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Congestive Heart Failure In Elders: Relationships Among Adherence Behaviors, Depression, And Self-Efficacy

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CONGESTIVE HEART FAILURE IN ELDERS: RELATIONSHIPS AMONG ADHERENCE BEHAVIORS, DEPRESSION, AND SELF-EFFICACY

by

SUE TEMPLE

A Thesis
Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Science in Nursing in the Division of Nursing Mississippi University for Women

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August 2000
Congestive Heart Failure in Elders: Relationships Among Adherence Behaviors, Depression, and Self-Efficacy

by

Sue Temple

[Signatures and titles of instructors and committee members]

[Signature of Director of the Graduate School]
Abstract

An estimated 4.8 million Americans have congestive heart failure (CHF). Increasing prevalence, hospitalizations, and deaths have made CHF a major disease affecting elders in the United States. Therefore, the purpose of this descriptive correlational study was to determine if correlations existed among depression, self-efficacy, and adherence behaviors of elders with CHF. Three null hypotheses guided the study: $H_{01}$, There is no correlation between depression and adherence behaviors in elders living with CHF. $H_{02}$, There is no correlation between self-efficacy and adherence behaviors in elders living with CHF. $H_{03}$, There is no correlation between depression and self-efficacy in elders living with CHF. Becker’s Health Belief Model provided the theoretical framework for the study. A convenience sample was taken from cardiology clinics in south central Mississippi. Data were collected using Zung’s Self-Rating Depression Scale, the General Self-Efficacy Subscale, and a researcher-designed adherence survey. Descriptive statistics and Pearson’s r
were used in analysis of data. No significant relationship was detected between depression or self-efficacy and adherence behaviors in elders with CHF. However, a significant inverse relationship was found between depression and self-efficacy. Additional findings revealed that elders who could move about independently at home experienced fewer symptoms of depression and higher levels of self-efficacy. Finally, the researcher found fewer symptoms of depression in elders who exercised regularly. Implications for nursing science included the need to screen elders with CHF for depression and functional status. Recommendations for future study included enlarging the target population, examining causal relationships among variables, and qualitatively exploring additional modifiers to adherence behaviors in elders with CHF.
Dedication

This thesis is dedicated to families everywhere who have suffered the loss of a loved one, just as we have, to congestive heart failure.

In loving memory and forever in our hearts

Minnie Lee Temple

10/16/20 - 05/24/00
Acknowledgments

First and foremost I give thanks to my Heavenly Father for His loving care and guidance over me this past year. I am grateful for God’s infinite wisdom, power, and His perfect timing. It is He who takes me by my right hand and leads me one day at a time.

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Special love and thanks to my husband, Dean, who made me go on when I did not know if I could. Thank you for your support, love, and encouragement to fulfill my dreams.

To Shelby Nicole, Haley Brooke, and Parker Allen, thanks for the brief intermissions from stress when you came to play, laugh, sing, and hug your Meme. When I look upon your beautiful faces, I know how blessed I really am.
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Chapter I
The Research Problem

Heart failure is a prominent disease in America and an increasing public health concern. An estimated 4.8 million Americans have congestive heart failure (CHF) while 400,000 new cases of CHF are diagnosed each year. The rate of hospitalizations for heart failure has increased more than threefold since 1970, and CHF accounts for nearly one million hospitalizations per year. It is estimated that one of every five patients discharged from the hospital age 65 years or older have CHF as a primary or secondary diagnosis. CHF contributes to approximately 250,000 deaths per year. Increasing incidence, hospitalizations, and deaths have made CHF a major disease in the United States (National Institutes of Health, 2000).

The prevalence of heart failure in elders is escalating and remains the number one reason for hospitalization in this patient population. "Heart failure is now the most expensive disease in the U.S. Medicare
system, because of multiple readmissions” (Dunbar, Jacobson, & Deaton, 1998).

Multiple factors are thought to contribute to decompensation in CHF patients resulting in hospitalization. Potential factors include inadequate symptom self-assessment and management, failure to adhere to diet, medication and activity regimens, and inadequate social support (Bennett et al., 1998; Dunbar et al., 1998; Michalsen, König, & Thimme, 1998). Factors related to the behaviors of elders, such as nonadherence with medication and diet, and an inadequate support system are believed to impact the risk for early readmissions in the elderly with CHF (Rich et al., 1995). Dunbar et al. (1998) believed the patient’s motivation to learn and manage self-care behaviors impacted adherence to the prescribed treatment. Personal motivation to perform or learn self-care behaviors may be a reflection of the patient’s level of self-efficacy.

The concept of self-efficacy may assist researchers to understand the causative factors associated with patients’ nonadherence toward their medical regimens. Self-efficacy is cited in the literature as an important indicator of adherence to health-promotion behaviors.
Although the patient's level of self-efficacy is believed to predict his or her future health care behaviors, self-efficacy alone has not explained the variants in health care behaviors. Other factors may also contribute to patients' adherence behaviors.

Depression and depressive symptoms have been cited by other researchers as having a negative impact on patients' rate of adherence to medications, diet, and other components of the prescribed treatment regimen (Carney, Freedland, Eisen, Rich, & Jaffe, 1995; DeGeest et al., 1998; Taylor, Barber, McIntosh, & Kahn, 1998). In 1990 Carney, Freedland, and Jaffe reported a high incidence of depressive symptoms in elderly patients. Therefore, elderly patients suffering from depressive symptoms may be found to have poorer adherence to prescribed medical regimens.

The compilation of evidence from the literature indicates that the relationships among the variables and elders' adherence to self-care practices related to their medical regimens remain poorly understood. Nurse practitioners providing primary health care to elders with
CHF need additional empirical knowledge on the relationships among depression, self-efficacy, and adherence patterns to provide effective management and intervention for these patients. Thus, the purpose of this research was to explore the relationships among the variables of adherence behaviors, self-efficacy, and depression in elders with CHF.

Establishment of the Problem

"Nonadherence is a major limiting factor for effective medical treatment and is associated with excess health care costs across patient populations and health care settings" (DeGeest et al., 1998, p. 467). Elders have a higher prevalence of several known risk factors for nonadherence to medical treatment. Those risk factors include functional, cognitive, and sensory impairment related to the aging process. The causes of nonadherence in the elderly can stem from such factors as alterations in thinking and memory, reduced mobility, reduced motor function and strength, as well as decreased visual perception (Aliotta, 1999; DeGeest et al., 1998).

Other characteristics of aging, such as partial loss of hearing and short-term memory deficits occur commonly
in the elderly population (Ham & Sloane, 1997). For example, elders may experience more difficulty handling childproof packaging, blister packs, or nebulizers. Some elders experience difficulty swallowing large pills or reading the small print on labels. Medication errors may be made when elders fail to recognize the color of a pill due to reduced visual acuity. Failure to clearly hear the practitioner’s verbal instructions about the desired treatment regimen can also contribute to poor adherence behaviors in the elderly. Poor hearing decreases the elderly patient’s understanding of these medical instructions and increases the chance of the patient’s forgetting instructions about desired self-care behaviors. "Forgetfulness is a common reason for nonadherence in older patients" (DeGeest et al., 1998, p. 470). Declining functional, cognitive, and sensory attributes in the elderly predisposes this population to possible self-care deficits in the management of illness.

The elderly population is more likely to experience adverse affects related to adherence from low health literacy (DeGeest et al., 1998). One study revealed that the elderly, age 60 and above, had a higher prevalence of inadequate functional health literacy compared to younger
patients. This meant that these elders were unable to read and understand basic information about their health care regimens. Lack of sufficient information about the patient’s health regimen is an important factor in adherence behaviors in the elderly population. However, knowledge about the health care regimen by itself does not guarantee patient adherence to the desired health-promotion behaviors (DeGeest et al., 1998).

Complex self-care demands have also been cited as an increased risk factor for nonadherence in the elderly. The average elderly individual who is not in the hospital takes four medications each day and is frequently on a specialized diet (Aliotta, 1999). Thus, many elders with CHF are not only at increased risk for poor adherence behaviors due to the aging process and poor health literacy, but also are at increased risk of nonadherence due to the complex nature of their medical regimen.

A number of these barriers to adherence suggest that self-efficacy is another important determinant of adherence behaviors in elders. Self-efficacy is the patient’s perception of his or her ability to perform a specific action or behavior. Bandura (1997) believed that promoting the desired behavioral changes in a person
involved more than convincing the individual of the perceived benefits of the behavior. The individual must first perceive that he or she is capable of performing the behavior specific to that situation. The individual’s perception of his or her ability to perform a specific behavior plays an essential role in successful health-related behavior changes. Self-efficacy is the catalyst between the patient’s knowledge of adherent behaviors and the manifestation of those behaviors (Berarducci & Lengacher, 1998). If the patient perceives that he or she has failed to live up to the expectations of the health care provider, he or she may experience guilt. This experience of guilt may result in a lower self-esteem and consequently lower the patient’s level of self-efficacy. If possible, the practitioner should divide the prescribed recommendations into incremental steps so that the patient can have a sense of achievement as he or she progresses through the treatment plan (Buchmann, 1997). However, the extent to which self-efficacy has affected elders’ adherence to their medical treatment is unknown.

Finally, depression, which has a significant prevalence in the elderly population, also may have a negative influence on adherence behaviors to medical
regimens (DeGeest et al., 1998). Researchers have concluded that a significant relationship exists between depression and physical limitations, such as fatigue, angina, and dyspnea. These physical limitations are frequently experienced by patients diagnosed with CHF, myocardial infarction, and angina (Taylor et al., 1998). Therefore, it is not surprising to learn that symptoms of depression are often found in patients living with CHF. Of all acutely ill elderly who have been hospitalized, 25% are estimated to have symptoms of depression (Ham & Sloane, 1997).

In 1995 Carney et al. studied medication adherence in depressed patients versus those patients without depressive symptoms. Depressed patients adhered to the medication regime 45% of the time, while nondepressed patients adhered 69% of the time. Failure to adhere to the prescribed medication regimen was listed as an important factor contributing to preventable hospital readmissions in patients with heart failure by Dunbar et al. (1998).

It is equally important to note that many elders live alone and this attribute has been known to increase the risk for depression in this age group. Social isolation, which has been cited as a risk indicator for poor
adherence behaviors in elders, also is believed to contribute to the higher prevalence of depression in the elderly population (DeGeest et al., 1998). However, the link between depression and adherence behaviors in elders remains unclear.

Numerous references have linked poor adherence behaviors to decompensation in CHF patients resulting in multiple hospitalizations. More literature points to patient depression and lack of motivation or self-efficacy as possible causes of patients’ poor adherence to medical treatment. However, there remains a lack of empirical knowledge of the relationships among depression, self-efficacy, and adherence behaviors in elders with CHF.

Significance to Nursing

Because of the chronic nature of the disease, heart failure is usually managed on an outpatient basis. Elders must take primary responsibility for implementing the prescribed treatment plan and alerting the practitioner to changes in their disease status. Patients differ in their patterns of self-care behaviors which affect their health outcomes. Studies examining the causes of decompensation in heart failure and hospital readmission reveal that poor
adherence by the patient to prescribed treatment contributes to both decompensation and heart failure (Thomas & Riegal, 1999). Use of Becker's Health Belief Model to guide this study provides a framework for better understanding of the roles of depression and self-efficacy as modifiers to the health beliefs and adherence behaviors of elders.

Because health problems with nonadherence transcend all ages, races, gender, and disease processes, nurse practitioners should be aware of the variables surrounding this phenomenon. Nurse practitioners have an important role as primary health care providers in identifying patients at risk for nonadherence and developing interventions to enhance compliance. With improved understanding of adherence as it relates to and is impacted by elders' perceived self-efficacy and depressive symptoms, the nurse practitioner will be better prepared to assist patients in reaching an optimum level of health. Therefore, significant benefit to nursing will be realized by increasing the depth of empirical knowledge about adherence behaviors of elders associated with health care. Only after the conduction of baseline research regarding
variables related to health issues can sound interventions be developed.

Among the benefits that may emerge from this study are its contributions to nursing education. Conduction of this investigation may augment knowledge about the care of elders in curricula in schools of nursing at both the baccalaureate and masters levels.

Theoretical Framework

Becker’s (1974) Health Belief Model was the theoretical framework for this study. Becker organized information about the patient’s assessment of his or her state of health and what variables impact patients to alter their self-care behaviors. The model was established to explain the decision-making processes of patients with respect to health behaviors.

Components of the Health Belief Model include individual perceptions, modifying factors, and variables that cue the patient to actions related to health. Becker (1974) believed that two factors influenced the patient to adopt self-care behaviors which result in adherence to a prescribed medical treatment. First, the patient must feel that he or she is susceptible to relapse or worsening of a
disease that can result in serious consequences. Second, the patient must believe that the benefits of performing adherent behaviors aimed at disease prevention or management will outweigh any perceived barriers to adherent self-care behaviors or preventive disease actions. Both of these factors have application to elders with CHF.

Application of the Health Belief Model directs the practitioner to evaluate the patient’s view of the possible benefits he or she could reap from adhering to such behaviors as eating a diet low in sodium, restricting fluid amounts, taking prescribed medications as ordered by the practitioner, engaging in an appropriate activity plan, and routinely monitoring his or her weight. Within the context of the Health Belief Model, the practitioner also would inquire about any negative feelings the patient may have related to these adherent behaviors (Dunbar et al., 1998).

Becker (1974) believed that other factors also influenced patients’ decisions about their self-care behaviors. Such factors included variances in individual responses to illness, and the manner in which the patient comprehends certain circumstances or stimuli may be
explained using Becker’s (1974) concept of modifying factors. Becker organized these modifiers into the three following groups: (a) demographic variables such as age, sex, and ethnicity; (b) sociopsychological variables that could include the patient’s relationship with the provider, patient’s level of self-efficacy, and degree of social isolation and depression; and (c) structural variables such as the patient’s previous experience with the disease and the accessibility of health care. These groups of modifying factors are believed to influence the patient’s perception of his or her susceptibility to the disease and the risk of severe consequences related to the illness, thereby affecting the patient’s likelihood of taking action (Becker, 1974).

According to DeGeest et al. (1998), if the patient has mastered certain health care behaviors in the past, he or she perceives success as a result of personal efforts and will be more likely to attempt the behavior in the future. Therefore, efficacy beliefs have been predictive of future health behavior. If the CHF patient’s self-efficacy is low with regard to self-care, poor self-efficacy becomes a perceived barrier to treatment

Depression, another sociopsychological modifier, has been found to decrease the adherence behaviors of CHF patients with their prescribed medications (Carney et al., 1995). DeGeest et al. (1998) state that depressed patients often have a sense of inadequacy in performing activities of daily living which contribute to nonadherence with therapeutic regimen. Therefore, depression acts as a modifying factor that impacts the patient's response to illness.

The Health Belief Model was chosen for this study because it assisted the researcher in explaining patient behaviors related to adherence with the patient's medical regimen. The Health Belief Model was especially appropriate for examining the possible existence of unknown relationships between self-efficacy and depression in elders which may alter their health beliefs and thus the actions of this patient population.

Assumptions

This research study was based on the following assumptions:
1. The self-report tools used in this study are concrete measures of depression, self-efficacy, and adherence behaviors in patients living with CHF.

2. All participants have been accurately diagnosed with CHF by their physicians.

3. Patients who adhere to their prescribed treatment regimens will obtain a more stable level of health than if they do not adhere to the treatment regimen.

4. An individual’s perceptions of susceptibility to disease or illness and perceptions of the risk of severe complications from the disease or illness will influence the individual’s health status and adherence behaviors to treatment regimens (Becker, 1974).

Statement of the Problem

The incidence of congestive heart failure affecting elders is escalating and remains the number one reason for hospitalization in that patient population. Researchers have cited poor adherence to medical treatment as a major factor relating to decompensation of heart failure (Bennett et al., 1998; Dunbar et al., 1998; Michalsen et al., 1998; Rich et al., 1995; Thomas & Riegal, 1999). Self-efficacy and depression are additional variables
cited in the literature as possible deterrents to adherence behaviors associated with medical treatment (Bandura, 1997; Berarducci & Lengacher, 1998; Buchman, 1997; DeGeest et al., 1998; Dunbar et al., 1998; Kamwendo, Hansson, & Hjerpe, 1998; Rich et al., 1995; Taylor et al., 1998). However, minimal empirical knowledge exists to explain the link between depression, self-efficacy, and adherence behaviors and healthy lifestyle choices in this population. Therefore, the purpose of this descriptive correlational study was to determine the strengths of the relationships among depression, self-efficacy, and adherence behaviors in elders with CHF.

Research Hypotheses

The following three null hypotheses guided this study:

Ho₁: There is no correlation between depression and adherence behaviors in elders living with congestive heart failure.

Ho₂: There is no correlation between self-efficacy and adherence behaviors in elders living with congestive heart failure.
There is no correlation between depression and self-efficacy in elders living with congestive heart failure.

Definition of Terms

To provide an accurate understanding of the problem for this study, the following terms have been defined:

**Depression:** Theoretical: Depression is a state of gloom sadness or melancholy often accompanied by feelings of inadequacy and usually by a lack of energy (Webster’s Universal College Dictionary, 1997). Operational: In this study, depression is defined as a state of sadness often accompanied by feelings of inadequacy and usually a lack of energy. This state of sadness in the participants was determined by the Zung Self-Rating Depression Scale (see Appendix A).

**Adherence behaviors:** Theoretical: Adherence behaviors are the actions of a person who follows a leader, idea, or cause, or sticks to a plan (Webster’s Universal College Dictionary, 1997). Operational: In this study, adherence behaviors are observable actions of a person who follows or sticks to a prescribed regimen of treatment including diet, medications, routine self-weighing, interventions
for early symptoms of CHF as measured by Temple’s Living with CHF Scale (see Appendix B).

**Elders:** Theoretical: Elders are persons of greater age who have chronologically passed the middle years of life (*Webster’s Universal College Dictionary*, 1997). Operational: In this study, the term elders is used to describe the participants in cardiology clinics in south central Mississippi who are considered by society and health care providers to be chronologically past the middle years of life. These persons were age 60 years and older and diagnosed with CHF by a physician.

**Congestive heart failure:** Theoretical: Congestive heart failure is “symptomatic myocardial dysfunction resulting in a characteristic pattern of hemodynamics, renal, and neurohormonal responses” (Beers & Berkow, 1999, p. 1682). Operational: For the purpose of this study, CHF is defined as a myocardial dysfunction resulting in characteristic patterns with decreased left ventricular function, typical symptoms such as dyspnea and peripheral edema, and had been designated as the diagnosis by the patient’s physician.

**Self-efficacy:** Theoretical: Self-efficacy is the capacity to produce a desired effect by oneself (*Webster’s*...
Universal College Dictionary, 1997). Operational: In this study, self-efficacy is defined as the belief of an individual in his or her own ability to perform a certain behavior to produce a desired effect as measured by Sherer's General Self-Efficacy Subscale (see Appendix C).
Chapter II

Review of the Literature

In reviewing literature centered on the concept of patients’ adherence to their medical regimens, other extenuating conditions believed to influence the patient’s patterns of adherence behavior have been evaluated and studied. Some of these studies focus on the impact that depression and self-efficacy may exert on adherence behaviors of patients related to a prescribed medical regimen.

Taylor, Barber, McIntosh, and Khan (1998) sought to determine if a relationship existed between post-acute myocardial infarction (AMI) depression and compliance with physician discharge instructions and healthy lifestyle choices. Little was known of how depression influences mortality in post-AMI patients. The researchers asserted that the severity of post-AMI depression was related to patient compliance in two areas, physician discharge instructions and the practice of healthy lifestyle choices.
Taylor et al. (1998) used a descriptive prospective design as part of a larger collaborative study by the Michigan Inter-Institutional Collaborative Heart Study whose purpose was to collect information from AMI patients during hospitalization and one year following the AMI. The target population was AMI patients who were hospitalized. The sample population was selected from five hospitals in central Michigan. The convenience sample consisted of 245 participants. Average age of the sample was 64.5 years with a 70% male and 93% Caucasian demographic blend. Data were collected utilizing the Center for Epidemiologic Studies Depression Scale (CES-D) to measure depression. A comparison was made between data collected on the second or third hospitalized day and data collected at 3 months post-AMI event to evaluate depression and psychosocial adjustment outcomes.

The CES-D is a 20-item self-report tool that captures the frequency and duration of depressive symptoms. Scale scores can be interpreted 0 to 15.5 (not depressed), 15 to 20.5 (mild depression), 21 to 30.5 (moderate depression), and 31 to 60 (severe depression). Outcome measures focused on involvement of the patient in cardiac rehabilitation programs, diet modifications, smoking cessation, and
routine exercise. "Analysis included t test for equality of means comparing CES-D scores between binary groups, analysis of variance between multiple groups and chi-square for presence of depression between dichotomous groups using two-tailed significance" (Taylor et al., 1998, p. 440).

The researchers found no significant difference between the number of patients beginning cardiac rehabilitation and those completing the program. No significant score differences were detected related to diet modification (p = .74) or with maintenance of exercise groups (p = .59). Tobacco use attested a powerful positive relationship to levels of depression (p = .001). Areas of differences which emerged after Taylor et al. (1998) completed secondary analysis were quality of life, morbidity, socioeconomic factors, and demographic characteristics. Participants with incidence of angina (p < .001), dyspnea (p < .001), and fatigue (p < .001) scored significantly higher on the CES-D. Subsequent hospitalization (p < .001) and those with two or more physician visits during the 3 months of the study (p < .001) had significantly higher scores than participants who had two or less physician visits following their AMI.
Employment status also was found to impact the level of depression; disabled or unemployed scored higher than those employed ($p < .001$). Subjects who were forced to change their employment status secondary to the myocardial infarction, such as disability or reduction to part-time hours, scored higher than participants who chose to retire or were able to return to work ($p < .001$). Lower depression scores were found for subjects who were Caucasian, or male, and had higher incomes and private insurance (Taylor et al., 1998).

Taylor et al. (1998) concluded that a relationship existed between depression and physical limitations, such as fatigue, angina, and dyspnea. However, the researchers failed to detect a significant relationship between compliance with physician discharge instructions and depression. Use of tobacco was the only lifestyle variable significantly correlated with depression. The authors acknowledged that physician discharge referrals to cardiac rehabilitation was low for this sample (30%). Of those participants referred for cardiac rehabilitation, 100% began the program and 95% followed the program to completion.
Taylor et al. (1998) recommended further research to understand the relationship between depression and morbidity/mortality in AMI patients. Specifically, additional research is needed to explore the relationship of depression and compliance behaviors.

Taylor et al.'s (1998) findings should make nurse practitioners aware of the potential impact of the primary care provider upon patient compliance behaviors. By better understanding the link between depression and mortality in AMI patients, nurse practitioners can modify the primary care experience to enfold these findings into patient education, treatment plans, and referral processes.

Numerous studies have reported a high incidence of depressive symptoms and depressed mood in the elder; however, little is known about the impact of depression on adherence to medical treatment regimens. Another group of researchers studied the affects of depression on medication adherence in elderly patients with coronary artery disease. "Depression has been associated with increased medical morbidity and a two-to-four fold increase in mortality in older patients" (Carney, Freedland, Eisen, Rich, & Jaffe, 1995, p. 88).
Carney et al. (1995) speculated that nonadherence to medical treatment may be one mechanism underlying the relation between depression and increased medical morbidity and mortality. The researchers conducted a prospective study to determine the relationship between depression and adherence to a prescribed cardiac medication in elderly patients with coronary artery disease. The target population was patients at Barnes or Jewish Hospitals in the Washington University Medical Center undergoing elective coronary arteriography who were over age 64 and gave informed consent. A convenience sample was restricted to patients who had at least 50% stenosis in one or more major coronary arteries. Patients were excluded if they had severe dementia, evidence of myocardial infarction in the past 4 weeks, planning coronary angioplasty or bypass surgery, and anyone for which aspirin was contraindicated.

Fifty-five participants took the modified version of the National Institute of Mental Health Disease Interview Schedule (DIS) administered by an experienced research assistant. Diagnosis of current major depression was based on criteria from the DSM-III-R as reviewed by two senior clinicians (Carney et al., 1995).
The researchers selected aspirin as the drug of study because of its widely accepted use in nearly all coronary patients. The patients were educated on the importance and possible medical benefits of taking the aspirin regularly. The patients were instructed to take one 81-mg aspirin two times per day. Patients were told that the two low-dose aspirins would prevent gastrointestinal side effects which are common in older patients taking regular aspirin (325 mg). The twice-a-day dosing increased the complexity of the regimen for the study (Carney et al., 1995).

Each participant in the study was given an electronic medication monitor that has been shown to have high reliability and validity in measuring medication-taking behaviors. The device contained two 21-blister medication packs and a computer chip that recorded the date and time each pill was removed from the blister pack. The researchers defined adherence as the percentage of days on which the patient removed two aspirins from the medication blister pack, regardless of the time of day or lapse of time between doses (Carney et al., 1995).

Carney et al. (1995) determined that 10 participants (18%) met the DSM-III-R criteria for current major depression. The researchers found no major difference
between depressed and nondepressed patients with regard to types of medications prescribed or the overall complexity of their medication regimes. None of the patients had been prescribed an antidepressant medication.

The results of the study showed that nondepressed patients adhered to the prescribed medication regime an average of 69% of the days studied, contrasted with an average of 45% for depressed patients $t(53) = 2.39, p < .02$. In follow-up interviews with the participants, the researchers found that none of patients reported side effects from the aspirin or experienced any difficulty using the electronic pill packs. All patients reported that they understood the importance of taking the aspirin daily for the prevention of heart attacks (Carney et al., 1995).

Carney et al. (1995) admit that it is not known if the significant decrease in adherence to taking aspirin will alter the risk of myocardial infarction. "However, for many cardiac medications a difference of this magnitude (69% vs. 45%) is clinically significant" (p. 89). The researchers conclude that poor adherence to prescribed medications may be an underlying mechanism for
the increased rates of medical morbidity and mortality reported in older, depressed patients with heart disease.

Many questions remain unanswered regarding depression and its relationship to adherence behaviors in elders with heart disease. Conduction of the current study displayed an attempt to bridge this knowledge gap by re-examining the variables studied by Carney et al. (1995), together with an additional variable, self-efficacy.

Current literature has documented poor adherence behaviors in patients with long-term medication regimens. It is estimated that 50% of patients on long-term medication regimens are noncompliant. Compelled by this reported problem, another group of researchers studied adherence patterns with CHF medications (Monane, Bohn, Gurwitz, Glynn, & Avorn, 1994).

Multiple concurrent prescriptions was identified as the number one factor predisposing patients to poor adherence with their medical regimen. This especially becomes of concern in patients over age 65 with CHF who are likely to be treated with multiple concurrent medications over an extended period of time. The purpose of the research was to measure adherence with CHF medications in elderly patients initiated on digoxin
therapy and to determine if factors such as age, race, gender, disease characteristics, or health services affected adherence (Monane et al., 1994).

A retrospective study of 7,247 outpatients aged 65 to 99 years in the New Jersey Medicaid program from 1981 through 1991 was used to determine patterns of medication adherence. To qualify for the study, the patient must have been newly started on digoxin and have 12 months of continuous Medicaid eligibility preceding and following their first digoxin drug claim. Nursing home residents were excluded from the study because their medications were not self-administered. Each pharmacy record in the New Jersey Medicaid file contained data on the dispense date, National Drug Code, quantity dispensed, number of days supply, cost, as well as the pharmacy and prescriber’s identification number. Previous hospitalizations and outpatient physician visits were also identified in the New Jersey Medicaid patient files (Monane et al., 1994).

Monane et al. (1994) measured adherence by the number of days the patient did not have CHF medications after the initial digoxin prescription. If the patient’s drug therapy was changed from digoxin to other medications,
such as an ace inhibitor or a diuretic, the patient's adherence was measured by the refill of the substituted medications referred to as "CHF medications" (Monane et al., 1994, p. 434) in the study. Linear regression models were used to "calculate least-squares estimates and the confidence intervals for the number of days without therapy" (Monane et al., 1994, p. 434).

The researchers documented that in the 12-month period following the patients' initial digoxin therapy, on the average patients had CHF medication available for two thirds of the year. Based on the pharmacy records, only 10% of patients had sufficient supplies of CHF medications for the entire 12-month period. Nineteen percent of the study cohort never filled a second prescription for their CHF medication. The researchers also found that patients who were already on other heart medications when digoxin was added had 56.3 fewer days without drug therapy than patients who were receiving a single agent. The average number of different prescriptions filled was seven (Monane et al., 1994).

Monane et al. (1994) discovered that patients who had experienced hospitalization or a nursing home stay prior to their initial digoxin prescription were more adherent
and had 34.4 fewer days without drug therapy than patients who had not experienced institutional care prior to beginning digoxin. The researcher speculated that patients who had experienced a more severe illness were more motivated to take medications as prescribed. The researchers recognized the limitations of generalizing the results of the Medicaid population to patients of higher socioeconomic status. While non-Medicaid patients may prove more adherent, the opposite may also be possible. Many elderly patients on Medicare do not have insurance coverage for their prescription drugs. Prescription drugs are one of the highest expenses for the elderly population, and this may have an additional impact on the adherence patterns on the non-Medicaid population of elderly.

Additional research is recommended by Monane et al. (1994) to explore further the factors influencing adherence behaviors in the elderly. Nurse practitioners should always remain conscious that this study suggests many patients thought to be on a drug therapy were merely on a prescription therapy. For such patients, decompensation and the need for rehospitalization might be attributable to their poor adherence to prescribed
medications rather than to the disease itself. The current researcher sought to respond to the recommendation to explore factors that might influence adherence.

Michalsen, Konig, and Thimme (1998) studied a group of patients who had been hospitalized with CHF. These researchers sought to learn the importance of factors believed to precipitate hospital admission of patients with decompensated heart failure. Research about such precipitators was limited and often dated. The researchers asserted that factors preceding hospital admission for CHF involved patient behaviors.

Michalsen et al. (1998) used a descriptive prospective design. The target population was patients with a history and hospital admission for CHF. The sample population was 179 consecutive patients admitted to Humboldt Hospital, Berlin, Germany. Diagnosis of heart failure was confirmed by radiology and the presence of typical symptoms such as dyspnea and peripheral edema. Participants were excluded from the study if they had received nursing assistance with medications, had been diagnosed with dementia or a severe psychiatric illness, and those patients who were intubated with less than one
week life expectancy. The study consisted of an unduplicated patient census.

Data were collected through structured personal interviews, medical record reviews, and physical examinations including laboratory and electrocardiogram results. Information was obtained on sex, age, smoking habits, number and dates of previous hospital admissions for heart failure, prescribed drugs, and dietary treatments. Patients were asked about their salt and fluid intake, prescribed drugs, and dietary treatments. Patients were asked about their salt and fluid intake, including alcohol ingestion. The researchers sought to ascertain how many patients had received basic information about their cardiac medications and to what extent they had regularly taken their prescribed drugs (Michalsen et al., 1998).

Michalsen et al. (1998) then assigned the patients to one of seven subgroups calculated to be the primary factor related to the patient’s hospitalization. The following subgroups were established: (a) acute coronary ischemia, (b) arrhythmias, (c) uncontrolled hypertension, (d) miscellaneous which included patients with other acute system illness, (e) noncompliance with diet, fluid intake,
and medications, (f) inadequate treatment prior to hospitalization, and (g) no identified factor.

Data analysis consisted of chi-square for dichotomous variables and two-tailed t test for continuous variables. The sample (N = 179) had a mean age of 75.4 years, with a range from 49 to 95 years old, and contained 44 participants who were less than 70 years of age. Michalsen et al. (1998) found that there were no significant sex or subgroup differences relating to adherence to medical and dietary treatment. Patients who admitted to taking their prescribed drugs only intermittently or not at all were classified in this study as noncompliant with medication. Patients who were considered by the researchers to be noncompliant with diet were those participants who ingested 2.5 liters of fluid or more each day and/or regularly salted their food.

The researchers found that 55.3% of the patients had received accurate information about their cardiac drugs. "However, their knowledge was not significantly correlated with their compliance with drug treatment" (Michalsen et al., 1998, p. 439). Michalsen et al. reported that compliant patients tended to be older than younger and had higher numbers of prescribed medications. Of the 179
participants, 155 had scales at home, but only 67 (38.2%) were compliant with their medical regimen and weighed themselves consistently.

Michalsen et al. (1998) discovered that 78.8% of patients recognized symptoms that indicated their CHF was getting worse, and 72.3% of these patients sought out their doctors within 24 hours prior to hospitalization. These researchers identified potential precipitating causes that led to heart failure and hospitalization in 85.5% of the participants. Noncompliance with diet or drug regimens was reported as the major precipitating factor accounting for hospitalization in 41.9% of patients. Cardiac ischemia was found to cause decompensation in 13.4% of participants, and 12.3% received inadequate preadmission treatment that resulted in hospitalization for CHF.

Michalsen et al. (1998) concluded that many patients who experienced worsening symptoms of CHF did not receive timely and effective treatment. Of 102 patients who recognized worsening symptoms of CHF and notified their health care provider, only 50 patients had modifications made to their treatment regimen by their provider. The researchers were surprised to learn in this study that
patients’ knowledge about their medications did not enhance patient compliance to the drug treatment plan. The researchers believed that many episodes of CHF which led to hospitalization could have been prevented through improved patient compliance with diet and medication, prompt recognition and treatment of symptoms, and earlier medical intervention. The researchers asserted that many of the cases of recurrence of CHF and hospitalization are attributable to preventable factors and not the underlying disease.

Michalsen et al. (1998) recommended additional research of multidisciplinary programs focused on reducing hospital admissions of patients with heart failure in other populations and health care systems. They also recommended evaluation of outpatient CHF treatment and further attention to the role of noncompliance in patients with heart failure.

Nurse practitioners should learn the importance of effective disease management as a primary health care provider from Michalsen et al.’s (1998) research. Knowledge of factors that may result in decompensation of heart failure will enable the nurse practitioner to provide better assessment, education, and treatment
regimens for this patient population. The Michalsen et al. (1998) study was germane to the current research in that both studies sought to determine variables associated with adherence to a CHF medical regimen. Additionally, a number of demographic and compliance variables were common to both studies, resulting in rich grounds for comparison of many adherence related factors.

Another study conducted by Rich et al. (1995) sought to determine what impact multidisciplinary intervention had on the rate of hospital readmission, quality of life, and medical expenses in elders with congestive heart failure. Limited research had been attempted to reduce hospitalizations in elders with congestive heart failure. The researchers asserted "that a multidisciplinary approach to treatment could significantly reduce the rate of readmission for elderly patients at high risk" (Rich et al., 1995, p. 1190).

A prospective, quasi-experimental study was conducted by Rich et al. (1995) that consisted of 282 patients who consented to participate. The target population was composed of patients 70 years of age or older admitted to Jewish Hospital at Washington University Medical Center who had confirmed heart failure. A convenience sample was
restricted to those patients who had one of the following established risk factors: a history of heart failure, uncontrolled hypertension or acute myocardial infarction preceding their diagnosis of CHF, or four or more hospitalizations within the past 5 years. Patients were divided into a control group and an intervention group using blind randomization. The control group received standard medical treatment ordered by their primary physician. The study group received intervention by nursing, dietary, social services, a geriatric cardiologist, and home health. The treatment intervention consisted of specialized assessment, education, treatment design, and reinforcement by this multidisciplinary team. In addition, there were home visits and telephone contacts made by members of the study team.

Data were collected to assess patients' perception of quality of life at the onset of the study and again at 90 days using the Chronic Heart Failure Questionnaire. This tool consisted of 20 items divided among four categories: dyspnea, fatigue, emotional function, and environmental mastery. Other detailed analyses were performed to calculate the overall costs of medical care in both groups during the 90-day study. Readmission to the hospital was
tracked on participants during the 90-day study and for an additional 9 months following the study. Supplemental comparisons were derived from this additional data (Rich et al., 1995).

Rich et al. (1995) compared the study groups using two-tailed $t$ tests for continuous variables with normal distribution, chi square for discrete variables, and the Wilcoxon rank-sum test for categorical variables and continuous variables not normally distributed. "Stepwise proportional-hazards regression was used to identify predictors of readmission within 90 days of discharge from the hospital" (Rich et al., 1995, p. 1191). An alpha level of .05 was used for all statistical tests.

Rich et al. (1995) found that the treatment group had 41 (28.9%) readmissions for heart failure compared to 59 patients (42.1%) in the control group ($p = .03$). Multiple readmissions occurred more frequently in the control group (16.4%) versus the treatment group (6.3%, $p = .02$) during the 90-day study. "Similarly, the total number of days of hospitalization was reduced from 865 in the control group to 556 in the treatment group, for a net reduction in hospital use of 35.7 percent ($p = 0.04$)" (Rich et al., 1995, p. 1192). The researchers also reported that
readmission for heart failure occurred less often in the treatment group during the 9 months following the study (80 vs. 57, p = .08). Rich et al. determined that the overall medical costs for the control group was $460 higher per patient than for patients in the intervention group. This increased cost was directly related to the medical expenses associated with the increased number of hospitalizations in the control group.

Pill counts were done to assess compliance with medications. Patients were considered compliant if a minimum of 80% of pills had been taken as prescribed. The treatment group achieved a rate of 82.5% compliance with medications, whereas the control group had 64.9% compliance with prescribed medications. The difference in compliance to the medication regimen measured in these two groups was statistically significant (p = .02) (Rich et al., 1995).

Both groups scored higher at 90 days on the Chronic Heart Failure Questionnaire, indicating improved quality of life. However, the treatment group showed a significant improvement (p = .001) and scored higher in all four categories on the tool (Rich et al., 1995).
Rich et al. (1995) concluded that there was a significant reduction in readmission for heart failure in elders who had received multidisciplinary intervention. These patients subsequently experienced improved quality of life and a reduction in medical costs. The authors acknowledged that the care received in the control group was not standardized and, therefore, could have been substandard. They also recognized that the treatment group may have had improved outcomes due to the increased personal care and attention received, although the researchers considered this variable an unlikely cause.

Rich et al.’s (1995) study strongly supported the guidelines published by the Agency for Health Care Policy and Research (AHCPR) on the evaluation and care of patients with CHF. The AHCPR offers recommendations on family and patient counseling, dietary assessment, nursing and social service interventions, and specific measures to improve compliance. Rich et al.’s research was pertinent to the current study because a variety of factors were examined that had the potential to affect outcomes in CHF patients. This research was unique in that it examined quality-of-life issues among CHF patients along with facilitators to adherence. The current researcher sought
to correlate quality-of-life issues, including self-efficacy and depression with adherence behaviors in elders with CHF.

The previous study (Rich et al., 1995) indicated that a multidisciplinary team approach impacted the patient's capacity to better perform self-care behaviors and adhere to the prescribed treatment. However, other groups of researchers believed that the patient's level of self-efficacy could be used as a predictor of health behavior, including self-care behaviors and adherence to prescribed medical regimens. Jeng and Braun (1995) sought to examine the impact of self-efficacy on exercise behaviors and outcomes in patients with coronary artery disease (CAD). Bandura’s Theory of Self-Efficacy was used as the theoretical framework. Bandura theorized that one’s perceived ability to perform a behavior can determine whether or not one will decide to engage in the behavior, how much effort will be expended, and for how long the behavior will continue in the presence of obstacles.

Jeng and Braun (1995) conducted a descriptive and correlational study using a one-group pretest/posttest design. A 12-week exercise training program was implemented between the pretest and posttest for all
participants. The independent variable was perceived self-efficacy prior to exercise training. Dependent variables were measured physiological outcomes via a graded exercise test (GXT) and psychological outcomes such as changes in perceived fatigue, anxiety, depression, and quality of life. The study was conducted at an outpatient cardiopulmonary rehabilitation center of a nonprofit hospital.

The patients were selected purposely with documented CAD, between the ages of 30 and 85 years, and able to read, write, and speak in English. The patients also had to be first-time participants in the cardiac exercise program and had to be physically able to walk on a treadmill. Criteria for exclusion included anyone with unstable angina, resting blood pressure greater than 200 systolic or 110 diastolic, resting heart rate greater than 100, serious arrhythmias, severely impaired cardiac output, and a history or current significant psychiatric condition (Jeng & Braun, 1997).

Multiple instruments were used by Jeng and Braun (1997) in the study. A GXT was performed before and after the exercise training. Other instruments included the self-reporting tools such as The Exercise Confidence Scale.
(ECS), Fatigue/Stamina Scale (F/ST), State-Trait Anxiety Inventory (STAI), the Center for Epidemiology Studies Depression Scale (CES-D), and The Medical Outcomes Study 36-item Short-Form Health Survey (SF-36).

Thorough explanation of the study was given to each participant, and informed consent was obtained by the researchers. Participants were asked to complete the self-report questionnaires: ECS, F/ST, STAI, CES-D, and SF-36. Exercise training began after orientation and was conducted three times per week for 12 weeks. Adherence rates were measured at 4, 8, and 12 weeks by calculating the percentage of sessions attended by each participant. Exercise intensity was calculated by the speed and elevation of the treadmill at the same time intervals. Participants also filled out the ECS tool at the fourth and eight weeks. After the 12th week, the participants were again requested to complete the ECS, F/ST, STAI, CES-D, and SF-36. The participants were scheduled for a GXT within one month of completion of the exercise training program (Jeng & Braun, 1997).

Jeng and Braun (1997) used Pearson correlation procedures to analyze relationship between variables. Analysis of variance (ANOVA) was performed to determine
differences in adherence rates, exercise intensities, and exercise confidence scores at different time intervals. Differences in outcome variables were determined by the paired \( t \) test. Forty participants met criteria for the study; however, seven patients withdrew leaving the final sample at 33. Eighty-one percent of the participants were men, and the mean age of the participants was 65.9 years (SD = 8.3).

Results of the study revealed no relationship between exercise self-efficacy and adherence rate nor was there a relationship between exercise self-efficacy and exercise intensity. An important finding of the study was that the change in self-efficacy after exercise training, rather than the initial self-efficacy level, was significantly related to exercise outcomes. Changes in self-efficacy after a 12-week training program positively correlated with improved levels of fatigue, \( p = .018 \). Jeng and Braun (1997) also determined that there was a significant relationship between compliance and increment of quality of life after the 12-week program, \( p < .01 \). Therefore, compliance rate became a significant predictor of improvement in quality of life. The average rate of compliance in this study was 87.8%. The expected rate was
between 75% and 85% compliance. A high compliance rate may be a result of individual encouragement by the cardiac rehabilitation nurses. The participants improved significantly in areas of exercise intensity, depression, and quality of life after the 12 weeks of exercise (Jeng & Braun, 1997).

Nurse practitioners should be aware that cardiac patients obtain greater benefits from rehabilitation when their self-efficacy can be increased during the training program. The study was particularly pertinent to the current study as all the variables in the current study were in some way addressed by Jeng and Braun (1997). The earlier study provided significant grounds for comparison of outcomes of the current study regarding elders with CHF who may have been less able to participate in formal cardiac rehabilitation programs.

Review of the literature revealed that the factors influencing patient adherence to medical treatment are complex and diverse. Research findings are varied regarding the causes of nonadherence in patients with heart failure. Consistent research findings of noncompliant self-care behaviors with prescribed diet and medications have been shown to contribute to the
exacerbation of cardiac conditions (Carney et al., 1995; Michalsen et al., 1998; Rich et al., 1995; Taylor et al., 1998). However, the role of depression and self-efficacy in the decision-making process of the patient to adhere to medical treatment remains unclear (Carney et al., 1995; Jeng & Braun, 1995; Michalsen et al., 1998; Rich et al., 1995; Taylor et al., 1998). Previous researchers agree that patient adherence to medical treatment is important due to the monetary, physical, and emotional costs of nonadherence in the health care system and, therefore, requires additional research (Carney et al., 1995; Michalsen et al., 1998; Rich et al., 1995; Taylor et al., 1998).
Chapter III
The Method

After reviewing current research, no conclusive evidence was found linking depression, self-efficacy, and the adherence behaviors in elders to their prescribed treatment regimen. Therefore, this study was undertaken to determine if correlations existed among depression, self-efficacy, and adherence behaviors in elders living with congestive heart failure (CHF). In this chapter, the empiricalization of the study is described.

Design of the Study

A descriptive, correlational design was utilized to describe relationships among the variables of depression, self-efficacy, and adherence behaviors in elders living with CHF. Polit and Hungler (1999) state “the aim of descriptive correlational research is to describe the relationship among variables rather than infer cause-and-effect relationships” (p. 196). This research design is an appropriate means to describe the relationships among the
variables of adherence, depression, and self-efficacy measured in elders living with CHF. No manipulation of variables exists, and no causation among variables is implied.

**Variables.** This research study measured three distinct variables of interest: depression, self-efficacy, and adherence behaviors in elders with CHF. The researcher sought to determine the strength of the correlation between any two of the three stated variables. Intervening variables may have included functional status, cognitive status, state of health of clients on the day of data collection, and caregiver assistance with the directions for completing the tools.

**Setting, population, and sample.** The setting for the study was a cardiology clinic located in south central Mississippi. This setting was chosen because ample numbers of clients who met the inclusion criteria for this study sought health care at the clinic. According to a staff member, the clinic serves a population base of approximately 150,000 people within a 50-mile radius of the clinic. The clinic is staffed by two Board-certified cardiologists and two nurse practitioners who evaluate an average of 100 patients each week. It is estimated that
30% to 35% of the patients visiting this clinic have been diagnosed with congestive heart failure. More than half of the clientele are estimated to be age 55 years or older.

The target population was clients, age 60 and older, who had been diagnosed with congestive heart failure by their physician and who received health care at the designated clinic. The sample was one of convenience, consisting of all patients who consented to participate in the study and met the criteria of the study. The actual sample consisted of 78 patients who were mailed the survey tools. Three of the mail-out packets were returned to the researcher as undeliverable mail by the United States Post Office. One family member returned the reminder postcard and informed the researcher that the intended recipient was now deceased. The actual population size consisted of 74 patients. Thirty usable surveys were returned and constituted the sample for the study.

**Instrumentation.** Variables of interest in this research were measured by means of several self-report instruments. These tools were reproduced in a large font size and copied on peach-colored paper for ease of reading by the participants in the study. Depression was measured on the Zung Self-Rating Depression Scale. This survey
consists of 20 items in a checklist format. The available responses to the statements are stated as a little of the time, some of the time, good part of the time, and most of the time. Ten of the questions are stated in a positive manner, and 10 are stated negatively for reverse scoring. The highest possible depression score is 80 while a score of 20 indicates the complete absence of symptoms. It is unusual to obtain scores higher than 70. When the Zung Self-Rating Depression Scale was compared to the Hamilton Rating Scale for depression, both tools recognized depressed individuals. However, the Zung scale scores did not reflect increasing severity of depression and could not be used to quantitate depression (Carrol, Fielding, & Blashki, 1973). Most people with depression score between 50 and 69 on this tool (Zung, 1965). This tool and the scoring key has been placed into common circulation by a pharmaceutical company and are considered part of public domain.

The researcher measured self-efficacy with Sherer’s (1982) General Self-Efficacy Scale which has a reported alpha coefficient of .86. This self-report tool is composed of 17 statements which are rated by the participants on a Likert scale, ranging from strongly
disagree to strongly agree. Reversed items are converted for scoring. The absolute range for the instrument is 17 to 80. The higher the score, the higher are self-efficacy expectations. Self-efficacy theory asserts that personal mastery expectations are the primary determinants of behavioral change. These generalized expectancies are measured on the General Self-Efficacy Scale. Confirmation of several predicted conceptual relationships between the subscale and other personality measures such as locus of control, personal control, social desirability, ego strength, interpersonal competence, and self-esteem provided evidence of construct validity. Criterion validity was established by the positive relationship between the General Self-Efficacy Scale and vocational, educational, and military success (Sherer et al., 1982). The researcher received written permission for reproduction of the tool from the researchers who developed and tested the tool (see Appendix D).

Adherence behaviors were measured by Temple’s Living with CHF Scale, a self-report instrument developed by the researcher. This tool has 20 items arranged in two groups of 10 items each. The first 10 questions are arranged in checklist format with three responses for the participant
to choose from. The possible responses included a little of the time (less than 25%), a good part of the time (25 to 75%), and most of the time (more than 75%). Six of the questions are worded so that best compliance would be at the 75%, most of the time. The remaining four questions are reversed with best compliance at 25%, a little of the time. These 10 questions inquire about behaviors which can affect the health of elders living with CHF. The higher the score, the more adherent self-care behaviors are exhibited by the participant. Reversed items were converted for scoring. Scoring ranges from maximum adherence with a score of 30 to the lowest level of adherence with a score of 10.

The second set of 10 questions gathered information on the patient’s health history, including hospital admissions and doctor visits, age, and the number of years living with heart problems. Other questions inquired whether the patient lived alone, received assistance with taking medications, and the presence of co-morbidities. A final question asked for a short response to a question about the patient’s ability to stay well. The tool was piloted on 15 adults. As a result of the pilot reading, one question was reworded for clarity. The most frequently
cited behaviors contributing to adherence of a CHF regimen was chosen from the literature as determinants of adherence behaviors. Therefore, the tool is said to have content and face validity.

Method of Data Collection

Procedure. Implementation of the study was contingent upon approval from Mississippi University for Women’s Committee on the Use of Human Subjects in Experimentation (IRB) (see Appendix E). Written permission to conduct the study then was obtained from the selected cardiologist and is evidenced by return of a written consent letter acknowledging a willingness to serve as a data collection site for the study (see Appendix F). Packets were assembled by the researcher and contained an informed consent letter to each recipient of the packet (see Appendix G), the research instruments, a stamped, self-addressed envelope, and a nominal gift for each recipient. These packets had the appropriate amount of postage affixed and were then hand-delivered to the cardiology clinic. The clinic identified patients who met the criteria for this research. The packets were labeled with the patient’s address label and then mailed out to the
patients. One reminder postcard (see Appendix H) was mailed 5 days after the packets had been mailed by the same process as described for the general survey packets.

Methods of Data Analysis

The goal of this study was to describe the strength of relationships among depression, self-efficacy, and adherence behaviors in elders with CHF. The researcher synthesized the data into a usable format to establish interventions aimed at improving adherence behaviors of elders with CHF.

Descriptive statistics, such as measures of central tendency and frequency distributions, were used to generate a description of the sample for the study. Pearson’s product-moment correlation also was used to summarize the magnitude and direction of the relationships between the variables and test the hypotheses in the study (Polit & Hungler, 1999). This study utilized interval-level data in calculation of Pearson’s r. An alpha level for all statistical tests was set at .05. In order to glean additional data, two-tailed t tests were conducted on demographic variables and the variables of interest in the study.
The Mann-Whitney U test was applied to validate the findings of the t test. For this purpose, scores were converted to ranks. The Mann-Whitney U test is designed to evaluate the difference between two treatments or two populations using data from an independent measures study (Polit & Hungler, 1999).
Chapter IV

The Findings

The escalating incidence of congestive heart failure (CHF) continues to be the primary reason for hospitalization among elders. Therefore, a descriptive correlational study was designed to investigate the magnitude of the relationships for depression, self-efficacy, and adherence behaviors in elders with CHF. These distinct variables, depression, self-efficacy, and adherence behaviors in elders with CHF, were measured using separate self-report instruments. Three null hypotheses were tested. Findings related to the demographic characteristics of the sample, the research hypotheses, and other supporting variables are addressed in this chapter.

Description of the Sample

Thirty patients from a south Mississippi cardiology clinic participated in the study by completing the following tools: General Self-Efficacy Scale, Zung
Self-Rating Depression Scale, and Temple’s Living with CHF Scale. The subjects’ ages ranged from 60 to over 85 years. Information regarding age by category may be seen in Table 1.

Table 1

Age Distribution of Sample by Frequency and Percentage

<table>
<thead>
<tr>
<th>Age (years)</th>
<th>f^a</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>60 to 64</td>
<td>5</td>
<td>16.6</td>
</tr>
<tr>
<td>65 to 74</td>
<td>14</td>
<td>46.7</td>
</tr>
<tr>
<td>75 to 84</td>
<td>8</td>
<td>26.7</td>
</tr>
<tr>
<td>85 and above</td>
<td>3</td>
<td>10.0</td>
</tr>
</tbody>
</table>

^aN = 30.

The participants lived in rural south Mississippi. Each of the participants had a medical diagnosis of congestive heart failure and was periodically evaluated by a cardiologist. Other demographic variables examined in the study are denoted in Table 2.
Table 2

Living Arrangements, Assistance with Medications, Ability to Move About Home Without Assistance, and Co-Morbidities by Frequency and Percentage

<table>
<thead>
<tr>
<th>Variable</th>
<th>f</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Live alone</td>
<td>6</td>
<td>20.0</td>
</tr>
<tr>
<td>Have assistance with taking medications</td>
<td>12</td>
<td>40.0</td>
</tr>
<tr>
<td>Able to move about home</td>
<td>28</td>
<td>93.3</td>
</tr>
<tr>
<td>Co-morbidities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td>13</td>
<td>43.3</td>
</tr>
<tr>
<td>Lung disease</td>
<td>8</td>
<td>26.7</td>
</tr>
<tr>
<td>(asthma, COPD, emphysema)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*N = 30.

Results of Data Analysis

Sherer’s General Self-Efficacy Scale and the Zung Self-Rating Depression Scale were scored according to the guidelines provided by their respective authors. The researcher sought to measure levels of adherence behaviors on the Temple’s Living with CHF Scale. Through the use of these three self-report instruments, levels of depression, self-efficacy, and adherence were measured on each
participant. Total scores on each instrument were used in the analysis. Raw data regarding findings on each of the research instruments may be seen in Appendices I, J, and K.

Three null hypotheses were tested in the study. The first hypothesis stated, There is no correlation between depression and adherence behaviors in elders living with CHF. Hypothesis 2 was, There is no correlation between self-efficacy and adherence behaviors in elders living with CHF, and the third hypothesis read, There is no correlation between depression and self-efficacy in elders living with CHF.

Data regarding the research hypotheses were analyzed using Pearson correlations to determine significant relationships among the variables of interest. Findings related to these hypotheses may be seen in Table 3.
Table 3

Relationships Among Variables of Adherence, Self-Efficacy, and Depression Using Pearson Correlations

<table>
<thead>
<tr>
<th>Variable</th>
<th>r</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression and adherence</td>
<td>-.458</td>
<td>.152</td>
</tr>
<tr>
<td>Self-efficacy and adherence</td>
<td>.108</td>
<td>.569</td>
</tr>
<tr>
<td>Depression and self-efficacy</td>
<td>-.534*</td>
<td>.005</td>
</tr>
</tbody>
</table>

*p ≤ .01.

Based on these findings, the researcher failed to reject the first and second null hypotheses. This inability to discover significant findings was possibly the consequence of insufficient power related to the sample size. The safest interpretation is that nonsignificant findings reflected an absence of evidence to accept or reject these hypotheses.

However, findings related to the third null hypothesis indicated a significant negative correlation between depression and self-efficacy in elders with CHF. Thus, the inverse relationship between levels of self-efficacy and levels of depression in elders with CHF
indicates that participants with a higher level of self-efficacy had a lower level of depression.

Additional Findings

To further explain the significance or nonsignificance of correlations between the variables of interest, the researcher examined a number of other relationships between demographic variables and participants' levels of depression, adherence, and self-efficacy. One such relationship was found between the ability of the participant to move independently at home and levels of depression and self-efficacy. These relationships were determined to be significant, using t test for equality of means. To assure significance, Mann-Whitney U also was applied to analyze the data.

The researcher found that participants who acknowledged that they were able to move about their home without assistance were significantly less likely to be depressed, $t(28) = -2.53, p < .05$. Participants who were able to move about their homes without assistance also were significantly more likely to have high levels of self-efficacy, $t(28) = 2.809, p < .01$, Mann Whitney $U = 2.00, p < .05$. 
Additional relationships between depression and specific variables shown to be correlated with depression in previous literature were examined. These correlates were detected on the Zung Self-Rating Depression Scale and Temple’s Living with CHF Scale. In the current study, a significant inverse relationship between depression and engaging in exercise at least two times a week was found, \( r = -.433, \ p < .05 \). Therefore, participants in this study who exercised more frequently were significantly less likely to be depressed.

The relationship between tobacco use and level of depression in elders also was assessed. A relationship was evaluated using item number one of Temple’s Living with CHF Scale and overall scores on the Zung Self-Rating Depression Scale. However, no significant relationship was detected, \( r = -.189 \). Therefore, in this study, participants who admitted to frequent tobacco use were not more depressed than participants who did not use tobacco products.

Finally, the researcher examined the percentage of participants who recognized symptoms of CHF (listed in Question 7 of Temple’s Living with CHF Scale). Overall, participants recognized these symptoms more than 75% of
the time. Forty-three percent (n = 13) reported that they called symptoms of CHF to their doctor's attention more than 75% of the time. However, when examining low scores on Temple's Living with CHF Scale, the researcher noted that only 20% (n = 6) of respondents weighed themselves more than 75% of the time. These findings reflect a wide variation in adherence to a CHF regimen, although overall adherence scores were not related to any of the other variables.

On item 10 of Temple's Living with CHF tool, participants were asked to explain what made it hard for them to stay well. Five common responses were noted and are reported as recurring themes as follows:

Adherence to lifestyle changes. One of the common themes was related to the changes in lifestyle required by CHF patients. Examples of statements which reflected the theme of lifestyle were as follows:

I take my medication as directed to stay well.

...  

I can't exercise like I want ... trouble walking.

...  

Not staying on diet. Drinking too much water.
Symptoms of CHF. A second theme that was noted was related to the symptoms of CHF. The following typical responses reflect this theme:

Having heart and shortness (of breath) is kind of hard... my feet swell and that causes my feet and legs to hurt.

... Fluid building up.

... Swelling--fluid builds up.

... Just swelling, short of breath.

Progression of aging process. Problems related to the natural aging process also were an indicated theme. The following responses depict the theme of aging.

I am not able to do the things I used to and cannot take care of myself as I should.

... General aging problems.

... Age and some of the illness that goes with it--arthritis, asthma, shortness of breath.

Co-morbidities. Another common theme was other illnesses or co-morbidities. Participants used the following words to describe this theme:
I think depression keeps me from being well.

... 

Had a stroke in 1997. . . . have atrial fibrillation, which is difficult.

... 

Also have cancer.

Miscellaneous. The remaining responses could not be grouped in any particular theme. Participants in this group responded as follows:

I just can’t seem to get better.

... 

I don’t know.

... 

I do not have any energy. . . . swimming in the head.

... 

Nothing really, I just have some problems.

Summary

The results of this study revealed that elders with CHF are less likely to be depressed when they have higher levels of self-efficacy and vice versa. The researcher could not substantiate any significant relationship among adherence behaviors of elders with CHF and depression.
There also was no significant relationship established among adherence behaviors of elders with CHF and self-efficacy. The researcher was able to demonstrate a significant finding related to the participants' ability to move about their home without assistance with decreased likelihood of depression and increased likelihood of self-efficacy. Participants responded with varied reasons why they believe it is difficult for them to stay well.
Chapter V

The Outcomes

An estimated 4.8 million Americans are living with congestive heart failure (CHF). Increasing prevalence, hospitalizations, and deaths have made CHF a major disease affecting elders. Examination of factors believed to impact the rate of hospitalization and mortality can assist health care providers in the medical management of elders with CHF.

For the purpose of the study, three null hypotheses were tested to determine if significant relationships existed among depression, self-efficacy, and adherence behaviors of elders with CHF. Becker’s (1974) Health Belief Model provided the theoretical framework for the study. In this chapter findings, conclusions, implications for nursing, and recommendations resulting from this study are discussed.
Summary of the Findings

Thirty patients from a south Mississippi cardiology clinic participated in the study. All participants were age 60 years and older. Each participant had been evaluated by a cardiologist and diagnosed with CHF. Of the sample, 20% of the participants lived alone. Many (40%) participants in the study did not have someone who assisted them with their medications. Most participants (93.3%) were functionally able to move about their homes without assistance. Comorbidities of diabetes (n = 13) and lung disease (n = 8) were represented in the sample.

Three null hypotheses guided the study to determine if relationships existed among the variables of depression, self-efficacy, and adherence behaviors of elders with CHF. The researcher failed to reject $H_0^1$: There is no correlation between depression and adherence in elders living with congestive heart failure ($p > .05$). Additionally, $H_0^2$: There is no correlation between self-efficacy and adherence behaviors in elders living with congestive heart failure ($p > .05$).

The third hypothesis assessed the relationship between depression and self-efficacy in elders with CHF. The researcher rejected this hypothesis since a
significant negative correlation between depression and self-efficacy in elders with CHF (p < .005) emerged. Thus, an inverse relationship between levels of self-efficacy and levels of depression in elders with CHF exists. Participants who scored at a higher level of self-efficacy also reported fewer symptoms of depression.

Additional findings emerged in the study that substantiated findings related to this inverse relationship between self-efficacy and depression in elders with CHF. Participants in the study who were physically able to move about their own homes without assistance were significantly less likely to be depressed (p < .05). Participants who were mobile at home also were significantly more likely to have a high level of self-efficacy (p < .01).

Relationships between the variables of interest and selected health habits of elders with CHF were examined. The researcher found that there was a significant inverse correlation between the exercise habits of elders with CHF and depression (p = .027). Those participants who reported exercising two times a week or more often tended to be significantly less depressed than those who did not exercise regularly.
Discussion

The issue of self-efficacy, above all other variables, was related to whether or not elders with CHF experienced more symptoms of depression. Logically, health care providers might assume that as patients perceive themselves able to lead independent and productive lives and maintain mastery over activities of daily living they will, in turn, experience fewer symptoms of depression. This finding is consistent with the assertions of Ham and Sloane (1977) and Taylor et al. (1998) who concluded that elders with physical limitations and frequent hospitalizations secondary to CHF were more depressed.

Becker (1974) believed certain sociopsychological modifiers, such as depression and self-efficacy, influenced the patient’s decision to engage in self-care behaviors. Self-efficacy is believed to impact the patient’s perception of his or her own susceptibility to disease and the risk of severe related consequences, thereby affecting the patient’s likelihood of taking action. DeGeest et al. (1998) asserted that patients’ perceptions about their illness and treatment, as well as their symptoms, affected their adherence and self-care
behaviors. The researchers maintained that poor self-efficacy becomes a barrier to treatment adherence. Monane et al. (1994) reported an increased rate of adherence to medications in elders who had experienced a recent hospitalization for CHF. The patient’s increased perception of illness severity also was believed to have been the modifier inducing more adherent self-care behaviors. The current researcher, therefore, concurs with previous researchers and with Becker’s (1974) theory that the patient’s perception of the risk of serious consequences motivates the patient to engage in adherent self-care behaviors. DeGeest et al. (1998) contended that depressed patients often have a sense of inadequacy in performing activities of daily living, thus decreasing adherence to a therapeutic regimen.

Although no statistical significance emerged between the variables of perceived self-efficacy, depression, and adherence behaviors in this study, it may still be reasonable to assume that depressed elders with low self-efficacy are less likely to be able to perform adherence behaviors, such as regular exercise, preparation of disease-appropriate meals, and similar self-care behaviors. Thus, a vicious cycle of increasingly
diminished self-efficacy and depression is likely to ensue. Qualitative analysis of responses to the open-ended question on the Temple's Living with CHF Scale further substantiates the difficulty elders perceive to impact their health. One respondent stated, "I cannot take care of myself as I should." Another elder wrote, "I think depression keeps me from being well." Perceived self-efficacy and depression are again revealed to impact elders living with CHF. As Becker (1974) proposed, self-efficacy and depression are sociopsychological modifiers that can impact the patient's perception of susceptibility to disease and the risk of serious consequences. Nurse practitioners should, therefore, be attentive to the potential interactions among these variables when developing management strategies for elders with CHF.

Perhaps, elders with CHF who did not choose to participate in the study lacked even the level of self-efficacy needed to complete the research instrument or were too depressed to participate. These possibilities cannot be eliminated given the low response rate and small sample size. Despite these seemingly logical deductions, the researcher did not determine that the adherence
behaviors of elders with CHF were significantly related to depression or perceived self-efficacy.

Taylor et al. (1998) also failed to detect a relationship between compliance with physician discharge instructions given to CHF patients and depression. However, Carney et al. (1995) found that depressed patients adhered to their medication regime only 45% of the time, while nondepressed patients adhered 69% of the time.

Another study by Jeng and Braun (1997) revealed no relationship between exercise and self-efficacy and adherence rates in cardiac patients. However, Jeng and Braun discovered that the self-efficacy of patients in the study improved after completion of the 12-week cardiac rehabilitation program. The research findings of Jeng and Braun did not correlate with the findings of this study. There was no significant relationship found between levels of self-efficacy in elders with CHF and exercise habits (p = .110).

Exercise, however, was found in the current study to have a significant negative correlation with levels of depression (p = .027). While Jeng and Braun (1997) did not detect significant improvement in the quality of life
after the completion of the exercise program, no significant improvement was detected in levels of depression. Perhaps, the reason for different findings is due to the disease state of the participants in each study. Jeng and Braun (1997) tested post-acute myocardial infarction patients while the current study assessed participants diagnosed with CHF.

These findings should prompt nurse practitioners to be attentive to symptoms of low self-efficacy as well as symptoms of depression in cardiac patients. In particular, elders with CHF frequently experience decreased functional ability to complete activities of daily living and, thus, may be more prone to diminished levels of self-efficacy and more symptoms of depression. Several patient responses to the open-ended question in the study documented the participants’ concerns about their decreased functional status. Examples of such responses are as follows: “I do not have any energy,” “I can’t exercise like I want to,” and “I am not able to do the things I used to do.” These responses further support the importance of evaluating the functional status of CHF patients. If the nurse practitioner is aware of the interrelationships of functional status, exercise habits, self-efficacy, and
depression, he or she will be better able to provide education and support to the CHF patient. Astute assessment by the nurse practitioners will enable the practitioner to provide better management of the CHF and hopefully see improved adherence behaviors in elders with CHF.

Two final significant findings of interest in this study were the relationships among the participants’ functional ability to move around at home without assistance, depression and self-efficacy. Participants were less likely to be depressed when they had the functional ability to move around their home without assistance. This higher level of ability, manifested as independent mobility, also was positively correlated with self-efficacy. Taylor et al. (1998) reported similar findings when they detected a relationship between depression and physical limitations due to fatigue, angina, and dyspnea. These prior findings further support the findings related to the third hypothesis in the current study that participants who experienced increased levels of self-efficacy also had less depression. Therefore, self-efficacy and depression appear to have an
inverse relationship that may also be affected by the individual's functional status.

Rich et al. (1995) evaluated four categories in cardiac patients, dyspnea, fatigue, emotional function, and environmental mastery, as facilitators of adherence and quality-of-life issues such as self-efficacy and depression. Patients in the study who had significantly higher levels of adherence to medications were also found to have scored higher in all four categories indicating improved quality of life. Although no significant relationship was isolated between adherence behaviors and depression in the study by Rich et al., the researchers detected improved quality-of-life perceptions that included improved levels of self-efficacy and depression. These findings lend support to the current research findings that patients with increased levels of self-efficacy experienced less depression.

The current researcher measured other variables of interest found to be reported by Michalsen et al. (1998). Michalsen et al. (1998) reported that 78.8% of patients in their study recognized symptoms of worsening heart failure and 72.3% of this group of patients sought out their doctors within 24 hours of hospitalization. Only 43% of
participants in the current study reported that they called symptoms of CHF to their doctor’s attention 75% of the time or more often. Michalsen et al. (1998) also determined that 38.2% of their participants weighed themselves consistently on scales at home. The current researcher found that only 20% of participants weighed themselves 75% of the time or more often. Michalsen et al. (1998) asserted that regular weight control improved recognition and reporting of CHF symptoms to the patient’s health care provider could lead to fewer hospitalizations. One might conclude that many of the recurrences of CHF and resulting hospitalizations are attributable to preventable factors and not underlying disease.

Lack of significant findings regarding additional data from the current study is in contrast with reports in the literature and thereby notable. Taylor et al. (1998) discovered that tobacco use had a significant relationship with increased depression. However, the current researcher’s findings demonstrated no parallel as there was no significant relationship between tobacco use and depression in the current sample. The differences could be explained by the limited sample size in the current study or the differences in patient diagnoses between the two
studies. Taylor et al. studied patients who had survived a myocardial infarction versus the current research sample of elders with CHF. Perhaps, myocardial infarction patients were more prone to depression because of their recent illness and thus more impacted by the effects of tobacco use than elders with CHF.

Conclusions

Based on statistical findings and qualitative analysis of items in this study, a number of conclusions were made. Elders with CHF who scored higher levels of self-efficacy also experienced fewer symptoms of depression. Secondly, elders with CHF who were able to move independently in their home experienced higher levels of self-efficacy, as well as fewer symptoms of depression. The final significant relationship detected was that elders with CHF who regularly exercised two or more times per week experienced fewer symptoms of depression. These conclusions related to self-efficacy and depression further support Becker’s (1974) theory that certain modifiers impact the patient’s decision about health care behaviors. The strong inverse relationship between self-efficacy and depression seems to hold the most important
link for nurse practitioners to assess in patients with CHF. Additionally, the nurse practitioner should evaluate the functional status of the patient as this has been linked with depression in patients with CHF.

Implications for Nursing

Several implications for nursing emerged from the current study. Implications for nursing theory, research, practice, and education are discussed in this section.

Theory. Becker (1974) asserted in the Health Belief Model that patients' adherence behaviors are impacted by sociopsychological modifiers. Although no statistically significant relationship emerged between adherence and depression or self-efficacy, a number of comments by elders in this study supported Becker's assertion. Findings from this study indicate that perhaps the model could be expanded to encompass the significant negative correlation between depression and self-efficacy. Awareness of this relationship may aid in determining the factors that predict a patient's outcome when faced with a serious chronic illness.

Research. The lack of empirical data on the relationship among depression, self-efficacy, and
adherence behaviors of elders with CHF warrants the need for further research. Much is known about the effect of poor adherence behaviors and increased incidence of hospitalizations in elders with CHF, but the reasons for these poor adherence behaviors remain unclear. Further research is needed to enable the nurse practitioner to better manage patients who exhibit poor self-care behaviors. This research clearly indicates that the variable of depression is strongly related to perceived self-efficacy and the ability to conduct activities of daily living, such as exercising and moving independently at home among elders with CHF. There now exists a need for further research to examine the causal relationships among depression and self-efficacy in these elders and the impact of these relationships on adherence behaviors in CHF patients.

Practice. The incidence of CHF in elders is escalating in the United States. Nurse practitioners will frequently come in contact with this subgroup of patients in a primary care setting. An increased awareness of the relationship between self-efficacy and depression in elders with CHF will assist nurse practitioners to provide improved management and assessment of elders with CHF.
Michalsen et al. (1998) stated that the knowledge of factors that may result in decompensation of heart failure will enable the nurse practitioner to provide better assessment, education, and treatment regimens for this patient population.

The nurse practitioner should also be aware of the significance of the patient’s functional status, including independent mobility at home, with relationship to self-efficacy and depression in elders with CHF. Additionally, the relationship between regular exercise habits and fewer symptoms of depression in this patient population is of importance to the nurse practitioner. Findings from this study specifically imply a need to routinely assess levels of depression in all elderly patients with a diagnosis of CHF. The Zung Self-Rating Depression Scale has been used successfully in research and clinical settings to identify elderly patients who are depressed. Findings from this study suggest that early detection of depression symptoms alert the nurse practitioners to further evaluate the elderly CHF patient for declines in functional status and level of perceived self-efficacy.

Education. Due to the increasing number of patients diagnosed with CHF each year, a great need exists for
nursing education to focus on the causes of poor adherence behaviors in patients with CHF that result in poor self-care. Although the psychosocial elements of depression, adherence, and self-efficacy are currently being taught in nursing curricula, there should also be an emphasis on the relationships among these elements. Nursing educators should teach nurse practitioner students to assess patients for poor adherence, poor self-care behaviors, and their possible relationships to other health variables. Students should also be educated regarding the relationship between self-efficacy and depression as they attempt to motivate their patients in good home management of CHF. By learning to recognize the correlations among adherence, self-efficacy and depression in patients, the informed nurse practitioner student may ultimately have a substantial impact on the quality of life of elders with CHF and other chronic diseases.

Limitations

Limitations of this study include the small sample size and limited geographical area. Additionally, the researcher examined the probability that the hypothesis testing correctly identified the relationships among the
variables of interest. The power of a statistical test is the probability that the test will correctly reject a false null hypothesis (Cohen, 1988). The researcher has identified that the findings of this study are limited by lower power due to sample size. The highest power for any question asked on the research instruments was 43% which increases the possibility that a Type II error may have occurred when the researcher accepted the first two hypotheses.

Another factor contributing to low power was the age distribution of the sample. The participants were divided in four age groupings: 60 to 64, 65 to 74, 75 to 84, and 85 and older. The number of participants in the oldest-old category, age 85 and above, was very small, thus further contributing to the phenomenon of low power.

The researcher acknowledges that the study was conducted from only one clinic in an isolated geographical area. External validity of the study was, therefore, limited due to the narrow geographical scope of accessible population in the study. Despite these recognized limitations of the research, certain relationships were found to be significant. These findings prompted the
researcher to make recommendations for future studies on elders with CHF.

Recommendations

Based on the findings from this study, the researcher makes the following recommendations for nursing science:

1. Enlargement of the study to include a broader geographical area and larger sample size.

2. Comparison of depression, self-efficacy, and adherence behaviors in all ages of patients diagnosed with CHF.

3. Examination of causal relationships between depression and self-efficacy.

4. Exploration of adherence modifiers in elders with CHF through a qualitative study.

5. Measurement of the impact of health care providers on the level of depression, self-efficacy, and adherence behaviors of elders with CHF.

Recommendations for Advanced Nursing Practice

Recommendations for advanced nursing practice include the following:

1. Conduction of depression screening for all clients with CHF.
2. Evaluation of the functional status of all clients with CHF.

3. Prescription for regular exercise as tolerated for all clients with CHF.

Summary

The findings of this study have distinct implications for nursing, patients, and the general population. A discussion of the findings, limitations, conclusions, and recommendations was presented.
References


APPENDIX A

ZUNG SELF-RATING DEPRESSION SCALE
Zung Self-Rating Depression Scale

Please read each statement and decide how much of the time the statement describes how you have been feeling during the past several days. Please **DO NOT put your name on this survey**.

<table>
<thead>
<tr>
<th>Place a check (√) mark in the appropriate column</th>
<th>A little of the time</th>
<th>Some of the time</th>
<th>Good part of the time</th>
<th>Most of the time</th>
</tr>
</thead>
<tbody>
<tr>
<td>I feel downhearted and blue.</td>
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<tr>
<td>Morning is when I feel the best.</td>
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<tr>
<td>I have crying spells or feel like it.</td>
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<tr>
<td>I have trouble sleeping at night.</td>
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<tr>
<td>I eat as much as I used to.</td>
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<tr>
<td>I still enjoy sex.</td>
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<tr>
<td>I notice that I am losing weight.</td>
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<tr>
<td>I have trouble with constipation.</td>
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<tr>
<td>My heart beats faster than usual.</td>
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<tr>
<td>I get tired for no reason.</td>
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<tr>
<td>My mind is as clear as it used to be.</td>
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<tr>
<td>I find it easy to do the things I use to.</td>
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<tr>
<td>I am restless and can’t keep still.</td>
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<tr>
<td>I feel hopeful about the future.</td>
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<td>I am more irritable than usual.</td>
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<td>I find it easy to make decisions.</td>
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<tr>
<td>I feel that I am useful and needed.</td>
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<tr>
<td>My life is pretty full.</td>
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<tr>
<td>I feel that others would be better off if I were dead.</td>
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<tr>
<td>I still enjoy the things I used to.</td>
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</tbody>
</table>
APPENDIX B

TEMPLE’S LIVING WITH CHF SCALE
Temple’s Living with CHF Scale

Please DO NOT put your name on this survey.

<table>
<thead>
<tr>
<th>Put a check (√) in the box that best describes how often the statement applies to you.</th>
<th>A little of the time (less than 25% of the time)</th>
<th>A good part of the time (25% to 75% of the time)</th>
<th>Most of the time (more than 75% of the time)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I use cigarettes, cigars, a pipe, or chew tobacco.</td>
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<tr>
<td>2. I weigh myself every morning before breakfast.</td>
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<tr>
<td>3. I eat bacon, sausage, ham, or luncheon meat once a week or more often.</td>
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<tr>
<td>4. I add salt to my foods at the table.</td>
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<tr>
<td>5. I check labels of the foods I buy for sodium (salt) content.</td>
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<tr>
<td>6. I take my medications every day as ordered by my doctor.</td>
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<tr>
<td>7. I call my doctor when I have gained more than 2 pounds in 1-2 days, or if I have shortness of breath, or swelling in my feet and legs.</td>
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<tr>
<td>8. I exercise 2 times a week or more often (like walking, exercise in a group, bicycle, swim, play golf, etc.)</td>
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<tr>
<td>9. I eat or drink foods that have caffeine (coffee, tea, cokes, chocolate).</td>
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<tr>
<td>10. If I feel anxious or stressed, I am able to calm myself.</td>
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</table>
Temple’s Living with CHF Scale

Please DO NOT put your name on this survey.

1. How many times have you been admitted to the hospital in the past 12 months for problems with your heart (for example: shortness of breath, racing pulse, swelling in feet and legs, chest pain)? _________________

2. How many visits have you had with your heart doctor in the past 6 months? ______

3. About how many years have you had heart problems?_____________________

4. How old are you? ______

ANSWER THE NEXT QUESTIONS WITH “YES” OR “NO.”

5. Do you live alone? □ Yes □ No

6. Does anyone help you more than once a week with taking your medications? □ Yes □ No

7. Are you able to get your own bath, dress yourself, and move about your home without assistance from another person? □ Yes □ No

8. Do you have high blood sugar (diabetes)? □ Yes □ No

9. Do you have lung disease (such as asthma, COPD, emphysema)? □ Yes □ No

Please write a short response to this last question. Thank you.

10. What makes it hard for you to stay well?

_____________________________________________________________________

_____________________________________________________________________

_____________________________________________________________________
General Self-Efficacy Scale

This questionnaire is a series of statements about your personal attitudes and traits. Each statement represents a commonly held belief. Read each statement and decide to what extent it describes you. There are no right or wrong answers. Please be very truthful and describe yourself as you really are, not as you would like to be. **Please DO NOT put your name on this survey.**

<table>
<thead>
<tr>
<th>Check (√) the response that best describes you.</th>
<th>Agree strongly</th>
<th>Agree moderately</th>
<th>Neither agree nor disagree</th>
<th>Disagree moderately</th>
<th>Disagree strongly</th>
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</thead>
<tbody>
<tr>
<td>When I make plans, I am certain I can make them work.</td>
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<tr>
<td>One of my problems is that I cannot get down to work when I should.</td>
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<td>If I can't do a job the first time, I keep trying until I can.</td>
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<td>When I set important goals for myself, I rarely achieve them.</td>
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<td>I give up on things before completing them.</td>
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<tr>
<td>I avoid facing difficulties.</td>
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<tr>
<td>If something looks too complicated, I will not even bother to try it.</td>
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<tr>
<td>When I have something unpleasant to do, I stick to it until I finish it.</td>
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<td>When I decide to do something, I go right to work on it.</td>
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<td>When trying to learn something new, I soon give up if I am not initially successful.</td>
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<tr>
<td>When unexpected problems occur, I don't handle them well.</td>
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<tr>
<td>I avoid trying to learn new things when they look too difficult for me.</td>
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<tr>
<td>Failure just makes me try harder.</td>
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<tr>
<td>I feel insecure about my ability to do things.</td>
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<tr>
<td>I am a self-reliant person.</td>
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<td>I give up easily.</td>
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<tr>
<td>I do not seem capable of dealing with most problems that come up in life.</td>
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</table>
APPENDIX D

PERMISSION TO USE TOOL
February 22, 2000

Sue Temple
59 Griffith Road
Hattiesburg, MS 39402

Dear Ms. Temple:

I am writing to give you permission to use the Self-efficacy Scale in your research. Please find enclosed a copy of the Self-efficacy Scale that you may reproduce. Scoring instructions and a partial list of references for the scale are also enclosed. Thank you for your interest in our research.

Sincerely,

Mark Sherer, Ph.D., ABPP/Cn
Director of Neuropsychology
APPENDIX E

APPROVAL OF THE COMMITTEE ON USE OF HUMAN SUBJECTS IN EXPERIMENTATION OF MISSISSIPPI UNIVERSITY FOR WOMEN
April 26, 2000

Ms. Karen Sue Temple
P. O. Box W-910
Campus

Dear Ms. Temple:

I am pleased to inform you that the members of the Committee on Human Subjects in Experimentation have approved your proposed research conditionally with the requirement that the consent form contain the language "your return of the questionnaire implies your consent to participate."

I wish you much success in your research.

Sincerely,

Sheila V. Adams, Ed.D.
Interim Vice President
for Academic Affairs

SA:wr

cc:  Mr. Jim Davidson
     Dr. Lorraine Hamm
APPENDIX F

AGENCY CONSENT FORM
April 27, 2000

Alan Covin, MD FAAC
200 West Hospital Drive
Hattiesburg, MS 39402

Dear Dr. Covin:

Thank you for your interest in my research proposal. I am currently completing course work for my Master's degree at the Mississippi University for Women. My research study is entitled Congestive Heart Failure in Elders and the Relationships Among Adherence Behaviors, Depression and Self-efficacy. The purpose of the study will be to explore the relationship among adherence behaviors, depression and self-efficacy in elders living with CHF. All data will be collected via self reporting instruments structured to measure adherence behaviors in elders with CHF, depression, and self-efficacy.

To protect anonymity of the patient, I am requesting that your clinic affix the address labels of all patients diagnosed with CHF, age 60 and older, onto the survey packets. The survey packets will be metered with postage and ready for mailing once they are addressed. One reminder post card will be sent out utilizing the same address procedure. The patients will be provided with a self-addressed, stamped envelope to return the survey questionnaires. My target population is 75 patients diagnosed with CHF, age 60 or older.

Upon completion of my research, I would be delighted to share a copy of the results with you and your staff. Any recommendations you may have to enhance this study would be appreciated. I am enclosing a duplicate letter for your records. Please return the signed original to me as documentation of your consent to participate in this research study. Thank you for your time and assistance with my research.

Sincerely,

Sue Temple, RN

Dr. Alan Covin  
5/1/00

Date
APPENDIX G

INFORMED CONSENT LETTER
May 2, 2000

My name is Sue Temple. I am a registered nurse currently completing course work for my Master of Science in Nursing degree at Mississippi University for Women. I am conducting a research study as part of the requirements for graduation. I have worked as a nurse for many years with patients who live with heart problems. My research study is about patients, like yourself, who live with congestive heart failure (CHF). I want to learn from you what nurses and doctors can do to make living with CHF better. The information I learn from this research will be shared with other nurses and doctors who take care of patients with CHF.

If you would like to help me in this study, please fill out the questions in this packet to the best of your ability. You do not have to participate in the study. This survey will NOT affect your Medicare, Medicaid, or insurance coverage in any way whether or not you decide to participate. Your physician’s office mailed this packet to you as a help to me. The survey is completely confidential. Please DO NOT put your name on any part of the survey. There is a stamped and addressed envelope provided for you to return the survey to me if you decide to participate in the study. Your return of the questionnaire implies your consent to participate.

I have included a gift as a small token of my thanks for helping me learn more about patients with heart failure. Please answer the questions and mail the survey back to me as soon as possible. Keep the enclosed gift even if you choose not to help me with this research study. Thank you so much for taking time today to read about my research study. I hope you will be able to participate in the study!

Sincerely,

Sue Temple, RN, BSN
MUW Graduate Student
APPENDIX H

FOLLOW-UP POSTCARD
THANK YOU . . .

if you have already returned your survey questions about CHF. If you have not filled out the survey BUT are still interested in participating in the study, do so today!

Thank you for your time and efforts to aid in my research.

Sincerely,

Sue Temple, RN