the median household income of such women is just over $15,000/year which is considered poor or near-poor (AOA, 2012).

The large data set ($n = 88,062$) of HRQoL responses collected in 2000-2001 was analyzed by BRFSS for differences based upon ethnicity (Chowdhury, Baluz, & Strine, 2008). The study focused upon general health, frequency of physical and mental distress and frequency of activity limitation. In general, Hispanics ($n = 12,336$), American Indians/Alaska Natives ($n = 2,931$) and Blacks ($n = 14,937$) were more likely to report fair to poor general health compared to Whites ($n$
HOPE AND HRQoL OF OLDER WOMEN

= 53,290) at 12.6% and Non-Hispanic Asians (n = 3,842) at 8.5%. American Indians/Alaska Natives reported the most frequent physical distress (18%) and mental distress (15.6%) compared to Asians (5%). Lower mean scores, or poor perceived health reported found in minorities, and those with low levels of education and lower income. Additionally, those with chronic diseases, such as arthritis and cardiovascular disease reported lowest HRQoL scores. (Chowdhury, Baluz, & Strine, 2008).

HRQoL and health behaviors of men and women with ischemic heart disease (IHD) were analyzed in a national population based study in Denmark. Data was collected via personal interviews and self-administered questionnaires of adults, age 35 and older (n = 10,983), and then the sample was divided into three mutually exclusive groups: men and women with IHD, other chronic illnesses and no chronic illnesses (Alphin, Kjoller, Davidsen, Nissen, & Zwisler, 2012). The results were presented with 95% CI and the findings revealed the IHD group reported the lowest health related quality of life mean scores in the physical and mental components. Those with IHD were more likely to be older than the other groups. They were more likely to be obese (26%), sedentary (21%); and to smoke (40%). Additionally, the IHD group was more likely to take medications and utilize the health care system (87.8%). The IHD group also reported the most comorbid diseases such as musculoskeletal disease (23.6%), endocrine/metabolic (14.0%), respiratory disease (10.4%) and nervous system disease (5.0%). The researchers concluded that men and women with ischemic heart disease (IHD) have more difficulty in their daily lives than those in the other groups. The findings suggest that such individuals are likely to experience improvement in health and health related quality of life through participation in wellness promotion and education programs that prevent or modify risks of smoking, obesity, imbalanced nutrition and sedentary lifestyle.
A study of women with CHD revealed that educational interventions, cardiac rehabilitation program and increased physical activity were related statistically significantly higher HRQoL scores (Christian, Cheema, Smith, & Mosca, 2007). An ethnically diverse sample of women (n = 160) who were hospitalized for coronary heart disease were asked to volunteer and complete health related quality of life tool SF 36 at the time of admission and 6 months later. Paired t-test and multiple linear regression models were used to identify changes in health related quality of life and predictors of improvement. Findings (p=.005) suggest a positive association between those who were married, employed, physically active, not depressed and enrolled in cardiac rehabilitation programs, as improved scores were noted in 6 months. Conversely, women who were not married, not physically active, unemployed and depressed reported unchanged or lower HRQoL and may be at risk for poor clinical outcomes. Women at most risk reported feeling “down, depressed or hopeless.”

Hope

Hope has been identified as a basic and lifelong human reaction that stimulates successful coping and adaptation to life changes (Herth & Cutcliffe, 2002; Kornadt, Voss & Rothermund, 2015). Hope has been linked to wellness and illness experiences and recovery (Tutton, Seers, & Langstaff, 2009; Duggleby, et al., 2012). It is thought to be necessary for survival of people with chronic diseases (Tutton, Seers, & Langstaff, 2009). Hope is a phenomenon that is experienced by people of all backgrounds. Studies suggest that higher levels of hope are related to better outcomes in academics, athletic competitions and health (Bailey & Snyder, 2007). Hope has been studied by various disciplines such as social sciences, psychiatry, theology and nursing.

Hope is a central concept of positive psychology (Bryant & Cvengeros, 2004; Boehm & Kubzansky, 2012). A comprehensive review of positive psychological well-being research that
examined the effect of positive psychological well-being on health behaviors and biological attributes of adults with heart disease (Boehm & Kubzansky, 2012). They noted studies that found relationships between positive psychology and physical health (Pressman & Cohen, 2005; Diener & Chan, 2011). In addition, they noted research that linked positive psychology and CHD (Boehm, Peterson, Kivimaki & Kubzansky, 2011a; Boehm, Peterson, Kivimaki, Kubzansky, 2011b). The studies suggest positive psychological well-being, which includes optimism and hope, is related to improved physical health and positive CHD outcomes (Boehm & Kubzansky, 2012).

Hope is “to recognize the limitations of the situations while believing that opportunities exist,” according to Parse’s human becoming perspective (Parse, 1999b, p. 3). Phenomenological studies conducted by Parse and a group of international nurse researchers across five countries and the United States revealed similarities and differences in the lived experience of hope (Baumann, 2004). These qualitative studies revealed group specific syntheses of hope along with some common themes. Baumann described a paradox of hope-no hope. He described the paradox as “restriction to freedom, tumultuous to peace, disheartening to inspiring and hope to no hope (Baumann, 2004, p. 343). Hope is a positive outlook in times of adversity or challenge, even though there is no reason for hope. It is linked to health healing and staying alive. Hope is also linked to religious faith, prayer and belief in afterlife. Findings reveal that hope is based on career or life accomplishments, volunteering and ability to contribute to one’s family and to society.

A concept analysis, using the Walker and Avant method, explored the construct of hope in older adults with heart failure (Caboral, Evangelista, & Whetsell, 2012). The study revealed that those with hope, trust in positive results without guarantees. Older adults with chronic
diseases such as heart failure, experience pain, worry and sorrow. The concept analysis of hope suggests that nurses sustain hope by assisting older adults with heart failure to apply previous coping skills and by collaborating on setting realistic therapy goals.

One literature review explored hope as an emerging concept for nursing (Tutton et al., 2009). A strong link between hope and health was noted. Findings suggest that hope is based upon personal beliefs and adaptations to changes in family, health and environment that leads individuals to form a new and positive outlook or expectation of the future. Hope is linked to attaining goals and positive health outcomes. Setting realistic goals require cognitive process and energy focused upon attaining goals. Hopelessness, despair and loss of control causes vulnerable people to be at higher risk for poor health outcomes. Nursing interventions have a direct impact on patient outcomes and the literature suggests that nurses should learn about ways to foster hope when planning care and setting goals with their patients.

A considerable number of journal articles and research studies have examined the role of hope with mental illness or with terminal illness and critical illness such as cancer, HIV and trauma (Barker & Cutcliffe, 2000; Bassett, Lloyd, & Tse, 2008; Benzein, Norberg, & Saveman, 2001; Chi, 2007; Harris & Larsen, 2008, Herth, 1989; Johnson, Roberts, & Cheffer, 1996; Lohne & Severinsson, 2006; Walker, 2004; Yeager et al., 2010). Fewer articles study hope with aging and chronic illness such as chronic pulmonary disease and post-stroke (Milne, Moyle, & Cooke, 2009; Tutton et al., 2012). Research revealed that levels of hope were positively related to physical health, mental health, psychosocial support and control of life. Those with impaired health maintained hope when relying upon other variables such as solid psychosocial support or ability to control their lives and futures. Younger to middle aged adults viewed hope in terms of maintaining control of their lives, planning their future life and reaching future objectives.
Adults, age 65 and older, frequently experience health and life changes that limit their control and perception of the years to come (Herth & Cutcliffe, 2002). Hence, they may need to depend upon additional variables and strategies to foster hope. There are few studies that focus on hope in healthy aging adults who maintain good health and how such older adults preserve their positive outlooks while they experience changes associated with aging and declining health. Nurses and older adults benefit from continuing research on hope, strategies to promote and sustain hope and methods to evaluate the effectiveness of such strategies.

Beckie, Beckstead and Webb (2001) created a conceptual model of women’s quality of life after cardiac events. They studied women (n = 93) after they had experienced a cardiac event such as heart attack and coronary artery bypass surgery and they tested the response of various QOL assessments to perceived health, hope and optimism. Perceived health was measured by the SF-36, hope was measured by the HHI, and optimism was measured by the Life Orientation Test. QOL was measured by the Self- Anchoring Striving Scale, Faces Scale and Life 3 Scale. They found that hope and optimism had an influence on QOL (p = .382).

Herth and Cutcliffe (2002) reviewed three studies that focused on hope in older adults. Each of the studies presented a 95% CI. The earliest, in 1979, examined ways of increasing hope in residents of a skilled nursing home (Mercer & Kane, 1979). The sample (n= 8) was asked to care for individually assigned plants and to participate in a resident council group. Comparison of pretests with posttests revealed decreased levels of hopelessness and increased physical activity. The researchers attributed the improvement in scores to increased control and purpose in the lives of the participants. However, the study is limited by the small sample size.

The second study (n= 239) tested the impact of interventions upon hope and quality of life in older adults (Staats, 1991). A series of five weekly training sessions were provided to four
groups of older adults: one group received happiness training, the next group received goal setting classes, another group received a combination of happiness and goal setting classes and a final group was the control. No significant differences were noted among the groups in hope, but the results revealed that the combination group anticipated a higher quality of life 5 years into the future. The third research study \((n=50)\) concentrated on the effect of behavioral group therapy on older adults who had been widowed for 12 to 18 weeks (Herth, 1990). High levels of hope and effective grief resolution were noted in older adults who experienced no additional significant personal loss and in those whose spouses died while in hospice care. Additionally, older adults who possessed positive self-directed coping skills evidenced high levels of hope and grief resolution.

Herth identified hope fostering strategies and hope hindrances in her study of the relationship between of hope to population characteristics of various home residences, such as private homes, senior housing apartments and long term care facilities (Herth, 1993). The sample of 60 older adults provided demographic information, completed the Herth Hope Index and they participated in semi structured interviews. Herth identified the following as categories of hope fostering strategies: interconnectedness, purposeful activities, uplifting memories, cognitive strategies, hope objects, refocused time, lightheartedness and spiritual/philosophical beliefs and practices. Herth also found the following hope hindrances: hopelessness, depleted energy, uncontrollable pain/suffering and impaired cognition. Levels of hope were not significantly influenced by demographics, function or health. However, those living in long term care facilities reported lower levels of energy, more fatigue and less hope than older adults who lived at home.
Chapter Summary

Review of literature revealed ample data and trends that point to variables that contribute to low self-perceived HRQoL scores. Low scores were linked to socioeconomic status, gender, education, marital status, ethnicity and chronic illnesses. In addition, data reveals that women, age 65 years and older, report the lowest HRQoL scores and the greatest number of unhealthy days, thus making them a vulnerable population.

Census report from 2000, paired with HRQoL data presented women, age 65 years and older, as a vulnerable population. The report revealed that men and women, over age 65 years, without high school diplomas and annual incomes of $15,000 or less reported lower HRQoL and more unhealthy days each month. Furthermore, it was noted that women were more likely to have low levels of education and low income and data shows that they consistently reported the lowest HRQoL due to physical illness, injury, stress, depression or emotional problems (Moriarty et al., 2005).

Additionally, data shows that married older adults who reside with their spouses report higher HRQoL scores (Salomon et al., 2009). However, older adults with chronic illnesses, depression or those who were Black, Hispanic, American Indian and Alaskan reported the lowest HRQoL scores (Chowdhury et al., 2008). Census report from 2010, reveals that approximately 80% of women, age 65 years and older, are single and they live alone. Moreover, census reports reveal that women live six to seven years longer than men and they report more depression and chronic illnesses (AOA, 2012).

Research findings pertaining to hope reveal no links to population characteristics and few links to health or functional ability. Instead, low levels of hope are related to constant pain, low energy, impaired cognition, unresolved grief and undesirable living arrangements. Hope is
associated to psychosocial relationships, connectedness ability to contribute and religious beliefs. Hope is associated with positive outlook, ability to look toward the future and desire to set and achieve goals, according to the literature.

Review of research literature relevant to hope examines the effect of hope on younger to middle adults with chronic or severe illnesses. National and international studies of hope agree that hope is a positive frame of mind in times of adversity or challenge that is linked to health, healing and staying alive. Research suggests that hope is based on career or life accomplishments, ability to contribute to society and religious beliefs (Baumann, 2004). Another study revealed that older adults who resided in long term care facilities reported lower levels of hope than older adults living in community (Herth, 1993). Low hope was attributed to low energy, increased fatigue and lack of control of their lives. More research suggests hope in older adults with impaired health is sustained by relying upon psychosocial relationships, religious faith and ability to control their lives and futures (Herth & Cutcliffe, 2002; Piraino, Krema, Williams & Ferrari, 2014; Wu & Koo, 2016).

Some research studies suggest that hope has an impact on how adults cope with and adapt to their diagnosis and recommended lifestyle changes. Some studies suggest that high levels of hope and optimism have a positive effect on general health and may result in positive CHD outcomes. Census data and HRQoL trends indicate that poor HRQoL scores and a greater number of unhealthy days are anticipated for women, age 65 years and older, who have had a heart attack. Nurses are in a unique position to identify hope traits, hope sustaining strategies and hope hindrances to increase the level of hope in older adults with chronic illnesses.
Chapter 3 presents research methodology of the study. This includes methods of: research design, sample population, instruments, data collection procedure, protection of human participants and data analysis.
CHAPTER 3

Methods

In Chapter 3 research methodology is presented. This includes research design, sample population, inclusion and exclusion criteria, along with the protection of human participants. The instruments that were used are presented with information that highlights the validity and reliability of the tools. The type of data and data analysis procedures are also presented.

Research Design

This quantitative non-experimental correlational study analyzed the data in order to describe the relationship between hope and health related quality of life in older women who have had heart attacks. Data pertaining to hope and health related quality of life of the sample was measured through the use of the Herth Hope Index (HHI) and the SF 12. Sample size of 84 was calculated through the use of G* Power.

Prior to the full scale study, a pilot study was performed involving a sample of 10 volunteer participants who met the parameters for inclusion. The purpose of the pilot study was to test the tools and to assure the sampling frame and technique were effective.

Sample Population

The level of significance for the study was $p = .05$ and power of .80 for medium effect. G*power analysis (Erdfelder, Faul, & Buchner, 1996) determined the sample size ($N \geq 84$). This convenience cluster sample was recruited from various senior groups including but not limited to senior nutrition centers, senior support groups and senior social groups.

Parameters for inclusion of voluntary participants were: female gender, age 65 years and older, history of a heart attack, living in community, ability to speak and read English without need of interpreter services, no diagnosis of cognitive impairment and ability to independently
complete questionnaires with minimal prompting. The parameter of age 65 years and older is significant because the CDC HRQoL data is divided into age groups from 65 years to 85+(CDC, 2012b). Using the same age parameters enabled comparison to national data. Further, 200,000 women, age 65 and older, have heart attacks annually (CDC, 2013). This accounts for approximately 80% of heart attacks in women annually.

**Instruments**

Hope was measured with the use of the Herth Hope Index (HHI). The HHI has been used by researchers in varied healthcare settings in diverse patient populations in the United States and internationally (Barker & Cutcliffe, 2000; Bassett, Lloyd, & Tse, 2008; Benzein, Norberg, & Saveman, 2001; Chi, 2007; Harris & Larsen, 2008, Herth, 1989; Johnson, Roberts, & Cheffer, 1996; Lohne & Severinsson, 2006; Walker, 2004; Yeager et al., 2010). The HHI was designed by Dr Kaye Herth, a nurses, especially for nurses. HHI is easy to use and the results influence nursing practice. Dr. Kaye Herth, author of the Herth Hope Index has given her permission for use of her tool for this study.

The HHI is a 12 question tool that uses a 4 point Likert scale in which the higher scores represent the greater level of hope. The HHI questions probe inner thoughts and feelings about outlook on life, goals and fears. Scores range from 12 to 48, with 12 as the lowest score and 48 as the highest. One point is assigned to responses of “strongly disagree” and four points is assigned to responses of “strongly agree.” Lower scores represent less hope and higher scores represent more hope.

The HHI was assessed for validity by two committees of experts. The tool was evaluated for consistency with the conceptual definition of hope and it was reviewed for clarity and readability of each question. Validity was established through measurement and comparison
with other scales that measure hope. The HHI was determined as a valid instrument to measure hope (Herth, 1993). The HHI, as used in adults of all ages, was tested for reliability via test-retest and internal consistency and findings revealed Cronbach’s alpha scores of .91 and .97, respectively (Herth, 1993). Evaluation of questions and subscales revealed stability over time. The internal consistency of the HHI was scored as Cronbach’s alpha score of .94, which is considered good validity.

HRQoL was measured with the use of the SF 12. The SF12 was chosen because it facilitates collection of data pertaining to the HRQoL health domains with the fewest questions. HRQoL SF12 assesses eight domains: general health, physical functioning, role physical, pain, mental health, vitality, social functioning and role emotional. Descriptions of the domains are listed in table 3.1 (Kobau, Sniezek, Zack, Lucas & Burns, 2010). It is one of the most widely used tools to measure health status from the perspective of the individual participants. Researchers have used SF12 in varied healthcare settings in diverse patient populations in the United States and internationally (Brazier & Roberts, 2004; Borglin et al., 2004; Gandhi et al., July, 2001; Larson, June, 2002; Montazeri et al., 2011; Resnick & Nahm, 2001; Sousa & Williamson, 2003). Permission to use SF 12 was granted by Quality Metric.

**Table 3.1**

**Domain Descriptions**

<table>
<thead>
<tr>
<th>Domain Description</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Health</td>
<td>Overall current health status</td>
</tr>
<tr>
<td>Physical Functioning</td>
<td>Impact of health on usual physical activities</td>
</tr>
<tr>
<td>Role Physical</td>
<td>Impact of health on participation in daily activities</td>
</tr>
<tr>
<td>Pain</td>
<td>Impact of pain on daily activities</td>
</tr>
<tr>
<td>Mental Health</td>
<td>Control of behavior and psychological well-being</td>
</tr>
<tr>
<td>Vitality</td>
<td>Impact of energy on daily activities</td>
</tr>
<tr>
<td>Social Functioning</td>
<td>Impact of physical/mental health on usual social activities</td>
</tr>
<tr>
<td>Role Emotional</td>
<td>Impact of mental health on participation in daily activities</td>
</tr>
</tbody>
</table>
The SF 12 is a 12 question survey that utilizes a 5 point Likert scale in which higher scores represent a higher level health related quality of life (HRQoL). Scores range from 0 to 100, with 0 as the lowest score and 100 as the highest. Lower scores indicate lower health related quality of life and higher scores indicate higher health related quality of life (Ware, Kosinski, & Keller, 1996).

The SF 12, used on adults, was tested for reliability via norm-based scoring and test-retest method. Reliability was reported as Cronbach’s alpha of .89 for physical component scores. The internal consistency was reported as Cronbach’s alpha of .70 for physical component scores. SF 12 is strongly correlated with the SF 36 and both are considered valid and reliable tools (Ware et al., 1996).

Data Collection Procedures

Female participants who were 65 years and older, from the various senior groups described above gathered in a meeting room separate from the activities areas. A short education session on heart disease in women was presented first. Followed by a presentation of the research study purpose, data collection procedure, data collection tools and questions, informed consent, confidentiality, voluntary participation guidelines and steps to immediately stop their voluntary participation. At the conclusion of the presentation, volunteers completed the demographic questionnaire, HRQoL SF 12 and HHI surveys were administered by the researcher with the agreement and assistance of the senior center staff. As a gratuity for their willingness to listen to the presentation, all women over age 65 were provided with a gift valued under $5. Estimated total time for the presentation, consent and completion of the questionnaire was approximately 40 minutes.
Confidentiality was assured by excluding the names of participants and any identifiers from the questionnaires. None of the participants voiced concerns about their physical or mental health, but if they had, they would have been referred to their primary care providers or the Suffolk County Department of Health (SCDOH) clinics. The following Collaborative Institutional Training Institute (CITI) courses were taken to prepare the data collection procedures: good clinical practice, information privacy and security, human subjects’ research and responsible conduct of research.

**Protection of Human Subjects**

It is vital to protect human subjects from harm or abuse as the result of research. The detailed proposal of the study was provided to the City University of New York Internal Review Board (CUNYIRB) through IDEATE. The following documentation were provided to the CUNYIRB: research proposal, methodology and tools to be used and authorizations to use the tools. The research plan included measures to assure confidentiality, informed consent and ways in which they can decline to participate or end their participation at any point during the study and maintenance of participant confidentiality. Biases, conflicts of interest or factors that could have influenced the outcome of research were not identified.

**Data Analysis**

Data was initially entered into an EXCEL spread sheet and then into IBM Statistical Package for Social Sciences (SPSS) program. Statistical analysis presents descriptive statistics of demographic variables, t-test comparison of the sample response to national mean scores of the Health Related Quality of Life (HRQoL SF12, ANOVA and t-tests that examine the relationship of demographic variables to the HRQoL and the Herth Hope Index (HHI). Correlational analyses that assessed the relationship between HHI and the domains of the
HRQoL SF12 and the medical illnesses of the sample. Regression analysis assessed the combination of domains of the HRQoL SF12 best predicted scores on the HHI. Statistical significance was indicated by level of significance $p = <.05$.

**Chapter Summary**

Research methodology was presented in Chapter 3. The sample population and inclusion and exclusion criteria were detailed. Protection of the participants via informed consent and IRB review and approval were discussed. The tools that were used to measure hope and health related quality of life, the HHI and SF 12 were described and the reliability and validity of both tools were presented. Data collection and analysis were outlined.

The results of the study including statistical analysis of demographics, relation between demographic variables to HRQoL health domains and hope along with reliability of the survey tools are covered in Chapter 4.
Chapter 4

Results

This chapter presents the summary the pilot study and summary of the statistical results of this study in narrative form and depicted in table format. Statistical analysis presents descriptive findings of demographic variables in Tables 1-5. Table 6 presents t-test comparison of the sample response to national mean scores of the Health Related Quality of Life (HRQoL SF12). ANOVA and t-tests that examine the relationship of demographic variables to the HRQoL and the Herth Hope Index (HHI) are presented in Tables 7-10. Correlational analyses that assessed the relationship between HHI and the domains of the HRQoL SF12 and the medical illnesses of the sample is presented in Table 11. Table 12 presents the intercorrelation between the domains of HRQoL SF12. Regression analysis that assessed the combination of domains of the HRQoL SF12 best predicted scores on the HHI is presented in Table 13. Finally, additional analyses is discussed.

Pilot Study

Prior to the full scale study, a pilot study was performed involving a cluster sample of volunteer participants (N=10) who met all parameters for inclusion. The purpose of the pilot study was to test the tools and to assure the sampling frame and technique were effective.

Each woman in the pilot sample completed the Demographic questionnaire, HRQoL SF12 and Herth Hope Index. Descriptive data revealed that 80% were age 75 years and older; 100% of the pilot sample had one or more concurrent medical illness and 80% had hypertension; 9 were Non-Hispanic White and 1 was Black/African American; 100% were single; 90% graduated from high school and beyond.
Pilot data was analyzed using Non-Parametric Spearman correlation for comparison of the HRQoL SF12 health domains and Herth Hope Index (p > 0.05). Although no statistically significant correlation was noted, the demographic data exposed trends in age, concurrent medical illnesses and marital status that were worth probing. Cronbach’s alpha were calculated on both tools, with HHI (α=.817); SF12 (α=.896). Review of pilot study lead to the conclusion that the sampling frame and technique was effective, hence the study was carried out as planned.

**Descriptive Findings**

The study sample amount (N=91) satisfied the G*power analysis minimum requirement (N ≥ 84). Descriptive statistics are presented in tables 1 through 5.

**Age:** Approximately 68% of the sample was over age 75. The 75 to 79 age group was the largest (24.2%) and the 65 to 69 age group was the smallest (13.2%) in the sample. Distribution of age is presented in Table 1.

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Frequency (f)</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>65 years to 69 Years</td>
<td>12</td>
<td>13.2</td>
</tr>
<tr>
<td>70 years to 74 Years</td>
<td>17</td>
<td>18.7</td>
</tr>
<tr>
<td>75 years to 79 Years</td>
<td>22</td>
<td>24.2</td>
</tr>
<tr>
<td>80 years to 84 Years</td>
<td>21</td>
<td>23.1</td>
</tr>
<tr>
<td>85 years and older</td>
<td>19</td>
<td>20.9</td>
</tr>
</tbody>
</table>

**Medical History:** A majority (70.3%) had a history of hypertension, while 41.8% had a history of arthritis. Fewer participants reported history of diabetes (16.5%), COPD (11.0%), cancer (16.5%), stroke (2.2%) and other (12.1%). Participants had at least 1 concurrent medical illnesses
(\bar{x}=1.71) beyond and above heart attack with a range of one to four concurrent medical illnesses.

Distribution of concurrent medical illnesses is presented in Table 2.

Table 2

*Distribution of Concurrent Medical Illnesses*

<table>
<thead>
<tr>
<th>Medical Illness</th>
<th>Count</th>
<th>Percent (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension</td>
<td>64</td>
<td>70.3</td>
</tr>
<tr>
<td>Diabetes of High Blood Sugar</td>
<td>15</td>
<td>16.5</td>
</tr>
<tr>
<td>COPD</td>
<td>10</td>
<td>11</td>
</tr>
<tr>
<td>Cancer</td>
<td>15</td>
<td>16.5</td>
</tr>
<tr>
<td>Stroke</td>
<td>2</td>
<td>2.2</td>
</tr>
<tr>
<td>Arthritis</td>
<td>38</td>
<td>41.8</td>
</tr>
<tr>
<td>Other</td>
<td>11</td>
<td>12.1</td>
</tr>
</tbody>
</table>

**Ethnicity:** A majority of the participants identified as Non-Hispanic White (75.8%), followed by Black or African American (16.5%), Native American or Indian (4.4%), Hispanic or Latino (2.2%) and other (1.1%). Distribution of ethnicity is presented in Table 3.

Table 3

*Distribution of Ethnicity*

<table>
<thead>
<tr>
<th>Ethnic Group</th>
<th>Count</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian/Pacific Islander</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>Black or African American</td>
<td>15</td>
<td>16.5</td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>2</td>
<td>2.2</td>
</tr>
<tr>
<td>Native American/American Indian</td>
<td>4</td>
<td>4.4</td>
</tr>
<tr>
<td>Non-Hispanic White</td>
<td>69</td>
<td>75.8</td>
</tr>
</tbody>
</table>
Marital Status: Approximately half of the participants were widowed (49.5%), while 23.1% were married. The divorced/separated group comprised 17.6% of the sample, followed by the single/never married group (7.7%) and the unmarried in a relationship group (2.2%). The married and unmarried in a relationship groups were combined, referred to as the married group and compared to the combination of the single/never married, widowed and divorced/separated groups. The marital status of the participants is presented in table 4.

Table 4
Distribution of Marital Status

<table>
<thead>
<tr>
<th>Marital Status</th>
<th>Count</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single / Never Married</td>
<td>7</td>
<td>7.7</td>
</tr>
<tr>
<td>Married</td>
<td>21</td>
<td>23.1</td>
</tr>
<tr>
<td>Widowed</td>
<td>45</td>
<td>49.5</td>
</tr>
<tr>
<td>Divorced / Separated</td>
<td>16</td>
<td>17.6</td>
</tr>
<tr>
<td>Member of Unmarried Relationship</td>
<td>2</td>
<td>2.1</td>
</tr>
</tbody>
</table>

Highest Educational Level: The greatest portion of the sample listed high school graduate as their highest level of education (41.8%). This was followed by college graduate (26.4%), some college (20.9%), some high school (7.7%) and completed elementary (3.3%). The distribution of education level of the participants is presented in table 5.

Table 5
Distribution of Educational Levels

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Count</th>
<th>Percent of Total Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>Completed Elementary</td>
<td>3</td>
<td>3.3</td>
</tr>
<tr>
<td>Some High School</td>
<td>7</td>
<td>7.7</td>
</tr>
<tr>
<td>Graduated High School</td>
<td>38</td>
<td>41.8</td>
</tr>
<tr>
<td>Some College</td>
<td>19</td>
<td>20.9</td>
</tr>
<tr>
<td>Graduated College</td>
<td>24</td>
<td>26.4</td>
</tr>
</tbody>
</table>
Statistical Analysis

The relationship of the various HRQoL domains of SF12 and overall HHI were analyzed using the means and standard deviations and associated ANOVA's. Internal consistency of the SF12 and HHI was established by calculating Cronbach’s alphas. First, domain mean scores of the study sample were compared to the national standardized mean.

Health Related Quality of Life (HRQoL)

The standardization means from the 1998 standardization (CDC, 2012b) is also included, along with the one sample t-test that compared the sample mean from the study to the national standardization mean. Of statistical relevance the General Health mean (sample mean= 64.07) was lower than the national standardization mean (national mean= 71.96, t(90) = -3.70, p <.001); the Physical Functioning mean (sample mean= 48.90) was lower than the national standardization mean (national mean= 80.65, t(90) = -9.61, p <.001) and Body Pain mean (sample mean= 74.72) was lower than the national standardization mean (national mean= 83.42, t(90) = -2.97, p = .004). Additional statistically significant findings include greater Vitality mean (sample mean= 62.91) compared to the national standardization mean (national mean= 55.12, t(90) = 3.52, p = .001), and greater Role Emotional mean (sample mean= 91.21) when compared to the national standardization mean (national mean= 86.80, t(90) = 2.89, p = .005). The Role Physical, Mental Health and Social Functioning means did not differ from their respective national standardization means (all p's >.05). Therefore, the sample reported worse general health and physical function, more pain, lower impact of health and mental health on vitality and participation in regular activities, when compared to the national means. The means and standard deviations for HRQoL domains of SF12 are presented in table 6.
Table 6
Means, standard deviations, national norm means and t-tests comparing sample means to national norm means

<table>
<thead>
<tr>
<th>Variable</th>
<th>Sample (X) (SD, σ)</th>
<th>Norming Mean</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Health</td>
<td>64.07 ± 20.96</td>
<td>71.96</td>
<td>-3.7</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Physical Functioning</td>
<td>48.9 ± 32.04</td>
<td>80.65</td>
<td>-9.61</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Role Physical</td>
<td>81.18 ± 23.6</td>
<td>80.62</td>
<td>0.263</td>
<td>0.793</td>
</tr>
<tr>
<td>Pain</td>
<td>74.72 ± 22.51</td>
<td>83.42</td>
<td>-2.97</td>
<td>0.004</td>
</tr>
<tr>
<td>Mental Health</td>
<td>72.53 ± 15.73</td>
<td>71.38</td>
<td>1.42</td>
<td>0.158</td>
</tr>
<tr>
<td>Vitality</td>
<td>62.91 ± 19.85</td>
<td>55.12</td>
<td>3.52</td>
<td>0.001</td>
</tr>
<tr>
<td>Social Functioning</td>
<td>84.61 ± 22.6</td>
<td>84.58</td>
<td>0.37</td>
<td>0.713</td>
</tr>
<tr>
<td>Role Emotional</td>
<td>91.21 ± 15.87</td>
<td>86.8</td>
<td>2.89</td>
<td>0.005</td>
</tr>
</tbody>
</table>

Relationship of Demographic Variables to the HRQoL and the Herth Hope Index

**Age:** T-test comparison of means based on the relationship of age to HRQoL health domains and the HHI was tested. The only measure to differ as a function of participants' age category was Vitality, $F(4, 86) = 2.70, p = .036$. A post-hoc comparison utilizing the Least Significant Difference test revealed the 65 to 69 age group ($M = 50, SD = 23.83$), scored lower in Vitality.
than any other age group with the 70-74 age group (M = 66.18, SD = 19.65), 75-79 age group (M = 70.45, SD = 9.87) and 80-84 age group (M = 64.29, SD = 18.66). The results are in table 7.

Table 7
Means, Standard Deviations and t-tests for the domains of HRQoL SF12 and the HHI Total Score as a Function of participants' Age Category

<table>
<thead>
<tr>
<th>Variable</th>
<th>Age Category</th>
<th>Mean</th>
<th>SD</th>
<th>F</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Health</td>
<td>65 years to 69 Years</td>
<td>50.41</td>
<td>20.05</td>
<td>2.17</td>
<td>.079</td>
</tr>
<tr>
<td></td>
<td>70 years to 74 Years</td>
<td>71.17</td>
<td>14.20</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>75 years to 79 Years</td>
<td>67.72</td>
<td>19.19</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>80 years to 84 Years</td>
<td>65.23</td>
<td>21.30</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>85 years and older</td>
<td>60.78</td>
<td>25.23</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Functioning</td>
<td>65 years to 69 Years</td>
<td>43.75</td>
<td>32.20</td>
<td>.660</td>
<td>.621</td>
</tr>
<tr>
<td></td>
<td>70 years to 74 Years</td>
<td>50.00</td>
<td>27.95</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>75 years to 79 Years</td>
<td>57.95</td>
<td>33.96</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>80 years to 84 Years</td>
<td>45.23</td>
<td>36.75</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>85 years and older</td>
<td>44.73</td>
<td>28.35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Role Physical</td>
<td>65 years to 69 Years</td>
<td>77.08</td>
<td>26.56</td>
<td>.408</td>
<td>.802</td>
</tr>
<tr>
<td></td>
<td>70 years to 74 Years</td>
<td>83.82</td>
<td>24.90</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>75 years to 79 Years</td>
<td>85.22</td>
<td>23.02</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>80 years to 84 Years</td>
<td>80.35</td>
<td>22.21</td>
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</tr>
<tr>
<td></td>
<td>85 years and older</td>
<td>77.63</td>
<td>24.14</td>
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</tr>
<tr>
<td>Pain</td>
<td>65 years to 69 Years</td>
<td>68.75</td>
<td>26.38</td>
<td>.860</td>
<td>.492</td>
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<tr>
<td></td>
<td>70 years to 74 Years</td>
<td>70.58</td>
<td>18.19</td>
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<td>75 years to 79 Years</td>
<td>80.68</td>
<td>20.31</td>
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<td>80 years to 84 Years</td>
<td>77.38</td>
<td>27.27</td>
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<td>85 years and older</td>
<td>72.36</td>
<td>20.23</td>
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<tr>
<td>Mental Health</td>
<td>65 years to 69 Years</td>
<td>69.79</td>
<td>19.55</td>
<td>1.63</td>
<td>.173</td>
</tr>
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<td>70 years to 74 Years</td>
<td>73.52</td>
<td>13.89</td>
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<tr>
<td></td>
<td>75 years to 79 Years</td>
<td>78.40</td>
<td>13.46</td>
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</tr>
<tr>
<td></td>
<td>80 years to 84 Years</td>
<td>72.61</td>
<td>16.11</td>
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</tr>
<tr>
<td></td>
<td>85 years and older</td>
<td>66.44</td>
<td>15.61</td>
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<tr>
<td></td>
<td>65 years to 69 Years</td>
<td>70 years to 74 Years</td>
<td>75 years to 79 Years</td>
<td>80 years to 84 Years</td>
<td>85 years and older</td>
</tr>
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<td>----------------------</td>
<td>----------------------</td>
<td>-------------------</td>
</tr>
<tr>
<td><strong>Vitality</strong></td>
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</tr>
<tr>
<td>65 years to 69 Years</td>
<td>50.00</td>
<td>66.17</td>
<td>70.45</td>
<td>64.28</td>
<td>57.89</td>
</tr>
<tr>
<td>70 years to 74 Years</td>
<td>23.83</td>
<td>19.64</td>
<td>9.86</td>
<td>18.66</td>
<td>23.64</td>
</tr>
<tr>
<td>75 years to 79 Years</td>
<td>2.70</td>
<td>.036*</td>
<td></td>
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</tr>
<tr>
<td>Note:</td>
<td>* The 65-69 age group differed from the 70-74, 80-84 and 85+ groups.</td>
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<tr>
<td><strong>Social Functioning</strong></td>
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<td></td>
</tr>
<tr>
<td>65 years to 69 Years</td>
<td>77.08</td>
<td>89.70</td>
<td>94.31</td>
<td>80.95</td>
<td>77.63</td>
</tr>
<tr>
<td>70 years to 74 Years</td>
<td>27.09</td>
<td>17.80</td>
<td>13.21</td>
<td>26.10</td>
<td>24.85</td>
</tr>
<tr>
<td>75 years to 79 Years</td>
<td>2.28</td>
<td>.068</td>
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<td><strong>Role Emotional</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>65 years to 69 Years</td>
<td>87.50</td>
<td>96.32</td>
<td>92.61</td>
<td>91.66</td>
<td>86.84</td>
</tr>
<tr>
<td>70 years to 74 Years</td>
<td>18.46</td>
<td>7.34</td>
<td>14.25</td>
<td>14.96</td>
<td>21.43</td>
</tr>
<tr>
<td>75 years to 79 Years</td>
<td>1.01</td>
<td>.405</td>
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<td><strong>Herth Hope Index</strong></td>
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<td></td>
</tr>
<tr>
<td>65 years to 69 Years</td>
<td>38.58</td>
<td>41.64</td>
<td>39.40</td>
<td>37.41</td>
<td>38.17</td>
</tr>
<tr>
<td>70 years to 74 Years</td>
<td>7.24</td>
<td>3.63</td>
<td>4.40</td>
<td>5.19</td>
<td>3.31</td>
</tr>
<tr>
<td>75 years to 79 Years</td>
<td>2.12</td>
<td>.085</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Ethnicity: T-test comparison of means compared the relationship of ethnicity to HRQoL domains of SF12 and the HHI. Asian (Pacific Islander), Black (African American) and American Indian (Native American) groups were combined as the Non-White group which was compared to the group who identified as White. Statistical significant differences in the General Health domain with White group, having a greater mean (M = 67.68, SD = 20.42) than the Non-White group (M = 52.72, SD = 18.81, t(88) = -3.05, p = .003). Higher mean scores indicate better health and HHI scores. There were no other differences found (all p's > .05), however, the
domains of Pain (p=.085) and Social Functioning (p=.080) were of note. This means that Non-White women reported lower level of General Health when compared with White women in the sample. Additionally, scores suggest possible trends in which Non-White women report more pain and less participation in social activities. The results are presented in table 8.

Table 8  
*Means, Standard Deviations and t-tests for HRQoL Domains of SF 12 and the HHI Total Score as a Function of participants' Ethnicity*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Race</th>
<th>Mean</th>
<th>SD</th>
<th>df</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Health</td>
<td>Non-White</td>
<td>52.72</td>
<td>18.81</td>
<td>89</td>
<td>-3.05</td>
<td>.003</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>67.68</td>
<td>20.42</td>
<td>89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physical Functioning</td>
<td>Non-White</td>
<td>45.45</td>
<td>32.40</td>
<td>89</td>
<td>-.577</td>
<td>.565</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>50.00</td>
<td>32.08</td>
<td>89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Role Physical</td>
<td>Non-White</td>
<td>81.25</td>
<td>22.07</td>
<td>89</td>
<td>.016</td>
<td>.988</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>81.15</td>
<td>24.21</td>
<td>89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pain</td>
<td>Non-White</td>
<td>65.90</td>
<td>19.71</td>
<td>89</td>
<td>-1.79</td>
<td>.085</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>77.53</td>
<td>28.39</td>
<td>89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mental Health</td>
<td>Non-White</td>
<td>71.02</td>
<td>17.41</td>
<td>89</td>
<td>-0.513</td>
<td>.609</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>73.00</td>
<td>15.25</td>
<td>89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vitality</td>
<td>Non-White</td>
<td>60.22</td>
<td>22.70</td>
<td>89</td>
<td>-.727</td>
<td>.469</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>63.76</td>
<td>18.95</td>
<td>89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social Functioning</td>
<td>Non-White</td>
<td>77.27</td>
<td>26.62</td>
<td>89</td>
<td>-1.77</td>
<td>.080</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>86.95</td>
<td>20.83</td>
<td>89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Role Emotional</td>
<td>Non-White</td>
<td>89.77</td>
<td>15.25</td>
<td>89</td>
<td>-.485</td>
<td>.629</td>
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<tr>
<td></td>
<td>White</td>
<td>91.66</td>
<td>16.13</td>
<td>89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hope Survey Total</td>
<td>Non-White</td>
<td>38.80</td>
<td>4.65</td>
<td>89</td>
<td>-.209</td>
<td>.835</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>39.06</td>
<td>4.95</td>
<td>89</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number Medical Issues</td>
<td>Non-White</td>
<td>1.72</td>
<td>.98</td>
<td>89</td>
<td>.068</td>
<td>.946</td>
</tr>
<tr>
<td></td>
<td>White</td>
<td>1.71</td>
<td>1.04</td>
<td>89</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**Marital Status**: T-test comparison of the means compared the relationship of marital status to the HRQoL domains of the SF12 and the HHI. The Single (never married), divorced (separated) and widowed groups were combined the Single group. Married and committed relationship groups were in combined as the Married group. Of statistical significance, marital status was related to HHI scores, \( t(90) = -2.70, p = .041 \), with married participants having greater mean score (40.87) when compared to single (38.39). This means the married group had higher levels of hope. The results are presented in table 9.

Table 9
*Means, Standard Deviations and t-tests for HRQoL domains of SF12 and the HHI Total Score as a Function of participants’ Marital Status*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Marital Status</th>
<th>Mean</th>
<th>SD</th>
<th>df</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Health</td>
<td>Single</td>
<td>63.75</td>
<td>20.30</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Married</td>
<td>65.00</td>
<td>23.25</td>
<td>89</td>
<td>-.246</td>
<td>.806</td>
</tr>
<tr>
<td>Physical Functioning</td>
<td>Single</td>
<td>46.69</td>
<td>31.71</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Married</td>
<td>55.43</td>
<td>32.81</td>
<td>89</td>
<td>-1.13</td>
<td>.260</td>
</tr>
<tr>
<td>Role Physical</td>
<td>Single</td>
<td>81.98</td>
<td>23.09</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Married</td>
<td>78.80</td>
<td>25.40</td>
<td>89</td>
<td>.557</td>
<td>.579</td>
</tr>
<tr>
<td>Pain</td>
<td>Single</td>
<td>73.16</td>
<td>24.17</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Married</td>
<td>79.34</td>
<td>16.25</td>
<td>89</td>
<td>-1.14</td>
<td>.257</td>
</tr>
<tr>
<td>Mental Health</td>
<td>Single</td>
<td>71.69</td>
<td>16.25</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Married</td>
<td>75.00</td>
<td>14.10</td>
<td>89</td>
<td>-.871</td>
<td>.386</td>
</tr>
<tr>
<td>Vitality</td>
<td>Single</td>
<td>62.13</td>
<td>20.93</td>
<td></td>
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<tr>
<td></td>
<td>Married</td>
<td>65.21</td>
<td>16.40</td>
<td>89</td>
<td>-.642</td>
<td>.522</td>
</tr>
<tr>
<td>Social Functioning</td>
<td>Single</td>
<td>84.19</td>
<td>23.22</td>
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<td></td>
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<tr>
<td></td>
<td>Married</td>
<td>85.86</td>
<td>21.08</td>
<td>89</td>
<td>-.306</td>
<td>.760</td>
</tr>
<tr>
<td>Role Emotional</td>
<td>Single</td>
<td>91.72</td>
<td>15.81</td>
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<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Married</td>
<td>89.67</td>
<td>16.27</td>
<td>89</td>
<td>.535</td>
<td>.594</td>
</tr>
</tbody>
</table>
Hope Survey Total

<table>
<thead>
<tr>
<th></th>
<th>Single</th>
<th></th>
<th>Married</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>38.39</td>
<td>4.77</td>
<td>40.78</td>
</tr>
</tbody>
</table>

Number Medical Issues

<table>
<thead>
<tr>
<th></th>
<th>Single</th>
<th></th>
<th>Married</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1.73</td>
<td>.94</td>
<td>1.65</td>
</tr>
</tbody>
</table>

**Highest Educational Level:** T-test comparison of the means compared the relationship of educational level to HRQoL domains by SF12 and the HHI. Participants who indicated they had an elementary education and some high school were combined into one group and it was compared to the group that combined high school graduates, trade school attendees, those that attended some college and those that graduated college. A review of this table reveals that there were no differences of HRQoL domains of SF12 and the HHI as a function of participants’ highest level of education (all p’s > .05). The results are presented in table 10.

**Table 10**

*Means, Standard Deviations and t-tests for HRQoL domains of SF12 and HHI Total Score as a Function of Highest Educational Level*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Highest Level of Education</th>
<th>Mean</th>
<th>SD</th>
<th>df</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Health</td>
<td>Less than High School</td>
<td>55.00</td>
<td>28.86</td>
<td>89</td>
<td>-1.46</td>
<td>.148</td>
</tr>
<tr>
<td></td>
<td>High School Graduate</td>
<td>65.12</td>
<td>19.72</td>
<td>89</td>
<td>-1.14</td>
<td>.884</td>
</tr>
<tr>
<td>Physical Functioning</td>
<td>Less than High School</td>
<td>47.50</td>
<td>21.88</td>
<td>89</td>
<td>-1.46</td>
<td>.884</td>
</tr>
<tr>
<td></td>
<td>High School Graduate</td>
<td>49.07</td>
<td>33.17</td>
<td>89</td>
<td>-1.14</td>
<td>.884</td>
</tr>
<tr>
<td>Role Physical</td>
<td>Less than High School</td>
<td>78.75</td>
<td>24.33</td>
<td>89</td>
<td>-3.44</td>
<td>.732</td>
</tr>
<tr>
<td></td>
<td>High School Graduate</td>
<td>81.48</td>
<td>23.64</td>
<td>89</td>
<td>-3.44</td>
<td>.732</td>
</tr>
<tr>
<td>Pain</td>
<td>Less than High School</td>
<td>75.00</td>
<td>26.35</td>
<td>89</td>
<td>-0.41</td>
<td>.685</td>
</tr>
<tr>
<td></td>
<td>High School Graduate</td>
<td>74.69</td>
<td>22.18</td>
<td>89</td>
<td>-0.41</td>
<td>.685</td>
</tr>
</tbody>
</table>
### Correlational Analysis Between the HRQoL Domains of SF 12 and HHI

The relationship between the HRQoL domains of SF 12 and the HHI was accomplished by utilizing a Pearson Correlation. Of statistical significance, General Health correlated with the HHI, $r(89) = .244, p = .02$, as did the Mental Health, $r(89) = .352, p = .001$, Vitality, $r(89) = .221, p = .035$ Social Functioning, $r(89) = .333, p = .001$ and the Role Emotion domain, $r(89) = .223, p = .034$. These results indicate that as scores on these domains increased, so did the participants' scores on the HHI. As health increases, so increases hope and vice versa. Given the cross sectional nature of the data, we cannot say which variable affects which, only that they are correlated. Table 11 contains these correlations.
Table 11

*Pearson Correlation of HRQoL domains of SF12 and HHI*

<table>
<thead>
<tr>
<th>Health Domain</th>
<th>HHI Scores</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Health</td>
<td>.244</td>
<td>.020</td>
</tr>
<tr>
<td>Physical Functioning</td>
<td>.102</td>
<td>.335</td>
</tr>
<tr>
<td>Role Physical</td>
<td>.150</td>
<td>.157</td>
</tr>
<tr>
<td>Pain</td>
<td>.064</td>
<td>.546</td>
</tr>
<tr>
<td>Mental Health</td>
<td>.352</td>
<td>.001</td>
</tr>
<tr>
<td>Vitality</td>
<td>.221</td>
<td>.035</td>
</tr>
<tr>
<td>Social Functioning</td>
<td>.333</td>
<td>.001</td>
</tr>
<tr>
<td>Role Emotional</td>
<td>.223</td>
<td>.034</td>
</tr>
</tbody>
</table>

**Number of Concurrent Medical Illnesses:** The relationship of number of concurrent medical illnesses with the HHI and the HRQoL domains of the SF12 was tested with a Pearson Correlation. The results reveal that the number of concurrent medical illnesses correlated with all the domains of the HRQoL SF12 (all p’s < .05). All the correlations were negative in nature and indicate as the number of concurrent medical diagnoses increased, scores on the domains of the HRQoL decreased. The distribution of number of concurrent medical illnesses is presented in Table 12.
Table 12
Frequency distribution for number of concurrent medical illnesses

<table>
<thead>
<tr>
<th>Number of Illnesses</th>
<th>Count</th>
<th>Percent of Total Sample</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0</td>
<td>8.8</td>
</tr>
<tr>
<td>1</td>
<td>34</td>
<td>37.4</td>
</tr>
<tr>
<td>2</td>
<td>31</td>
<td>34.1</td>
</tr>
<tr>
<td>3</td>
<td>12</td>
<td>13.2</td>
</tr>
<tr>
<td>4</td>
<td>6</td>
<td>6.6</td>
</tr>
</tbody>
</table>

Regression Analysis

A stepwise Multiple Regression Analysis (MRA) was conducted utilizing the HHI scores as the dependent variable and HRQoL domains of the SF12 as the independent variables. Since marital status was associated with the levels of hope, it was used as a control variable.

A stepwise MRA assesses which variables best predict the dependent measure. If a health domain (independent variable) does not significantly predict hope (dependent measure), it is excluded from the analysis. The variables are tested in a stepwise manner, with the HRQoL domain with the strongest relationship being included in the regression equation first. An assessment is then made if any other health domain predicts the level of hope beyond and above the health domain already in the regression equation and if any do, the one with the strongest relationship is included in the equation. This is done until none of the remaining health domains significantly predicts the level of hope.

Marital Status significantly predicts participants' HHI scores, $t(89) = 2.07$, $p = .041$, which is consistent with the result noted earlier. Step 2 of the analysis reveals that the Mental Health, $t(88) = 3.40$, $p = .001$, best predicted the HHI. While the General Health, Vitality, Social
Functioning and Role Emotional domains also significantly predicted the HHI, the Mental Health domain had the strongest relationship and therefore was entered into the equation first. A review of the remaining variables at step 3 reveals that none of them significantly predicted participants HHI scores beyond and above Marital Status and the Mental Health domain, although the General Health domain trended toward significance, $t(87) = 1.98, p = .051$. Therefore, once Marital Status and Mental Health score are in the equation, no other variables assisted in increasing the prediction of participants' HHI scores. This is due to the significant correlations between the domains, which leads to an overlap in the prediction of the HHI. Since there is an overlap, once participants' scores on the Mental Health subscale are entered into the regression equation, the other domains no longer contribute to the prediction of the HHI. The total model that included the participants' Marital Status and Mental Health subscale scores explained an adjusted total of 14% of the variance in HHI scores, $R = .397, F(1,88) = 8.21, p = .001$. Therefore 86% of the variance between HHI and HRQoL is unexplained by the set of factors that are left in the final model. This is due to widely varied self-perceptions of the volunteer participants. The results of the MRA are presented in Table 13.
Table 13
*Stepwise Multiple Regression predicting the HHI scores from the domains of the HRQoL SF12*

<table>
<thead>
<tr>
<th>Model</th>
<th>Variable</th>
<th>Beta</th>
<th>t</th>
<th>p</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>Marital Status</td>
<td>.215</td>
<td>2.07</td>
<td>.041</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Step 2</td>
<td>General Health</td>
<td>.238</td>
<td>2.35</td>
<td>.021</td>
<td>.999</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>Physical Functioning</td>
<td>.078</td>
<td>.740</td>
<td>.460</td>
<td>.986</td>
<td>1.01</td>
</tr>
<tr>
<td></td>
<td>Role Physical</td>
<td>.163</td>
<td>1.58</td>
<td>.117</td>
<td>.997</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>Pain</td>
<td>.039</td>
<td>.370</td>
<td>.711</td>
<td>.986</td>
<td>1.01</td>
</tr>
<tr>
<td></td>
<td>Mental Health</td>
<td>.335</td>
<td>3.40</td>
<td>.001</td>
<td>.992</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>Vitality</td>
<td>.208</td>
<td>2.03</td>
<td>.045</td>
<td>.995</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>Social Functioning</td>
<td>.326</td>
<td>3.31</td>
<td>.001</td>
<td>.999</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td>Role Emotional</td>
<td>.235</td>
<td>2.32</td>
<td>.022</td>
<td>.997</td>
<td>1.00</td>
</tr>
<tr>
<td>Step 3</td>
<td>General Health</td>
<td>.193</td>
<td>1.98</td>
<td>.051</td>
<td>.978</td>
<td>1.02</td>
</tr>
<tr>
<td></td>
<td>Physical Functioning</td>
<td>.037</td>
<td>.370</td>
<td>.712</td>
<td>.971</td>
<td>1.03</td>
</tr>
<tr>
<td></td>
<td>Role Physical</td>
<td>.068</td>
<td>.660</td>
<td>.509</td>
<td>.906</td>
<td>1.10</td>
</tr>
<tr>
<td></td>
<td>Pain</td>
<td>-.155</td>
<td>-1.38</td>
<td>.168</td>
<td>.765</td>
<td>1.30</td>
</tr>
<tr>
<td></td>
<td>Vitality</td>
<td>.095</td>
<td>.890</td>
<td>.373</td>
<td>.853</td>
<td>1.17</td>
</tr>
<tr>
<td></td>
<td>Social Functioning</td>
<td>.202</td>
<td>1.71</td>
<td>.089</td>
<td>.679</td>
<td>1.47</td>
</tr>
<tr>
<td></td>
<td>Role Emotional</td>
<td>.101</td>
<td>.900</td>
<td>.367</td>
<td>.777</td>
<td>1.28</td>
</tr>
</tbody>
</table>

**Note:**  
* b Predictors in the Model: (Constant), Marital Status;  
* c Predictors in the Model: (Constant), Marital Status, Mental Health

**Additional Analyses**

**Internal Consistency of SF 12 and HHI**

Cronbach's alpha measures how well the instrument's items are consistent in measuring the construct. Cronbach's alpha tests were conducted on the HHI ($\alpha=.838$) and SF 12 ($\alpha=.822$). The alphas are of sufficient magnitude, as the scores were within the range of .70 to .90, which indicates acceptable consistency and reliability (Tavakol and Dennick, 2011). Additionally, the total SF 12 scores were correlated with the demographic variables and with the total HHI scores. The results indicated that the total SF12 scores correlated significantly with the HHI scores, $r(90) = .290, p = .005$. The positive correlation indicates that as HRQoL (SF12 score) increased
so did HHI scores. This total score also correlated with the number of medical issues $r(90) = -0.431, p < .001$. The negative relationship indicates as the number of medical issues increased, the total score on the HRQoL SF12 decreased.

**Summary of Results**

Data pertaining to demographic variables provided information about the age, history of medical illnesses, ethnicity, marital status and education. Data revealed the sample was well distributed between ages 65 to over 85. Approximately 68% of the sample was over age 75. A majority (70.3%) reported a history of hypertension, while 41.8% reported arthritis. Fewer participants reported diabetes, COPD, cancer and stroke. Ethnic breakdown consisted of Asian/Pacific Islander, Black/African American, Hispanic/Latina, Native American/American Indian and Non-Hispanic White. The majority of the sample identified as Non-Hispanic White (75.8%). Approximately 75% of the sample was unmarried (single, widowed, divorced, separated). A majority of the sample (89%) are high school or trade school graduates, or had attended or graduated from college.

SF12 scores of the sample were compared with the national mean scores for each HRQoL domain. The sample reported lower scores or more impairment of General Health and Physical Functioning, when compared to national averages. However, the sample reported less Body Pain and greater scores in Vitality and Role Emotional domains. The Role Physical, Mental Health and Social Functioning domains did not differ from their respective national mean scores.

The relationship of demographic variables to HRQoL domains of the SF 12 and HHI were examined. The 65-69 group and the over 85 groups frequently reported the lowest mean scores in health and hope, however the only statistically significant finding was the low mean score of the Vitality domain by the 65-69 group ($p=.036$). Non-White group reported the lowest
mean score of the General Health domain when compared with the White group in the sample (p=.003). Married participants reported higher levels of hope on the HHI (p=.041). Levels of education made no difference in responses to SF12 and HHI.

The relationship between HRQoL domains of the SF12 and the HHI was accomplished by utilizing a Pearson Correlation. The following HRQoL domains that statistically significantly correlated with hope were: General Health (p=.02), Mental Health (p = .001), Vitality (p = .035), Social Functioning (p = .001) and the Role Emotion domain (p= .034). These results indicate that as scores on these domains increased, so did the score on the HHI. Better health correlated with higher hope. It was noted that the number of concurrent medical illnesses also correlated with each of the HRQoL domains of SF 12 (p< .05). Sicker individuals with a higher number of concurrent medical illnesses had lower HRQoL and lower levels of hope. In other words, as the number of medical illnesses increases the SF12 scores and HHI scores decrease.

Multiple stepwise regression was performed to reveal the HRQoL domains of the SF 12 that would best predict levels of hope. It was noted that marital status was identified as a predictor of HHI, such that married participants had the highest HHI scores (p=.041). Mental Health domain had the strongest relationship with HHI and was identified as a good predictor (p=.001). Other domains strongly correlated as predictors at step 2, but Mental Health was strongest. When both Marital Status and Mental Health are considered, they account for 14% of the variance in HHI scores, (p = .001). Widely varied individual self-perceptions by the volunteer participants account for the 86% unexplained variance.

Cronbach’s alphas were conducted on the HRQoL SF12 (α=.822) and the HHI (α=.838) to assure each tool demonstrated internal consistency. Both scores were within the range of .70 to .90, which indicates acceptable consistency and reliability (Tavakol and Dennick, 2011).
Results of this study suggests a correlation between HRQoL and hope in older women who have had heart attacks. Several health domains were statistically significantly correlated to hope. Mental health domain had the strongest relationship with hope. Marital status also had a strong relationship with hope.

Chapter Summary

This chapter presented the statistical results of this study in narrative form and depicted in table format. Descriptive analysis presented demographic characteristics of the sample such as distribution of sample by age range, marital status, ethnicity, level of education and number of concurrent medical illnesses. Sample responses to SF12 were compared with national means. Demographic variables were tested for relationships with HRQoL domains of SF 12 and HHI. Correlational analyses assessed the relationship between hope and HRQoL domains of SF 12 and concurrent medical illnesses reported by the sample. Intercorrelation between HRQoL domains of the SF12 was assessed. Regression analysis assessed the combination of HRQoL domains of the SF12 that best predicted scores on the HHI. Statistical analysis revealed correlations between HRQoL and hope.

The summary of the study is presented in chapter 5. Overview of the study, links to the theoretical framework, sample characteristics, interpretations of findings and strengths and limitations of the study is presented. Implications for practice, recommendations for future research and final conclusions are presented in Chapter 6.
Chapter 5
Discussion

This chapter presents an overview of the study, connections to theoretical rationale, characteristics of the study sample, interpretation of findings and review of the strengths and limitations of the research. The overview outlines the statistical tests. The theoretical framework and relation to the study is illustrated. Study sample characteristics and interpretations of the findings show some conclusions from the study findings. Strengths and limitations of the study are reviewed.

Overview of the Study

The relationship of Hope and Health Related Quality of Life (HRQoL) in older women who have had heart attacks was examined in detail. ANOVA that examined the relationship of demographic variables with their scores of the HRQoL SF12 domains HHI revealed statistically significant findings pertaining to age, ethnicity and total HHI scores. Pearson correlation that examined scores of each HRQoL SF12 domain and total HHI scores with number of concurrent medical illnesses revealed statistically significant correlation such that HRQoL SF12 scores and HHI total scores were lower as the number of concurrent medical illnesses increased. Regression analysis revealed strong relation between one of the HRQoL SF12 domains and HHI.

Theoretical Rationale

The theoretical framework for this study was based on Wilson and Cleary’s (1995) conceptual model of health related quality of life. The model links domains such as biological/physiological, symptoms, functional status, and general health perceptions with quality of life. According to Wilson and Cleary model from left to right, illness or disease disrupts biological/physiological functions which causes symptoms and symptoms disrupt
performance of usual physical activities. Such disruptions influence general health perception and finally effects overall HRQoL in either direction in the model. Contributing factors such as characteristics of the individual and characteristics of the environment are overarching in the model (Ferrans, et al, 2005).

Studies have identified relationships between positive psychology and physical health. Additional studies indicate positive psychological well-being, includes optimism and hope. Hope has been associated with wellness and illness experiences and recovery. Hope is considered necessary for survival of people with chronic diseases.

Aging and chronic illnesses disrupt biological/physiological functions and the resulting symptoms disrupt performance of usual physical activities. The disruptions influence general health perception and HRQoL in older adults. Disruption in functional abilities is related to depression and hopelessness. Conversely, it follows that hope and higher HRQoL are linked to less functional decline and less depression. This study proposed to test the theoretical linkages between HRQoL and hope in older women who have had heart attacks.

This study illustrates how the disruption caused by CHD and concurrent medical illnesses impacted older women in the community. The findings were also compared to levels of hope. Demographic variables were considered, along with HRQoL domains of health. The findings of this study revealed a relation between HRQoL and hope, such that a demographic variable and one of the HRQoL SF12 domains were identified as predictors of overall HHI scores.

**Study Sample Characteristics**

All sample participants (n=91) live independently in their homes and they attend
community programs for seniors. All speak and understand English and they completed the surveys independently. Volunteers with Dementia were excluded. The age of the study sample ranged from 65 to over 85 and over 60% of the sample was over age 75. Over 90% had one or more concurrent medical illnesses in addition to CHD. Four ethnic groups were represented in the sample, however, approximately 75% identified as Non-Hispanic White. Approximately 75% of the sample was not married. Most of the sample had graduated from high school or trade school (89%).

**Interpretation of Findings**

The age of the sample was disproportionally older than US population trends (AOA, 2012). This may be due to later retirement, lack of knowledge about senior services in the community or reluctance to transition from midlife to senior due to fear of aging. This points to the large number of women age 75 and older who are living independently in the community. Studies on hope suggest that older individuals who can no longer live independently have the lowest levels of hope (Herth, 1993).

Review of data revealed that based upon age, the 65-69 age group had the lowest scores in Vitality. This may mean that they experience more fatigue, less energy and sleep disturbances. They also recorded the lowest mean score of all age groups, although vitality scores were the only statistically significant finding.

The ethnic distribution of the sample revealed a disproportionately high number of White women in the sample and a low number Non-White groups than national population trends (AOA, 2012). Non-White women in the sample may not be aware of senior services in the community, they may not trust such services, they may be sicker and unable to utilize senior services or they may be dwelling in care facilities. The scores of the General Health domain of
Non White women were lower compared to White women in the study and the findings were statistically significant. Research by Chowdhury, et al, (2008) found Hispanics, American Indians/Alaska Natives and Blacks were more likely to report fair to poor general health compared to Whites.

Additional results of note indicate possible trends in the domains of Social Function and Pain. The scores of the Social Function domain of Non-White women were lower than White women and scores for Pain indicated Non-White women experienced more pain than White women in the study. This data may point to increased disability, frailty and poorly managed medical illnesses in the Non White groups that prevent them from meeting regular social activities. Further, the Non White women in the sample may accept higher levels of pain as part of illness and aging, or they may not expect pain treatments to be effective, as compared to the White women.

The marital status of the sample was consistent with population trends (AOA, 2012). Many women, age 65 years and older, are widowed, divorced, separated or were never married (Howden & Meyer, 2011). The marital status of the sample was significantly related to level of hope and total HHI scores. The married/committed relationship groups had higher levels of hope when compared to the single groups. Previous research suggests there is a higher prevalence of depression in single individuals (Bulloch, Williams, Lavorato & Patten, 2009). Additionally, a study of women with CHD by Christian, et al, (2009) suggests that being married is associated with improved health and positive outcomes.

A majority of the sample had one or more concurrent medical illnesses, in addition to CHD. Hypertension was the most prevalent concurrent medical illness in the sample. The prevalence of hypertension increases with age and women age 60 and older have higher rates of
hypertension compared with men. (Pemu & Ofili, 2008). Hypertension and being post-menopausal in women are risk factors for CHD (AHA, 2015). Analysis revealed that there was a negative correlation to General Health, Mental Health, Vitality, Social Functioning, Role Emotional domains, overall HHI scores and number of concurrent medical illnesses. This means the scores in those domains and level of hope decrease as the number of concurrent medical illnesses increase.

Data analysis revealed that marital status and mental health domain have the strongest relation to hope. General Health, Vitality, Social Function and Role Emotional domain scores were also statistically significant, but the mental Health domain had the strongest relationship and best predictive value. Marital status and Mental Health domain combined account for 13.8% of the variance in overall HHI scores. A larger sample size may result in stronger statistically significant relationships between additional domains and overall hope.

In summary, study data reveals the importance of health and hope in older women who have had heart attacks. A majority of the women in the study were age 75 and older living independently in the community. A majority identify as Non-Hispanic White. They are likely to be single, graduates of high school or beyond and they are likely to have at least one concurrent medical illness in addition to CHD. A majority of the sample had hypertension. The younger women in the sample are likely to experience fatigue, lack of energy and sleep difficulties, compared to older women. Non-White women are likely to report diminished health, increased pain and limited ability to participate in social functions as the result. Married women or those in committed relationships were more likely to have higher levels of hope. Single women who have had heart attacks may be at risk for mental health issues. Moreover, mental health domain scores correlate with hope, general health and the other health domains. Decreased mental health
scores coincide with decreases in hope. Marital status and mental health scores are strongly related to hope.

**Strengths and Limitations of this Study**

Strengths of this study include broad age distribution of from 65 years to over 85; broad ethnic distribution that included 4 groups and proportionate marital distribution. However, disproportions in age and ethnicities are limitations of the study. The geographic location of the study may have contributed to the age and ethnic disproportions and is a limitation of the study. Sample size of 84 was calculated using G*power. The final sample included 91 participants. However, a larger sample size may have yielded additional results, hence sample size is a limitation of the study. The survey tools, HRQoL SF12 and HH1 were reliable and consistent with Cronbach’s alphas of .822 and .838, respectively. The reliability and consistency of the survey tools is one of the strengths of the study.

**Chapter Summary**

This chapter presented an overview of the study, links to theoretical framework, characteristics of the study sample, interpretation of findings and review of the strengths and limitations of the research. Wilson and Cleary’s conceptual model was the framework and it supported the findings of this study. A relation between HRQoL and hope was identified and predictors of HHI total score related to HRQoL were noted. The characteristics of the sample revealed age, ethnic and education levels that were not consistent with the general population. The findings of the study, along with the strengths and weaknesses of the study revealed some conclusions that have implications for practice and future research.

Chapter 6 presents implications for practice, recommendations for future research and final conclusions.
Chapter 6

Discussion

Chapter 6 presents implications for practice, recommendations for future research and final conclusions. Review of conclusions of the study reveal implications for practice. Recommendations for future research are based upon the conclusions and implications for practice.

Implications for Nursing and Healthcare Practice

Evaluation of HRQoL and level of hope are dimensions of health that provide insight into self-perception of physical and mental well-being. Such information is valuable in identifying actual and potential problems, as well as unmet needs. Adding HRQoL and HHI to standard nursing assessment practices will lead to improvements in the depth and focus of the health assessment of older women who have had heart attacks.

Population trends reveal the increasing number of older women living independently in the community. In this study, the majority of the sample were age 75 and older. Challenges of longevity include increased prevalence of chronic illnesses which leads to disabilities that result in need for skilled nursing care or inability to live independently in later years of life (Fowles & Greenberg, 2011). Research revealed that residents of skilled nursing facilities have the lowest hope scores (Herth, 1993). Advanced education of the physical changes associated with normal aging, disease process in the elderly, unusual presentation of disease in the elderly, as well as prevalent medical and social problems in the elderly prepare nurses and other members of the healthcare team to perform assessments that concentrate on problems specific to older adults, to identify unmet needs and to create person centered plans in order to achieve positive outcomes.
The younger women of the sample from age 65 to 69, reported less Vitality, which results in feelings of fatigue, lack of energy and sleep difficulties. Assessment of Vitality includes obtaining detailed history that focuses on lifestyle, physical changes and medical causes that contribute to fatigue, lack of energy and sleep difficulties, including activity log, sleep log, nutritional habits, hydration, body pain and physical limitations. Screening for medical causes such as anemia, thyroid disease, heart disease, diabetes and hormonal imbalance, as well as depression screening are also parts of comprehensive assessment of reports of low vitality. Education plan should include wellness education, health promotion and illness prevention that should include energy preservation, stress reduction, regular exercise, proper hydration and nutrition.

Findings of this study illustrate the need for increased efforts in women’s health education. In order to support longevity in women and to advocate for better health in the sixth decade and beyond, nurses must lead increased public education efforts to promote health and wellness that focuses on younger women. Education for girls and young women should stress the importance of healthy lifestyle and health practices throughout the lifespan. Topics such as heart health, prevention of hypertension, sleep hygiene and stress management should be added to the current universal health education for women.

Non-White women in the sample reported diminished general health which limited their ability to participate in social functions. They also reported more pain. It is important for nurses and members of the healthcare team to probe the reasons why Non-White women report poor health and to probe their levels of pain. Keeping this in mind, nurses must take the time to establish trust and interest in the well-being of individuals. Non-White women may be skeptical about healthcare. They may not trust the healthcare team and they may feel as if the healthcare
team has not listened or attended to their concerns. In-depth history of health and lifestyle, thorough physical assessment and meticulous evaluation of pain will uncover unmet needs, facilitate collaboration on comprehensive health plans that address unmet needs and foster trust between Non-White women and the healthcare team.

A majority of women in the sample and older women in the general population are single. The single women in the sample had lower scores in the mental health domain, hence, they are at risk for depression. Depression screen uncovers risk for depression and potential need for mental health follow-up. In-depth interview and assessment of level of social involvement and social supports reveal the presence of family or friends who can be depended upon act as advocates or supports in times of need and degree of social interaction. Nurses will make more suitable referrals to community health and social support services based upon assessment findings.

Nurses focus on wellness, illness prevention, health assessment, health education and health planning. Nurses use multiple tools in the collection of such healthcare data. Routine use of the HRQoL SF12 provides valuable information concerning perceptions of health and well-being of individuals. Further, low scores in the HRQoL mental health domain indicates low level of hope. HHI gives additional insight into level of hope, adaptation to chronic illness and ability to set goals that influence positive health outcomes. Health influences hope and hope influences how individuals respond to illness. Herth identified hope hindrances and hope fostering strategies (Herth, 1993) for nurses to use when collaborating with individuals when making health plans.
Hope hindrances diminish or block hope. Loss of independence, chronic pain and activity limitations cause loss of hope, according to research (Duggleby, et al. 2012; Herth, 1993 and 2002). Additional hindrances to hope include lack of social support, loneliness and grieving. Individuals who reside in long term care facilities such as nursing homes report the lowest levels of hope, according to Herth (1993). Health interviews and nursing assessments for hope hindrances provide insight into well-being and mental health. Such insight facilitates planning of hope fostering strategies with their clients.

Hope is linked to positive health outcomes (Duggelby, et al (2012). Hope fostering strategies include physical and emotional comfort measures, such as adequate pain management. Enhancing and establishing family and social connections also increase hope, according to Herth (1993, 2002). Additional strategies include participation in hobbies and recreational activities. The importance of a spiritual connection is also linked to hope (Piraino, Krema, Williams & Ferrari, 2014; Wu & Koo, 2016 ). Hope enables individuals to manage their own health, look toward the future and to set attainable goals (Morse & Doberneck, 1995). Nurses promote positive health outcomes by using hope fostering strategies when planning with their clients.

**Recommendations for Future Research**

Repeating this study using a larger sample with demographic variables consistent with the general population will result in stronger relation between hope and HRQoL. Such a study will reveal stronger relations between hope and the other health domains and stronger predictive values in older women who have had heart attacks. Additionally, repeating this study using a sample of older women with other chronic medical illnesses or a variety of chronic medical illnesses will provide additional information on hope and HRQoL. A study
to compare HRQoL and Hope scores of older women who have had heart attacks to older women who have not had heart attacks will yield more insight about older women.

Low scores in the vitality domain by the younger women in the sample were statistically significant, however, the 65 to 69 age group reported the lowest scores in all domains. My personal observations also revealed that the younger participants seemed to be experiencing more pain and activity limitations at the time of the survey. Probing vitality and self-perceptions of well-being of women ages 65 to 69 provides insight into health concerns and unmet needs. Prevention of complications and positive outcomes are likely results.

Research that focuses on health disparities between White and Non-White women with chronic disease is an area for future research. Findings of this study reveals that Non-White participants reported lower levels of health resulting in inability to participate in social functions. Studies that drill down to which health concerns or issues that prevent participation in social activities by samples of Non-White women will reveal previously unreported problems and it will guide future assessments and health planning with Non-White women with chronic diseases.

Although Non-White women in the sample reported lower levels of health, they also reported lower levels of pain when compared to White women in the sample. Research that examines pain, pain assessment, acceptance of pain as part of aging and low expectations of pain relief treatment by Non-White women will result in pain assessment practices that accurately capture pain levels in Non-White women and they will assure the best quality of pain management. Further, examining the difference between pain and physical discomfort will provide information that will improve pain assessment.

Findings of this study point to the need of additional research in mental health screening
and assessment through the lifespan, especially before declines in health or chronic disease occur. Mental health is an indicator of hope and general well-being. This study shows that poor mental health is consistent with decreased hope, general health, physical limitations, pain and vitality. Further, this study results suggest marital status is a predictor of hope, such that married women or women involved in committed relationships have higher levels of hope. Probing into the difference in HRQoL and Hope of widowed women compared to single and divorced may yield valuable information about the mental health of older women. Research that examines predictors of additional predictors of hope in women with CHD or other chronic illnesses will facilitate early screening and prevention in some cases and timely assessment and treatment in other cases.

Research on identifying hope fostering strategies and the effectiveness of such strategies will inform nurses and other members of the healthcare team on how to plan for enhanced hope. Enhanced hope will lead to improved health perception, ability to plan for future and ability to set attainable goals. Such results contribute to positive health outcomes.

**Conclusions**

This study showed that health related quality of life and level of hope provide valuable insight into the self-perception of older women who have had heart attacks. The findings of this study revealed a strong relationship and statistically significant predictive value between HRQoL SF12 and HHI. This study points out the impact of mental health and support systems on general health and other HRQoL domains of health.

Several areas that signal need for improvement and implications for nursing and healthcare practice were identified. The suggested changes in nursing and healthcare practice
will result in concentrated assessments, identification of unmet needs, person centered planning and achievement of positive outcomes. The findings of this study can be expanded and future studies will reveal additional relationships and predictors between HRQoL and hope. Such findings facilitates early screening, guided assessments, improved quality of care and increased number of positive outcomes.
Appendices

Appendix A

SF-12v2® Your Health and Well-Being

Unique Identifier: ______________ Date: ____________

**SF-12v2™:**
This survey asks for your views about your health. This information will help keep track of how well you are able to do your usual activities. Thank you for completing this survey!

For each of the following questions, please mark an X in the one box that best describes your answer.

1. In general, would you say your health is:
   - □ Excellent (1)
   - □ Very Good (2)
   - □ Good (3)
   - □ Fair (4)
   - □ Poor (5)

The following questions are about activities you might do during a typical day. Does your health now limit you in these activities? If so, how much?

2. Moderate activities, such as moving a table, pushing a vacuum cleaner, bowling, or playing golf:
   - □ Yes, Limited A Lot (1)
   - □ Yes, Limited A Little (2)
   - □ No, Not Limited At All (3)

3. Climbing several flights of stairs:
   - □ Yes, Limited A Lot (1)
   - □ Yes, Limited A Little (2)
   - □ No, Not Limited At All (3)

During the past 4 weeks, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of your physical health?

4. Accomplished less than you would like:
   - □ All of the time (1)
   - □ Most of the time (2)
   - □ Some of the time (3)
   - □ A little of the time (4)
   - □ None of the time (5)
5. Were limited in the kind of work or other activities:
   - All of the time (1)
   - Most of the time (2)
   - Some of the time (3)
   - A little of the time (4)
   - None of the time (5)

During the past 4 weeks, how much of the time have you had any of the following problems with your work or other regular daily activities as a result of any emotional problems (such as feeling depressed or anxious)?

6. Accomplished less than you would like:
   - All of the time (1)
   - Most of the time (2)
   - Some of the time (3)
   - A little of the time (4)
   - None of the time (5)

7. Did work or other activities less carefully than usual:
   - All of the time (1)
   - Most of the time (2)
   - Some of the time (3)
   - A little of the time (4)
   - None of the time (5)

8. During the past 4 weeks, how much did pain interfere with your normal work (including both work outside the home and housework)?
   - Not At All (1)
   - A Little Bit (2)
   - Moderately (3)
   - Quite A Bit (4)
   - Extremely (5)

These questions are about how you feel and how things have been with you during the past 4 weeks. For each question, please give the one answer that comes closest to the way you have been feeling. How much of the time during the past 4 weeks...

9. Have you felt calm and peaceful?
   - All of the Time (1)
   - Most of the Time (2)
   - Some of the Time (3)
   - A Little of the Time (4)
   - None of the Time (5)
10. Did you have a lot of energy?
   □ All of the Time (1)
   □ Most of the Time (2)
   □ Some of the Time (3)
   □ A Little of the Time (4)
   □ None of the Time (5)

11. Have you felt downhearted and blue?
   □ All of the Time (1)
   □ Most of the Time (2)
   □ Some of the Time (3)
   □ A Little of the Time (4)
   □ None of the Time (5)

12. During the past 4 weeks, how much of the time has your physical health or emotional problems interfered with your social activities (like visiting friends, relatives, etc.)?
   □ All of the Time (1)
   □ Most of the Time (2)
   □ Some of the Time (3)
   □ A Little of the Time (4)
   □ None of the Time (5)

Thank you for completing these questions!
Appendix B  
**HERTH HOPE INDEX**

Listed below are a number of statements. Read each statement and place an [X] in the box that describes how much you agree with that statement right now.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I have a positive outlook toward life.</td>
<td></td>
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<tr>
<td>2. I have short and/or long range goals.</td>
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<td>3. I feel all alone.</td>
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<tr>
<td>4. I can see possibilities in the midst of difficulties</td>
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<td>5. I have a faith that gives me comfort.</td>
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<tr>
<td>6. I feel scared about my future.</td>
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<tr>
<td>7. I can recall happy joyful times</td>
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<tr>
<td>8. I have deep inner strength.</td>
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<td></td>
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<tr>
<td>9. I am able to give and receive caring and love.</td>
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<tr>
<td>10. I have a sense of direction.</td>
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<tr>
<td>11. I believe that each day has potential.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. I believe my life has value and worth.</td>
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</tbody>
</table>

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Appendix C

DEMOGRAPHIC DATA

Instructions: Please mark your answers with an X or ✓ in the box.
Example: ❌ or ✓

1. AGE: ☐ 65 years to 69 years
    ☐ 70 years to 74 years
    ☐ 75 years to 79 years
    ☐ 80 years to 84 years
    ☐ 85 years and older

2. GENDER: ☐ FEMALE
    ☐ MALE

3. Language: Do you speak and understand spoken and written English?
    ☐ YES
    ☐ NO

4. Medical History: Has an MD told you that you have any of the following:
    ☐ Heart Attack
    ☐ Dementia or Alzheimer’s Disease
    ☐ Hypertension or High Blood Pressure
    ☐ Diabetes or High Blood Sugar
    ☐ COPD/ Emphysema or Asthma
    ☐ Cancer
    ☐ Stroke
    ☐ Arthritis
    ☐ Other Chronic condition

5. Ethnicity: ☐ Asian/ Pacific Islander
    ☐ Black or African American
    ☐ Hispanic or Latino
    ☐ Native American or American Indian
    ☐ Non-Hispanic White
    ☐ Other

6. Household: Do you own the home that you live in?
    ☐ YES
    ☐ NO
7. Household: Do you live with family members?  
☐ YES  
☐ NO

8. Household: What is your current Marital Status:  
☐ Single/ never married  
☐ Married  
☐ Widowed  
☐ Divorced or Separated  
☐ Member of unmarrried relationship

9. Education:  
☐ some elementary school  
☐ completed elementary school  
☐ some high school  
☐ graduated high school  
☐ trade school  
☐ some college  
☐ graduated college

10. Religious Affiliation: Do you belong to any of the below religions?  
☐ Christian- non Catholic  
☐ Christian- Catholic  
☐ Jewish  
☐ Muslim  
☐ Other

11. Religious Affiliation: How often do you practice traditions of your religion?  
(Examples: attend services personally or via TV, pray, meditate)  
☐ daily  
☐ weekly  
☐ monthly  
☐ yearly  
☐ on the holidays  
☐ I do not/ cannot practice the traditions

12. Sources of income: Check all that apply:  
☐ Social Security  
☐ Pension  
☐ Savings  
☐ Family support  
☐ Other

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Appendix D

INFORMED CONSENT RELEASE

Investigator: My name is Alice Tobin, and I am a Registered Nurse, Geriatric Nurse Practitioner and a doctoral candidate at City University of New York Graduate Center. I am inviting you to participate in a research study. Involvement in the study is voluntary, so you may choose to participate or not. I am now going to explain the study to you. Please feel free to ask any questions that you may have about the research; I will be happy to explain anything in greater detail. If you have any questions after our meeting, you can reach me by telephone at (631) 851-6437 or by email at akelly_tobin@gc.cuny.edu.

I am interested in learning more about hope and health related quality of life in women age 65 and older who have had heart attacks. You will be asked to provide some demographic information and complete 2 surveys- in all 36 questions. This will take approximately 15 to 20 minutes of your time. All information will be kept anonymous and confidential. This means that your name will not appear anywhere and no one except me will know about your specific answers. I will assign a number to your survey, and only I will have the key to indicate which number belongs to which participant. In any articles I write or any presentations that I make, I will not use your name, and I will not reveal details or personal information about you.

The benefit of this research is that you will be helping us to understand the role of hope and self-perceptions of health of women age 65 and older who have had heart attacks. This information should help us to better understand the needs of older women who have had heart attacks. The risks to you for participating in this study are minimal; and if you should require additional health care assistance you will be referred to your primary care physician or the Suffolk County Department of Health clinic closest to your home. If you do not wish to continue, you have the right to withdraw from the study, without penalty, at any time.

Participant - All of my questions and concerns about this study have been addressed. I choose, voluntarily, to participate in this research project. I certify that I am at least 18 years of age.

print name of participant

signature of participant date

print name of investigator

signature of investigator date

Tobin 2015
References


Ferguson, E. (2013). Personality is of central concern to understand health: towards a theoretical model for health psychology. *Health Psychology Review, 7*(sup1), S32-S70.


