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A Test of Orem's Theory of Self-Care Among Individuals with Heart Failure

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A TEST OF OREM'S THEORY OF SELF-CARE AMONG INDIVIDUALS WITH HEART FAILURE

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AMONG INDIVIDUALS WITH HEART FAILURE

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Abstract

Background: Heart failure (HF) constitutes a major health problem and is a leading cause of morbidity and mortality in the United States. Self-care strategies have been proposed as a means of disease management if practiced consistently, and should slow the progression of HF and reduce re-hospitalization rate. Unfortunately, few individuals actually perform self-care practices. According to Orem's self-care theory, basic conditioning factors are predictors of self-care ability.

Purpose: To test the relationships between the variables identified in Orem's theory of self-care among a group of individuals diagnosed with varying degrees of HF and to determine if self-care agency is significantly related to self-care behavior. Four research questions with their accompanying hypotheses were posed.

Theoretical Framework: Orem's theory of self-care

Methods: A non-experimental, exploratory, and descriptive correlation design was employed wherein data were collected at one point in time using a voluntary convenience sample. Participants with HF from various cardiology group clinics in an urban area of central Florida completed the: (1) Multidimensional Scale of Perceived Social Support, (2) Heart Failure Knowledge Test, (3) Specific Activity Scale, (4) Revised Heart Failure Self-Care Behavior Scale, and (5) Exercise Self-Care Agency Instrument. Data were analyzed using multiple regression, *t*-test, and ANOVA.

Results: Social support was found to be a significant predictor of self-care behavior, and self-care agency was significantly correlated to self-care behavior. However, knowledge of heart failure and state of health were not significantly related to self-care behavior.

Conclusion: These findings have implications in the areas of nursing education, nursing practice, nursing research, and public policy. Future research should focus on obtaining a sample more representative of the population as a whole and recruitment of a larger sample size.

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DEDICATION

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CHAPTER ONE

INTRODUCTION

Heart failure (HF) is a condition in which the heart gradually loses the ability to pump enough blood to adequately supply the body. As a result, too little blood is delivered to the organs and other tissues. These structures then do not receive enough nutrients to function properly. Heart failure is a chronic disease characterized by periods of remission and exacerbations. The incidence of HF increases with aging and in individuals with known risk factors, including hypertension, coronary artery disease, diabetes mellitus, familial history of cardiomyopathy, and obesity (American Heart Association [AHA], 2008). Therefore, as the population as a whole lives longer but experiences more co-morbid conditions that require complex therapeutic regimens, it can logically be anticipated that the incidence of HF will increase (Naylor, Brooten, Campbell, Maislin, McCauley, & Schwartz, 2004).

Heart failure constitutes a major health problem and is a leading cause of morbidity and mortality. Heart failure affects an estimated five million people in the United States (U.S.) and that number is increasing annually; the AHA estimates that 550,000 new cases are diagnosed each year. It is the most common reason for hospital admission in adults older than 65 years; one million people are hospitalized annually with 30% to 60% being re-admitted for exacerbations of the disease. According to the AHA's Heart Disease and Stroke Statistics update (2008), hospital discharges for HF in the US rose from 400,000 annually in 1979 to 1,084,000 in 2005; this indicates an increase of 171% (AHA, 2008). In Florida, age-adjusted hospitalization rate from congestive HF

among all races rose from 73,320 in 2003 to 370,800 in 2007 (Florida Department of Health, Office of Health Statistics, 2009).

Morbidity associated with HF is directly related to the death rates attributed to HF, which are unacceptably high. From 1994 to 2004, the death rate from HF increased 28% (AHA, 2007). Heart failure death rate increases with age; the average mortality rates for black and white males between ages 65 and 74 is 16%, for ages 75 to 84 years is 28.6% and ages 85 and older is 57.9% (Rosamond et al., 2007). In Florida, age-adjusted HF death rates for all races and all sexes increased from 7.3 million in 2005 to 7.8 million in 2007 (Florida Department of Health, Office of Health Statistics, 2009).

The estimated cost for each hospital admission for a patient with an exacerbation of HF is approximately $8,000 per patient. While this may not seem exorbitant at the individual level, the overall costs to manage this condition have been estimated to exceed $35 billion per year (AHA, 2008). In addition to the financial burden on the healthcare system, there is the personal burden on the patients, their families, and/or significant others, and society as a whole. Patients with HF must deal with debilitating symptoms, frequent hospitalizations, and high rates of mortality (Moser & Mann, 2002).

Cognizant of these costs, healthcare organizations and local and national governments have focused on strategies to decrease the incidence, reduce the morbidity, and ultimately reduce the mortality caused by the disease. Although effective ways of managing HF have been promoted, the mortality and morbidity from HF remains high.

Self-care strategies have been proposed as a means of disease management that, if practiced consistently, should slow the progression of HF and reduce exacerbations that require in-patient management (Moser & Watkins, 2008). The behavior of self-care in

individuals with HF incorporates self-monitoring of symptoms and self-assessment so that providers are notified of exacerbations in a timely manner as required (McCormack, 2003). Unfortunately, few individuals actually perform self-care practices consistently (Moser & Watkins, 2008). Research findings suggest that factors such as severity of symptoms and education are associated with an individual's ability to perform self-care practice (Albert, 2008; Artinian, Magnan, Sloan, & Lange, 2002; Chris, Sheposh, Carlson, & Riegel, 2004; Ni et al., 1999; Riegel, 2008; Rockwell & Riegel, 2001).

The inadequate use of self-care practices may be, in part, due to a lack of understanding among health care providers regarding the factors that influence an individual's self-care agency. Findings from previous studies (Albert, 2008; Artinian, Magnan, Sloan, & Lange, 2002; Chris, Sheposh, Carlson, & Riegel, 2004; Ni et al., 1999; Riegel, 2008; Rockwell & Riegel, 2001) indicate a need for further investigation to explore factors that support, promote, and/or motivate an individual with HF to consistently implement self-care practices to manage HF.

Background of the Problem

The literature is convincing in its conclusions that factors such as education, family involvement, coaching and frequent follow-up with health care providers can be effective means to reduce hospitalizations and costs related to HF (Jovicic, Holrod-Leduc, & Straus, 2006; Moser &Watkins, 2008). Equally impressive are findings that failure to engage in self-care practices can be a direct cause of increased hospitalizations for these patients (Moser, Dowering, & Chung, 2005). However, few studies have been done that examined specific self-care practices of individuals with HF and the factors that predict or influence the self-care agency. Studies regarding self-care strategies have been

shown to be beneficial for individuals with other chronic disease such as asthma and Type 2 diabetes but the effects on other conditions, including HF, are unclear (Jovicic, Holroyd-Leduc, & Straus, 2006). Given the incidence and severity of HF in the U. S., it is important to understand the factors that influence self-care management behaviors of individuals with HF (Artinian, Magnum, Sloan, & Lange, 2002; Jovicic, Holroyd-Leduc, & Strauss, 2006).

Statement of the Problem

Heart failure is a chronic disease that is prevalent and a costly problem in the US. Self-care practices are thought to reduce exacerbations and mortality related to HF, but these practices are inconsistently implemented by the patients that need them the most (Artinian, Magnan, Sloan, & Lange, 2002; Chriss, Sheposh, Carlson, & Riegel, 2004; Moser & Watkins, 2008). Previous study of HF and self-care has focused heavily on the relationship of self-care agency (self-care abilities) to self-care outcomes, but limited emphasis has been placed on the factors that influence self-care agency (Stewart, Moser, & Thompson, 2004). There is no doubt that, in an era where issues concerning cost and quality of care are at the forefront, it is important that research regarding self-care practices of individuals with HF should be addressed. Moreover, a self-care model derived from Orem (1991) suggests potential linkages of basic conditioning factors to self-care agency among individuals with chronic illnesses (Orem, 1991). However, this aspect of basic conditioning factors' linkage has not been studied among individuals with HF.

Purpose

In order to improve self-care practices and decrease hospitalizations, recognizing the predictors for self-care agency among individuals with HF is necessary. Because decrease in self-care practices behaviors among individuals with HF has been linked to a variety of factors, such as family/social support, knowledge, health state/severity of symptoms, and resource availability and adequacy/socio-economic status, studies are needed to identify which of these factors influence self-care agency in HF individuals.

Therefore, the purpose of this study was to test the relationships of selected constructs identified in Orem's theory of self-care among a group of individuals diagnosed with varying degrees of HF and receiving ongoing medical care for their HF condition to determine if these constructs are significantly related to self-care behavior. The selected basic conditioning factors of health state (symptoms severity), family/social support, knowledge, and socio-economic factors (resource availability and adequacy), theorized to be antecedents or predictors of self-care agency, were considered for their relationship to self-care agency (self-care ability). Self-care agency was then examined for a relationship with the actual behavior of engaging in self-care practices. Understanding these factors is essential in assisting practitioners and other providers to develop appropriate, relevant, and evidence-based interventions to promote and support self-care behaviors among this population.

Research Questions and Hypotheses

The research questions and their corresponding hypotheses are reflective of the variables identified in the theory of self-care and their proposed relationships as predictors of self-care agency (see Figure 1).

Research Question and Hypothesis 1

Research Question

Do the basic conditioning factors of family/social support and knowledge of HF predict self-care agency among individuals with HF?

Hypothesis

There is a significant positive relationship, uniquely or as a linear composite, between the predictor variables of family/social support and knowledge of HF and the outcome criteria of self-care agency for individuals with HF.

Research Question and Hypothesis 2

Research Question

Does the state of health/degree of symptoms being experienced by an individual with HF influence the level of self-care agency?

Hypothesis

There is a significant difference in the mean scores for the measure of self-care agency between the four categories of state of health/degree of symptoms reported by individuals with HF.

Research Question and Hypothesis 3

Research Question

Do individuals that report having adequate available healthcare insurance report higher levels of self-care agency than do those individuals that do not have such resources?

Hypothesis

There is a significant difference in the mean scores for the measure of self-care agency between the two categories of resource availability and adequacy as measured by having or not having healthcare insurance to meet healthcare needs.

Research Question and Hypothesis 4

Research Question

Is there a relationship between self-care agency and the actual behavior of carrying out self-care practices among individuals with HF?

Hypothesis

There is a significant positive correlational relationship between the scores for self-care agency and the scores for self-care behavior among individuals with HF.

Theoretical Framework

Orem's theory of self- care is one of the popular theories of self-care within the discipline of nursing. The purpose of the theory is to serve as a guide for nursing practice and generate nursing knowledge and nursing theory (Orem, 1995). One of the tenants of the theory is that individuals deliberately perform regulatory self-care actions and sequences of actions directed toward themselves or their environment to regulate or maintain their own functioning. Individuals are viewed as continuously engaging in self-care actions in the process of daily living to meet three types of requisites: universal, developmental, and health deviation. According to Orem, the requirements for regulatory action that arise from health problems are referred to as health-deviation self-care requisites (2001).

To adequately perform health deviation self-care, individuals must have knowledge and resources to seek appropriate medical care, the knowledge to understand the disease, the knowledge and skill to carry out the therapeutic regimen, and the ability to modify their self-concept and lifestyle to promote optimal health status (Orem, 1991). The ability to carry all the mentioned functions is known as self-care agency. This study proposes that basic conditioning factors (BCF) are influential and preceded self-care agency. Self-care agency is considered to be the immediate precursor of self-care behavior. The theoretical integration of these factors based on Orem's self-care theory for this study, is demonstrated in care (Figure 1).

Basic Conditioning Factors

A wide range of BCFs including age, gender, developmental state, socio-cultural orientation, health state, family system factors, health care system factors, patterns of living, environmental factors and resource availability and adequacy, are considered as pre-requisite to self-care agency. If a person's self-care agency is limited by these factors, then the individual will not be able to perform self-care practices/behavior. The individual limitations to self-care agency will lead to deficit in self-care (Orem, 1995, 2001).

Self-Care Agency

Health deviation self-care requisites are derived from illness and/or injury experiences that develop from genetic and/or constitutional conditions, human structural and/or functional deviations, and/or medical diagnoses. Health deviation self-care requisites increase the total demand for self-care experienced by patients living with pathological conditions (Orem, 2001). The tasks of health deviation include self-

monitoring of symptoms, self assessment, and self-treatment of minor illness (McCormack, 2003). An individual's ability to perform these activities is referred to as self-care agency.

Self-care agency is considered a prerequisite to the behavior of meeting self-care demands. Self-care demand includes all actions required to maintain life and promote health, development, and well-being. A self-care deficit exists when therapeutic self-care demand exceeds the individual's self-care capabilities (self-care agency).

Self-care agency is conceptualized as a human power consisting of a complex set of capabilities, including the ability to engage in activities that promote and maintain healthy behavior patterns that support human functioning and development. It includes knowledge, skills, and the motivation required to make decisions and perform self-care actions. Self-care agency is influenced by both internal and external factors, including developmental stage, relevant life experiences, socio-cultural orientation, and resources.

Self-Care Behavior

The consequence of self-care agency is self-care behavior. Self-care behavior is the practice of activities that the individual initiates and performs in order to maintain health and well-being (Orem, 2001).

Relevance of the Theory to the Study

Orem's self-care model is a theory for the present study. The theory is relevant to this study because self-care agency of individuals with HF varies with health state and with factors that influence life experiences such as learning, exposure to cultural influences, and for use of resources in daily living (Orem, 2001). Individuals with HF, by Orem's definition, perform self-care as a part of daily living. They have learned these

deliberate self-care management actions through social interactions with the goal of continuing their well-being by utilizing their own abilities to perform. Self-care activities in these individuals include weighing self, adhering to medications, and monitoring symptoms on their own behalf to prevent frequent re-hospitalization. However, in order to perform self-care activities, the individual must have self-care agency.

Self-care agency (ability to perform self-care) depends on various factors known as basic conditioning factors. Among individuals with HF, basic conditioning factors reflect the factors of health state/severity of symptoms, family/social support, knowledge, and resource availability and adequacy/socioeconomic status. These factors may influence decision making, engagement of weighing self, or performing other self-care practices.

Health state/severity of symptoms may impact the ability to obtain self-care supplies and information. Also, health state may limit the patient's ability to understand and problem-solve the many treatment regime issues that arise daily for those performing HF self-management. Prior exposure to HF education and knowledge of HF as a condition may impact the individual's level of understanding of this disease, its trajectory, and recommended self-care practice. Social support from family and friends has been linked to lower hospital readmission rates and improved medication adherence, whereas lack of emotional support and living alone has been related to psychosocial distress in HF patients (Dunbar, Clark, Quinn, Garry, & Kaslow, 2008). Resource availability and adequacy/socioeconomic status affect primarily the selection of means to meet self-care requisites and the associated measures (Orem, 2001). In individuals with HF, for example, the availability of insurance or being non-insured may determine what

means they take to manage their HF symptoms. Some individuals may wait until their symptoms are severe so that they can go to the emergency room since they cannot afford routine visit due to lack of insurance.

Orem's theory has successfully provided the theoretical foundation for other studies of individuals with chronic illnesses (Artinian et al., 2002; Fok & Wong, 2003; Geden, Isaramalai, & Taylor, 2002; Riegel, 2008). This study examined the relationship of selected BCFs, health state/severity of symptoms, family/social support, knowledge of HF, and resource availability and adequacy/socio-economic factors, to self-care agency and the relationship of self-care agency to self-care behaviors of individuals with HF. While it is acknowledged that there are more BCFs than the ones chosen herein, the selection of these specific factors was based on their relevance to this study, the researcher's clinical experience, and research theory from the previous inquiry.

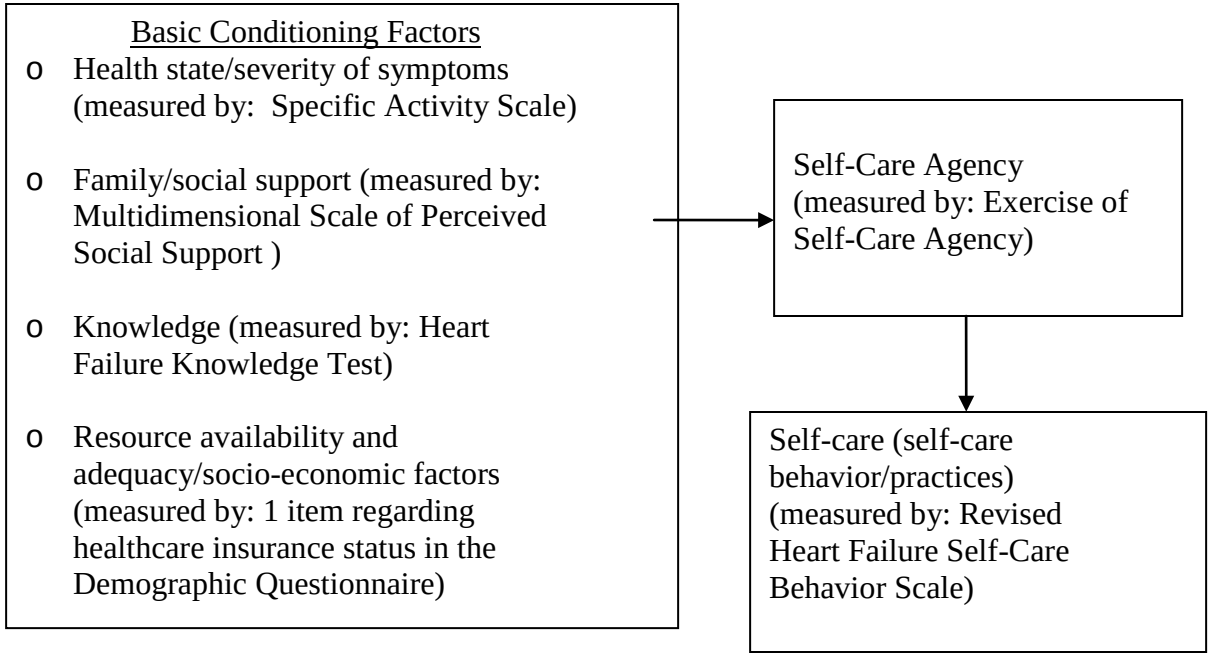

Figure 1. Self-care model adopted by Odoh (2009) based on Orem's theory of self-care (2001).

Definition of Terms

The following terms are defined according to their use in the study.

Basic Conditioning Factors

Basic conditioning factors (BCF) are those internal and/or external influences for self-care agency, the ability to engage in self-care actions. According to Orem (1991), BCFs may consist of age, gender, developmental state, socio-cultural background, and environmental factors, as well as resource availability and adequacy. Orem (1995) theorized that change in BCFs occurs as one transitions throughout life and that these changes in BCFs may impact one's self-care agency. While not all of the possible BCFs will be examined herein, previous studies (Artinian et al., 2002; Chriss, Sheposh, Carlson, & Riegel, 2004; Ni et al., 1999; Riegel et al., 2001; Stewart, Moser, & Thompson, 2004) have indicated that the selected BCFs of health state/severity of symptoms, family/social support, knowledge, and resource availability and adequacy/socio-economic factors may be significantly related to the ability to carry out self- care, or self-care agency, among individuals with HF. Self-care agency is then, in turn, directly related to the actual practice of self-care behaviors.

Health State/Severity of Symptoms

Theoretical Definition. Health state/severity of symptoms is defined as a person's manifestation to self and others of his/her existence including the circumstances under which he/she exists. In addition, health state is concern for the degree of illness, affects of the disease or the disorder, and the specific effects of the therapeutic interventions implemented (Orem, 1995).

Operational Definition. Health state/severity of symptoms was operationally measured as the total score on the Specific Activity Scale (SAS) developed by Goldman et al. (1981) specifically to measure the severity of the symptoms of HF and the effect on the ability to carry out normal activities of daily living (ADL).

The instrument consists of five items that describe various activities requiring similar and incrementally decreasing energy expenditure. Based on the individual's responses, they are ranked according to their specific activity scale functional class whereby class I indicates that the individual is *fully functional* and able to perform activities requiring > 7 metabolic equivalents (METS) without experiencing symptoms. Category II indicates that, while the individuals does not function fully and is unable to perform activities that require > 7 METS, they can carry out activities that require > 5 METS or less and is considered to have *mild symptoms* with the activities. Category III individuals are able to carry out activities that require > 2 METS without experiencing symptoms but are unable to carry out activities that require > 5 METS; these are said to have *marked symptoms*. Individuals that are unable to perform any activities without symptoms are considered to have *severe limitations* and are categorized as IV.

Family/Social Support

Theoretical Definition. The terms family system factors/social support have been frequently and consistently used in literature as a factor that influences self-care capabilities (Mollaoglu, 2006). Orem (2001, 1991) includes family, friends, and work groups as important aspects of individuals' social environment and a major source of social support.

Operational Definition. Social support was measured using the Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet, Dahlem, Zimet, & Farley, 1988). The survey consists of 12 items that measure the adequacy of social support from three specific sources: family, friends, and significant others. All three subscale items allow for responses on a 7-point Likert scale ranging from 1 indicating *very strongly disagree* to 7 indicating *very strongly agree*. Higher subscale scores indicate greater perceived adequacy of social support from each of the three respective sources.

Knowledge of Heart Failure Self-care

Theoretical Definition. Knowledge is defined as a general understanding of a disease or disorder as well as self-care management associated with that disease or disorder. Knowledge may include recognition of symptoms and appropriate interventions, medications, diet, and exercise (Orem, 2001).

Operation Definition. Knowledge of HF self-care was operationalized using the Heart Failure Knowledge Test (HFKT) (Artinian, 1999). The test consists of 15 multiple-choice questions plus one fill- in –the- blank item designed to assess a patient's understanding of the reason for symptoms, symptoms of HF, low-sodium food selection, medications and actions to take if there are side effects from the medications, and self-management relative to weight monitoring, physical activity, and worsening symptoms. Knowledge scores are determined by summing the number of correct answers. The minimum score is zero indicating a total *lack of knowledge* and a maximum score of 15 indicating *optimal knowledge*.

Resource Availability and Adequacy/Socio-economic Factors

Theoretical Definition. Resource availability and adequacy/socio-economic factors incorporate all the activities that involve a community and its composition by family units, social units, and governmental organization. In addition, it includes availability of resources for community members' daily living and for special needs of the community as a whole and the individuals and families. These needs involve cultural practices, accessibility to prescription use, transportation for healthcare access, and cost and methods of financing of health services. As an example, Orem (2001) considered how the availability of protein-containing foods and their cost determines the ability to maintain adequate nutritional intake for persons living under specified conditions.

Operational Definition. While it is recognized that resource availability and adequacy/socio-economic factors encompass a large number of possible factors, herein it was operationalized as the ability to pay for health care. Having insurance coverage for healthcare needs and income level was considered as having adequate available resources. This item was included in demographic survey questionnaire.

Self-Care Agency

Theoretical Definition

Self-care agency is the human capability to perform self-care. Self-care agency is defined as "the complex acquired ability to meet one's continuing requirements for care" (Orem, 2001, p. 254). Self-care agency was conceptualized (Orem, 1995) as having a substantive structure that consists of three broad types of abilities: (1) foundational capabilities (genetic, developmental, and socio-cultural), (2) the presence power components (physical energy, cognitive abilities, and interpersonal skills, which

enable the patient to integrate self-care into one's life), and (3) operational capabilities (such as the competence to estimate one's ability to perform self-care activities in view of one's strength and illness limitations.

Operational Definition

Self-care agency was operationalized using Exercise of Self-Care Agency (ESCA) (Kearney & Fleischer, 1979). The instrument consists of 43 items measuring self-care capabilities. All items are calculated on a 7-point Likert scale ranging from zero indicating *very uncharacteristic of me* to 7 indicating *very characteristic of me*. Higher scores indicate a high degree of self-care agency, and lower scores indicate low self-care agency.

Self-Care Behavior

Theoretical Definition

Self-care behavior is defined as the consistent practice of activities that maturing and matured individuals initiate and perform on their own behalf for the purpose of maintaining life, personal development, health, and, well-being (Orem, 1995).

Operational Definition

Self-care behavior was operationalized by means of Revised Heart Failure Self-Care Behavior Scale (Artinian et al., 1999). The instrument consists of 29 behaviors that patients with HF must regularly and consistently perform to maintain their health and well-being. All items are calculated on a 7-point Likert scale ranging from one indicating *none of the time* to 7 indicating *all of the time*. Higher scores indicate that the person consistently practices the self-care behaviors, while lower scores indicate that the behaviors are not performed consistently.

Assumptions

The following assumptions were accepted without evidence of proof.

Theoretical Assumptions

A common set of assumptions regarding individuals with HF self-care practice, based on Orem's theory (Orem, 2001) are:

- A person's ability to respond to internal and external stimuli constitutes self-care agency.
- Individuals with HF will perform actions deliberately in response to internal and external stimuli.
- Self-care is learned through human interaction and communication.
- Self-care practice/ behavior include deliberate and systematic actions performed to meet known needs for care.

Research Assumptions

It was herein assumed without validation that research participants were able to read English adequately to understand the questions posed on the research instruments and that they answered honestly and to the best of their knowledge.

Significance of the Study

Understanding the dynamics of self-care behavior of individuals diagnosed with HF has implications in a variety of domains within both the nursing profession and the greater environment in which nursing and patient care is carried out. Nurses function in as educators for both aspiring nurses and patients. Nurses carry out, evaluate, and implement evidenced-based research. Nurses at all levels of clinical practice can anticipate providing care for a patient with some degree of HF. The unique function of

the nurse, according to Virginia Henderson (1966), is “to assist the individual, sick or well, in the performance of those activities contributing to health or its recovery (or to peaceful death) that he would perform unaided if he had the necessary strength, will or knowledge, and to do this in such a way as to help him gain independence as rapidly as possible" (Henderson, 1966, p. 15).

Implications for Nursing Education

Nursing students will clearly encounter patients with HF. They must be prepared to assess psychosocial and physical barriers to self-care practices. Knowledge gained from this inquiry will enable nurse educators to a revise curriculum geared specifically to the HF population. This curriculum would logically include methods of self-care management, disease management, and treatment options for individuals with HF as well as available services and resources for health promotion.

Implications for Nursing Practice

Individuals with HF represent a very large number of hospital re-admissions which consumes a large percentage of the nation’s health care dollars (AHA, 2008). The current emphasis is on prevention of exacerbation of illness, maintenance of health, and a reduction of hospital admissions among HF patients. This requires that individuals with HF learn to assume the responsibility of meeting their own self-care needs.

Nurses are in a prime position to develop educational programs that target this population and thereby improve outcomes for individuals with HF. Studies have indicated that nurse-led follow- up at an outpatient clinical after hospitalization improved survival and self-care behaviors in individual with HF (Stromberg et al., 2003).

As advanced practice nurses are increasingly utilized to manage chronic illnesses, many HF clinics are managed by nurse practitioners. These nurses would be well equipped to promote self-care behaviors, and thereby reduce exacerbations, among their patients.

Implications for Nursing Research

Nursing research provides the foundation for nursing theories as Orem's theory of self-care, tests theories, and thus contributes to the body of knowledge that is unique to nursing. Further, nurses carry out nursing interventions based on evidence generated from research. The results of this study will add to the growing body of knowledge regarding self-care behavior and variables that influence individuals with HF ability to perform self-care. This study can serve as a facilitator for future studies in self-care among this population and others afflicted with chronic diseases.

Implications for Public Policy

Chronic HF mostly affects the elderly and is the most common reason that Medicare recipients are hospitalized, as well as the diagnosis that generates the most costs for Medicare. In 2004, Medicare reform legislation directed federal officials to adopt a system to improve care for chronic HF in the U. S. However, according to the report, the improvement project did not continue because the Medicare payments system generally does not reward healthcare providers who find ways to keep patients out of the hospital (RAND Corporation Congressional Resource, 2007). The need exists for health care policy to enable all the providers that implement health promotion and illness prevention to be rewarded. This study may help to enable nurses to instill legislators with the important of the improvement project based.

Nurses may then partner with others to raise awareness of the needs of early recognition, appropriate therapy, and careful emphasis on the critical aspects of diet, exercise, and medical care in HF patients and encourage agencies to provide resource to improve the research base related to care of HF population. The ultimate goal would be to advocate for practice standards for HF patients to be able to access one stop-clinic in primary or secondary care instead of emergency room. Also, each state should set up specialist liaison nurse services between hospitals and community nurses for initial visits and follow- up for individuals with HF.

Scope and Limitations of the Study

This study only recruited individuals that received their healthcare in one specific geographic area of central Florida. The results may not provide a true representation of all individuals with HF; therefore, the findings may not be generalized beyond the sample from which it was obtained.

Threats to External Validity

The convenience sample consisted of volunteers, so the sample was self-selected. Self-selection bias is a threat to external validity and, thereby limits the ability to generalize the findings from the sample to the population from which the sample was drawn or to any other population.

Threats to Internal Validity

The degree to which conclusions can be drawn about the causal effects of the predictor variables on the outcome variables are limited by the use of self-report. While self-report measures have been widely used for data collection in social and behavioral survey research, there are concerns regarding reliability and validity. Problem areas

include the understanding of the participant, the accuracy of recall, and the veracity of the respondent (Smith & Mackie, 2007). The participants may be inclined to respond in ways that would seem more socially acceptable despite their actual practice behavior. This threat will be reduced by encouraging participants to be truthful in their responses and assuring that responses will be anonymous.

Summary

Heart failure is prevalent in the U S and is anticipated to increase as the population ages. It is a disease characterized by remissions and exacerbations, which necessitate costly hospitalization re-admissions. Self-care has been promoted as a means of reducing the personal and economic burden imposed by HF. However, little is known regarding the factors that support or inhibit the practice of such self-care behaviors.

Orem's theory of self-care provides a framework that identifies specific factors that theoretically are antecedents to the practice of self-care activities. The theory has been supported in studies of other chronic diseases. However, little is known regarding the relationship of these theoretical factors among individuals with HF. This study addressed four hypotheses, based directly on Orem's theory, which examined selected factors and tested their relationships in order to provide an evidence-based foundation for interventions to improve health care outcomes for this population.

Although generalization of the results will be limited, it is anticipated that the results will have implications in the areas of nursing education, nursing practice, nursing research, and public policy related to the management of patients with HF.

CHAPTER TWO

LITERATURE REVIEW

This chapter presents a review and critique of the literature of the concepts and variables under investigation. The variables of health state/severity of symptoms, family/social support, knowledge, socio-economic/resource availability and adequacy, and concept of self-care agency were incorporated in the search. The impact of these variables to self-care agency among individuals with HF was searched. A brief literature review on self-care behavior among individuals with HF was conducted. The literature review includes studies that used Orem's self-care framework. Research studies are summarized and critiqued regarding the variables, especially those studies that relate to self-care practices in HF. Both quantitative and qualitative research methods were reviewed as a means to identify any gaps about this inquiry.

The literature was searched from 2001 through 2008. Earlier studies were included to illustrate historical evolvement of the model. Multiple databases were used in the search, including CINAHL, PUBMED, OVID, Dissertation Abstracts, EBSCO Academic Search Premier, PROQUEST, MEDLINE, Psycho Info, and Health and Psychosocial Instrument. Additionally, Internet search engines, including Google and Yahoo, were used to obtain information. Theory-based publications, research studies and books were searched. The search was performed with the subject headings and key words of: Orem's self-care model, HF self-care, self-care agency, knowledge of self-care in HF, social support, family and self-care, socio-economic factors, health state, resource availability and adequacy, severity of symptoms. The search was limited to English language publications.

Limited studies have been done to examine these basic conditioning factors, which are described by Orem as the internal and external factors that affect the individual's ability to engage in self-care. The need to understand the factors affecting individuals' capabilities of performing self-care is paramount to nurses as practitioners because they are in the fore front to manage and educate individuals and their families about this chronic condition of HF.

The construct of self-care in individuals with HF incorporates self-monitoring of symptoms and self-assessment so that providers are notified in a timely manner as required (McCormack, 2003). A myriad of factors, such as self-efficacy, social support, financial resources, health care providers, control, and hope, have been identified as possible predictors that influence capabilities of self-care actions in individuals with HF (Artinian, Magan, Sloan, 2002; Chriss, Sheposh, Carlson, & Riegel, 2004; Moser & Watkins, 2008; Riegel & Dickson, 2008; Riegel, Dickson, Goldberg & Deatrick, 2007; Rockwell & Riegel, 2001; Stewart, Moser, & Thompson, 2004). According to Lupton, Gonzalez, Mass, Brutal, Arenas, Domingo et al. (2008), self-care is a very important aspect of HF treatment; however, many patients with HF are lacking self-care capabilities to perform self-care behaviors. Some of those factors, such as health state/severity of symptoms, family/social support, knowledge, and resource availability and adequacy/social-economic status, will be discussed in the following section as they relate to HF.

Health State/Severity of Symptoms

Studies examining the relationship of the basic conditioning factor of health state or severity of symptoms to self-care agency and self-care practices of individuals with HF have been reported in the literature.

Artinian, Magnan, Sloan, and Lange (2002) examined the basic conditioning factor of health state in relation to self-care behavior among sample of 110 patients with HF. Using two one-item measures of health, a self-assessment of health state, and severity of shortness of breath (SOB), it was found that participants who perceived that they had better health, as compared with others their age, were more likely to believe that they could lead a happy life with HF ($r = 0.29$, $p = .002$). Moreover, participants who perceived that they had poorer health were more likely to ask for help during episodes of SOB ($r = -0.32$, $p = .01$) and were more careful in monitoring their fluid intake ($r = -0.21$, $p = .028$). Participants who reported more SOB were more likely to seek assistance by contacting their doctor because of the increased SOB ($r = 0.22$, $p = .02$) and swelling ($r = 0.22$, $p = .024$) and were more apt to manage the therapeutic regimen by resting ($r = 0.246$, $p = .011$), limiting their activities ($r = 0.24$, $p = 0.11$), and asking for help ($r = 0.26$, $p = .007$) but were less likely to weigh themselves daily ($r = -0.24$, $p = .011$). Participants with higher levels of SOB believed that they could adjust to HF ($r = 0.28$, $p = .003$) but were less likely to believe that they could lead a happy life with HF ($r = 0.19$, $p = .05$). It was concluded that the performance of self-care behaviors was subject to diverse factors, including health state and knowledge of HF self-care.

Similarly, Rockwell and Riegel (2001) studied the predictors of self-care in 209 patients with HF. The study was a non-experimental, correlational design. Connelly's

model of self-care in chronic illness (MSCCI) was used as a framework for this study. A model of seven predictors of HF self-care was derived from this theory. The seven predictors tested were symptom severity, co-morbidity, social support, education, age, socio-economic status, and gender. Self-care was measured by the Evaluating the Change Subscale of the Self-Management of Heart Failure Instrument.

Using multiple regression analysis, they found that two variables, education and symptom severity, were significant predictors of self-care, explaining 10.3% of the variance for self-care. Symptom severity accounted for 2.7% of the variance in self-care above all of the variables ($t = 2.009$, $p = .046$). Education accounted for 4.6% of the self-care ($t = 2.639$, $p =. 009$, $p = .046$). The researcher concluded that patients with higher education and those who were more symptomatic might be more likely to engage in self-care than those who were well educated and less symptomatic.

Carlson, Riegel, and Moser (2001) examined self-care abilities among people with HF and looked at difficulties in managing self-care. A comparison was done between newly diagnosed patients with HF and those who had experience with the diagnosis. The purpose was a needs assessment for health care professionals in order to help them determine the best course of action in intervening with this population.

The study consisted of elderly male patients ($N = 139$) who were mostly single, retired, and had low income. The average level of education was high school. Most of the participants (82%) were hospitalized, and the remaining participants were from a HF clinic. No other co-morbidity was reported.

Participants completed the Self-Management of Heart Failure Questionnaire, a 65-item scale that addressed four stages of the self-care management process (Carlson,

Riegel, & Moser, 2001). The researchers reported that most patients (71.9%) were somewhat functionally impaired per the guidelines of New York Heart Association class II-IV, and half of the patients reported limitations in daily activity. About 97.1% reported having symptoms during the previous year and 91.4% reported having multiple symptoms. Seventy-nine percent of patients had both shortness of breath and fatigue, and 55% had three symptoms (shortness of breath, fatigue, and swelling).

When the researchers divided the group by newness of diagnosis, 42.4% were newly diagnosed, and 55.4% were experienced. The experienced HF patient groups differed in age and income; the experienced patients were younger (67.06 years $\pm$15.49 years versus 71.95 years $\pm$ 11.33 years, $p = .02$). Newly diagnosed patients reported fewer symptoms than experienced HF patients (3.56 $\pm$ 1.68 vs. 4.06 $\pm$ 1.27, $p = .03$). Patients newly diagnosed had significantly more difficulty recognizing their symptoms as being related to HF ($p < .01$), but even experienced HF patients struggled with symptom recognition. The ability to evaluate the effectiveness of self-care treatments implemented to relief symptoms was good in both groups. No significant differences existed between the groups in their ability to manage their HF based on newness of diagnosis. Most patients were confident they could recognize signs and symptoms if they occurred, and this confidence improved with experience ($p = .04$). Nevertheless, less than half of the group (4.7%) felt very or highly confident in their ability to take action to relieve symptoms. Overall, half of the patients (59%) reported little or no confidence in their ability to evaluate their actions (Carlson, Reigel, & Moser, 2001).

According to the authors' conclusions, no differences in self-care confidence scores were found based on newness of diagnosis; they indicated that "with low level of

self-care ability and the number of difficulties these patients face, it is not surprising why the re-hospitalization rates remain high" (p. 3510). The authors indicated that further research was needed to confirm these results and identify other predictors of self-care (Carlson, Reigel, & Moser, 2001).

Chriss, Sheposh, Carlson, and Riegel (2004) studied the predictors of successful HF self-care maintenance in the first three months after hospitalization. The purpose was to replicate a prior study of predictors of self-care in HF conducted by Rockwell and Riegel (2001). A non-experimental, correlation replication study re-tested a model of seven variables, including social support, symptom severity, co-morbidity, education, age, gender, and income. The last variable, income, was excluded in this study because of missing data. The model was tested at baseline and three months after hospitalization. Convenience samples of patients with HF (N = 66) were recruited from two hospitals in southern California. Self-care management was measured with the maintenance subscale of Self-Care of Heart Failure Index (Riegel et al., 2004). Hierarchical regression analysis was used to test the hypothesis that education and symptom severity would be significant predictors of self-care as identified by Rockwell and Riegel (2001).

Two separate analyses were conducted at baseline and three months. The results of the study suggested that self-care maintenance improved significantly over time (64.8 ± 18.6 to 73.3 ± 17.1) (F = 20.9, df = 1, 65, p < .0001). The model of seven variables was significant at baseline (F = 2.6, df = 758, p = .02), and it explained approximately the same amount of the variance in self-care (14.8%) as the model proposed by Rockwell and Riegel (2001).

The findings suggested that self-care management improved significantly over time. Also, significant predictors of self-care management were age ($t = 2.215$, $p = .03$) and gender ($t = 2.511$, $p = .01$). The authors concluded that elderly men and patients with fewer co-morbid illnesses were most successful at HF self-care. The hypothesis that education and symptom severity would be significant predictors of self-care was not supported. The author identified that the study was limited by the use of a small, nonrandom sample.

Riegel and Carlson (2002) conducted a qualitative study to investigate facilitators and barriers to self-care among individuals with HF. The purpose was to explore how HF influences patients' lives, to access how they perform self-care, and to determine how their life situation facilitates or impede HF self-care. The sample population consisted of individuals with HF ($N = 26$), most of whom were elderly, male, retired, and poor. The majority (53.8%) were married, and only 19% of participants lived alone. Almost all (81%) of the participants had finished high school, and many (35%) had completed two or more years of college.

Data was collected using structured interviews and analyzed. Three themes emerged: facing the challenges of living with HF, implementing self-care strategies, and finding ways to adapt. The researcher indicated that the patients reported the physical limitations of doing things that used to be simple for them to do, such as making the bed. Some patients had difficulty coping with treatment regimen; others reported difficulties dealing with co-morbid conditions, which made their ability to manage their HF difficult. The researchers identified lack of knowledge about HF as a barrier with patients' abilities to perform self-care.

Other factors, such as panic and being upset, frustrated, scared, and depressed were reported. The self-care strategies that were reported involved the recognition of classic symptoms, but atypical symptoms such as faintness were rarely reported as contributing to HF. Most patients had problems determining if particular symptoms were rarely related to HF possibly due to other diagnoses. Some individuals failed to notice their symptoms, noticed them late in the process, misinterpreted them, or delayed their action. In this qualitative study, patients did not link atypical symptoms, such as faintness, loss of consciousness, and dizziness, to their HF but instead identified them as signs of trouble.

However, patients reported using several methods of caring for themselves such as watching their diet, resting and exercising, and complying with the medical regimen. In addition, patients reported a variety of methods of adapting to life with HF. Some strategies were practical, and some involved internal resources, according to the researchers. Many patients accepted support from others, but some withdrew. However, many patients were confused about how to care for HF but learned about HF facilitated self-care.

The researchers concluded by indicating that the findings demonstrated why HF patients commonly do nothing about significant symptom until re-hospitalization was imminent. Many were unable to judge the importance of their symptoms, misinterpreted them, or did not believe that proper self-care behavior could relieve them. Although patients were able to report symptoms of HF, it was unclear if they understood the manner in which their symptoms were related to their behaviors. In this qualitative study

the researchers state, “With the number of barriers these patients face, it is not surprising that self-care of HF is typically poor and readmission rates continue to be high” (p. 287).

Sneed and Paul (2003) investigated readiness for behavioral changes in patients with HF. The purpose was to identify the stages of readiness for change in six lifestyle behaviors important in HF and to determine differences in signs and symptoms of HF, self-reported knowledge of the disease, and self- reported behavior between patients who have taken action and patients who have not.

A convenience sample consisted of patients (N = 250) with HF, either enrolled in a HF clinic or participating in a clinical HF at Medical University of South Carolina. The participants were primarily men, Caucasian or African- American, married, disabled or retired, and most had a high school education. Individuals had HF for less than six months to 35 years (M = 6.5 years), and number of co-morbid conditions ranged from zero to 10 (M = 3.65) (Sneed & Paul, 2003).

The survey questionnaire was developed by the researchers from tools used in previous research with the trans-theoretical model and from literature on HF. Included were measures of the participants’ stage of change for six behaviors, knowledge of the disease and self-reported behavior. Additionally included were questions related to co-morbidity information, questions to determine the stage of change with behavioral changes for HF, demographic, and personal data. Questions to assess HF knowledge and self-reported behavior associated with the knowledge of HF were included. The tool was reviewed by two cardiovascular nurse practitioners for validity. Readability was assessed at a 7.45 grade reading level. Functional status was assessed using of the Specific

Activities Scale and was part of the personal data document. Data were analyzed by using descriptive statistics, independent *t*-tests, and chi-squared analysis.

The researchers reported that when those in maintenance were taken together with those in the action stage, participants reported themselves to be consistently avoiding tobacco (90.6%), alcohol (87.9%), sodium (81%), and excess fluid (72.6%), getting regular exercise (67.1%) and trying to lose weight (64.7%). Data related to significant signs and symptoms of HF were identified: 65% of the participants reported fatigue with less than usual activity, and 49% reported shortness of breath. Although 89% of the participants had received written information, only a 67.4% reported knowing some or a lot about HF. Regular exercise was reported by 38.7%, but only about two-thirds (67.4%) reported participating in exercise three times a week or more, and 68.4% were at the desired weight (Sneed & Paul, 2003).

The researchers (Sneed & Paul, 2003) also found that patients with HF in the action and maintenance stages for sodium restriction reported self-care behaviors more consistent with recommendations than did patients who had not changed behavior of avoiding high-sodium foods in the preceding month ($t = 6.7$, $df = 163$, $p < .001$) and for reading food labels to determine sodium content ($t = 6.82$, $df = 168$, $p < .001$). The hypotheses that those who had made a change to limit fluid intake would report behavior more consistent with recommendations for patients with HF than would patients who had not made a change was supported for avoiding high-sodium foods ($t = 4.43$, $df = 159$, $p < .001$), reading food labels ($t = 3.35$, $df = 163$, $p = .001$), and drinking less than two quarts of fluid a day ($t = 7.14$, $df = 161$, $p < .001$) were supported. Neither the hypothesis for

weighing daily nor the hypothesis for exercising as advised was supported by the findings.

Findings indicated that, although respondents thought they were consistently adhering to recommended guidelines for changes in lifestyle, actual reported behaviors did not always support this evaluation. The researchers concluded that use of the stage of change tool to assess stage of readiness to make lifestyle changes may not work well in patients with HF, perhaps because of the number and complexity of the changes. The researchers added that the participants were not complaint with self-care behaviors due to knowledge deficits for HF self-care. The identified deficit included weight control and exercise recommendations (Sneed & Paul, 2003).

Summary of Health State/Severity of Symptoms

A number of studies investigating the impact or the influence of severity of symptoms/health state among individuals with HF self-care exist. However, there are some inconsistencies in some of the findings. For example, Rockwell and Riegel (2001) identified that individuals who are more symptomatic were more likely to engage in self-care than those who were less symptomatic. However, Chriss, Sheposh, Carlson, and Riegel (2004) hypothesized that symptom severity would be a significant predictor of self-care, but this hypothesis was not supported. Therefore, this proposed study will further investigate this variable as to how it influences self-care agency.

Family/Social Support

The literature indicates that social support can be moderately associated with relatively better self-reported medication and dietary adherence and other aspects of self-care, such as daily weight (Riegel, 2008).

Sayers, Riegel, Pawlowski, Coyne, and Samana (2008) examined the relationship between social support and self-care of patients with HF. The purpose of the study was to investigate the effects of social support among patients with HF and to examine whether aspects of social support were associated with self-care, including medication adherence dietary adherence, and HF symptom monitoring functions. The study was descriptive, exploratory correlation design. The participants (N = 74) with HF were recruited from cardiology clinics of the Philadelphia Veterans Affairs Medical Center and a university-affiliated cardiology practice hospital. The sample consisted of 40% white and 55.4% black and less than 5% representing other non-white. Most of the participants were 60 years or older. The participants were reported to have low levels of education, and income, significant cardiac morbidity, as well as medical co-morbidity.

Chart reviews and semi-structured interviews were used. A medical questionnaire was used to assess the degree to which family members and/or friends were involved in the patient's overall medical and self-care decisions. The Multidimensional Scale Perceived Social Support (MSPSS) was used to separate the possible sources of social support into friends and significant others. The Self-Care of Heart Failure Index (SCHFI) was used to measure naturalistic decision making in self-care. A regression model was used to test the hypothesis that relatively higher levels of perceived support from friends, significant others, and family members would be associated with higher levels of self-care.

The findings yielded significance only in the model of SCHFI confidence, F (3, 70) = 2.96, $p < 0.05$. The association of structural and functional social support was tested in a series of multivariate regression model. The omnibus ANOVA was

significant, F (2, 72) = 7.15, $p < 0.01$, indicating systematic differences in Medical Care Questionnaire (MCQ) total scores by marital status and living situation. Follow-up Turkey's tests indicated that married patients (n =31) had significantly greater involvement by others in their medical care, (M = 1.94, SD = 1.46, $p < 0.05$), compared to those not married or living alone (n = 26, M = 0.69, SD = 0.97, $p < 0.05$) (Sayers, Riegel, Pawlowski, Coyne, & Samaha, 2008).

Findings indicated that self-care, as measured across several self-care domains, was generally poor. Perceived social support was associated with better self-reported medication and dietary adherence and other aspects of self-care, such as daily weighing. The researchers indicated also that family members should play a greater part in clinical care focused on improving self-care. The researchers concluded by indicating that social support was associated with better self-care among HF, also that emotional support was consistently related to medication adherence and dietary adherence. The researchers recommended that family members should play a greater part in clinical care focused on improving self-care among individuals with HF. The current study will further investigate the influence of other aspect of social support such as friends, emotional, and significant others to self-care agency of individuals with HF.

Liu, Kuo, and Tung (2008) employed a descriptive, cross-sectional design to investigate relationships between symptom-related distress, depression, social support, and self-care ability among 77 HF patients in an outpatient facility associated with a Taiwan teaching hospital. The instruments used included a symptoms distress scale, depression scale, social support scale, and heart failure self-care ability scale. Data was analyzed by means of descriptive statistics, independent t-test, one way ANOVA,

Pearson's correlation and stepwise liner regression. Result indicated that self-care ability was significantly correlated with participant level of income ($t = 2.30$, $p < .05$).

Social support from family and healthcare teams was found to correlate positively with self-care ability ($r = 0.38$, $p <. 01$; $r = 0.32$, $p <. 001$). However, depression correlated negatively with self-care ability ($r = -0.36$, $p < .001$). Stepwise regression analysis showed that being male and receiving social support were important factors influencing level of self-care ability. These two variables explained 24% of observed variation. The researchers concluded that the study suggested that a well-designed combination of social support from both family and society could substantially improve the self-care quality of patients with HF. Heart failure care teams may effectively raise their care efficiency by targeting this specific therapeutic intervention.

Summary of Family/Social Support

Several researchers (Liu, Kuo, Wang, & Tung, 2008; Rockwell & Riegel 2001; Sayers, Riegel, Pawlowski, Coyne, & Samana, 2008) investigated the influence of social support/family factors to self-care practices among individuals with HF in various settings. Sayers, Riegel, Pawloski, Coyne, and Samana samples were smaller; also, the researchers did not evaluate the impact of social support/family factors to self-care agency. While Liu, Wang, Kuo, and Tung investigated social support and the self-care agency in HF patients, the samples were very small as well. More studies are needed to understand the influence of these variables to individual's ability (self-care agency) to perform self-care in HF in larger samples.

Knowledge of Heart Failure

Ni et al. (1999) examined the knowledge level of and adherence to self-care of 113 patients from the Oregon Heart Failure Project with 58% being between 40 and 60 years of age, two- thirds male, and 87% white. Adherence to self-care recommendations were measured by eight items encompassing areas of medication, sodium intake, and weight monitoring. Based on self-report, "71% of the patients (80/113) had been provided with education materials regarding heart failure, 75% (85/113) had been provided with verbal advice about heart failure self-care from their health care providers, and 60% (68/113) had been provided both" (p. 1616). However, when asked how much they knew about their HF, about half of the patients said *some*, 38% said *little or nothing*, and 14% said *a lot*. Those patients who were married, had a prior hospitalization, and received information from physicians and nurses regarding self-care had a higher knowledge score. Adherence to self-care correlated significantly with knowledge scores ($r = .33$, $p < .001$). A poor adherence to self-care behavior score was associated with being unmarried, lower perceived self-efficacy, a lack of knowledge about self-care, and no prior hospitalization.

Jaarsma, Halfens, Tan, Abu-Saad, Dracup, Gorgels et al. (1999) investigated HF-specific self-care behaviors among Dutch patients. The purpose was to describe the effect of education and support by a nurse on self-care and resource. Using an experimental design, the researchers explored the effects of nurse-provided education and support among a random sample of 179 patients (mean age 73 years, 58% male, NYHA III-IV) hospitalized with HF. The supportive educative intervention consisted of intensive, systematic and planned education by a nurse regarding the consequences of HF

in daily life using a standard nursing care plan developed by the researchers for older patients. The Appraisal of Self-Care Agency Scale was used to assess the patient's ability to care for self. Specific heart failure-related behavior was assessed using the Heart Failure Self-Care Behavior Scale. Data were collected on self-care abilities, self-care behavior, readmissions, visit to the emergency heart center, and use of other health care resources. The data was collected at time of enrollment and at one, three, and nine months after discharge.

Findings from the study indicated that one month after discharge, patients from both the control and intervention group reported significantly higher self-care behavior compared with their baseline score ($t = 6.1$, $p < 0.001$; $t = 11.4$, $p < 0.001$). However, patients from the intervention group still reported complying with more behaviors than control patients at three months (12.2 vs. 10.6, $t= 2.9$, $p = 0.005$) and at nine months (11.2 vs. 103, $t = 1.6$, $p = 0.106$). The increase in self-care behavior between baseline nine months was statistically significant in the intervention group ($t=4.9$, $p < 0.001$) but not in the control group ($t = 1.9$, $p = 0.058$). Study results indicated a significant increase in self-care behavior among patients with HF when education and support were provided in the hospital and at home. In conclusion, the researchers suggested that intensive systematic, tailored, and planned education by a nurse results in an increase in patients self-care behavior, especially concerning complying with HF regimen and asking for help if symptoms worsen.

Although, the researchers (Jaarsma et al., 1999) described the process of self-care decision-making and factors associated with adherence to self-care, they also examined the effects of education and support by a nurse to self-care. However, little is known

about the influence of basic conditioning factors of knowledge on self-care agency of individuals with HF. This study will examine the influence or the predicting effect of knowledge to self-care agency among these populations.

DeWalt et al. (2006) investigated the self-management program for patients of all literacy levels. The purpose was to compare the efficacy of a HF self-management program designed for patients with low literacy versus usual care and to see if self-management programs for patients with HF could reduce hospitalization and mortality. The sample consisted of 123 patients (64 controls, 59 interventions), 41% of whom had inadequate literacy. The study design was a randomized controlled trial in the University of North Carolina General Institute of Medicine. All patients were followed for one year. After 12 months, more patients in the intervention group reported monitoring weights daily (79% vs. 29%, $p < 0.0001$). After adjusting the baseline differences, the researchers found no differences in HF-related quality of life at 12 months (difference = -2; CI -5, +9).

Patients in the intervention group had a lower rate of hospitalization or death (crude incidence rate ratio (IRR) = 0.69; CI 0.4, 1.2; adjusted IRR = 0.53; CI 0.32, 0.89). This difference was larger for patients with low literacy (IRR= 0.39; CI 0.16, 0.91) than for higher literacy (IRR = 0.56; CI 0.3, 1.04), but the interaction was not statistically significant. The study indicated that the HF self-management program, designed for all literacy levels, appeared to reduce rates of hospitalization and death. A limitation of this study was the sample size, which did not allow for an even distribution of baseline variables among the groups.

Summary of Knowledge of HF

Although, some of these studies identified knowledge as a factor that influenced individuals with HF ability to self-care, the findings remain inconclusive. For example, DeWalt et al. (2006) indicated that the HF self-management program, designed for all literacy levels, appeared to reduce rates of hospitalization and death. However, Ni et al. (1999) suggested that knowledge alone does not necessarily lead to improve self-care; the authors indicated that although most patients recognized the importance of sodium restriction and daily weight, only a small percentage actually followed those guidelines. Also, Riegel and Rockwell (2001) indicated that patients with higher education might be more likely to engage in self-care than those who were less educated. Chriss, Sheposh, Carlson, and Riegel (2004) hypothesized that education would be a significant predictor of self-care, but this hypothesis was not supported. It is clearly understood that further study is needed to examine the predictor effect of knowledge to self-care agency among this population. Therefore, this proposed study will further investigate the predictive effect of knowledge to self-care agency among individuals with HF.

Resource Availability and Adequacy/Socio-Economic Factors

The literature identifies socio-economic influence on self-care in HF patients. O'Connell et al. (2008) investigated the self-care behaviors of indigent patients with HF. The purpose was to describe the demographic and clinical characteristics of indigent HF patients and their performance of self-care behaviors and explore the challenges and barriers they face in managing their HF. The study was a descriptive, cross-sectional design using one-time structured interviews.

A total of 65 participants were recruited from three cardiology clinics and one hospital. The sample was primarily composed of women (n = 55) with a mean age of 59 (SD = 14); 35% were non-white, 86% were unemployed, and 52% were indigent. Socioeconomic status was measured by income level and educational level. Participants with less education performed more self-care behaviors compared to those who had higher than high school education (57% vs. 32%, p = .04, respectively). Findings indicated that patients with low socioeconomic status and indigent HF patients faced unique challenges that contributed to poor self-care. The researcher recommended exploring ways to improve self-care behavior in this population.

Gary (2006) examined self-care practices in women with diastolic HF (DHF). The purpose was to describe the performance of self-care behaviors and to describe the demographic and clinical characteristics that affected self-care practices in women with DHF. Thirty-two women who were 50 years of age or older and diagnosed with DHF were recruited through cardiologist referral from an outpatient HF clinic. Data were collected using semi-structured interview. Descriptive statistics were used to analyze participant demographic and clinical characteristics.

Findings indicated that although most perceived their knowledge of HF to be fair to good and 62% had received educational information on HF, only 19% weighed daily, few followed the recommended sodium restrictions, and 91% were sedentary at the time of the interview. The only self-care behavior that was consistently practiced (72%) was taking prescribed medications. The researcher concluded that lower socioeconomic status and advancing age increased vulnerability for poor self-care and negative clinical outcomes in women with DHF. Recommendations to improve self-care practices among

economically disadvantaged women with HF were addressed. The limitation in this study was the small sample size and large proportion of lower socioeconomic status, which limit the generalizability of the findings. Also, no statistical significance was reported by the researcher.

Becker, Gates, and Newsom (2004) investigated self-care among chronically ill African-Americans using a qualitative approach. The purpose was to examine the social, cultural, and historical roots influences on self-care approaches and how self-care practices are tied to broader social and cultural themes. The sample consisted of African-Americans (N = 167) aged 21 to 91 years. The sample reflected diversity in socio-economic status ranging from those who were middle-income, worked as professionals, and were homeowners. Data collection was from a variety of sources in two urban countries in California. Some participants were recruited from field contacts in social services agencies, from clinics and home services, participants' referral, flyers, religious organizations, and through the Internet.

The audio-taped recordings were transcribed. Data was analyzed; a multifaceted analysis of social class for public health research was used. Codes were developed generated from meaning data. The entire data set were coded using a data-sorting software program, resulting in more than 100 discrete codes. A case-by-case narrative analysis was also conducted. Findings indicated that self-care practices were culturally-based and the insured reported more extensive programs of self-care. Also, those individuals who had some form of health insurance much more frequently reported the influence of physicians and health education programs in self-care regimens than did those who were uninsured. The authors concluded that the potential to maximize chronic

illness management through self-care strategies is not realized for those who lack access to health care.

Summary of Resource Availability and Adequacy/Socio-economic

Based on the literature review on resource availability and adequacy/socio-economic factors, it remains very clear that these variables are potential predictors for individuals' ability to perform self-care. However, some of these studies focused heavily on gender- specific and lower socioeconomic status population.

O'Connell, Crawford, Stotts, Stewart, and Frielicher (2008) examined self-care behaviors in indigent patients with HF and found that patients with low socioeconomic status face challenges, such as increasing symptoms, fear of death, lack of information, and financial as factors that contribute to poor self-care. The researchers highly recommended that future studies needed to explore ways to improve self-care behavior. Gary (2006) considered the self-care practices in women with diastolic HF (DHF) and found that lower socio-economic status and advancing age increased vulnerability for poor self-care and negative clinical outcomes.

The current proposal will investigate the influence of socioeconomic/resource availability and adequacy to self-care agency among individuals with HF, as the previous literature indicated that there is a need to further investigate this variable and their measurement to self-care-outcome.

Research Based on Orem's Framework

Orem's self-care theory has been used as a framework for a variety of research studies. Artinian, Magnan, Sloan, and Lange (2002) conducted a descriptive correlation study about self-care behaviors among patients with HF using Orem's theoretical model.

The sample consisted of 110 participants, predominantly African- Americans, who were outpatients or in-patients ready for discharge. The purpose was (1) to examine the frequency of performance of self-care behaviors, (2) to describe personal and environmental factors (basic condition), factors that affect self-care behaviors, and (3) to describe the relationship between the level of knowledge patients have to empower their performance of self-care and the actual performance of self-care behaviors. Participants were 18 years or older and who had been diagnosed with HF that was confirmed by an ejection fraction of 40% or less conveniently selected from one of two instruments: the Revised Heart Failure Self-Care Behavior Scale and the Heart Failure Knowledge Test.

Descriptive statistics, correlation analyses, and *t*-tests for independent samples were used to analyze the data. The researchers found that self-care knowledge scores were low. In addition, there were no significant relationships between self-care behaviors and any of the basic conditioning factors (age, sex, race, marital status, health state, income, education, or living alone versus. living with someone). A significant relationship was found between the mean total knowledge score and the total mean self-care score, $r = 0.21$, $p = .026$. Findings implied that in-depth information of basic factors on the performance of specific self-care behavior among patients with HF can help providers tailor interventions to the patient's situation and needs. Of note, the researchers measured these variables to self-care behavior outcome instead of examining the basic conditioning factors influence to self-care agency, which is individual's ability to perform self-care. Understanding the barriers that influence self-care agency was very important for better outcomes of self-care behavior. In addition, although many studies have been conducted using Orem's self-care model in other chronic illness, such as diabetes and

asthma, limited studies has been conducted in HF self-care (Artinian, Magnan, Sloan, & Lange 2002).

Fujita and Duncan (1994) presented a protocol study developed to evaluate the usefulness of the nursing diagnosis high risk for ineffective management of therapeutic regimen among patients' with congestive heart failure (CHF). Orem's self-care deficit theory was used as the theoretical framework for the developing of the protocol. The researchers used Orem's supportive-educative nursing system as the approach to increase CHF patients' abilities to engage in therapeutic self-care in order to maintain prescribed medication regimens among patients on complicated medication regimens. In order to determine effectiveness of the nursing management strategy, five case studies were used as a measure of self-care behaviors in the immediate post- discharge period. Knowledge deficit was noted to be a major obstacle for maintaining the prescribed medication regimen among CHF patients. Comprehensive teaching of the patient was identified as the most important factor for the promotion and maintenance of prescribed medication required among patients with CHF.

Hurst, Montgomery, Davis, Killion, and Baker (2005) used Orem's self-care theory as a framework to study the relationship between social support, self-care agency, and self-care practices of HIV positive African-American women (N= 62) between the ages of 19 and 60. The participants completed the Norbeck Social Support questionnaire, the Denyes Self-Care Agency Instrument, Denyes Self-Care Practice Instrument, and the Hurst Demographic Questionnaire. The purpose was to examine the influence of selected basic conditioning factors (age, sociocultural orientation, family system factors, health state, and patterns of living) on self-care agency and self-care practices of this population

and the utility of Orem's self-care framework on the ability of HIV-positive African American women to perform self-care activities.

Variable correlations were noted for relations between social support, self-care agency, and self-care practices (Hurst et al., 2005). Correlations related to research question that asked, "What is the relationship between recent loss in social support and self-care agency of African- American women who are HIV-positive?" indicated a significant negative correlation between the number of support persons lost (r = -.440 and r = -.065) and the amount of loss described by the participants (r = -.149 and r = -.041) in both measures. In the question that asked about the relationship between self-care practices and social support and the question that asked about the relationship between functional social support and self-care practices of African-American women who are HIV-positive, there were no significant correlations indicated.

For the correlations between loss of social support and self-care practice question, there were no significant correlations between number of support persons loss (r = -.133 and r = .102) and amount of loss described by the participants(r = -.134 and r =-.085) in both measures. In the study, the relationship between selected basic conditioning factors (age, marital status, annual income, level of education, and number of children) and self-care practices of African-American women who are HIV positive were not found to have significant correlation. However, health state correlated significantly high with self-care agency. These finding indicated that Orem's theory of self-care could be effectively used in the study of other chronic illness, such as HF.

Grubbs and Frank (2004) used a cross-sectional, survey design to explore self-care practices related to symptom responses in African-American and Hispanic adults at

risk for cardiovascular disease (CVD) and diabetes (DM). The study utilized Orem's self-care theory to examine the symptom responses of self-care practices. The specific aims were to (a) determine if these populations recognize early signs and symptoms of CVD or DM, (b) determine what these populations may identify as significant as opposed to insignificant symptoms of CVD or DM, (c) describe and compare the symptom response self-care behaviors of these populations, (d) determine and compare the appropriateness of symptom response of these populations, and (e) examine those socio-cultural, demographic, and gender variables that may affect symptom responses in these populations.

The participants (N = 76) were 52.3% African-Americans and 43.4% Hispanics. The remaining participants designated themselves as Caucasian or other. Gender was approximately equal with 55% being female. Middle adulthood represented the targeted age of interest, including 61% between 45 and 55; 29% younger than 45, and 9.2% above 55 years. Marital status was equally divided with almost half (47.4%) married and the rest single, divorced, or widowed. About 31% (31.4%) had less than a high school education, with 25.7% having a high school diploma or equivalent. The remainder had technical/vocational training (18%) or some college (18%) with 18.6% possessing an associate's degree or higher. Consistent with their educational level, the vast majority worked as laborers or in technical jobs with only 7% being employed in professional positions (Grubbs & Frank, 2004).

Participants were recruited with the assistance of the leader of a faith-based community center primarily for African-Americans in a rural area and through a Catholic church that offered services in Spanish and served primarily the Hispanic migrant

population. The survey instrument included demographic questions as well as symptom response items. The symptom response items were adapted from Symptom Response scales used in other studies (Brody, Kleban, & 1983; Edwardson & Dean, 1999) but revised to include items specific for CVD and DM. The symptoms were clustered by severity and duration. Specific information was asked regarding the incidence of symptoms experience and, if experienced, how they responded. If they had not experienced a symptom, they were asked what they would do if this did happen (Grubbs & Frank, 2004).

The findings suggested that the migrant Hispanic and rural African-American populations may experience self-care deficits in relation to identifying and responding appropriately to symptoms of DM and CVD. Significantly more African-American than Hispanics experienced the symptoms associated with diabetes, including frequent urination (p = .045), nocturia (p = .024), excessive thirst (p = .016) and blurred vision (p =. 032). However, there was no significant difference in the number of African-Americas who said they had been told they had diabetes compared to Hispanics (Grubbs & Frank, 2004). There were no significant difference in incidence of cardiac symptoms between African-Americans and Hispanics except for indigestion (p = .04). There were no significant difference in both population in incidence of high blood pressure and high cholesterol. However, there was a significant difference in those that were taking medications for these diseases, with more African-Americans taking medicine than Hispanics (p = .018).

According to the researchers, more African-American than Hispanics participants reported seeking medical attention for cardiac symptoms. Hispanics were much more

likely to contact family members or use over- the- counter medications rather than to seek health care. More females significantly reported cardiac symptoms of waking up tired than males (p = .011), shortness of breath (p = 014), mild chest pain (p =.010), and feet swelling (p =.001). Significantly more females than males reported the diabetes symptoms of excessive urination (p = .013), excessive thirst (p = .00), and blurred vision (p = .041).

The authors recommend that Orem's theory of self-care is an appropriate framework to design interventions to increase the effective self-care behavior of this population concerning symptom recognition and response. Therefore, this proposed study will utilize Orem's theory of self-care in HF population.

Summary

Experts in self-care recognize that a wide variety of factors have been determined to impair patient's abilities to engage in self-care (Riegel, 2008). Others (Jaarsma et al., 1999; Sayers, Riegel, Pawlowski, Coyne, & Samaha, 2008) have examined the influence of social support and support in general as it influences self-care in HF in various settings. Rockwell and Riegel (2001), Carlson, Riegel, and Moser (2001), Chriss, Sheposh, Carlson, and Riegel (2004) examined the impact of health state/severity of symptoms. However, there are some inconsistencies in some findings. Other researchers (Becker, Gates, & Newsom, 2004; Gary, 2006; O'Connell et al., 2008) identified socio-economic status as a factor to self-care practice.

However, a search of literature failed to produce many studies that dealt with basic conditioning influence to self-care agency among individuals with HF using

Orem's self-care model. Therefore, this proposed study will further investigate how some of these variables influence self-care agency of individuals with HF.

CHAPTER THREE

METHODS

This chapter presents the research design, including the setting, the sampling procedure, protection of human subjects, and procedure for data collection and instruments/measures that were administered to the study participants. Also, an explanation of the method of data analysis has been addressed. The research questions, hypothesis of the study, and ethical issues with specific rationales are discussed.

Research Design

This quantitative study used a non-experimental, exploratory, and descriptive correlation design in which data were collected at one point in time. The study is non-experimental in that there was no randomization of subjects and no manipulation of the independent variables. This design was used to explore the relative contributions of two predictor or independent variables (knowledge, family/social support) to the dependent variable (self-care agency). Differences in self-care agency between categories of individuals based on HF symptoms (health state/severity of symptoms) and healthcare insurance status (resource availability and adequacy/socio-economic factors) were examined. Lastly, correlation techniques were used to test for a relationship between self-care agency and actual behaviors related to self-care among the target population.

Setting

Participants were recruited from various cardiology group clinics in an urban area of central Florida (Appendix B). These clinics provide healthcare for 50 to 100 patients, predominately with a diagnosis of HF, each day and are staffed by 11 to 15 physicians with more than 20 employees in each location.

Sampling Strategy

A convenience sample was recruited consisting of individuals that meet inclusion criteria.

Eligibility Criteria

Inclusion Criteria

The demographic instrument (Appendix C) contains questions that were used to describe the sample and assure that the participants met the inclusion criteria of having been diagnosed with HF or a history of HF and being 18 years of age or older. Individuals must have been able to understand and read English in order to complete survey.

Exclusion Criteria

Individuals younger than 18 years of age and/or not diagnosed with HF were excluded from the sample.

Determination of Sample Size

In order to determine sample size for the number of variables and statistical techniques to be used, a power analysis was conducted using G*POWER 3.0.5 (Faul, Erdfelder, Lang & Bucher, 2007). The alpha (α) was set at 0.05; power was set at 0.95. Effect size was set as large as the literature suggested a strong relationship between the variables.

Four hypotheses were posed with plans for statistical analyses. Hypothesis 1 examined two predictor variables to one outcome variable; the relationship among these variables was tested by means of multiple regression. For a large effect size ($f^2 = 0.35$) with two predictors, a sample of 48 participants was needed.

For hypothesis 2, the entire sample was divided into a possible four independent categories based on their health state to determine if there was a difference between the groups regarding their scores for self-care agency; the one-way ANOVA analysis was planned. Anticipating a large effect size (f = .40) and dividing the participants into four groups, a sample of 112 was needed.

Hypothesis 3 categorized the entire sample into two independent groups, those with adequate resources to pay for healthcare needs and those without such resources to determine based on healthcare insurance status, to determine if there was a difference between the two groups on the measure of self-care agency; an independent *t*-test was planned. Using the large effect size (d = 0.8) and employing a two tailed-test, a total sample of 84, 42 in each group, was required.

Finally, hypothesis 4 employed a two-tailed test for a correlational relationship between two variables, self-care agency, and self-care behavior, using data collected from one sample. Again, anticipating a large effect size (r = 0.50) a sample of 46 was considered optimal.

Based on these parameters and using the statistical method requiring the largest number of participants, a sample size of 112 participants was required. This number was increased by 50% due to the possibility of incomplete surveys or that the participant might not meet required criteria; recruitment aimed for a total of 168 individuals.

Protection of Human Participants

Study participants were protected by processes that conform to ethical and legal principles prescribed by the guidelines for conducting research with human subjects (U.S. Department of Health & Human Services, 2001) and the policies for protection of human

subjects mandated by the Barry University Institutional Review Board (IRB). A request for exempt status was made. Data were collected via survey procedures; the information obtained was recorded in a way that the study participants remained anonymous; no participant identifiers exist. Only the investigator, dissertation chair, and statistician had access to the data.

Informing Participants

Participants were recruited from consenting cardiology offices located in central Florida (Appendix B). At the time of recruitment, a flyer (Appendix D) announcing the study was posted in the waiting room in clear view of individuals waiting for their appointment with the health care provider. Potential participants were approached by the researcher, informed about the study, and offered the opportunity to participate. Interested individuals received a copy of the cover letter (Appendix E) that explained the purpose of the study and provided contact information for the researcher, faculty sponsor, and Barry University IRB contact person.

Protecting Participants

The data collected were anonymous; no names or identifiers were connected to responses. Only the researcher has access to the completed surveys. Results have been reported as aggregate data.

Benefits and Risks to Participants

Each participant was offered a small medication box labeled with the day of the week as reminder when to take medications. Additionally, the participants may have benefited from the satisfaction that their participation may help providers understand the self-care practices among individuals with HF.

While there were no anticipated risks involved in this survey, research there was the possibility that some questions may have resulted in psychological discomfort. A list of community resources in the area was provided to each participant (Appendix F). Participants were informed that any fees incurred from counseling services would be their responsibility.

Procedure

Recruitment times were scheduled according to the convenience of the specific clinic. The researcher was stationed in the waiting room of the clinic. Potential participants were approached by the researcher, and the study was explained. Interested individuals were given the cover letter (Appendix E) and the opportunity to ask questions, to decline participation, or to participate.

Individuals who agreed to participate were provided a copy of the research packet (Appendix G), a clip board, and pen. The participants were instructed not to put personal identifiers (i.e., names, telephone numbers, and addresses) anywhere on any of the research documents. They were asked to complete the survey instruments. Pre-testing of the instrument found that it should take approximately 35 minutes to complete.

After completion of the survey instrument, the participant placed it in an envelope provided and placed the sealed envelope in a locked box provided by the researcher. The researcher emptied the locked box at the end of each data collection day.

In the event that participants were called in for their appointment before they were able to complete and return the instruments, they were given a stamped envelope addressed to the researcher and asked to complete the instrument at their convenience and mail it to the researcher.

Instrumentation

Data was collected by means of five instruments, including a demographic survey. These instruments were chosen based on their previous use with adult populations with chronic illnesses and have been reported to have acceptable levels of reliability and validity. While the instruments had previously been found to be valid and reliable measure when applied to other populations, data obtained in this study were used to test for psychometric values when applied to patients with HF. Permissions for use of these instruments were obtained (Appendix H).

A demographic survey (Appendix C), developed by the researcher, was used to describe the sample regarding age, gender, ethnicity, level of education completed, current employment status, diagnosis of HF, healthcare insurance status, and approximate annual income. Healthcare insurance status was used to operationalize the construct of resource availability and adequacy and provide categorical data whereby the individual either did or did not have healthcare insurance to pay for their healthcare needs.

Hypothesis 1 specified two predictor variables: social support and knowledge of HF. Social support was measured by means of the Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet, Dahlem Zimet, & Farley, 1988). Knowledge of HF self-care was measured using the Heart Failure Knowledge Test (HFKT) (Artinian, 1999).

Hypothesis 2 considered the individual's current level of health/severity of symptoms. Health state/severity of symptoms was measured by means of the Specific Activity Scale (SAS) (Goldman et al., 1981).

Hypothesis 3 considered the individual's resource adequacy as defined by the availability of insurance to cover healthcare needs. The demographic survey included one item, number six, that was used to measure this variable.

In hypothesis 4, self-care agency was examined for its relationship with the variable of meeting therapeutic self-care demands (self-care practices/behavior). This variable was measured by means of the Revised Heart Failure Self-Care Behavior Scale (Artinian, 1999).

Specific Activity Scale

The Specific Activity Scale (SAS) (Goldman et al., 1981) (Appendix G) was designed to assign an individual diagnosed with HF to a functional class based on their ability to carry out activities, which require descending degrees of metabolic equivalents. Other instruments considered for use in this study included New York Heart Association criteria scale and the Canadian Cardiovascular Society criteria scale (Goldman, Hashimoto, Cook, & Loscalzo, 1981). However, since SAS was found to be a better predictor of a person's degree of disability from cardiovascular disease, it was considered the best choice for use in this study.

Validity

The SAS has been found valid by expert HF physicians. Goldman, Hashimoto, Cooks, and Loskalzo (1981) tested validity of the New York Heart Association criteria and the Canadian Cardiovascular Society criteria for the assessment of cardiac functional class and compared these criteria with a new SAS based on the metabolic costs specific activities. The SAS was found to be a better predictor of a person's degree of disability from cardiovascular disease. SAS has validity of 68%, which was significantly higher

than the validities of the other systems. Also, in a matched analysis of 37 instances in true functional class, SAS was compared with Canadian Cardiovascular Society scale, SAS scale was significantly more likely to predict treadmill performance (25 matched pairs versus 12 matched pairs, $x^2 = 4.57$, $p = 0.03$).

Reliability

The SAS has a reproducibility of 73% (reliability), which is significantly higher than the 56% reproducibility of the New York Heart Association classification system (Goldman, Hashimoto, Cook, & Loscalzo, 1981).

Scoring

The participant is presented with five items, each listing specific activities. Based on the response to the preceding item, the participant is directed to the next appropriate item. When the participants respond that they are unable to carry out any of the activities listed in the item, he/she is instructed to stop. Each stop instruction is associated with a class indicating the level of severity of the activity restrictions imposed by the HF. This measure results in categorical data assigned as class I, II, III, or IV.

Multidimensional Scale of Perceived Social Support

The Multidimensional Scale of Perceived Social Support (MSPSS) (Zimet, Dahlem Zimet, & Farley, 1988) (Appendix G) was chosen for this study because it has been used extensively with adolescent and adults and is one of the research instruments found that separates the possible source of social support into friends, family, and significant other subscales. Also, the instrument has received good empirical support for its reliability and validity in literature. Inclusion of significant other support makes the MSPSS particularly

relevant to a study with HF patients, as they are often older and typically live with partners or significant others.

Reliability and Validity

Zimet, Dahlem, Zimet, and Farley (1988) described the validity and reliability of MSPSS when used with 136 female and 139 male university undergraduates. Results found the MSPSS to be psychometrically sound, with good internal consistency (α = .88), adequate construct validity (r = - .25, p < .01), and excellent test-retest reliability (r = .85). Good factorial validity was found; the subscales were found to be moderately correlated.

Zimet, Powell, Farley, Werkman, Berkoff (1990) tested the instrument with a sample of 265 pregnant women receiving prenatal care at West Virginia medical facilities, 74 adolescents attending high school, and 55 pediatric residents. These researchers reported that MSPSS demonstrated very good internal reliability (α = .84 to .92).

Canty-Mitchell and Zimet (2000) assessed the reliability and validity of the MSPSS instrument with a sample of adolescents. The findings indicated that the α coefficient for the entire scale was .93; the α of the three subscales of family, friends, and significant others were .91, .89, and .91, respectively.

Zimet, Dahlem, and Zimet (1988) reported that the scale had excellent internal consistency with an α of .91 for the total scale and .90 to .95 for the subscales. Factorial, concurrent, and construct validity were shown to be good.

The psychometric properties of the MSPSS were investigated in a sample of 222 urban, largely African-American adolescents (68%). Excellent internal consistency was

demonstrated and factor analysis confirmed the three subscales structures of family, friends, and significant other as indicated above (Canty-Mitchell & Zimet, 2000).

Sayers, Riegel, Pawloski, Coyne, and Samaha (2008) tested the instrument using data collected from 63 patients with HF. These researchers reported that the reliability overtime test-retest correlation was excellent (friends, r =.74, $p < 0.0001$; significant others, r = .88, $p < .0001$; family, r = .69, $p < .0001$. The three subscales (friends, family, and significant other) were moderately inter-correlated (r = 0.39 to 0.56, $p < 0.001$).

Scoring

The survey consists of 12 items. The instrument may be scored based on the sum of all 12 items to provide a measure of total perception of social support or be divided into subcategories each consisting of four items. For the purpose of this study, the scoring was based on the sum of the responses. All items provide a 7-point Likert scale ranging from 1 indicating *very strongly disagree* to 7 indicating *very strongly agree*. Using the entire scale, possible scores range from a minimum of 12 to a maximum of 84. Higher scores indicate greater perceived adequacy of social support. This measure provides interval level data.

Heart Failure Knowledge Test

The Heart Failure Knowledge Test (Artinian, 1999) (Appendix G) measures HF knowledge and the reasons for symptoms, worsening of HF symptoms, low-sodium diet, medications and actions for the occurrence of side effects, and self-management relative to weight monitoring, activity, and worsening of symptoms. The instrument was selected because it addresses most of the components of Orem's health-deviation self-care requisites and due to its comprehensive measurement of self-care knowledge of HF. The

items in the instruments seem very clear and reflect comprehensive characteristics of self-care behavior of individuals with HF.

Validity

The content validity of the Heart Failure Knowledge Test (HFKT) (Artinian, Magnum, Sloan, & Lange, 2002) was demonstrated through evaluations made by a panel of experts, including two nurse practitioners and two self-care experts. Criterion-related validity of the HFKT against other knowledge scales has not yet been determined.

Reliability

The HFKT has demonstrated a reliability of $\alpha = .64$ based on data provided by 32 participants with HF recruited from a teaching hospital and 78 outpatient participants with HF recruited from the cardiology clinic of a Veterans Affairs Medical Center (Artinian, Magnum, Sloan, & Lange, 2002).

Scoring

Participants were asked to respond to 14 multiple-choice and one fill-in-the-blank question. For each item, participants can choose from four to five options with one of the options being the correct answer. Knowledge scores were determined by the sum number of correct answers; possible scores ranged from zero to 15 with higher scores indicating higher levels of self-care knowledge of HF. As there is the possibility of a zero score, this measure provides ratio level data.

Exercise Self-Care Agency Instrument

Self-care agency was measured using the Exercise Self-Care Agency Instrument (ESCAI) (Kearney & Fleischer, 1979) (Appendix G). The ESCA is a 43-item scale measuring self-care capabilities. It consists of four subscales: (1) an active versus passive

response to situations, (2) the person's motivations, (3) knowledge base of the person, and (4) the individual's sense of self-worth. The instrument was developed to measure Orem's concept of self-care agency. The ESCA was chosen for this study because is a widely acceptable undimensional measure of self-care agency, which has been used with a variety of population

Validity and Reliability

Split-half reliabilities were determined from two samples, 84 nursing students and 153 psychology students. Content validity for indicators of self-care agency was determined by five experts in self-care agency theory who rated each item for its worth as an indicator of self-care agency. Construct validity was explored by comparing scale scores with subscales from Rotter Locus of Control Scale and the Adjective Check List (ACL). Exercise of Self-Care Agency was not related to internal or external locus of control. Scale scores were positively related to ACL self-confidence, achievement, and intraception subscales and were negatively related to ACL abasement subscales (Kearney & Fleischer, 1979).

In a second study to determine construct validity, the scale scores were correlated with scores from the Self-Directed Learning Readiness Scale. Correlations were stronger for a group of 62 post-basic nursing students ($r = 0.50$) than for a group of 57 adult diabetic patients ($r = 0.32$). Further studies by other authors confirmed test-retest and split half reliabilities. Construct validity using principal components factor analysis consistently produced a four-factor solution in three studies explaining about 30 percent of the variance with some variation in item loadings. Alpha coefficients ranging from

0.67 to 0.83 for individual factors and the total instrument are reported (Kearney & Fleischer, 1979).

The ESCAI was further tested for reliability over time using samples consisting of nursing and psychology students who provided data for a test-retest procedure. Instrument split-half reliabilities were .80 and .81 in initial and repeated testing of nursing students and .77 in a single testing of psychology students. Test-retest reliability was .77 for the nursing students at an unknown time interval (Kearney & Fleischer, 1979).

Nahcivan (2004) pilot tested a Turkish version ESCA using a randomized convenience sample of 119 bilingual Turkish adolescents. The instrument was translated into Turkish, back translated and pilot tested for linguistic equivalence. The results show that Turkish version of the ESCA was linguistically equal to English form. Test-rested correlations were acceptably high (r = .80 to .90). Internal consistence of the total scale of the ESCA was adequate, with an alpha coefficient of .89 for Turkish version and .88 for the English Version.

Scoring

The scale consists of 43 items scored on a 7-point Likert scale ranging from 1 to 7. Responses on positively worded items are assigned a score of 1 for *very much uncharacteristic* of me to 7 *very characteristic of me*. The 10 negatively scored items, 3, 6, 10, 16, 22, 25, 28, 32, 34, and 39, will be reverse scored. A high score indicates a higher degree of self-care agency. Scoring is based on the sum of the responses, which may range from a minimum of 43 to maximum of 301. This measure provides interval data.

Revised Heart Failure Self-care Behavior Scale

The Revised Heart Failure Self-Care Behavior Scale (Artinian et al., 2002) (Appendix G) measures self-care behavior according to the HF self-care requisites and describes behaviors that patients with HF must perform, to some degree, to regulate (maintain or change) their own functioning. The instrument was selected because it addresses most of the components of Orem's health-deviation self-care requisites. It was also, selected for use in this study due to its comprehensive measurement of self-care behavior. The items in the instruments seem very clear and reflect comprehensive characteristics of self-care behavior of individuals with HF. The scale has demonstrated internal consistency and reliability with individuals diagnosed with HF.

Validity

The content validity of the Revised Heart Failure Self-Care Behavior Scale was demonstrated through evaluations made by a panel of experts, including two nurse practitioners and two self-care experts (Artinian, Magnum, Sloan, & Lange, 2002).

Reliability

The reliability of the instrument was estimated to be $\alpha = .84$ based on data provided by 32 participants with HF recruited from a teaching hospital and 78 outpatient participants with HF recruited from the cardiology clinic of a Veterans Affairs Medical Center (Artinian et al., 2002).

Scoring

Participants were asked to respond to 29 items by indicating how often each behavior was used on a scale ranging from 1 indicating *none of the time* to 7 indicating *all of the time*. A total score was determined by summing the item scores. Scores may

range from a minimum of 29 to a maximum of 203, which indicates that all self-care behaviors are performed all of the time. This measure provides interval level data.

Statistical Analyses

Descriptive and inferential statistical methods were employed. The data for demographic analyses contain categorical variables measured by nominal and ordinal scales. Descriptive statistics were computed for each variable. Descriptive statistics were used to describe the sample by means of frequencies, percentages, measures of central tendency and measures of variation.

Data Cleaning

In order to ensure quality statistical results and accuracy of data entry, surveys were cross- checked for errors, accuracy, and completeness. Missing data were excluded from data analysis; only scales containing complete response sets were included in the data analyses. All the scores for each variable scales were summed both manually and by computer. The sums were compared to verify accuracy of data entry.

The data were checked for outliers. An outlier is a score very different from the rest of the data. Outliers were herein defined as any *z*-score of +/- 2. Outliers were examined for being a valid representation of the responses. Outliers were retained, but their impact was reduced by changing the score according to the instructions provided by Field (2005), which involved changing the score to the next highest or lowest score plus one.

Reliability Testing

While the instrument scales have shown adequate validity and reliability when used with other populations and samples of HF patients, the psychometric property of

reliability as internal consistency for the instruments used to measure social support, self-care agency, and self-care behavior were estimated by means of Cronbach's alpha analysis based on the responses of the participants in this current study. Criteria used to identify poorly functioning items included an item-total correlation of <.30 (Nunnally, 1978).

Hypothesis Testing

Parametric statistical analyses are only appropriate to data that meet the assumptions that the population is normally distributed, the data is measured as continuous with interval or ratio scales, and the variance in the outcome variable is equal and fairly and evenly distributed throughout the population (Field, 2005). The variables of family/social support, self-care agency, and self-care behavior were all measured as interval level data; knowledge of HF was measured as ratio level data. The variables of health state/severity of symptoms and resource availability and adequacy/socioeconomic status provided categorical level data used to separate participants into exclusive groups or categories.

To ensure that the scores on the variables measured as continuous level data met the assumptions for parametric analysis, normality of distribution was explored by means of frequency distributions using histograms with the normal curve superimposed and calculation of the Kolmogorov-Smirnov statistic (*D*). In the event that the distribution was non-normal, distribution was addressed by coaxing the variable to normality, if possible (Field, 2005).

Hypothesis 1

There is a significant positive relationship, uniquely or as a linear composite, between the predictor variables of family/social support and knowledge of HF and the outcome criteria of self-care agency for individuals with HF.

The hypothesis identifies two independent variables that were considered as possible predictors of the outcome criterion of self-care agency for individuals with HF. Multiple regression analysis was used because it indicates the strength and direction of the contribution each variable makes to the criterion variable. Multiple regressions are also applied when the study contains questions about the nature of the relationships between one dependent variable and several independent variables.

In multiple regression analysis, the assumptions are that the data involved must be normally distributed to the regression line, the independent variables should be justified theoretically, and that a correlation between two or more variables within a multiple regression analysis does not imply causality (Field, 2005). Therefore, prior to interpreting the regression data or result, a collinearity statistics for tolerance and variance inflation factor (VIF) should be conducted to rule out multicollinearity. Indicators for tolerance multicollinearity include tolerance < .1 and VIF > 10.0 (Field, 2005). Multicollinearity exists when two or more independent variables are highly correlated; this makes it difficult to determine their separate effects on the dependent variable (Field, 2005).

Hypothesis 2

There is a significant difference in the mean scores for the measure of self- care agency between the four categories of state of health/degree of symptoms reported by individuals with HF.

Hypothesis 2 was examined by means of a one-way ANOVA. The ANOVA procedure is a test of the statistical significance of the differences among the mean scores for two or more groups on one or more variables. It is used for assessing the relationship between categorical independent and a continuous dependent variable (Vogt, 1993). Hypothesis 2 examines the mean scores for the dependent variable of self-care agency which was measured as continuous level data and compares these scores for significant differences between the four categories, or classes, of HF into which the sample was divided.

Hypothesis 3

There is a significant difference in the mean scores for the measure of self-care agency between the two categories of resource availability and adequacy as measured by having or not having healthcare insurance to meet healthcare needs.

Hypothesis 3 was examined by means of an independent *t*-test procedure. The *t*-test is similar to the ANOVA in that it is appropriate for comparing mean scores for a dependent variable measured as continuous level data obtained from two categorical groups. The entire sample was divided into two groups, those with healthcare insurance and those participants without such resources, and the mean scores for self-care agency was compared for a significant difference between these two groups.

Hypothesis 4

There is a significant positive correlational relationship between the scores for self-care agency and the scores for self-care behavior among individuals with HF. This hypothesis identifies two variables that are theoretically related in that change in one variable will be reflected by changes in the other variable. This relationship was tested by means of Pearson's product moment correlation (*r*).

Data Management

Data was entered into Statistical Package for the Social Sciences (SPSS) graduate pack version (15.0.1.1) for Windows (SPSS, 2006). All coding and scoring were performed by the researcher. Data entry and data analyses were performed by a statistician.

File Storage

The completed research instruments will be stored in the researcher's home office in a locked file cabinet, which is inaccessible to others; computer data will be stored on the researcher's personal home computer, which is password protected. Instruments and computer files will be maintained for a period of five years; at end of five years, the surveys will be shredded and computer files will be deleted as per Barry University policy.

Summary

A non-experimental, explorative, and descriptive correlational design was utilized with the purpose of testing the relationships of specific constructs of the Orem's theory of self-care. A convenient sample representative of the target population and of sufficient number to detect a medium effect was recruited from the patients being seen

local primary physicians' offices and cardiac offices.

The theoretical constructs were operationalized by means of previously developed and tested instruments. However, as not all of the instruments had previously been used to measure the constructs specifically among patients with HF, the data obtained was used to provide estimations of the psychometric property of reliability as internal consistency.

Data was explored and analyzed. Measures of central tendency were calculated. Measures were taken to assure that the data met the assumptions necessary for parametric testing. Four hypotheses were tested. Statistical methods planned included multiple regression, one-way ANOVA, independent *t*-test, and Pearson's product-moment correlation.

CHAPTER FOUR

RESULTS

The purpose of this study was to test the relationships of selected constructs identified in Orem's theory of self-care among a group of individuals diagnosed with varying degrees of HF and receiving on-going medical care for their HF condition to determine if these constructs are significantly related to self-care behavior. Four research questions with their accompanying hypotheses were posed. A total of 157 individuals voluntarily provided responses to the survey items. While not all individuals provided complete information for each scale, the sample exceeded the number considered to be minimal for the statistical tests planned and, therefore was adequate for statistical analysis. Prior to hypothesis testing, the data were subjected to rigorous analyses to determine if the assumptions for parametric testing had been met. This chapter presents the statistical analyses of the data obtained.

Description of the Sample

The sample (N = 157) consisted of males (n = 84, 53.4%) and females (n = 73, 46.5%) between the ages of 26 and 89 years (M = 64.04, SD = 12.664). While all participants had been previously diagnosed as having HF, their health state over the preceding 30 days, based on their reported severity of symptoms, ranged from category I to category IV. The majority of the participants (n = 127, 80.9%) reported that they were covered by some sort of healthcare plan that paid for their healthcare needs; 29 (18.5%) reported that they were not covered by healthcare insurance and had to pay for their healthcare needs out of their own pocket. The sample consisted of a large number of Caucasians (n = 100, 63.7%), while 21 (13.4%) reported being African-Americans, 25

(15.9%) Hispanic, 9 (5.7%) Asian, and two (1.3%) reported their ethnicity as *other*. Additional demographic information used to describe the sample is presented in Table 1.

Table 1

Description of the Sample (*N* = 157)

Characteristic	*n*	%
Health state/severity of symptoms		
Category I	91	58.0
Category II	45	28.7
Category III	19	12.1
Category IV	2	1.3
Level of education		
< High school diploma	5	3.2
High school diploma	41	26.1
Some college	74	47.1
Undergraduate college degree	20	12.7
Graduate degree	13	8.3
Not reported	4	2.5

Table 1 continues

Table 1 continued

Characteristic	*n*	%
Employment status		
Employed fulltime	35	22.3
Employed part time	23	14.6
Retired	76	49.7
Unemployed	11	7.2
Other	8	5.1
Not reported	4	2.5
Annual income		
< $10,000	16	10.2
$10,001 - $20,000	20	12.7
$20,001 - $30,000	34	21.7
$30,001 - $40,000	46	29.3
$40,001 - $50,000	23	14.6
> $50,000	18	11.5

Reliability Testing

Cronbach's alpha was calculated for the social support scale (n = 155, α = .968, corrected item-total correlation range from .746 to .921), self-care agency scale (n = 151, α = .951, corrected item-total correlation range from .285 to .785), and self-care behavior

scales (n = 143, α = .911, corrected item-total correlation range from -.027 to .683). Several items on the self-care behavior scales, items 1, 6, 7, 8, 22, 27, and one item from the exercise of self-care agency scale, item 11, fell below the optimal corrected item-total correlation value of .30; however, both scales demonstrated excellent overall internal consistency in this sample.

Descriptive Statistics

Descriptive statistics were obtained for each of the variable scales, which generated interval or ratio level data. These values are presented in Table 2. The scores for these variables were converted to *z*-scores and examined to detect outliers. The scores for the variables were evaluated for characteristics of distribution to determine if they met the assumptions necessary for parametric testing.

Identification of Outlying Scores

The scores for social support, knowledge of HF, self-care agency, and self-care behavior were converted to *z*-scores and screened for outliers (> 2 *SD* from the *M)* by frequency distributions and histograms with the normal curve imposed. Boxplots were used to identify outlying cases.

Outlying cases were identified by means of boxplots, visualized for credible authority, and considered valid components of the sample and, therefore, retained; however, their impact on the *M* was reduced by changing the score to the next highest or lowest score plus or minus one. Eight outlying cases were detected among the scores for social support with scores of 23, 24, 30, 31, 33, 34, 35, and 36; these scores were changed to 37. Two cases scored as outliers with a value of 4 on the measure for knowledge of HF; these scores were changed to 5. Four outlying cases with scores of 133, 171, and

173 were identified among the scores for self-care agency; these scores were changed to 177. Five outlying cases were identified among the scores for self-care behavior, 73, 91, and 102; these scores were changed to 108. Following this change of scores, descriptive analysis was recalculated and presented in Table 2. The adjusted scores were then used for further statistical analyses.

Table 2

Means, Standard Deviations, and Ranges for Scores on the Variable Scales

	With outliers			Without outliers			
Scale	*M*	*SD*	*range*	*M*	*SD*	*range*	*n*
Social support	66.57	14.86	23 – 84	66.87	14.13	35 – 84	155
Knowledge of HF	10.77	2.13	4 – 15	10.80	2.06	6 – 15	157
Self-care agency	238.97	31.93	133 – 301	239.60	30.17	177 – 301	151
Self-care behavior	153.38	22.50	73 – 190	153.92	21.05	108 – 190	143

Tests of Normality of Distribution

Scores for all variables generating continuous level data were converted to standardized *z*-scores and values for skewness and kurtosis were considered. The *z*-score values of skewness and kurtosis should be zero in a normal distribution. Positive values of skewness indicate a pile-up of scores on the left of the distribution; negative values indicate a pile-up on the right. Positive values of kurtosis indicate a pointed distribution;

negative values indicate a flat distribution. The further the value is from zero, the more likely it is that the data are not normally distributed. Skewness and kurtosis values obtained are presented in Table 3.

Table 3

Skewness and Kurtosis Values for the Continuous Level Data Variables

Variable	Skewness	Kurtosis
Social support	-.595	-.567
Knowledge of HF	-.211	-.475
Self-care agency	.322	-.196
Self-care behavior	-.365	-.450

The variables of self-care agency and self-care behavior were designated as dependent variables. As such, these scores must meet the assumptions required for parametric testing, including normal distribution and homogeneity of variance. In addition to the visual observations of the histograms and values for skewness and kurtosis, the Kolmogorov-Smirnov values (*D*) (self-care agency, $D = .104$, $p = .00$; self-care behavior, $D = .046$, $p = .20$) and Levene's values (*F*) (self-care agency, $F = 9.876$, $p = 002$; self-care behavior, $F = 1.134$, $p = .289$) were considered. The significant values for these tests for the variable of self-care agency were accepted as indication of a non-normal distribution of scores and unstable variance.

As the scores for self-care agency were not normally distributed, attempts to correct the data and thus allow for parametric analysis were employed. Three transformations were made: log transformation, square root transformation, and reciprocal transformation. As the scores were negatively skewed, they were first reverse scored and then reverse scored after transformations (Field, 2005). These transformations failed to correct the distribution for the variable. Despite these efforts to correct the distribution of the scores for this variable the distribution remained non-normal and, therefore, inappropriate for parametric statistical methods.

Additional Data Deficits

In addition to the deficits in the scores for self-care agency, two other deficits were identified that necessitated a change from the original statistical plan.

Hypothesis 2 planned to examine differences in the scores for exercise self-agency between four different categories of health state. However, the number of participants assigned to each category was grossly unequal with those experiencing mild symptoms (n = 43), marked symptoms (n = 19), and severe symptoms (n = 2) as compared to those experiencing no symptoms (n = 87). To allow for reasonable analysis, the four groups were re-coded into two groups: participants currently not experiencing limitations on their exercise and activities (n = 87) and those who were experiencing any symptoms, mild, marked, or severe (n = 64).

Hypothesis 3 planned to examine differences of scores for self-care agency between two groups, those with healthcare insurance and those without such insurance. Again, the number of individuals assigned to each group was grossly uneven with

shortfall in the group of uninsured. This failed to achieve the required number for group comparisons and no alternative group assignment scheme was viable.

Hypothesis Testing

Four hypotheses were posed. With the disappointing results of the planned dependent variable of self-care agency being unsuitable for the statistical methods planned, the theoretical model (Figure 1) and purpose of the study were considered and discussed with the dissertation committee. As the primary aim of the study was to identify factors that were ultimately influential in the actual behavior of self-care among HF patients, and the variable of self-care behavior being normally distributed within the sample, the decision was made to remove the variable of self-care agency from the hypotheses and move the variable of self-care behavior into its position. The hypotheses were re-worded accordingly and statistical calculations proceeded.

Prior to hypothesis testing, collinearity statistics were calculated. The tolerance statistic of .977 was well above zero; the variance inflation factor (VIF) value of 1.023 was considerably less than 10. There were no substantial correlations (r >.4) between any of the predictors (see Table 4). These values were accepted as evidence that multicollinearity was not a concern.

Table 4

Means, Standard Deviations, and Inter-Correlations for Self-care Behavior and the Predictor Variables (*N* = 141)

Variable	*M*	*SD*	1	2	3
Self-care behavior	154.27	20.925	--	.391	-.105
Predictor variable					
1. Social support	67.35	13.967		--	-.150
2. Knowledge of HF	10.78	1.982			--

Restated Hypothesis 1

The restated hypothesis 1: There is a significant positive relationship, uniquely or as a linear composite, between the predictor variables of social support and knowledge of HF and the outcome criterion of self-care behavior for individuals with HF.

Standard multiple regression was conducted to determine the accuracy of the independent variables, social support, and knowledge of HF in predicting self-care behaviors. Regression results indicate that the overall model significantly predicts self-care behavior, $R^2 = .155$, adj. $R^2 = .143$, F (2, 130) = 12.649, $p = .000$. This model accounts for 15.5% of variance in self-care behavior. A summary of regression coefficients is presented in Table 5 and indicates that only one of the two variables, social support, significantly contributed to the model.

Table 5

Regression Analysis Summary for Variables Predicting Self-Care Behavior (*N* = 141)

Variable	*B*	*SEB*	*β*
Social support	.575	.119	.384**
Knowledge of HF	-.499	.836	-.047

**$p < .001$.

Restated Hypothesis 2

There is a significant difference in the mean scores for the measure of self- care behavior between the groups of participants currently not experiencing symptoms of HF that impose limitations on their exercise and activities and those who were experiencing any symptoms, mild, marked, or severe.

On the average, participants not currently experiencing symptoms of HF scored ($n = 83$, $M = 156.70$, $SE = 2.368$) scored higher on the measure for self-care behaviors than did those participants experiencing symptoms ($n = 60$, $M = 150.08$, $SE = 2.563$). This difference was not significant, $t\ (141) = 1.87$, $p = .06$, and represents a small sized effect, $r = .16$ explaining approximately 1% of the total variance (Field, 2005).

Hypothesis 3

There is a significant difference in the mean scores for the measure of self-care behavior between the two categories of resource availability/adequacy, having or not having healthcare insurance to meet healthcare needs, among individuals with HF.

On average, participants covered by healthcare insurance (n = 115, M = 155.67, SE = 1.99) scored higher on the measure for self-care behaviors than did those participants not covered by healthcare insurance (n = 27, M = 146.46, SE = 3.527). This difference was significant, t (140) = -2.04, p = .04, and represents a small sized effect, r = .17, explaining approximately 1% of the total variance (Field, 2005). However, as the number of participants assigned to the non-insured group fell short of the 42 required to carry out the statistical analysis, these results must be viewed with caution.

Hypothesis 4

There is a significant positive correlational relationship between the scores for self-care agency and the scores for self-care behavior among individuals with HF.

Pearson's product moment correlation analysis found that the two variables were significantly and positively correlated, r = .782, p < .01; as the scores for exercise self-care agency went up, so did the scores for self-care behavior. The effect size was large (r > .50) indicating the effect accounts for at least 25% of the variance (Field, 2005).

Summary

Data was collected from a sample of adequate size to carry out the statistical plan and detect a large effect between the study variables. The research instruments demonstrated a high degree of internal consistency and considered appropriate to measure the constructs among the target population. However, exploration of the scores for the variable self-care agency found that the scores violated the assumptions of normal distribution and homogeneity of variance required to be met for dependent variables used in parametric statistical applications. The purpose of the study and the ultimate desire to better understand factors related to the self-care behaviors among the population were

considered, and the original hypotheses 1, 2, and 3 were restated by removing the variable for self-care agency as the dependent variable and replacing it with the variable self-care behavior.

Results of hypotheses testing found social support to be a significant predictor to self-care behavior and self-care agency to be significantly correlated to self-care behavior among the sample participants. There was no significant difference of the scores for self-care behavior between participants reporting HF symptoms that imposed limitations on their activities of daily living and those not reporting such symptoms. While there was a significant difference between the scores for self-care behavior for those participants reporting to have healthcare insurance and those without healthcare insurance, the portion of the sample assigned to the non-insured group was inadequate and, therefore, this result must be viewed with caution.

CHAPTER FIVE

SUMMMARY AND DISCUSSION

The purpose of this study was to test the relationship between the variables of Orem's self-care model. Four hypotheses were posed based on the theoretical relationships. This chapter summarizes the study and discusses the findings of the study in relation to demographic and background characteristics of the participants. The significant and non-significant predictors of self-care practices among individuals with HF are presented. Limitations of the study and implications for nursing education, practice, and research as well as recommendations for future research are also addressed.

The Hypotheses

Hypothesis 1

The first hypothesis was that social support and knowledge of HF would be predictors of self-care behavior for individuals with HF. This hypothesis was partially supported by the data; social support was significantly related to self-care behavior, but knowledge of HF was not.

Convergence and Divergence of Findings with Previous Studies

No previous studies have examined the relationship between social support and knowledge of HF and self-care agency. However, social support has been strongly linked to self-care behaviors (Sayers, Reigel, Pawlowski, Coyne, & Samana, 2008) and self-care ability (Liu, Kuo, & Tung, 2008) and the findings from this current study converge with previous literature.

The relationship between knowledge and self-care behavior has been inconsistent in the literature. The finding herein, that knowledge was not a significant predictor of

self-care agency, is congruent with these inconsistent reports. Riegel and Rockwell (2001) found that patients with higher education might be more likely to engage in self-care than those who were less educated. However, Ni et al. (1999) suggested that knowledge alone does not necessarily lead to improve self-care. Likewise, Chriss, Sheposh, Carlson, and Riegel (2004) hypothesized that education would be a significant predictor of self-care, but this hypothesis was not supported.

Hypothesis 2

Hypothesis 2 tested for a difference in the mean scores of self-care behavior between individuals reporting the four categories of state of health based on the degree of symptoms reported by individuals with HF. This hypothesis was not supported by the data. There was no significant difference in the scores between the groups.

Convergence and Divergence of Findings with Previous Studies

The findings from this study diverge from those previously reported (Chriss, Sheposh, Carlson, & Riegel, 2004; Rockwell & Riegel, 2001). While these studies did not consider self-care agency, their findings indicated that those individuals experiencing more symptoms were more likely to engage in self-care than those who were less symptomatic, and patients with fewer co-morbid illnesses were most successful at HF self-care.

Explanation of the Divergence

This inconsistency in findings may be explained by the recruitment site for the sample. The sample was recruited from individuals presenting at a medical clinic for follow up of their HF. As such, they were under consistent medical assessment with prompt intervention available for symptoms before the symptoms exacerbated to an acute

level. While recruitment from this site led to the inability to support symptoms as a motivator for self-care, it does support the observation that continued and ongoing medical intervention leads to improved quality of life for these individuals.

Hypothesis 3

The third hypothesis was that there would be a difference in the mean scores for self-care behavior between the two groups of HF patients, those having healthcare insurance and those not having such coverage. While this hypothesis was strongly supported by the data, the number of participants that reported being uninsured was inadequate to carry out statistical analysis. The results of analyses are herein reported for information only.

Convergence of Findings with Previous Studies

The findings from this study are consistent with those previously reported (Gary, 2006; O'Connell, Crawford, Stotts, Stewart, & Frielicher 2008). While these studies did not consider self-care agency, their findings indicated that those with low socioeconomic status, such as being uninsured for healthcare costs, were less likely to carry out self-care practices for HF than were those who had healthcare insurance coverage. Although the findings from these previous studies are congruent with the findings of this current study, it is important to note that the samples for each study were quite different. The previous studies focused heavily on indigent populations, while in the current study, the majority of the participants reported being insured, and the number of uninsured participants was inadequate to carry out statistical analysis. Therefore, further study is recommended.

Hypothesis 4

Lastly, hypothesis 4 examined for a correlational relationship between the scores for self-care agency and the scores for actual self-reported behavior among individuals with HF. This hypothesis was strongly supported by the data.

Convergence of Findings with Previous Studies

Although several studies have been done to examine self-care behavior of individuals with HF and the self-care agency of such individuals, the correlational relationship between these factors has not previously been examined among individuals with HF. The findings of this study are congruent with the findings reported by Hurst et al. (2005) who conducted examined the relationships between these constructs among an unrelated population of individuals with HIV.

Strengths of the Study

Among the strengths of the study are the research instruments, which demonstrated a high degree of internal consistency and appropriate to measure the constructs among the target population. The sample size was sufficient to carry out the statistical plan and detect a large effect between the study variables.

Limitations

Limitations of the study are acknowledged and limit the ability to generalize the findings to this or any other population. Most notable among the limitations are those imposed due to sampling bias and recruitment setting, resulting in clear differences in characteristics of the sample as compared to those anticipated among the target population.

Sampling Bias

Data was collected with a convenience sampling strategy. Sampling bias may be present, which results in the limited ability to generalize the findings. Sample characteristics that were consistent with those anticipated in the population included gender, age (AHA, 2009; Rosamond et al., 2007), employment status, and annual income (Florida Department of Health, Office of Health Statistics, 2009).

The sample differed from that anticipated for the target population concerning level of education and the degree of functional limitations imposed by their health state. The sample consisted of highly educated participants as compared to that reported for the general population which found that 20.1% of the population 25 years of age and older did not have a high school diploma, and 22% of Floridians had a bachelor's degree or higher (Florida Department of Health, Office of Health Statistics, 2009). These characteristics limit the ability to generalize the findings from the sample to the population. A majority of the participants were very functional and were less impaired than participants in other studies (Carlson, Riegel, & Moser, 2001).

Recruitment Setting and Dynamics

The researcher was present during data collection. Since a small incentive was offered, participants may have felt compelled to complete the survey in order to get the gift. Data collection occurred in doctors' offices, some in the waiting rooms. Although, the participants were informed that completing the survey was voluntary, they may have felt the pressure to complete the survey because their family or friends had agreed. Also, select offices were chosen to access participants; this is noted as another limitation to generalization of findings.

Statistical Deficits

Deficits in the sample size and the measure for self-care agency imposed limitations on the study and the outcomes. While the sample was of adequate size to detect a large relationship between the variables, it was insufficient to detect any smaller effect. Sample scores for the variable, self-care agency, violated the assumptions of normal distribution and homogeneity of variance required for dependent variables to be used in parametric statistical applications.

Implications

While the behavior of self-care in individuals with HF may be predicated on a host of factors, the findings of this study indicate social support is significant to self-care agency, and self-care agency is significantly related to actual self-care behavior. Self-care behaviors have been shown to reduce the long-term complications of HF, which inevitably lead to increased healthcare costs. The aim is to nurture self-care behaviors with the beneficial outcomes for the individual and society. These results have implications for all facets of nursing; however, the greatest implications lie within nursing practice.

Nursing Practice

It is critical for nurses to identify the social support available for patients with HF and to encourage patients to recognize and rely on their support system. Likewise, the social support system for patients should be made aware of the vital role they play in the long-term well-being of the patient. If existing support cannot be identified or seems to be inadequate, nurses are in a prime position to recruit social support through peer groups and educational programs. Use of social support should be added to the overall care plan

for patients with chronic diseases such as HF and noted as a discharge goal for ongoing care.

Nurses should assess the social support of caregivers' ability to psychological coping with progressive chronicity of HF illness and continue to offer resources that could alleviate their stress. The role of nurses in managing HF patients has continued to increase over years; thus, it is important for nurses to be aware of the needs of HF patients so that interventions will be tailored accordingly. The involvement of a caregiver is often needed in caring for the patient with HF to enable patients to manage self-care without having to be admitted to long-term facilities. Increased involvement of social support by all healthcare providers may reduce the high rate of rehospitilization among individuals with HF.

Nursing Education

Nursing students will clearly encounter patients with HF and their families. While nursing curriculum tends to be heavily focused on the pathophysiological processes and the patients' responses, emphasis must be placed on the value of incorporating social support as means to protect health. Nursing educators may want to use these findings to encourage students to include social support as part of their care plan when taking care of HF patients. Moreover, efforts should be toward enhancing continuing education offerings, workshops, and conferences that include content on HF self-care behavior management and the importance of social support. The non-significant link between HF knowledge and self-care agency and self-care behavior has implications for curricula content alteration in HF education program. Although knowledge was not significant, this does not indicate that HF knowledge is not important to self-care

behavior of HF but rather implies that there might be other factors besides HF knowledge to consider when assessing self-care behavior in individuals with HF.

Nursing Research

With the decline in acute illnesses, increasing life expectancy and the anticipated increase in chronic illnesses, more attention is directed toward patients assuming responsibility for their self-care. Discovering and supporting factors that lead to increased self-care management is vital. The findings support the relationships between the variables as proposed by Orem's theory of self-care. This study serves as a facilitator for future studies of self-care behaviors among this population and others afflicted with chronic diseases.

Future research may explore different levels of social support that affect individuals' self-care behavior in HF. Additional settings and a larger sample may be useful in examining the variables influence to self-care agency and self-care behavior. This study should be replicated in other geographical areas. Qualitative studies can be used to identify different types of social support and the beliefs that might influence self-care behavior. Additional studies can be planned to include social support of different and ethnic backgrounds. As the scores obtained on the instrument for self-care agency used herein fell short as an outcome measure, other measures of this construct should be considered, such as self-care management.

Public Policy

Once patients are discharged from hospitals for acute episodes, community support is vital. Findings from this study may guide nurses to partner with community support agencies to raise awareness of the need for social support among HF patients.

There should be a healthcare policy to accommodate the caregivers who are the social support for HF patients. Nurses need to be involved politically in order to ensure local, state, and national funding for community outreach workers in providing social support to older adults with HF who have no support from family.

Exploring ways to refer patients with HF to cardiac rehabilitation which has been shown to improve psychological well-being, provide emotional support, and improve compliance, should be considered. Cardiac rehabilitation programs have been identified in literature as to provide continuous cardiac assessment and education, including counseling, and instruction on disease process and medications (Simon-Weinstein, 1999). Sadly, few patients with HF are referred to these programs due to lack of insurance coverage for cardiac rehabilitation (Jensen & King 1997). Nurse practitioners have the power to influence social policies regarding cost benefit ratio of including social support system in managing HF self-care behavior.

Recommendations for Future Research

Future research should focus on obtaining a sample more representative of the population as a whole and recruitment of a larger sample size. As only selected constructs of the model were included in the study, expanding the measures to include all 10 basic conditioning variables is suggested in future research in this area.

Summary

The purpose of this study, to test the relationships of selected constructs identified in Orem's theory of self-care among a group of individuals diagnosed with varying degrees of HF, was accomplished through four hypotheses. A sample of adequate size for the statistical tests planned was recruited. Analysis of the demographic characteristics

found that the sample was only partially representative of the target population and, therefore, limits the ability to generalize the findings to this or any other population. Analysis of the research instruments found them to be reliable and valid for the sample.

Orem's theory of self-care was only partially supported. Social support was found to be a predictor for self-care behavior, and self-care agency was found to be significantly correlated with self-care behaviors. However, knowledge of HF and state of health were not significantly related to self-care agency.

The results of this study provide additional knowledge in the area of self-care behavior among individuals with HF. These findings have implications in the areas of nursing education, nursing practice, nursing research, and public policy. Future research should focus on obtaining a sample more representative of the population as a whole and recruitment of a larger sample size. As only selected constructs of the model were included in the study, expanding the measures to include all 10 basic conditioning variables is suggested in future research in this area.

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Appendix A

Barry University Institutional Review Documents

Approved by Barry University IRB
Date: OCT 2 1 2009
Signature: Lynn C. Gaudmuth, MD, FACEP

Institutional Review Board
Protocol Form
February, 00 **13**

Barry University

Cover Letter

Dear Research Participant:

Your participation in a research project is requested. The title of the study is *A Test of Orem's Self-care Theory among Individuals with Heart Failure*. The research is being conducted by Ngozi Odoh, a student in the Division of Nursing at Barry University, and is seeking information that will be useful in the field of nursing. The aim of the research is to better understand the factors that contribute to the practice of self-care activities that are intended to improve health among individuals with HF. In accordance with these aim, the following procedure will be used: completion of a self-administered survey questionnaire. We anticipate the number of participants to be 207. If you decide to participate in this research, you will be asked to complete a questionnaire which will take approximately 35 minutes.

Your consent to be a researcher participant is strictly voluntary and should you decline to participate or should you choose to drop out at any time during the study, there will be no adverse effects on your health care. However, once the completed questionnaire is placed in the data collection box there will be no way to identify and retrieve your questionnaire. By completing and returning this survey you have shown your agreement to participate in the study.

The benefits to you for participating in this study are not immediate or direct, but findings from this study may help health care professionals to better understand the factors that contribute to the practice of self-care activities that are intended to improve health among individuals with heart failure. There are no known risks to you for participation in this study; however, if you experience psychological discomfort, you will be provided a list of resources available in the community, at your personal expense, to provide counseling.

As a research participant, information you provide will be kept anonymous, that is, no names or other identifiers will be used so your information cannot be traced back to you. Your information will be kept in a locked file in the researcher's office and stored for five years and then destroyed by shredding.

If you have any questions or concerns regarding the study or your participation in the study, you may contact me, Ngozi Odoh, at (407) 788-6165, my supervisor, Dr. Jo Ann Kleier at (305)-899-3038, or the Institutional Review Board point of contact, Barbara Cook, at (305) 899-3020.

Thank you for your participation.
Sincerely

Ngozi Odoh

Ngozi Odoh

Appendix B

Recruitment Sites Letters of Permission

FLORIDA CARDIOLOGY

Sandeep Bajaj, MD, FACC, FCCP
Karan G. Reddy, MD, FACC, FACP
Claudio Manubens, MD, FACP
Darlene M. Go, MD, FACC
Abbas Ali, MD, MS, FACC
Sergio Manubens, MD, FACC
Osama Al-Suleiman, MD, FACC
Steven M. Davis, MD
Milan Kothari, MD, FACC

Pradip Baiju, MD, FACC, FSCAI
Harish Patil, MD, FACC, FSCAI
Raviprasad Subraya, MD, FACC, FSCAI
Daniel Rieders, MD, FACC
Georg Couturier, MD, FACC
Saroj Tampira, MD, FACC
Ramon Luis Torres, MD, FACC
Aamir Javaid, MD
Lewis Chapman Bean, MD, FACC

Anne M. Kitslaar, PA-C
John G. Egolf, ARNP
Sally Covey, ARNP
Effie D. Barba, ARNP
Monica Tschickardt, ARNP
Sharon Torres, ACNP-C, MSN, CCRN

To Whom It May Concern:

I, Karan G Reddy, give Ngozi Odoh (A Nursing PhD student at Barry University Miami Florida) permission to conduct her research study titled "A TEST OF OREM'S THEORY OF SELF-CARE AMONG INDIVIDUALS WITH HEART FAILURE" in our facility.

Signature

6/17/19
Date

ALOMA
483 N. Semoran Blvd., 102 · Winter Park, FL 32792
(407) 645-1847 · Fax (321) 274-0246
METROWEST
6200 Metrowest Blvd., Suite 102 · Orlando, FL 32835
(407) 294-5551 · Fax (407)294-5572
OVIEDO
7440 Red Bug Lake Road · Oviedo, FL 32765
(407) 971-0000 · Fax (407)971-0008

CLERMONT
255 Citrus Tower Blvd., Suite 101 · Clermont, FL 34711
(352) 394-0893 · Fax (352) 243-1188
DAVENPORT
2239 North Boulevard West · Davenport, FL 33837
(863)419-1418 · Fax (863)419-1809
OCALA
40SW 12th Street, Unit #3 · Ocala, FL 34474
(352)291-0019 · Fax (352)291-0097

SUMMERFIELD
17820 SE 109th Avenue, Suite 110 · Summerfield, FL 34491
(352) 307-8554 · Fax (352) 245-8451
ORLANDO
14501 Gatorland Drive Orlando, FL 32837
(407)931-0070 · Fax (407)816-4174
BERRYTOWN
2508 Sand Mine Rd · Davenport, FL 33837
(863)419-1418 · Fax (863)419-1809

FLORIDA HEART GROUP

ICAEL Accredited Echocardiography Laboratory

ICANL Nuclear Cardiology Accredited Nuclear Cardiology Laboratory

R. Charles Curry, Jr., MD, FACC, FACP
Kerry M. Schwartz, MD, FACC, FACP
Carlos B. Saenz, MD, FACC, FACP
Curtis J. Weaver, MD, FACC, FACP
Mark R. Milunski, MD, FACC, FACP
Francis J. Fahey, MD, FACC
George Monir, MD, FACC
Jose H. Arias, MD, FACC

Puxiao Cen, MD, FACC
Hani B. Seifein, MD, FACC
Patricia A. Guerrero, MD, FACC
Chin K. Kim, MD, FACC
William H. Willis, Jr., MD, FACC, FACP
H. B. Karunaratne, MD, FACC, FACP
Alejandro C. Franceschi, MD, FACC, FSCA
Hector F. Lozano, MD, FACC

July 14, 2009

To Whom It May Concern:

I, Joan B. Bryan, Practice Administrator, Florida Heart Group PA. give Ngozi Odoh, a Nursing PhD student at Barry University Miami Florida, permission to conduct her research study titled "A Test of Orem's Theory of Self-Care Among Individuals With Heart Failure" in our facility located at 1613 N Mills Avenue, Orlando, FL 32803.

If you need additional information please feel free to contact me.

Sincerely,

Joan B. Bryan

Practice Administrator

Appendix C

Demographic Instrument

The following questions will provide general demographic information.
Please write in (where appropriate) or circle the number of your response.

1. Your current age: _____

2. What is your gender: 1. Female 2. Male

3. Which best describes your ethnicity?
    1. African-American
    2. Caucasian
    3. Hispanic
    4. Asian
    5. Other: _____
4. What is the highest level of educational you have completed?
    1. Less than high school diploma
    2. High school diploma
    3. Some college
    4. Undergraduate college degree
    5. Graduate degree
5. Which best describes your current employment status?
    1. Employed full time
    2. Employed part time
    3. Retired
    4. Unemployed
    5. Other: _____
6. Which best describes the method by which you pay for your health care?

    1. Medicare
    2. Medicaid
    3. CHAMPUS
    4. HMO
    5. Uninsured, I pay for my health care out-of-pocket
    6. Other_____

7. Have your physician or other health care provider told you that you have heart failure? YES NO (Circle one)

8. Income:
    1. Less than $10,000 per year
    2. $10,0001and $20,000
    3. $20,0001 and $30,000
    4. $30,0001 and $40,000
    5. $40,0001 and $50,000
    6. Greater than $50,0001

Appendix D

Recruitment Flyer

Are you living with heart failure?
Participate in a study about self-care behavior in individuals who are living with heart failure

A nursing PhD student at Barry University is looking for about 207 individuals with heart failure to participate in this study.

- **If your doctor or health care provider have informed you that you have heart failure.**
- **If you are 18 years or older.**
- **Living with heart failure.**

You are invited to participate

- **Participating in completing surveys in this study may help providers of persons with heart failure to understand how to care for persons like you more effectively.**
- **As a benefit of participation you will receive a medication box.**
- **Your participation will include completing a survey questionnaire that will take about 30-35 minutes.**

If you have any questions while completing the survey
Please Contact
Ngozi Odoh, MSN, ARNP
(407)788-6165
Or
My Supervisor
Dr. Jo Ann Kleier at
(305)899-3038
Or
The Institutional Review Board point of contact
Barbara Cook @ 305-899-3020

Appendix E

Cover Letter

Barry University
Cover Letter

Dear Research Participant:

Your participation in a research project is requested. The title of the study is *A Test of Orem's Self-care Theory among Individuals with Heart Failure*. The research is being conducted by Ngozi Odoh, a student in the Division of Nursing at Barry University, and is seeking information that will be useful in the field of nursing. The aim of the research is to better understand the factors that contribute to the practice of self-care activities that are intended to improve health among individuals with HF. In accordance with these aim, the following procedure will be used: completion of a self-administered survey questionnaire. We anticipate the number of participants to be 207. If you decide to participate in this research, you will be asked to complete a questionnaire which will take approximately 35 minutes.

Your consent to be a researcher participant is strictly voluntary and should you decline to participate or should you choose to drop out at any time during the study, there will be no adverse effects on your health care. You have the right to refuse to participate and may withdraw. You may choose not to answer some questions. However, once the completed questionnaire is placed in the data collection box there will be no way to identify and retrieve your questionnaire. By completing and returning this survey you have shown your agreement to participate in the study.

As a benefit for participating in this study, you will receive a medication box. Other benefits to you for participating in this study are not immediate or direct, but findings from this study may help health care professionals to better understand the factors that contribute to the practice of self-care activities that are intended to improve health among individuals with heart failure. There are no known risks to you for participation in this study; however, if you experience psychological discomfort, you will be provided a list of resources available in the community, at your personal expense, to provide counseling.

As a research participant, information you provide will be kept anonymous, that is, no names or other identifiers will be used so your information cannot be traced back to you. Your information will be kept in a locked file in the researcher's office and stored for five years and then destroyed by shredding.

If you have any questions or concerns regarding the study or your participation in the study, you may contact me, Ngozi Odoh, at (407) 788-6165, my supervisor, Dr. Jo Ann Kleier at (305)-899-3038, or the Institutional Review Board point of contact, Barbara Cook, at (305) 899-3020.

Thank you for your participation.
Sincerely

Ngozi Odoh

Appendix F

Free Counseling and Referral Services

Free Counseling and Referral Services

211 Community Resource	407-839-4357	211 Community resources information line. Serving Orange, Osceola and Seminole counties.
Barry Family Enrichment Center 2000 Alafaya Trail Orlando	321-235-8413	Provides mental health counseling on a sliding fee scale from free up to a maximum of $40.00
Church Street Counseling Center106 East Church St. Orlando, Fl 32801	407-423-2383	Offers family & individual counseling on a sliding scale fee depending on household income. Services available to anyone in Orange County.

Appendix G

Research Packet

Activity Scale

Directions:
This scale will help us learn how much exercise and activity you are capable of. Answer questions based on your activity in the last 30 days.

Start with #1 and then follow the messages under the YES or NO to move through the scale. When your message is "stop," place an "x" in the box next to the word "stop" and continue with the next page.

---

1. Can you walk down a flight of steps without stopping?
   YES (go to 2)
   NO (go to 4)

2. Can you carry anything up a flight of 8 steps without stopping or can you do any of the following activities?
   - have sexual intercourse without stopping
   - garden, rake or weed
   - roller skate or dance foxtrot
   - walk at a 4 miles per-hour rate on level ground

   YES (go to 3)
   NO: Class III

3. Can you carry at least 24 pounds up 8 steps or can you do any of the following activities?
   - carry objects that are at least 80 pounds
   - do outdoor work-shovel snow, spade soil
   - do recreational activities such as skiing, basketball, touch football, squash, handball
   - Jog or walk 5 miles-per-hour?

   YES: Class I
   NO: Class II

4. Can you shower without stopping or can you do any of the following activities?

- Walk down a flight of steps without stopping
- Strip and make a bed
- mop floors
- hang washed clothes
- clean windows
- walk 2.5 miles per hour
- bowl
- play golf(walk and carry clubs)
- Push power lawn mower

YES: Class III
NO: go to 5

5. Can you dress without stopping because of symptoms?
YES: Class III
NO: Class IV

SURVEY CONTINUES ON NEXT PAGE

Multidimensional Scale of Perceived Social Support

Instructions: We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.

1. There is a special person who is around when I am in need.								
Very strongly disagree	1	2	3	4	5	6	7	Very strongly agree
2. There is a special person with whom I can share my joys and sorrows.								
Very strongly disagree	1	2	3	4	5	6	7	Very strongly agree
3. My family really tries to help me.								
Very strongly disagree	1	2	3	4	5	6	7	Very strongly agree
4. I get the emotional help and support I need from my family.								
Very strongly disagree	1	2	3	4	5	6	7	Very strongly agree
5. I have a special person who is a real source of comfort of me								
Very strongly disagree	1	2	3	4	5	6	7	Very strongly agree
6. My friend really try to help me								
Very strongly disagree	1	2	3	4	5	6	7	Very strongly agree
7. I can count on my friends when things go wrong								
Very strongly disagree	1	2	3	4	5	6	7	Very strongly agree
8. I can talk about my problems with my family								
Very strongly disagree	1	2	3	4	5	6	7	Very strongly agree
9. I have friends with whom I can share my joys and sorrows								
Very strongly disagree	1	2	3	4	5	6	7	Very strongly agree
10. There is a special person in my life who care about my feelings								
Very strongly disagree	1	2	3	4	5	6	7	Very strongly agree

SURVEY CONTINUES ON NEXT PAGE

11. My family is willing to help me make decisions								
Very strongly disagree	1	2	3	4	5	6	7	Very strongly agree
12. I can talk about my problems with my friends								
Very strongly disagree	1	2	3	4	5	6	7	Very strongly agree

SURVEY CONTINUES ON NEXT PAGE

HEART FAILURE KNOWLEDGE QUESTIONNAIRE

Directions: Circle the correct answer.

1. Heart failure is a problem in which:
   a. There is too much blood in the body
   b. The heart is unable to pump enough blood
   c. The blood vessels in the heart are clogged
   d. The heart doesn't beat right

2. **Write in the correct answers.** For patients with heart failure, it is important to weigh each day at the same time every day and record the weight. You should call the nurse or doctor if you gain more than ___1-2__ pounds in a day or __3-5__ pounds in a week.

3. ACE inhibitors (for example, Capoten or Vasotec or Zestril) are medicines used for heart failure. These drugs work by helping:
   a. Remove extra fluid and salt from the body
   b. The heart to beat more steadily.
   c. The blood vessels in the body to widen or relax
   d. The heart to pump stronger

4. ACE inhibitors (for example, Capoten or Vasotec or Zestril) are medicines that can cause certain signs or symptoms called "side effects". You should tell your doctor or nurse right away if you have these side effects.
   a. Feeling down or "blue"
   b. Tremors or "shaking"
   c. Cough
   d. Red and itchy skin

5. People who have heart failure take a pill called digoxin (Lanoxin) so that:
   a. Their kidneys will make more urine.
   b. Their heart will beat more steadily.
   c. The blood vessels in their body will widen or relax
   d. Their heart will pump stronger

6. When digoxin builds up in the body it can cause signs or symptoms called "side effects". You should tell your doctor or nurse right away if you have any side effects. **From the list below, circle a common side effect of digoxin.**
   a. Rash on arms and legs
   b. Loss of appetite or bad taste in mouth
   c. Sores in mouth
   d. Loss of hair

SURVEY CONTINUES ON NEXT PAGE

7. Possible symptoms of heart failure are listed below. Which symptom **does not** belong on the list?
   a. Shortness of breath
   b. Swelling of feet, hand or abdomen
   c. Feeling tired most of the time
   d. Chest pressure
   e. Sudden weight loss

8. People who have heart failure take diuretics (Lasix, "water pills") so that:
   a. Their kidneys will make more urine
   b. Their heart will beat more steady
   c. The blood vessels in their body will widen or relax
   d. Their heart will pump stronger

9. Diuretics or "water pills" can cause side effects. You should tell your doctor or nurse right away if you have side effects. Which side effect does not belong on the list of side effects for diuretics?
   a. Dizziness
   b. Upset stomach--- "throw-up"
   c. Ear ache
   d. Weight gain

10. If you have heart failure and also drink alcoholic beverages like beer, wine or "shots", you may have to stop drinking or have:
   a. No more than 1 drink per day
   b. No more than 2 drinks per day
   c. No more than 3 drinks per day
   d. No more than 4 drinks per day

11. An "advanced directive" is a form that:
   a. Is the same as a will—"last will and testament"
   b. My family and my doctor do for me
   c. Is a statement that lets others know what lifesaving measured I want taken if I cannot think clearly or speak for myself
   d. My lawyer does for me

12. If a person eats one serving of this chili sauce, how much sodium are they getting?
   a. 300 mg
   b. 600 mg
   c. 1000 mg
   d. None

SURVEY CONTINUES ON NEXT PAGE

13. Because sodium (salt) causes fluid to build up in the body, persons with heart failure need to eat less sodium (salt). **Circle the food on the list that is lowest in salt.**
    a. Canned soups
    b. Pickles
    c. Tomato juice
    d. Catsup
    e. Fresh fruits and vegetables
    f. Beans and franks
    g. Canned vegetables

14. Eating less sodium is a way to keep your heart pumping good. What else can you do to take care of your heart failure? (*Circle all the ways*).
    a. Lose weight if you are overweight
    b. Do not smoke or chew tobacco
    c. Exercise regularly
    d. Do not use illegal drugs
    e. Avoid coming in contact with people who have colds
    f. Get a flu and pneumonia shot
    g. All of the above.

15. Persons with heart failure can feel better by following the plan of care that they talked about with their doctor or nurse. Sticking with the plan is the best way to keep out of the hospital. Reasons why some people get symptoms of heart failure and have to go back into the hospital are: **(Circle all the ways.)**
    a. Stop taking their pills every day
    b. Eat too much salt
    c. Forget to weigh themselves every day and don't know they have gained weight
    d. Skip taking some their pills
    e. All of the above.

SURVEY CONTINUES ON NEXT PAGE

Exercise of Self-care Agency

DIRECTIONS: This is not a test with right or wrong answers. It is an instrument that helps you assess yourself in terms of degrees in which you take care of your health needs.

1. I would gladly give up some of my set ways if it meant improving my health.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
2. I like myself.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
3. I often feel that I lack the energy to care of my health needs the way I would like to.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
4. I know how to get the facts I need to do in order to remain health.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
5. I take pride in doing the things I need to do in order to remain healthy.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
6. I tend to neglect my personal needs.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
7. I know my strong points.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
8. I seek help when unable to care for myself.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me

SURVEY CONTINUES ON NEXT PAGE

9. I enjoy starting new projects.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
10. I often put off doing things that I know are good for me.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
11. I usually try home remedies that have worked for me in the past rather than going to see a doctor or nurse.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
12. I make my own decisions.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
13. I perform certain activities to keep me from getting sick.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
14. I strive to better myself.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
15. I eat balanced meals.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
16. I complain a lot about the things that bother me without doing much about them.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
17. I look for better ways to look after my health.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me

SURVEY CONTINUES ON NEXT PAGE

18. I expect to reach peak wellness.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
19. When I have a problem, I usually want an expert to me what to do.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
20. I deserve all the time and care it takes to maintain my health.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
21. I follow through on my decisions.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
22. I have no interest in learning about my body and how it functions.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
23. If I am not good to myself, I believe I cannot be good for anyone else.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
24. I understand my body and how it functions.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
25. I rarely carry out the resolutions I make concerning my health.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
26. I am a good friend to myself.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me

SURVEY CONTINUES ON NEXT PAGE

27. I take good care of myself.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
28. Health promotion is a chance thing for me.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
29. I have a planned program for rest and exercise.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
30. I am interested in learning about various disease processes and how they affect me.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
31. Life is a joy.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
32. I do not contribute to my family's functioning.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
33. I take responsibility for my own actions.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
34. I have little to contribute to my family's functioning.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
35. I can usually tell that I am coming down with something days before I get sick.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me

SURVEY CONTINUES ON NEXT PAGE

36. Over the years I have noticed the things to do that make me feel better.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
37. I know what foods to eat that keep me healthy.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
38. I am interested in learning all that I can about my body and the way it functions.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
39. Sometimes when I feel sick I ignore the feeling and hope it goes away.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
40. I seek information to care for myself.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
41. I feel I am a valuable member of my family.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
42. I remember when I had my last health check and return on time for my next.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me
43. I understand myself and my needs pretty well.								
Very uncharacteristic of me	1	2	3	4	5	6	7	Very characteristic of me

SURVEY CONTINUES ON NEXT PAGE

REVISED HEART FAILURE SELF CARE BEHAVIOR-SCALE

Directions: Listed below are behaviors that people with heart failure commonly use to take care of themselves. We are interested in how often you use these behaviors. Circle your response for each behavior listed.

1. I weigh myself on every day of the week.								
None of the time	1	2	3	4	5	6	7	All of the time
2. When I am short of breath, I rest.								
None of the time	1	2	3	4	5	6	7	All of the time
3. When I am short of breath or tired, I ask for help with something I am unable to do.								
None of the time	1	2	3	4	5	6	7	All of the time
4. I contact my doctor when I feel more short of breath.								
None of the time	1	2	3	4	5	6	7	All of the time
5. I contact my doctor when I see my feet, ankles, legs or stomach swell.								
None of the time	1	2	3	4	5	6	7	All of the time
6. I contact my doctor when I have gained 2 pounds or more in a day, or 3 pound or more since my last visit to the doctor.								
None of the time	1	2	3	4	5	6	7	All of the time
7. I watch how much water I pass (urine or pee) each day.								
None of the time	1	2	3	4	5	6	7	All of the time
8. I am careful not to drink too much fluids.								
None of the time	1	2	3	4	5	6	7	All of the time
9. When I feel anxious about my worsening symptoms of heart failure I talk with my doctor about it.								
None of the time	1	2	3	4	5	6	7	All of the time
10. I contact my doctor when I have nausea or do not feel like eating.								
None of the time	1	2	3	4	5	6	7	All of the time
11. To help reduce my symptoms, such as fatigue or shortness of breath, I limit the activities that are hard me.								
None of the time	1	2	3	4	5	6	7	All of the time
12. I believe that having heart failure is a condition that I can adjust to.								
None of the time	1	2	3	4	5	6	7	All of the time

SURVEY CONTINUES ON NEXT PAGE

13. I spread my activities out over the whole day so I do not get too tired.								
None of the time	1	2	3	4	5	6	7	All of the time
14. I plan rest times during the day.								
None of the time	1	2	3	4	5	6	7	All of the time
15. I contact my doctor when I realize I am feeling tired all the time.								
None of the time	1	2	3	4	5	6	7	All of the time
16. I watch that I do not eat canned soups or TV dinners.								
None of the time	1	2	3	4	5	6	7	All of the time
17. I take my pills every day.								
None of the time	1	2	3	4	5	6	7	All of the time
18. I take my pills as the doctor prescribed—I take all the doses of my pills.								
None of the time	1	2	3	4	5	6	7	All of the time
19. I always refill prescriptions for my pills on time.								
None of the time	1	2	3	4	5	6	7	All of the time
20. I have a system to help tell me when to take my pills.								
None of the time	1	2	3	4	5	6	7	All of the time
21. I stay away from people who have a cold or flu.								
None of the time	1	2	3	4	5	6	7	All of the time
22. I am physically active (for example, walk or ride a bike) on 3 to 4 days per week.								
None of the time	1	2	3	4	5	6	7	All of the time
23. I get a flu shot once a year.								
None of the time	1	2	3	4	5	6	7	All of the time
24. I limit my alcohol intake to one glass of beer or wine, or one shot a day.								
None of the time	1	2	3	4	5	6	7	All of the time
25. I am a non-smoker.								
None of the time	1	2	3	4	5	6	7	All of the time
26. I keep my appointments with my doctor.								
None of the time	1	2	3	4	5	6	7	All of the time

SURVEY CONTINUES ON NEXT PAGE

27. I put my feet up when I sit in a chair								
None of the time	1	2	3	4	5	6	7	All of the time
28. I talk to my doctor and family about my condition in order to make choices and plans for the future								
None of the time	1	2	3	4	5	6	7	All of the time
29. I think a person can live a happy and good life even after having heart failure								
None of the time	1	2	3	4	5	6	7	All of the time

You have completed the survey.

THANK YOU FOR YOUR PARTICIPATION

Appendix H

Permission to Use Research Instruments

Dear Ngozi Odoh,

You have my permission to us the Exercise of Self-Care Agency tool. Attached are the tool and scoring instructions.

Please share the results of your study with me.

Barbara Y. Kearney, MS, MEd, RN

Director, Faculty Development, Continuing Education, & Entrepreneurial Enterprises Dept.

LSUHSC School of Nursing

1900 Gravier St.

New Orleans, LA 70112

From: okeyfamily@aol.com [mailto:okeyfamily@aol.com]
Sent: Tuesday, March 24, 2009 8:42 AM
To: Kearney, Barbara
Subject: Permission to use Instrument

Dear Ngozi Odoh,

I am happy to give you permission to use my scale, the Multidimensional Scale of Perceived Social Support (MSPSS), in your research study. I have attached a copy of the scale and a document listing several articles that report on the psychometric properties of the MSPSS. Please let me know if you have any additional questions.

I hope your research goes well.

Sincerely,
Greg Zimet

Gregory D. Zimet, PhD

Professor of Pediatrics & Clinical Psychology

Section of Adolescent Medicine

Indiana University School of Medicine

Health Information & Translational Sciences

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Indianapolis, IN 46202

USA

Phone: +1-317-274-8812

Fax: +1-317-274-0133

e-mail: gzimet@iupui.edu

From: okeyfamily@aol.com [okeyfamily@aol.com]
Sent: Tuesday, March 24, 2009 3:23 PM
To: Zimet, Gregory D
Subject: Fwd:

Dear Ngozi Odoh,

As per Dr. Goldman, the use of the Specific Activity Scale instrument "is public domain - use as you wish".

Terry–

Therese Clivilles
Executive Assistant to
Dr. Lee Goldman, EVP & Dean
Columbia University Medical Center
630 West 168 Street, 2nd Floor-401
New York, NY 10032
Phone: 212-305-2752
Fax: 212-305-3617

okeyfamily@aol.com wrote:
Hello Dr. Goldman,
My name is Ngozi Odoh, I am a PhD student at Barry University, currently working on my dissertation seminar. I am writing to ask for your permission to use Specific Activity Scale instrument for my study and the guidelines for the total scoring of the scale. Please I will greatly appreciate your help.
Thanks.
Ngozi Odoh.

Dear Ngozi,

Here are two instruments that I developed related to HF self-care and HF Knowledge. You are free to use—just please acknowledge me as the author. Note that the Knowledge questionnaire has one question with a blank space to insert a food label relevant to your target population.

Nancy

From: okeyfamily@aol.com [mailto:okeyfamily@aol.com]
Sent: Friday, September 05, 2008 9:04 AM
To: n.artinian@wayne.edu
Subject: Re: instrument request

Appendix I

Research Questions and Hypotheses

Research Questions	Hypothesis	Instruments	Statistical Test	Result
Do the basic conditioning factors of family/social support and knowledge of HF predict self-care agency among individuals with HF?	There will be a significant positive relationship, uniquely or as a linear composite, between the predictor variables of social support and knowledge of HF and the outcome criteria of self-care behavior for individuals with HF.	Multidimensional Scale of Perceived Social Support (MPSS: Zemit, Dahlem Zemit, & Farley, 1988) Exercise of Self-Care Agency (ESCA), developed by Kearney and Fleischer (1979). Heart Failure Knowledge test (HFKT) (Artinian, 1999). Heart Failure Self-Care Behavior Scale (Artinian et al., 1999).	Multiple regression	Regression results indicate that the overall model significantly predicts self-care behavior, R^2 = .155, adj. R^2 = .143, F (2, 130) = 12.649, p = .000). This hypothesis was partially supported by the data; social support was significantly related to self-care agency but knowledge of HF was not.
Does the state of health/degree of symptoms being experienced by an individual with HF influence the level of self-care agency?	There will be a significant difference in the mean scores for the measure of self- care behavior between the groups of participants currently not experiencing symptoms of HF that impose limitations on their exercise and activities and those who were experiencing any symptoms, mild, marked, or severe.	Specific Activity Scale (SAS) Goldman et al. (1981). Heart Failure Self-Care Behavior Scale (Artinian et al., 1999).	One-way ANOVA	The difference was not significant, t (141) = 1.87, p = .06 and represents a small sized effect, r = .16 explaining approximately 1% of the total variance .

Do individuals that report having adequate available healthcare insurance report higher levels of self-care agency than do those individuals that do not have such resources?	There will be a significant difference in the mean scores for the measure of self-care behavior between the two categories of resource availability/adequacy, having or not having healthcare insurance to meet healthcare needs, among individuals with HF.	Demographic Questionnaire Heart Failure Self-Care Behavior Scale (Artinian et al., 1999).	Independent *t*-test	On the average, participants covered by healthcare insurance (n = 115, M = 155.67, SE = 1.99) scored higher on the measure for self-care behaviors than did those participants not covered by healthcare insurance (n = 27, M = 146.46, SE = 3.527). This difference was significant, t (140) = -2.04, p = .04 and represents a small sized effect, r = .17 explaining approximately 1% of the total variance .
Is there a relationship between self-care agency and the actual behavior of carrying out self-care practices among individuals with HF?	There will be a significant positive correlational relationship between the scores for self-care agency and the scores for self-care behavior among individuals with HF.	Exercise of Self-Care Agency (ESCA), developed by Kearney and Fleischer (1979). Heart Failure Self-Care Behavior Scale (Artinian et al., 1999).	Pearson's product-moment correlation	The two variables were significantly and positively correlated, r = .782, p < .01; as the scores for exercise self-care agency went up so did the scores for self-care behavior. The effect size was large (r > .50) indicating the effect accounts for at least 25% of the variance (Field, 2005). This hypothesis was strongly supported by the data

Appendix J

VITA

CURRICULUM VITAE

NGOZI ODOH

Adjunct Faculty
University of Central Florida
College of Nursing
626 Eastwood Court
Altamonte Springs, FL 32714
(407) 754-6710 Cell
okeyfamily@aol.com

EDUCATION

Date	Degree of Course	Institution
1993	Bachelor of Science in Nursing (BSN)	Florida A&M University School of Nursing
2000	Master of Science in Nursing (MSN) with Adult & Gerontological Nurse Practitioner (ANCC Board Certified)	Florida A&M University School of Nursing
2010	Doctorate of Philosophy in Nursing	Barry University College of Nursing

EXPERIENCE

Date	Title	Institution
1993-2001	Registered Nurse	Tallahassee Memorial Hospital
2001-2005	Registered Nurse/ Critical care	Florida Hospital Altamonte
2002-2005	Adjunct Faculty	University of Central Florida
2002	Adult Nurse Practitioner	Walk-In Medical Clinic Orl. FL
2003-2005	Adult Nurse Practitioner	Internal medicine Orlando FL
2005-2007	Adult Nurse Practitioner	Case management Florida Hospital Orlando, Fl.
2008-Present	Adjunct Faculty	University of Central Florida

POSTER PRESENTATION

Odoh, N., John. D (2010). *The African American Perception of Advanced Directives.* Florida Association of School Nurses 15th Annual Conference, Orlando Florida.

Odoh, N. (2007). *Self-Care Involvement of Patients with Heart Failure.* New Horizons in Nursing Research. Lambda Chi Chapter, Sigma Theta Tau International Annual Research Day, Ft. Lauderdale, FL.

SPEAPKER

Odoh. N., John. D. (2008). *The African American Perception of Advanced Directives.* Third Annual Conference of the New Jersey End of –Life Nursing Education Consortium (NJ-ELNEC).

Odoh, N. (2006). *Cultural Diversity.* Kings daughter Organization Orlando chapter, Orlando Florida.

PROFESSIONAL ORANIZATIONS

American Academy of Nurse Practitioner Association
Central Florida Advance Practice Council
Sigma Theta Tau International Honor Society of Nursing