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Congestive Heart Failure Clients' Knowledge Level About Self-Care Measures

Phyllis Savage
Mississippi University for Women

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CONGESTIVE HEART FAILURE CLIENTS'
KNOWLEDGE LEVEL ABOUT
SELF-CARE MEASURES

by

PHYLLIS SAVAGE

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

COLUMBUS, MISSISSIPPI

August 1998

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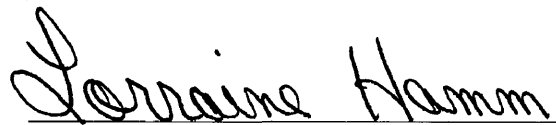
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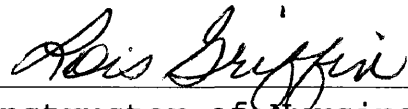
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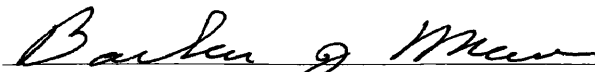
Instructor of Nursing
Director of Thesis



Instructor of Nursing
Member of Committee



Associate Professor of Nursing
Member of Committee



Director of the Graduate School

Abstract

Almost 5 million Americans are living with congestive heart failure (CHF) today with over 400,000 new cases diagnosed annually (American Heart Association, 1997; National Heart, Lung, and Blood Institute, 1996; Konstam et al., 1994). Despite medical advances, mortality rates remain high for CHF. Lack of knowledge was cited as a frequent cause of clients' noncompliance with prescribed self-care regimen. Client education has been indicated as beneficial in promoting a better self-understanding of CHF. In order to successfully provide education to CHF clients, health care providers must first be able to assess clients' prior knowledge about the condition. The purpose of this study was to evaluate the knowledge level about self-care measures among persons with CHF. Pender's Health Promotion Model provided the theoretical framework for this study. The following directional hypothesis guided this study: Congestive heart failure clients will have a greater knowledge about self-care measures score than the established knowledge score. The design of

the study was a nonexperimental descriptive/exploratory survey. A nurse practitioner and an internal medicine physician offices were the settings for this study. The sample (N = 31) consisted of clients with a primary or secondary medical diagnosis of CHF who completed the mailed out surveys and returned them. The researcher-designed Savage Demographic Survey and the Savage Heart Test were the instruments used for the survey study. Descriptive statistics revealed a relatively young sample (57.9%), the majority of whom were African American. A one-sample t test was used to test the hypothesis. Data analysis, $t(29) = 2.489$, $p = .01$, indicated that the participants' achievement of knowledge about self-care measures was significantly deficient. Recommendations for future research include replication with a larger sample size and adequate time for completion of the study. Implications for practice included the routine assessment of clients' knowledge level about CHF self-care before attempting to teach self-care measures.

Dedication

To my daughter,

Erica Savage,

for being as understanding and as
tolerant as a 7-year-old can be
while her mother pursued her dreams
of an advanced education.

Acknowledgments

First, I give thanks to my Lord and God for allowing me to remain strong in order to pursue my degree and complete my thesis. I feel that numerous possibilities have occurred in my life because of You. I thank You for every breath I take.

Thank you, Erica, for your having been such a trooper. I have appreciated your youthful patience. We have kept our motto close at hand, "We can do anything for a year," and we have succeeded. Now, our next adventure will be Disney World!

To my son, Allen Register, it took a long time for me to see the blessing in your decision. It had been a very difficult beginning without you here. I have seen the blessing and now understand the far-reaching significance of your decision. We love you.

To my Mom, Louella Savage, thank you for having been there for Erica on all those Mondays to prepare her for school and make sure she got there safely. Thanks for every weekend she spent with you while I traveled to

school. Thanks for your love and support during this last year as you have given to me all my life.

Many thanks to my sisters and their families for their love and support of us, especially during the summer. I know that your availability has also contributed to my successful completion of this program. I love you all.

Many thanks to my very dear friends, Pearl, Tina, and Brenda, for their undying support and frequent words of encouragement. I greatly love and appreciate your having been there for me. I have always considered you all to be my sisters.

Thank you to Methodist Hospital South for your support and willingness to allow me the time I needed to complete my studies. Also, to my coworkers for their support and encouragement.

I want to thank my research committee members for their valuable support and guidance as I completed this endeavor. I greatly appreciated your words of encouragement and your belief in my ability to succeed. I truly am grateful for your patience and help. I want to

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Thank you MUW for allowing me this opportunity to further my education at your institution. This has been a wonderful learning experience. I feel I have grown tremendously.

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Chapter I

The Research Problem

The American Heart Association (1997) ranks cardiovascular disease (CVD) as the number one killer in the United States today. The National Center for Health Statistics (1997) estimates that over 57 million Americans have some form of CVD. As the population ages and lives longer, these diseases will present a challenge to the health care industry. The American Heart Association ranks coronary artery heart disease second among the different types of CVD prevalent in the United States. The current estimates are that 13,670,000 Americans have coronary heart disease (American Heart Association [AHA], 1997).

The development of CVD is associated with risk factors. These risk factors include hypertension, dyslipidemia, impaired glucose tolerance, cigarette smoking, obesity, and physical deconditioning. Individuals who develop CVD are at high risk for having a stroke or heart attack which can lead to disabling chronic conditions. About 20% of individuals who survive a heart

attack will be disabled with heart failure, a chronic condition which results when the heart is not able to pump blood throughout the body sufficiently to meet nutrient and oxygen demands required for adequate functioning (AHA, 1997).

Almost 5 million Americans are living with CHF today. An estimated 1.4 million individuals with CHF are under the age of 60 years, and the incidence of CHF is even greater after 65 years of age. According to the AHA, the incidence of CHF approaches 10 per 1,000 population after age 65 years. An estimated 400,000 new cases of CHF are diagnosed annually (AHA, 1997; Konstam, Dracup, & Baker, 1994; National Heart, Lung, and Blood Institute [NHLBI], 1996). Despite medical advances with drug therapies, mortality rates among persons with CHF remain high. Konstam et al. (1994) estimated 5-year mortality rates at 50% in spite of these medical advances. Educating individuals about the issues surrounding CHF is germane to primary management of congestive heart failure. However, in order to successfully provide education to CHF clients, health care providers must first be able to assess clients' prior level of knowledge about the condition. The

focus of this study was to evaluate the knowledge level about self-care measures among persons with CHF.

Establishment of the Problem

A diagnosis of CHF carries with it myriad implications related to the finances and quality of life. The rate of hospitalization for CHF increased more than three times between 1970 and 1994 at age 45 to 64 and age 65 and older, with a large absolute increase in the older group (NHLBI, 1996). CHF is the single most frequent cause of hospitalization for people age 65 years and older (AHA, 1997). People in the same age group account for a large proportion of rehospitalization as well.

According to the AHA, hospital discharges for CHF rose from 377,000 in 1979 to 874,000 in 1994. The frequency of hospitalizations is increasing annually among CHF clients (Gillum, 1993; Rich, Vinson, & Sperry, 1993; Shipton, 1996), indicating that home management is often ineffective. The increasing prevalence of CHF is exerting economic stress on the health care industry as well as the clients. In 1993, 2.9 million CHF clients were seen in the doctor's office, while another 65,000 clients received home care (NHLBI, 1996). In 1993, almost \$17.8 billion was spent for the care of CHF patients in hospitals,

physicians' offices, home care, and nursing homes, and additional monies were spent for medications (NHLBI, 1996). The AHA predicts that \$18.8 billion will be spent in 1997 for the management of CHF (AHA, 1997).

In addition to the numerous hospitalizations and billions of health care dollars spent annually in the management of CHF, the individuals who suffer from this chronic disease suffer life-altering debilitating conditions which can interfere with day-to-day living. CHF clients' quality of life can be adversely affected in areas related to physical and occupational function, psychological state, social interaction, and somatic sensation. Grady (1993) identified (a) physical and occupational function as related to activities of daily living and jobs; (b) psychological parameters as related to fear, anxiety, and depression; (c) social interaction as related to the constellation of family, vocation, and community; and (d) somatic sensation as related to symptoms which influence quality of life, such as pain, shortness of breath, and nausea. Other components related to quality of life were based on the clients' subjective opinion of the chronic illness, such as life satisfaction, self-esteem, general health perceptions, and sense of

well-being (Grady, 1993). Objective parameters were also used to evaluate CHF clients' quality of life related to general health and socioeconomic status. The primary objective of the health care industry is overall improvement of the quality of life of clients with CHF.

Several research studies have been conducted revealing a variety of factors that influence rehospitalization and quality of life for CHF clients. Many of the identified factors were controllable and included noncompliance with medication regimens, lack of knowledge about symptom management, self-care measures, premature discharge, medication related problems, and failing support systems (Jaarsma, Halfens, & Saad, 1996; Monane, Bohn, Gurwitz, Glynn, & Avorn, 1994; Naylor, Brooten, & Jones, 1994). Many of these studies were hospital based and focused on medication compliance and developing educational programs designed to increase adherence to medication regimen (Bushnell, 1992; Fujita & Dungan, 1994; Harvard Medical School Health, 1996; Schneider, Hornberger, Booker, Davis, & Kralicek, 1993). One researcher initiated an educational program outside the acute care arena to reinforce or enhance clients' knowledge about chronic illnesses and self-care measures

to employ in self-management (Shipton, 1997). Although no significant difference was revealed in the study related to decreased rehospitalizations in the experimental group, the researcher stated that the CHF clients reported having more knowledge about their chronic illness and self-care measures than before the study.

As primary health care providers, nurse practitioners have an opportunity to provide CHF clients with an educational opportunity to learn more about self-management of their illness, thus resulting in greater independence for self-care. Before an educational program can be implemented, however, nurse practitioners must be aware of the knowledge CHF clients already possess about self-care measures. Therefore, the problem addressed in this study was to assess the knowledge of self-care measures of CHF clients.

Significance for Nursing

Nursing's ultimate goal is maintenance and/or enhancement of clients' present state of health and well-being. Nurses and nurse practitioners are in a unique position to make a positive impact on CHF outcomes because of the high contact shared in providing health care for clients. Nurse practitioners function in many different

roles concerning client care. Nurse practitioners are client educators, advocates, researchers, and caregivers and, therefore, play an important role in helping to shape CHF clients' health care practices. Benner (1984) identified assessor as a specific subrole of the expert nurse. Findings from this study will contribute knowledge regarding the professional role of the nurse practitioner.

Continued research into areas concerning client education is a must. It is important to have a baseline assessment of clients' knowledge level in order to determine what interventions are most beneficial to the targeted population of an educational program. Patient education can serve as an empowering force, helping clients to realize the importance of having an active role in their health care management. As client advocates and educators, nurse practitioners need to continue to study the impact of patient education on self-care measures and study any differences to aid in refining future educational programs to increase client independence and adherence for self-care.

Health promotion and disease prevention are issues of primary focus in the health care industry today. Nurses and nurse practitioners should be provided with

educational armament in order to be initially prepared for assisting clients with chronic illnesses toward better self-care management. Preparation of nurses and nurse practitioners through education can provide the initial background for administering health care provisions to all clients, including nursing's hallmark of patient education. Efforts to comprehensively assess knowledge levels in order to educate clients about self-care behaviors pertinent to their diagnoses or conditions can provide for earlier intervention when clients recognize even the slightest change in health status. Clients with increased or enhanced self-care knowledge can help health care providers in the management of the condition.

Theoretical Framework

Pender's (1996) Health Promotion Model provided the theoretical framework for this research study. Pender considered the Health Promotion Model to be an approach-oriented model which attempts to depict the multidimensional nature of individuals interacting with their environment as they pursue health. According to Pender, health promotion consists of activities engaged in by individuals, families, communities, and society which are directed toward increasing an optimal level of

wellness functioning and actualizing health potentials. For clients with a chronic illness, such as CHF, engaging in self-care behaviors represents a conscious effort to establish a level of wellness functioning and actualizing health potentials in the presence of chronic illness.

Self-care measures are viewed as positive steps in managing aspects of a chronic illness relating to the client with CHF. Pender (1996) proposed that the Health Promotion Model has unique combinational properties, from predominantly health-promotion or approach-oriented motives, through mixed motives of both approach and avoidance, to predominantly avoidance-oriented or protective motives. The benefit to CHF clients who are engaged in self-care measures can be viewed as having several benefits. The use of self-care measures by CHF clients can (a) increase client participation in health care decisions, (b) maintain varying degrees of physical functioning productive for activities of daily living, (c) prevent social isolation, (d) minimize residual disability from disease and avoidance of premature death. Providing an educational program about self-care measures for CHF clients is only one of the numerous components of health promotion.

Pender (1996) utilized the Health Promotion Model as a conceptual framework for integrating nursing and behavioral science perspectives on factors influencing health behaviors. The goal of the model was to examine or explore the complex processes of human character which drive an individual to engage in behaviors directed toward health enhancement. Pender acknowledged that an immediate threat to health has motivational drive, but threats to distant health lack the same power for drive. Thus, focus on the positive aspects of engaging in health-promoting behavior for future health can be applicable across the life span arena. For the CHF client, engaging in self-care measures to monitor weight can enhance physical comfort and ability to perform daily activities of living, as well as avoid an exacerbation of the illness before the presentation of symptoms.

Seven assumptions of Pender's Health Promotion Model were as follows:

1. People seek to create conditions of living through which they can express their unique human health potential.
2. People have the capacity for reflective self-awareness, including assessment of their own competencies.
3. Persons value growth in directions viewed as positive and attempt to achieve a

personally acceptable balance between change and stability.

4. Individuals seek to actively regulate their own behavior.

5. Individuals in all their biopsychosocial complexity interact with the environment, progressively transforming the environment and being transformed over time.

6. Health professionals constitute a part of the interpersonal environment, which exerts influence on persons throughout their life span.

7. Self-initiated reconfiguration of person-environment interactive patterns is essential to behavior change. (Pender, 1996, p. 55)

According to Pender (1996), these assumptions were expressive of the significance of clients' roles as active participants in curtailing, stabilizing, and adopting any health behaviors that were a positive drive. Clients also accepted the accountability for modifying the environment influential on health behaviors based on these assumptions. Individuals' ability to determine that their knowledge level base lacks significant information regarding self-care measures specific to their chronic condition can be viewed as reflective self-awareness. Once knowledge deficit has been revealed, individuals can learn ways to improve their knowledge level through deliberate efforts to gain more knowledge.

Pender (1996) identified several variables applicable to CHF clients for assessment of knowledge level related to self-care measures and are modifiable through nursing interventions. Perceived self-efficacy is closely related to the focus of this study. The variable of perceived self-efficacy referred to one's ability to determine if one has the skills and knows what to do with those skills to engage in behavioral change. Individuals judge self-efficacy based on performance of self-evaluations in previous behaviors, confidence from others in the ability to successfully perform, physiologic states, vicarious learning from others, and evaluation (Pender, 1996). CHF clients who believe they are skilled in a behavior, such as weight monitoring, are likely to have continued participation in that behavior and attempt to become skilled at other behaviors which can assist in managing self-care needs.

Pender (1996) also identified prior related behavior as a strong motivational factor toward participating in health-promoting behaviors. The experience of any previous behavior, positive or negative, leaves its impression on the individual's brain as to what the individual experienced with the behavior. Pender stated that prior

behavior is proposed as shaping all behavior-specific cognition and affect. Pender implicated the nurse as the advocate to help the client shape positive behavioral history for the future by focusing on the benefits of a behavior, and engendering high levels of efficacy and positive affect through successful experiences of performances and positive feedback. The nurse practitioner can assist clients with behavioral change by having an initial assessment of prior knowledge about CHF.

Another significant variable was perceived benefits of actions which are mental representations of positive or reinforcing consequences of a behavior that influence the decision to engage in the behavior (Pender, 1996). The ability to imagine a probable outcome as positive can be encouraged by the nurse practitioner by utilizing clients' recent recall of behaviors that may have been beneficial for their health status.

A fourth variable, perceived barriers to action, can affect intentions to engage in behaviors and may be real or imagined. Pender (1996) identified these barriers to action as the unavailability, inconvenience, expense, difficulty, or time-consuming nature of a particular action. The nurse practitioner can assist clients with

these concerns and needs by making appropriate assessments and referrals.

A fifth variable, activity-related affect, is composed of three components: activity-related, self-related, and context-related. According to Pender (1996), activity-related affect referred to the feeling associated with a behavior before, during, and after enactment of the behavior. Providing the CHF clients with an environment conducive to learning health promotion behaviors for self-care measures was an important ingredient for success in obtaining realistic skills applicable to their health status.

The last two variables are related to behavioral outcomes. According to Pender (1996), commitment to a plan of action stimulated a behavioral event. The individual with the intention to engage in a behavior must develop a plan with attention to a specific time and place and identify persons required to assist in the process. The nurse practitioner acts as an assistant to the CHF client when both identify a specific set of actions for the client to commit to and the nurse practitioner provides some tangible reward or reinforcement to help the client maintain the behavior. Identifying knowledge deficits and

then providing the CHF client with information about self-care measures specific to the chronic illness are contracting for behavioral change.

The last variable identified by Pender (1996) pertinent to health-promoting behaviors is competing preferences. Competing preferences are alternative behaviors that an individual can exert some control over. For example, if it is determined that they are aware of self-care deficits, CHF clients can then knowledgeably choose foods beneficial to controlling daily salt intake or eat without regard to salt content of foods.

In summary, Pender, in the Health Promotion Model, viewed health as a positive state and the individual is assumed to have a drive toward health. The individual's definition of health influences what health behavior changes will be attempted. Focus of control or self-efficacy determines perception of ability to change health (Pender, 1996). The Health Promotion Model was appropriate because the goal of the descriptive survey was to determine CHF clients' knowledge levels about CHF and self-care measures implemented in the management of CHF. By determining what is already known about CHF from clients, then an appropriately designed educational

program can be developed with specific focus on self-care measures necessary for self-management of a chronic condition. The benefit was that by determining what clients' knowledge levels were and their willingness to participate in an educational session could help direct development of future educational programs based on needs assessment. The Health Promotion Model was utilized in this study because individuals are human beings with the capacity for self-evaluation of their knowledge levels regarding their health care needs realistically. These individuals also are capable of making decisions to change based on self-evaluation to increase knowledge levels.

Assumptions

For the purpose of this research, the following assumptions were made:

1. Individuals are capable of self-evaluation and making changes in behavior as a result of self-evaluation conclusions.

2. Motivation to engage in health-promoting behaviors is stimulated by the desire to maintain an optimal level of functioning in the presence of a chronic disease.

3. Clients perceive an optimal level of functioning in the presence of chronic disease as a realistically obtainable positive state to be actively pursued.

4. Study participants will answer the heart test questions and demographic survey honestly.

5. Knowledge of self-care measures is a measurable phenomenon.

6. The Savage Heart Test is a reliable instrument for measuring CHF clients' knowledge level about self-care measures.

Statement of the Problem

Lack of knowledge about self-care measures that clients with CHF as a chronic disease can utilize in self-care management has increased the risk of exacerbation of CHF, resulting in hospitalization and decreased quality of life. Konstam et al. (1994) identified noncompliance as a significant factor in the cause of morbidity and unnecessary hospital admissions in heart failure, stating that educational programs or support groups should be a routine part of the care of the patients with heart failure. Comprehensive assessment and educational programs for community dwelling and nonhospitalized CHF clients is limited. Prior to initiating an educational program, the

present knowledge of CHF clients must be determined in order to develop a program to provide accurate information about self-care measures. The purpose of this study was to assess the knowledge levels of CHF clients about self-care measures commonly used in day-to-day self-management of a chronic illness, particularly CHF.

Research Hypothesis

The following directional research hypothesis guided this study: Congestive heart failure clients will have a greater knowledge about self-care measures score than the established knowledge score.

Definition of Terms

For the purpose of this research, the following terms were defined:

Congestive heart failure clients: "Congestive heart failure is a broad term denoting conditions in which the heart's pumping capabilities are impaired" (O'Toole, 1992, p. 345). "CHF clients are persons who receive health care in an ambulatory care setting, especially when health maintenance rather than illness care is the primary service provided" (p. 320). Operationally, CHF clients were older adults, aged 40 to 89 years, with a medical

diagnosis of primary or secondary CHF who were being managed in a primary care setting and who voluntarily agreed to participate in the study as evidenced by returning filled out demographic surveys and questionnaires about self-care measures in CHF clients.

Knowledgeable about self-care measures: "Knowledge is the state of knowing, range of information or understanding, learning, the body of facts accumulated by mankind" (Agnes, 1996, p. 344). "Self-care is the practice of activities that individuals initiate and perform on their own behalf in maintaining life, health, and well-being" (Orem, 1995, p. 8). Therefore, being knowledgeable about self-care measures is determined by the accumulated information individuals have about engaging in activities which help with maintenance of their own life, health, and well-being. Operationally, being knowledgeable about self-care was ascertained by scores on the knowledge portion of the Savage Heart Test. A mean score of 12 on the Savage Heart Test was indicative of being knowledgeable about self-care measures specific to congestive heart failure. Self-care measures were operationalized as follows: Medications were the drugs prescribed by the health care provider in an effort to improve the functioning ability

of the ill heart. Dietary management was the ability of CHF clients to recognize foods high in calories, salt, and cholesterol to be limited or eliminated in their diet regimen, as well as understanding the effect of excessive fluid intake on the body. Weight monitoring was the act of documenting a daily scale weight on a log or calendar for day-to-day comparisons and of recognizing and reporting a weight gain of 2 to 5 pounds in 1 to 2 days to a health care provider to allow for early intervention to prevent worsening of CHF.

Other self-care measures operationalized for this study are addressed. Exercise was the performance of physical activity such as a daily walk to improve tolerance and endurance of CHF clients for activities of daily living. Stress was any adverse element in the CHF client's environment, internal or external, which can act as a distraction from attending to self-care measures in the management of a chronic illness. Stress management focused on minimizing or eliminating distractions or adverse events within the person's control which can interfere with self-care management. Signs and symptoms were any observable and subjective experience significant to the chronic illness that can be monitored and reported

to the health care provider, such as "chest pain or pressure, shortness of breath, dizziness or fainting, constant cough, 2-5 pound weight gain in 1-2 days or week, swelling of hands and/or feet, pain in the abdomen or bloating, and bleeding or bruising easily" (AHA, 1993, pp. 1-2; Purcell & Fletcher, 1994, p. 38).

Summary

CHF is a chronic condition which can have devastating effects on individuals' lives and the health care industry. Lack of knowledge regarding specific self-care measures that CHF clients can utilize in day-to-day management of their condition can result in human suffering and frequent hospitalizations. In order for health care providers to provide effective client education, assessment of baseline knowledge levels is essential for determining what information about self-care measures specific to CHF would increase clients' knowledge about the condition and provide for early recognition of possible exacerbation of the condition. The purpose of this study was to assess the knowledge levels about self-care measures of CHF clients.

Chapter II

Review of Literature

Nurse practitioners are key players in the health care arena. Numerous opportunities are available to encourage clients to become active participants in the management of their health care needs. Nurse practitioners should assess knowledge levels of clients in order to determine what interventions are needed. Interventions such as educational programs could then be specifically tailored to the client population. Nurse practitioners need to employ research efforts to determine what educational interventions can be used to help clients with chronic illnesses be better self-care managers. A review of literature was done to explore the prevalence of baseline knowledge level assessments of CHF clients regarding self-care measures used in self-management of a chronic illness prior to or in conjunction with an educational intervention. One study identified in the review of literature concerning CHF was conducted by Bushnell (1992). Bushnell described the effect of a self-

care teaching plan on elderly clients' knowledge level regarding the disease and the individual's ability to participate in self-care activities after receiving education. Bushnell's hypothesis stated that preventive nursing interventions for CHF clients can improve quality of life and decrease health care costs. The researcher identified two variables to measure outcomes. These were hospital readmissions over a 6-month interval after discharge from the hospital and the ability of the client to follow a self-care protocol. The researcher developed a self-care lesson plan that declared the expectations of the educational intervention and defined the variables.

Bushnell (1992) utilized a quasi-experimental, one-group, pretest/posttest design to implement the study. A convenience sample of elderly clients admitted in the hospital over a 2-year period with a primary diagnosis of congestive heart failure with no evidence of myocardial infarction was used. The research sites consisted of five medical teaching units. Signed consent was obtained from subjects who met study criteria. A subject's ability to participate was determined by evaluating his or her mental status with a short mental status questionnaire. The clients were admitted or rejected for participation based

on the results of the mental test, although specific requirements were not identified by the researcher.

The self-care protocol intervention was implemented initially by Bushnell (1992). The instrumentation was a researcher-developed booklet designed with health care information for the CHF clients provided by the American Heart Association. The procedure was to have the subjects read the book, and then answer questions 24 hours later to evaluate their knowledge level. If the subjects were knowledgeable, the subjects were given control over taking their medications, daily weights, and diet selections during their hospitalization. The researcher informed other health care team members of the self-care medication regimen. The pharmacist provided individual instructions to subjects about their medication schedule, while the staff nurse checked on the patient after medication times to ascertain whether medications had been taken by the subjects. Follow-up was evaluated after discharge at 3- and 6-month intervals.

Bushnell (1992) analyzed the pretest to determine the subjects' knowledge about CHF symptoms, diet and medication noncompliance, and perceived reasons for hospitalization before the self-care intervention. A very

small percentage of the subjects actually weighed themselves on a daily basis. The result of the self-care intervention revealed that only 16 of the subjects were able to follow the intervention while in the hospital. Bushnell stated that making comparisons with subjects not able to follow the intervention was impossible because of too many variable differences among age, gender, education, and income. No statistical analysis was available to evaluate the 16 subjects who followed the intervention. However, Bushnell identified common characteristics shared among the study subjects as being older, less educated, less wealthy, widowed, and living alone.

Bushnell (1992) acknowledged that the effect of self-care teaching initiated in the acute care setting and its effect on the quality of life of the study subjects remain unknown. One third of the subjects died before the study was completed which contributed to the failure of the researcher to determine the impact of the education program. Bushnell's study supported teaching self-care in the hospital to improve clients' ability to follow medication and diet regimens better as well as recognize symptoms associated with congestive heart failure.

Bushnell recommended future nursing studies on implementation of self-care interventions in the acute and clinic settings to evaluate the effects of mortality, morbidity, and quality of life on health care behaviors of clients with chronic illnesses. Bushnell's study provided insight about the effects of a self-care teaching tool on health behaviors of clients. Further, the current researcher used the Bushnell study as a basis for instrumentation development.

A second study conducted by Schneider et al. (1993) was done to evaluate the effectiveness of a medication discharge planning program on hospital readmissions of elderly individuals with CHF. The purpose of initiating the study was to examine the effects of the program on readmissions within 31 days of initial discharge among elderly patients. The researchers hypothesized that clients who received the medication program would have fewer readmissions to the hospital compared to patients who did not receive the program. Problems related to medication regimen were identified and supported by the researchers' literature review. Medication administration problems were related to misunderstanding of the self-administration, misinterpreting the label instructions,

and failure to comprehend changes made in prescriptions. More common obstacles to self-medication administration were identified as patients never having prescriptions filled or discontinuing medications prematurely. Schneider et al.'s literature review supported patient education as having a positive effect on self-administration of medications and resulted in decreased hospital readmissions among the elderly.

The variables in the study were identified in the hypothesis. Hospital readmission within 31 days of discharge was the dependent variable. The independent variable was the medication discharge planning program.

The study was guided by Orem's Theory of Self-Care. Orem defined self-care as a human behavior which is learned and deliberately acted on in the maintenance of one's life, health, and well-being. Orem further defined the self-care agency as the ability to perform activities of self-care on one's own behalf. "Development of self-care agency is aided by experiences, intellectual curiosity and instructions, and supervision from others" (Schneider et al., 1993, p. 44). According to Schneider et al., it is essential that individuals learn new self-care requisites that are necessary for the performance of

adequate self-care. Schneider et al. indicated that patients who practice better self-care in their home environment can circumvent hospital readmissions.

Schneider et al. (1993) used an after only, quasi-experimental design. The medication discharge program was the intervention used with the experimental group. The control group received the hospital's regular discharge planning. Subjects were randomly assigned to the experimental or control group with a coin toss prior to the researchers obtaining any information. A total of 54 patients were selected to participate in the study based on inclusion criteria. Study criteria was admission to the cardiac nursing unit at the participating hospital, admission diagnosis of CHF, able to provide self-administration of medications, and taking one or more medications daily.

The setting for the study was a 600-bed, nonprofit hospital located in the Midwest. The researchers identified CHF as a frequently coded DRG (diagnosis related group) for this Midwest medical center. The study was carried out on a telemetry unit within the medical center. All subjects were approached for consent to participate by the nurse researchers. The researchers

informed all subjects that participation was voluntary and withdrawal from the study could occur at anytime without consequence. Consent forms were signed by each subject. All information pertaining to the study was kept secured to maintain subjects' confidentiality.

Once informed written consent was obtained from the patients who agreed to participate in the study, the charts of subjects in the experimental group were labeled, indicating who to call for discharge planning prior to patients being discharged. The primary researcher trained four individuals to follow the medication discharge planning program specifically detailed for the experimental group. The medication program consisted of the investigators providing consistency in verbal presentation of each prescribed medication, listing its purpose, side effects, and any specific instructions for that medication. The experimental group was also provided medication information on printed medication cards which listed and when to call with questions. The investigators reinforced instructions, corrected misinformation, encouraged patient questions, as well as include available family members in the program. The nurse investigators also had patients describe a daily routine to incorporate

a realistic medication schedule that met patients' needs in the home environment. The researchers also asked the experimental group about problems encountered in taking daily medications, such as forgetfulness and limited budget. Schneider et al. (1993) discussed and mapped out probable solutions with the patients. The exact nature of possible resolutions was not described by the researchers. The control group received the usual patient education provided by the staff on the telemetry. Schneider et al. believed that the control group received varied patient education and that staff assumed that patients possess adequate knowledge about medications on discharge. In this study, the experimental group consisted of 26 subjects, and the control group consisted of 28 subjects.

Schneider et al. (1993) utilized the Fisher's Exact Test to analyze the difference between group readmissions to evaluate the research hypothesis. Fisher's Exact Test, two-tailed, was used to evaluate the demographic data obtained. The demographic data included subjects' gender, marital status, living arrangements, employment, receiving home health care, age, educational level, and number of medications. According to Schneider et al. (1993), the two groups were similar with respect to all demographic data.

Subjects' ages ranged from 43 to 94 years with a mean age of 72.2 years (SD = 10.2). Also, 75.9% of the total patients carried Medicare, 20.4% had commercial insurance, and 3.7% had no insurance coverage. The total number of medications on discharge for the subjects ranged from 1 to 11 (Schneider et al., 1993).

The Fisher's Exact Test was also used to evaluate the number of readmissions between the experimental and control groups. Based on statistical analysis, there was a significant difference related to readmissions between the patients who participated in the medication discharge planning program and those who did not participate ($p = .05$) (Schneider et al., 1993). The experimental group had two patients readmitted during the study period, representing 7.7% of the entire group, while 92.3% ($n = 24$) were not readmitted during the day. On the other hand, the control group had 8 patients readmitted to the hospital within 31 days after initial discharge, representing 28.6% of the total group. In comparison to the experimental group, only 71.4% ($n = 20$) of the control group were not readmitted to the hospital during the study.

The study supported the hypothesis that if patients were provided with a medication discharge planning program prior to discharge, these patients would be more knowledgeable about their medication regimen. Therefore, patients who received the medication discharge planning program would have improved self-care agency and fewer rehospitalizations than those who did not receive the program.

Schneider et al. (1993) made several recommendations related to this preliminary study. One recommendation concerned the effect of extraneous variables, such as severity level of CHF on subsequent readmissions and knowledge level entry to study. Schneider et al. suggested that these extraneous variables be measured and used as covariates in future studies. The researchers also recommended that readmission not be the only outcome measure of future studies. Future studies should include length of stay, cost to the hospital, and knowledge and satisfaction measures. Another recommendation suggested using a variety of diagnoses, larger sample size, and random assignment in an attempt to equalize groups.

The Schneider et al. (1993) study has implications for the current research study because it is evidence of

continued efforts on the part of nursing research to find ways to provide pertinent patient education in an effort to enhance self-care among patients. Schneider et al. (1993) stressed the importance of providing patients with education prior to discharge from a hospital with significant time to reinforce education and answer any questions of patients. Schneider et al. also tried to include the patients' family in the medication discharge planning program. However, the efforts of Schneider et al.'s study warrant application to the community dwelling individual with a chronic illness. The hospital must not be seen as the only opportunity with a chronic illness. The hospital must not be seen as the only opportunity that a nurse may have to provide patient education. The Schneider et al. study focused on an education program for CHF clients prior to hospital discharge, while the current study ascertained knowledge levels of CHF clients in a primary care setting.

Another study by Rich et al. (1993) was conducted to study the prevention of readmission in elderly patients with CHF. The purpose of the study was to evaluate the "feasibility and potential efficacy of a multifaceted approach to readmission prevention in an elderly CHF

population" (Rich et al., 1993, p. 585). The study was a prospective, randomized pilot study. The multifaceted intervention consisted of four major components intended to delay or prevent hospital readmission among the elderly CHF population.

The setting for the study was a Jewish Hospital at Washington University. The hospital had a 550-bed capacity. It was also described as a secondary and tertiary care teaching facility. Subject selection at the hospital occurred between April 1988 and March 1989. Subjects were 70 years or older. Inclusion criteria was a definitive diagnosis of CHF as evidenced by radiographic view of pulmonary congestion. The diagnosis was further determined by a staff cardiologist, history, and physical findings of CHF, and improvement of associated symptoms after receiving diuretic therapy.

Rich et al. (1993) extracted a total of 261 subjects for the pilot study. The subjects were stratified into readmission risk categories. This categorical typing had been previously established by another research study at the same hospital. The four risk factors used to divide the subjects into groups were "four or more prior hospitalizations within the preceding five-year interval,

previous history of CHF, hypocholesterolemia (< 150 mg/dl), and right bundle branch block on the admitting electrocardiogram" (Rich et al., 1993, p. 586). The risk categories for readmission were labeled low, moderate, and high. Low-risk was equal to zero risk factors, moderate was one risk factor, and high-risk patients had two or more of the risk factors. Patients considered low risk (n = 52) were excluded from the study. Several other exclusion criteria were employed in determining subject selection, such as living outside the study area, discharge to a nursing home, nonpreventable readmissions, mental incapacity or psychiatric disturbance, patient or MD refusal (Rich et al., 1993). The actual sample size was 98 patients with 61 referred to as moderate risk and 37 as high risk for admission. The remaining 98 subjects agreed to participate in the study and signed consent forms. Next, subjects were stratified based on the risk category and randomly assigned to experimental or control group on a 2:1 basis. The experimental group received the study intervention and the control group received the usual or conventional medical care of their physicians (Rich et al., 1993).

The study intervention had four parts: "Intensive education about CHF and its treatments, a detailed analysis of medications with specific recommendations designed to improve compliance and reduce adverse effects, early discharge planning, and enhanced follow-up through home care and telephone contacts" (Rich et al., 1993, p. 586). Experimental group subjects received individualized patient education which included daily visits from the research nurse. During these visits, the research nurse discussed the diagnosis, symptoms, treatments, follow-up care, and prognosis of CHF with the aid of a patient education book specifically designed by the researchers for the elderly CHF client (Rich et al., 1993). Experimental group subjects also received intensive dietary instructions from a registered nurse during daily visits. All the subjects had detailed medication reviews daily and were provided with written information on medication cards and charts about individualized doses, timing, and side effects (Rich et al., 1993). Subjects were also provided with education about the importance of daily weights as well as provided with weight charts for documentation.

Several days before discharge, the geriatric cardiologist reviewed subjects' medications. The physician made recommendations to discard unnecessary medications, decrease dosing intervals, and simplify the regimen wherever possible (Rich et al., 1993). In some subjects' cases, the number of medications was decreased by 25 to 40% and consolidated into a twice daily or three times daily dosing regimen (Rich et al., 1993). The experimental group members were also interviewed by the medical social worker during hospitalization to lay the discharge planning foundation, provide assistance and appropriate referrals where needed, and provide emotional support. A home health nurse also visited the experimental group to assist with coordinating the discharge from hospital to home.

After the collection of data pertinent to the study regarding participants' history, physical examination, laboratory, cardiac tests, and overall hospital course, the study subjects were tracked for 90 days after discharge from the hospital. The variables of outcome measures were related to readmission rates, time to readmission, hospital days, and first readmissions. The overall readmission rate for all subgroups of the study

during the 90 days was in the range of 27.5% to 47.6% with a mean of 37.8% (Rich et al., 1993). The experimental group's rate was 27.1% lower (33.3% vs. 45.7%) than the control group. However, this variable did not reveal any statistical significance. According to Rich et al, about half of the first readmissions occurred in the first 30 to 90 days, one third in the second 30-day set, and one sixth in the final 30 days of the 90-day follow-up. However, no statistical significance was evidenced by the study intervention group related to this variable. However, looking at the difference between the high-risk groups for readmission revealed that the study intervention group members were readmitted earlier. Rich et al. explained this effect was possibly influenced by the intervention's improving rated patients' knowledge to recognize early signs of negative changes in their health status and seek medical assistance promptly.

Overall, a total of 472 hospital days were utilized by the study participants, the experimental group had 272 days, and the control group had 200 days with means of 4.3 and 5.7, respectively. However, the moderate-risk group spent an average of 3.5 days fewer in the hospital than the control group, for a difference of 52.2%. On the other

hand, the high-risk experimental group spent 2.1 more days in the hospital than the control group, but there was no statistical significance.

In reference to first readmissions, Rich et al. revealed that 57.1% of the control group subjects were readmitted with CHF compared to 35% for the experimental group although the findings were not considered significant after statistical evaluation. Also, no significance was found with regard to preventability of readmission or prevalence of potential factors that may lead to readmission between the control and experimental groups, such as medication or dietary noncompliance. The researchers utilized the Fisher's exact two-tailed test to compare differences between the groups related to readmission rates. The Mann-Whitney rank sum test was used to compare the number of days of hospitalization between the groups (Rich et al., 1993). Multiple linear regression analyses were used to adjust for baseline differences concerning age, comorbidities, New York Heart Association class, and previous history of myocardial infarction, all of which showed no statistical significance.

In summarizing the research analysis, Rich et al. (1993) stated that the data

. . . indicated that study intervention was associated with a 42% reduction in readmissions and 52% reduction in hospital days in the moderate-risk subgroup. Although the effects were not statistically significant, the magnitude of benefit clearly warrants further investigation in a larger trial. (p. 589)

In contrast, no statistical significance was revealed with the high-risk groups related to readmission after the experimental group received the treatment. Rich et al. speculated that this group may need a different approach (1993).

Rich et al. made a number of recommendations that could benefit future research efforts such as increased study group size to strengthen statistical power to thoroughly assess the intervention. Another recommendation was full disclosure of relevant data about the various components of the study for future replication by other researchers to help validate the intervention program. A third recommendation was to provide information about the cost-effectiveness of the treatment strategy.

The Rich et al. (1993) research study was germane to this study because it stressed the importance of using a nonpharmacological, multidisciplinary approach to treat elderly patients who have congestive heart failure. Part of such an approach includes the use of comprehensive

assessment and education. The focus of the current study includes comprehensive assessment which begins with an initial baseline assessment of clients' knowledge level. According to Rich et al. (1993), this approach may help to reduce readmissions and total hospital days during short-term follow-up for some patients, and serve to improve quality of life by providing specific information geared toward the needs of the elderly.

The use of a nonpharmacological, multidisciplinary approach to client self-care needs can serve as a marker in determining the baseline knowledge levels of individual's primary care setting and establishing therapeutic educational programs easily accessible from this setting. Transference of such a health care team approach to primary care is warranted in the continuing effort to improve client's self-care behaviors. One way of integrating this approach would be to hold community health care specific forums with various individuals who can help clients learn about valuable community resources available and how to assist these clients in obtaining some of these services from the primary care arena. In order for the nurse practitioner to effectively educate CHF clients about self-care measures, obtaining a baseline

knowledge level will provide additional direction for future planned educational programs. The current researcher endeavored to evaluate CHF clients' knowledge about self-care measures before consideration of plans to improve or change knowledge. The focus of Rich et al.'s study was on decreasing hospital readmissions and length of stay in at-risk groups with CHF.

In another study, Fujita and Dungan (1994) developed a protocol to evaluate the nursing diagnosis of high risk for ineffective management of a therapeutic regimen. This diagnosis was reflective of the client's ability to perform self-care activities essential to management of a chronic illness such as CHF. Fujita and Dungan preferred to use ineffective management instead of noncompliance to defer any negative connotation toward a client's self-care behaviors. Health care providers are more effective in assisting a client in adapting positive self-care behaviors when the client is not made to feel inadequate.

Fujita and Dungan (1994) identified knowledge deficit as the major obstacle in maintaining the prescribed medication regimen among CHF clients. Clients' lack of knowledge regarding the importance of adhering to a prescribed medication regimen often leads to the

resurgence of symptoms requiring readmission to the hospital for stabilization of the CHF episode. Other factors that contribute to hospital readmission were nonadherence to diet regimen, failure to seek medical attention when symptoms recurred, inadequate discharge planning and follow-up, and poor social support systems. Fujita and Dungan hypothesized that comprehensive teaching of the client, "supported by a therapeutic nurse-client relationship, was the most important factor in the promotion and maintenance of a prescribed medication regimen among clients with congestive heart failure" (p. 75). The purpose of the protocol was to utilize the nursing diagnosis to identify clients at risk for poor self-care management and provide an educational intervention to enhance clients' knowledge and self-care behaviors.

Fujita and Dungan (1994) used Orem's Self-Care Deficit Theory as a theoretical framework with specific application of Orem's supportive-educative nursing systems. The researchers cited Orem's view of the individual as equal beings with the potential to develop the intellectual and practical skills and the motivation necessary for self-care. Fujita and Dungan were guided by

Orem's belief that nurses can help clients overcome self-care deficits by providing essential information related to the client's illness in an effort to help with self-management. The researchers quoted Orem's definition of self-care in explaining the actions that clients must perform and maintain to establish a functional level of optimal health. According to Fujita and Dungan, individuals who are ill and receiving treatments for that illness must learn new self-care requisites in an effort to eliminate or minimize health-deviation self-care.

Fujita and Dungan (1994) utilized a nonexperimental and descriptive case study approach for analysis of clients' self-care behaviors during the immediate post discharge period. A convenience sample was extracted from clients admitted to a telemetry unit in a hospital setting. A total of five clients were selected to be in the study. All subjects met inclusion criteria which were identified as a primary diagnosis of congestive heart failure and an extensive cardiovascular history of complications such as an MI, diabetes, and stroke. (Fujita & Dungan, 1994). Also, Fujita and Dungan gave preference to clients who were most likely to have a hospital readmission because of a complex medication regimen,

living alone, history of hypertension and/or CHF, and numerous previous hospitalizations.

The first step in initiating the protocol began with the researchers developing a therapeutic relationship with study subjects to encourage motivation to be responsible for self-care (Fujita & Dungan, 1994). The subjects' knowledge about health management skills and attitudes toward health was evaluated. The protocol study included assessment of subjects' financial and transportation concerns, support systems, provision of positive feedback to enhance self-reliance, visual aids about CHF, comprehensive review of medications, individual medication guidelines, medication schedules with a calendar, and follow-up care with the primary health care provider. Follow-up telephone calls to subjects were used to assess post-discharge management with self-reports.

Fujita and Dungan (1949) discussed each study subject's attitude and comprehension of his or her medical status, steps used to enhance self-care behaviors, and self-reports obtained with follow-up telephone calls. These researchers found that high risk for ineffective management of a therapeutic regimen related to knowledge deficit (Fujita & Dungan, 1994) was a reliable nursing

diagnosis for all clients except one. This client did not believe that he needed the help of the nurse and left all his health care issues in the hand of his physician.

A second client experienced a rehospitalization for CHF. The client, who had previously reported having a good understanding of CHF and self-care needs, was found to lack accurate information about diet and medications. The client's misconceptions were clarified by the researcher and a dietitian. The client was provided positive feedback during the learning sessions. She declared she had a better understanding and would follow the prescribed regimen. On follow-up telephone call, the client reported that she was doing well.

The third client had been admitted with CHF and had coronary artery bypass surgery. This client had poor knowledge of his medications and diagnosis and was extremely dependent upon his wife. Although seemingly weak and frail, the client was able to participate in the learning sessions. The client's wife was also given instructions to help the client with self-care needs. The follow-up telephone call revealed that the client was managing his self-care needs well with the assistance of

his wife. The client's son was also available to provide for the couple's transportation needs.

The fourth client admitted with CHF and angina underwent coronary angioplasty. This client was very knowledgeable about her medications and disease. Upon discharge from the hospital, the client resided with her son during immediate convalescence. The follow-up telephone call revealed that the client had returned to independent living and was managing self-care needs without difficulty.

The fifth client admitted with CHF underwent cardiac catheterization which showed 2+ mitral regurgitation. The treatment was medications only. This client had only minimal knowledge of his medications and was attentive to teaching provided, but the client lacked interest in learning about his disease process. During the follow-up telephone call, the client reported experiencing dizziness when getting up. The researcher reminded the client to change positions slowly because of the medications he was taking. Otherwise, the client reported his weight as stable and denied experiencing any dyspnea or edema. The client's family was supportive and provided for

transportation needs to the physician's office (Fujita & Dungan, 1994).

Fujita and Dungan (1994) made recommendations for modifying the protocol such as a second follow-up telephone call. Other significant suggestions related to creating a nurse-client self-care contract, identifying motivating factors, and developing support groups for CHF clients. The researchers acknowledged that this study was a preliminary investigation. To evaluate the statistical significance, application of the protocol to a large group could be utilized to evaluate long-term outcomes on the shift from dependency to self-care management (Fujita & Dungan, 1994).

The study differs from the current study because it was done in the acute care setting while the current study was conducted using nonhospitalized, community dwelling individuals who met the study criteria. The Fujita and Dungan study was similar to the current study because the educational intervention was precluded by an initial baseline assessment of the subjects' knowledge about CHF with a holistic focus. Fujita and Dungan provided valuable insight into the need to establish a trusting relationship between health care providers and clients. Clients will be

more receptive to information if they feel that the health care provider respects and values them. The research also supported the need for the current study by underscoring the need for comprehensive client knowledge base assessment before instituting interventions.

The previous research studies were initiated from the acute care setting of the hospital with limited follow-up after clients were discharged. Shipton (1997) conducted a comparative study to evaluate the effectiveness of an educational intervention on hospital readmission for home health clients with CHF. The purpose in implementing the study was to evaluate an educational tool that would help to reduce the number of CHF hospital readmissions in a given period (Shipton, 1997). The researcher determined after the literature review that CHF was considered a medical condition responsible for a significant percentage of hospital readmissions. Shipton's (1997) research question asked if

. . . clients with a primary or secondary diagnosis of CHF who received home health care and a systematic education program would be less likely to be readmitted to the hospital or have a shorter length of stay (LOS) if readmitted than home health clients who did not receive the educational program. (p. 171)

Shipton (1997) hypothesized that the educational program would reduce the number of hospital readmissions and decrease the length of stay of clients who were readmitted. The elderly population has been identified as the most frequent utilizer of inpatient hospital services for exacerbation of chronic illnesses such as CHF and COPD. The independent variable was the educational program. The dependent variables were hospital readmissions and inpatient length of stay for clients who were readmitted.

King's Theory of Goal Attainment was the theoretical framework that guided Shipton's study. The researcher stated that the nurse and client must collaborate in order to achieve the desired goals (Shipton, 1997). One goal was to prevent hospital readmissions among CHF clients receiving home health care. A second goal was to decrease the length of stay if the CHF clients were admitted. Shipton indicated that improving clients' knowledge through education and home health nurse collaboration would enable clients to make better decisions regarding exercise, nutrition, and activities of daily living.

Shipton documented statistical data related to the readmissions at one major hospital in Missouri. The

evaluation of the statistics for that hospital correlated with the statistics quoted to be the national average across the United States. For that hospital, CHF clients were the largest percentage of readmissions in 1991. Shipton cited the primary reason for multiple CHF readmissions was noncompliance with the treatment plan related to a lack of knowledge.

Shipton (1997) used a quasi-experimental two-group comparative study design (N = 24). The experimental group and the control group consisted of 12 clients each. Clients became study subjects if they had a primary or secondary diagnosis of CHF, received home health services, and remained in the area for 6 months. The experimental group received the educational intervention program. The control group was created from a retrospective chart review of 12 clients who had received home health services from the home health agency the previous year (1995). Client anonymity and confidentiality were secured by the researcher through use of a chart numbering system which correlated with a separate list of the clients' names. All information was destroyed by the researcher after the study was over. The setting was a large home health care agency in rural Missouri. The agency received home health

referrals from several of the total hospitals for a variety of clients post-discharge. The researcher identified the agency as having a CHF clientele averaging 10 to 20 clients a month. Once the client was approved for home health care services, services were initiated within a 48-hour period.

Shipton (1997) designed an educational manual directed toward the educational needs of the CHF clients. The manual was designed to provide education about basic survival skills, CHF pathophysiology, reportable signs and symptoms, diet, and medications (Shipton, 1997). The educational tool was evaluated for face validity by two masters prepared nurses with a cardiovascular background, a cardiologist, and two home health nurses (Shipton, 1997). The educational manual was created to be readable at the sixth-grade level as well as print with larger scripts to provide easy visualization for the elder with compromised vision.

Shipton's (1997) procedure involved obtaining consent from the home health agency's director, educator, and nurses to participate in the study. Twenty home health nurses were inserviced on how to use the educational manual by the researcher. The experimental group received

instructions from the manual over a 3-month period. Over the next 6 months, the 12 experimental subjects were monitored to determine the number of hospitalizations and length of stay (Shipton, 1997). The 12 control group members' charts were reviewed during the same length of time in 1995 to evaluate hospital readmissions and length of stay.

The experimental group consisted of 12 subjects, 5 men and 7 women, with a mean age of 77.8 years. The control group consisted of 12 subjects, 6 men and 6 women, with a mean age of 76.5 years. The experimental group had five readmissions over the 6-month period with a length of stay equal to 22 days. Two females in the experimental group had one hospital readmission with a length of stay equal to 13 days. Two male subjects in the experimental group had a total of three hospital readmissions with a length of stay equal to 9 days. One of the male subjects accounted for two of the readmissions over the 6-month period after the educational program. Eight of the experimental group subjects, 3 males and 5 females, were not readmitted to the hospital after the program over the 6-month follow-up. The control group had a total of eight hospital readmissions with a length of stay equal to 52

days over the 6-month period in 1995. One female subject had 3 hospital readmissions with a length of stay equal to 24 days. Another female subject had a readmission with a length of stay equal to 3 days, and a third female subject had a readmission with a length of stay equal to 9 days. One male subject had two readmissions with a LOS equal to 9 days. A second male subject had a readmission with a LOS equal to 7 days. Seven of the control group subjects, 3 females and 4 males, were not readmitted into the hospital over the 6-month tracking period. No significant differences emerged between the groups. Thus, the researcher concluded that the hypothesis was not supported.

Shipton (1997) made several relevant recommendations for future research, such as the use of a large population sample and identification of risk factors associated with multiple hospital readmissions as a way to provide early detection and interventions for clients with high potential for repeated hospital readmissions. Other recommendations referred to examining inpatient illness treatments to preventive treatments, consistent outpatient follow-up practices, and interventions to improve client adherence to self-care measures. Shipton's study was

similar to the current study because the subjects chosen were nonhospitalized, community-dwelling individuals. Shipton's study differed because an initial baseline assessment of CHF knowledge was not done prior to implementation of the educational program. This lent credence to conduction of the current study which attempted to ascertain CHF clients' level of knowledge about self-care measures before developing an educational program.

Client education about self-care manageable in the home environment is an essential duty of the health care provider as well as follow-up care to evaluate self-care management of the chronic illness. Sulzbach-Hoke, Kagan, and Craig (1997) conducted a descriptive pilot study to explore weighing behavior and symptom distress of clinic patients with CHF. The purpose of the study was to identify characteristics associated with CHF clients' knowledge about home weighing behaviors and practices. The research questions asked the following: "Were patients weighing themselves and what are the characteristics of patients who weighed themselves" (Sulzbach-Hoke et al., 1997, p. 289).

The independent variables were identified in the study as CHF patients' attendance at the clinic, symptom distress, and demographic characteristics. Weighing behaviors was the dependent variable (Sulzbach-Hoke et al., 1997).

The researchers provided an operational definition of CHF for the study. CHF was defined as "the presence or history of dyspnea, fatigue, lower extremity edema, the presence of systemic venous congestion, pulmonary rales, cardiomegaly, and a third heart sound gallop" (Sulzbach-Hoke et al., 1997, p. 289).

A total of 30 patients made up the research convenience sample. The inclusion criteria to the study was consent to participate, understanding of the English language, mentally capable of responding to the questions, diagnosis of CHF, treatment as an outpatient, and at least 18 years of age or older. The researchers used the participants' willingness to complete the questionnaire as consent to participate in the study. Any patients on the heart transplant list were excluded from the study. All participants completed the questionnaire in the clinic while waiting to see the physician. The researchers

recruited participants into the study from June 1995 to November 1995 (Sulzbach-Hoke et al., 1997).

The self-administered patient questionnaire was developed by Sulzbach-Hoke et al. (1997). The demographic and weighing behavior questions were subjected to examination by an expert reviewer. Symptom distress was measured by Sulzbach-Hoke et al. (1997) using the Symptom Distress Scale (SDS) developed by McCorkle and Young with modifications in 1983. Symptom distress referred to the patients' subjective measurement of the degree of discomfort from symptoms, such as nausea, appetite, insomnia, bowel patterns, concentration, outlook, cough, frequency and intensity of pain, and swelling (Sulzbach-Hoke et al., 1997). A total of 13 items were evaluated and responses were scored on a Likert-type scale ranging from 0 to 4 for each symptom and summed for possible total score of 52, with higher scores representing more distress (Sulzbach-Hoke, 1997). Internal consistency and test-retest reliability estimates were considered reliable with coefficient value between 0.79 and 0.89.

A descriptive design was utilized to examine the characteristics of CHF patients about weight behaviors. Data collection occurred once during the patients'

appointment in the clinic. The patients' weighing behavior and symptom distress were questioned for the previous week prior to clinic appointment (Sulzbach-Hoke et al., 1997).

Sulzbach-Hoke et al.'s research revealed inconsistent weighing behavior among the CHF participants. Twenty-six (86.7%) of the patients weighed themselves and 2 (6.7%) did not. Twelve (40%) of the patients weighed daily, 6 (23.3%) weighed between two and five times a week, and 5 (16.7%) once a week. Twenty-one (70%) of the patients were told to weigh themselves daily by the physician or nurse practitioner, 7 (23.3%) did not receive instructions, and 2 (6.7%) did not answer the question. Of the 21 patients told to weigh, 13 (43.3%) stated they were instructed to weigh daily, 3 (10%) to weigh two to three times a week, and 5 (16.7%) once a week.

The time patients weighed was different. Twenty-one (70%) patients weighed in the morning, 5 (16.7%) at inconsistent times of the day, and 4 (13.3%) did not weigh themselves or did not answer the research question. When patients had an increase in weight, behavioral intervention varied. Ten (33.3%) did nothing about the increase, 5 (16.7%) reweighed, 4 (13.3%) called their health care provider, 4 (13.3%) took extra Lasix, and 3

(10%) did a combination of measures, such as call the doctor, weighed again, and/or took Lasix. Regarding documentation, 15 (50%) of the patients did not keep a diary, 13 (43.3%) kept a record of weights. When subjects were asked if the weight gain made them feel worse, 56.7% said yes. The symptom distress score among study subjects was a mean of 9.73 with $SD = 7.16$, range 1-29. Fatigue was rated the highest distress symptom followed by insomnia, breathing, cough, outlook, swelling, pain, concentration, bowel, nausea, appetite, and appearance (Sulzbach-Hoke et al., 1997).

Sulzbach-Hoke et al.'s (1997) study concluded that although 40% of CHF clients in the study did daily weights, most of them (33%) did not know what to do with this information. A total of 70% of the patients did remember being told to weigh daily. The study participants were instructed to weigh daily and record the weight; 50% of the subjects did not do this. The researcher's recommendations related to future research indicated study of more diverse populations, including patients who did not keep appointments to address weighing behaviors. Sulzbach-Hoke et al. also suggested future research to study symptoms not typically considered CHF symptoms, such

as insomnia and pain, which were ranked by the CHF patients in the study.

This research is germane to the current study because it demonstrates the need for health care providers to provide comprehensive assessment prior to education for clients with chronic illnesses. Information to assist with health promotion, maintenance of activities of daily living, and improve the quality of life is most useful if tailored to the specific learning needs of patients. Health care providers must then emphasize to patients how to recognize and prevent any exacerbation of heart failure. Continued client education and reinforcement must be the hallmarks of primary care intervention to help clients have a better quality of life and avoid unnecessary hospitalizations, and this must start with an assessment of baseline knowledge levels.

In summary, the cited studies have significant implications for nurse practitioners. These studies represent an effort on the part of health care providers to find ways to improve follow-up evaluation for CHF clients and those with different chronic illnesses discharged from the hospital. All studies cited a lack of knowledge as a pertinent variable that influenced hospital

readmissions of CHF clients and affected quality of life. However, most of the studies were initiated from the acute care setting with limitations after clients were discharged from the hospital for continued monitoring and evaluation of clients' self-care management. Few of the researchers evaluated baseline knowledge levels of self-care measures about CHF prior to instituting teaching interventions. Research efforts should be continued to establish ways to evaluate knowledge levels of CHF and then provide CHF clients in the community with educational information to stimulate or reinforce commitment to self-care management.

Chapter III

The Method

The purpose of this study was to assess the knowledge levels about self-care measures of CHF clients. The methods used to evaluate the variables of interest are identified in this chapter. The research design, setting, population, and sample are described. The questionnaire developed to assess CHF clients' knowledge about self-care measures, the procedure for data collection, and the method of data analysis also were discussed.

Design of the Study

The research design for this study was nonexperimental descriptive/explorative survey. LoBiondo-Wood and Haber (1994) defined a descriptive study as a type of nonexperimental research design that collects descriptions of existing phenomena for the purpose of using data to justify or assess current conditions or to make plans for improvement of conditions. This design was appropriate because the goal of the study was to assess

the knowledge levels of clients with CHF about self-care measures which can be used in day-to-day self-management of CHF prior to consideration of future educational sessions about self-care measures. This design was also appropriate because there was no effort to control or manipulate the variables. In this study, there was no control group or randomization of study subjects. Variables of interest were merely described and no causation was implied.

Variables

The variable of interest for this study was CHF client's knowledge about self-care measures specific to CHF. The controlled variables were the diagnosis of primary or secondary CHF and the age of the study participants. Possible intervening variables were honesty in answering the questionnaire, understanding the questions, and level of ability to read, write, speak, and comprehend the English language.

Setting, Population, and Sample

The practice sites of an internal medicine physician in a southern urban city and one nurse practitioner in a rural clinic in a small Mississippi town were selected as

the settings for this study. The large metropolitan area, with an estimated population of 615,000, was located in the Mid-South region. The city also was surrounded by a number of suburban communities whose residents commute to the city daily for work, entertainment, and health care services. The city was comprised of all economic classes and many races, although African Americans and Caucasian races made up the majority of the population. The rural town was located in Mississippi, about 45 miles outside of the city selected for the study. The target patient population was described by the physician and nurse practitioner as being racially mixed. All clients were described as being economically mixed, meaning some were on Medicare, medicaid, and/or commercial insurance. There also were clients who did not have any insurance.

The study population was older adults, aged 40 to 89 years, with a primary or secondary diagnosis of congestive heart failure (CHF). The target sample included all older adults who met the criteria and were willing to participate in the study. The sample was determined by the returned surveys and questionnaires which were completely answered.

Instrumentation

The instruments used in the research study were researcher-designed to meet the specific elements of interest related to the population being studied. Data were collected using a self-administered questionnaire to evaluate study participants' knowledge about self-care measures related to CHF. Additionally, a demographic information survey was included to identify characteristics of the participants. The Savage Demographic Survey contained 19 questions about diagnosis, medical history, education, income, work status, retirement, and medications (see Appendix A). The Savage Heart Test included items about CHF and self-care measures pertinent to the client with a diagnosis of CHF (see Appendix B). The questions on the questionnaire were drawn from information in the educational manual for CHF clients called "A Stronger Pump: A Guide for People with Heart Failure" published by Pritchett and Hull Associates, Inc. (1994) and a video tape called "Living with Congestive Hart Failure: A Patient Education Program" published by Sanofi Pharmaceuticals, Inc. (1995). The questionnaire was composed of a total of 14 questions, with 5 true or false and 9 multiple-choice. The first section of the

questionnaire contained statements with true/false/don't know options for responses. The correct answer was given a value of 1 point. A wrong answer was given 0 points and "don't know" was scored as 0 points. The most points obtainable for this section (if all questions were answered correctly) was 5. For questions 2, 4, and 5, the correct answer was true, and the answer for the remainder of the questions was false.

The multiple-choice section was scored with the same point value as the true/false section. The correct answer was scored 1 point. Questions 6b, 7c, 8a, 9c, 10c, 11a, 12c, 13a, and 14b were scored 1 point for the correct answer. Wrong choices were scored 0 points.

The method of scoring was developed based on the total possible points obtainable if all questions were answered correctly. Therefore, the absolute range was 0 to 14 points. The following score levels were selected to determine the level of knowledge that a participant may have had about self-care measures:

Score: < 10	Lacks sufficient knowledge about self-care measures and requires complete initial education or reeducation
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- 9-11 Moderately knowledgeable about self-care.
Needs additional education and reinforcement.
- 12-14 Sufficiently knowledgeable about self-care. Provides new information as issues arise.

No validity or reliability had been established for the Savage Heart Test. The test was examined by a panel of expert researchers and was determined to have face validity within the confines of this study.

Procedures

The research study was initially approved by the Committee on Use of Human Subjects in Experimentation at Mississippi University for Women (see Appendix C). Verbal consent was obtained from the appropriate personnel at each of the clinics to contact their clients about participation in the study after the purpose and nature of the study were explained. All health care providers in the selected facilities who gave verbal consent signed consent forms giving permission to conduct the study (see Appendix D). Health care providers also signed their names at the bottom of client consent forms indicating their approval and support of the study (see Appendix E). Afterwards, an office volunteer compiled a list of each provider's CHF

clientele by using the ICD 9 Code 428.0 for primary diagnosis of CHF and 402.91 for CHF with heart cardiovascular disease. The total number of eligible participants taken from the client list provided by the health care providers was 75.

A packet including the health care provider signed client participation consent form, self-administered questionnaire, demographic information form, and self-addressed, stamped envelope was mailed to all 75 clients on the lists. The client participation consent form served as the cover letter and included the purpose of the study, assurance of confidentiality, and informed clients that participation was voluntary (see Appendix E). Participants also were informed that the results of the study would be reported as group data, and the results of the study would be made available to them upon request. A follow-up reminder postcard was sent one week after the surveys were sent. Confidentiality was maintained as no participants' names were used on the instruments by the researcher. All participants' names were coded on a separate list to coincide with the numbered consents, demographic information forms, questionnaires, and self-addressed stamped envelopes. The list of names and codes were kept

in a separate and secure place during the study. The coded list also helped to identify the surveys returned. A second reminder postcard was sent to participants who had not returned surveys. The research study was conducted with those surveys returned.

Data Analysis

Descriptive statistics were employed to analyze demographic information. Measures of central tendency were utilized to describe elements of the demographic information, such as age, educational level, and self-care practices. Other measurements, such as nominal, ordinal, and interval/ratio, were used to further evaluate demographic information for statistical significance. Scores from the researcher-developed Savage Heart Test were analyzed using the one sample t test in order to determine if participants' mean scores were statistically different from desired scores. One sample t test is defined as a test "used to evaluate the probability that the value of the sample mean equals the researcher's hypothesis about the population mean" (Polit, 1996, p. 454).

In summary, the purpose of this study was to evaluate the knowledge level about self-care measures in CHF

clients. The study participants were selected from an internal medicine office located in a large metropolitan city in the South and a rural clinic located in a small town in Mississippi. A convenience sample was utilized, comprised of clients with a primary or secondary diagnosis of CHF who agreed to participate in the study by responding to and returning the surveys sent in the mail. The Savage Heart Test was used to ascertain knowledge levels. Data were analyzed utilizing descriptive statistics. Nominal, ordinal, and interval ratios were also used to evaluate demographic information. Additional analysis utilizing a t test was performed to determine if mean scores of knowledge levels were significantly different from a predetermined desired mean score.

Chapter IV

The Findings

The purpose of this descriptive study was to assess congestive heart failure (CHF) clients' knowledge about self-care measures used in day-to-day self-management of their chronic illness. Data were collected using a survey method in which two questionnaires were completed. Both questionnaires were researcher-designed specifically for this research study. One questionnaire was developed to solicit demographic information from the study participants. The second questionnaire was designed to assess clients' knowledge about congestive heart failure.

The data collected and analyzed for this study are presented in this chapter. Characteristics of the participants are described first, followed by the outcomes of data analysis related to the research hypothesis and additional findings.

The Research Sample

The original mailing sample consisted of 75 potential participants. Thirty of the participants had a nurse practitioner as their primary care provider. The remainder of the sample had a physician as their primary care provider. A total of 36 surveys were returned after subjects were mailed a postcard reminder within one week of the initial survey mailing. Of the surveys returned, 17 were from the nurse practitioner's client sample, and 19 were from the physicians's client sample. A total of three surveys from the nurse practitioners' sample were returned without being completed. Two surveys were returned by the postal service as undeliverable. One survey was returned by a participant with a letter explaining why she did not complete the survey. A total of two surveys from the physician's client sample were returned with no responses. One was returned because the participant had moved and there was no forwarding address. A second survey was returned by the family member because the participant had died. The final sample consisted of 31 participants who completed and returned the surveys. However, two of the demographic surveys did not have the test questionnaires with them. The two missing test scores were not calculated

in the group scores but were indicated as missing in tabled data.

Demographic Characteristics of the Sample

All of the participants in this study had a primary or secondary medical diagnosis of congestive heart failure. The age range of participants was 40 to 89 years, with a mean age of 57.9 years. Of the 31 participants, 18 were females with a mean age of 59.1 years, and 13 were males with a mean age of 56.4 years. The distribution of the sample by age is presented in Table 1.

Table 1

Distribution of the Sample by Age by Frequency and Percentage

Age (years)	f	%
40-49	8	25.8
50-59	13	42.0
50-69	5	16.1
70-79	4	12.9
80-89	1	3.1

Note. N = 31.

The sample was further analyzed by race. Twenty-two (71%) of the participants were African American, and 9 (29%) were Caucasian. The marital status of the participants varied. Demographic data related to marital status can be seen in Table 2.

Table 2

Distribution of the Sample by Marital Status by Frequency and Percentage

Marital status	f	%
Males ^a		
Married	8	61.5
Divorced	1	7.7
Widowed	3	23.1
Single	1	7.7
Females ^b		
Married	7	38.9
Divorced	3	16.7
Widowed	7	38.9
Single	1	5.5

Note. N = 31.

^an = 13. ^bn = 18.

Examination of the demographic data regarding living arrangement revealed that the majority (n = 15, 48.4%) lived with spouses, 8 (25.8%) lived with children, 1

(3.2%) lived with a friend, and 5 (16.1%) lived alone. Two (6.5%) of the participants marked "other" in relation to living arrangement, but did not specify the living arrangement.

Educational background of participants revealed that the majority (35.5%) completed high school. Details regarding the educational background of the participants can be seen in Table 3.

Table 3

Distribution of the Sample by Educational Background by Frequency and Percentage

Education	f	%
< 7 years school	4	12.9
7-9 years school	5	16.1
10-11 years school	1	3.2
Completed high school	11	35.6
1-3 years college	8	25.8
Completed college	1	3.2
Masters degree	1	3.2

Note. N = 31.

Examination of all 31 participants' income levels revealed that 3 (9.7%) of the participants made more than \$50,000 annually, 2 (6.5%) made from \$40,000-\$50,000, 5 (16.1%) made from \$30,000-\$40,000 annually, 6 (19.4%) made from \$20,000-\$30,000 annually, and 4 (12.9%) made from \$10,000-\$20,000 annually. A majority of the participants, 11 (35.5%), made less than \$10,000 annually.

Of the participants, 14 (45.2%) continued to be gainfully employed. Seventeen (54.8%) of the participants were retired. Responses to the demographic data regarding present work status varied. Of the participants who worked, 10 (32.3%) worked full-time, 3 (9.7%) worked part-time, and 2 (6.5%) worked as volunteers. One of the volunteers also classified himself as retired.

A total of seven questions related to congestive heart failure were included in the demographic survey and were evaluated according to frequency distribution and percentiles. Four of the questions reflected self-care measures, and three questions related to education issues. The first self-care measure addressed activity level. The majority (n = 17, 54.8%) of the participants' activity was limited by congestive heart failure. Fourteen (45.2%) of

the participants' activity levels were not restricted by congestive heart failure.

The second self-care measure regarding weights revealed a variety of responses from participants. Twelve (38.7%) of the participants indicated that they weighed themselves once a month, 13 (38.7%) never weighed, 3 (9.7%) weighed once a week, and 3 (9.7%) marked "other." Only 1 (3.2%) participant weighed on daily basis.

The third item relating to CHF self-care measures asked about salt usage. The majority of the participants (n = 27, 87.1%) limited daily salt intake. The remaining participants (n = 4, 12.9%) did not limit salt use.

The final self-care measure asked about medications. Twenty-three (74.2%) participants knew the names of their medications. Only 4 (48.4%) of participants did not know the names of their medications.

Demographic data about client education received from health care providers showed that 27 (87.15) had been given information. The remaining participants (n = 4, 12.9%) had not received any information about self-care management from their health care providers.

Demographic data regarding signs and symptoms of congestive heart failure revealed that 21 (67.7%) reported

knowing signs and symptoms of CHF. Only 10 (32.3%) of the participants admitted that they did not know the signs and symptoms of congestive heart failure. Examination of the demographic data regarding a class about self-care measures for clients with congestive heart failure showed that 21 (67.7%) of the participants would attend if such a class was made available. Ten (32.3%) of the participants indicated that they would not attend a class about self-care measures for clients with congestive heart failure.

Analysis of the Research Hypothesis

The directional research hypothesis that guided this study stated that congestive heart failure clients will have a greater knowledge about self-care measures score than the established knowledge score. The researcher predetermined that a mean score of 12 on the Savage Heart Test would reflect an established level of knowledge. Since the overall mean was 10.83, $SD = 2.54$, the researcher determined that the participants' knowledge about self-care measures for CHF was less than 12, reflecting only a moderate level of knowledge. The achieved mean and the established mean were subjected to a t test analysis to determine if actual mean scores were significantly different from predetermined established or

desired mean scores. Since $t(29) = -2.489$, $p = .019$, the researcher concluded that the samples' achievement of knowledge about self-care measures was significantly deficient. Therefore, the researcher rejected the hypothesis.

Summary

Findings from this descriptive study revealed a relatively young sample ($M = 57.9$), the majority of whom were African American. The analysis of the data generated in this study revealed that the participants did not have an adequate level of knowledge as a group, even though the majority had received information about CHF from their health care providers. In Chapter V, a discussion of these findings is presented. Finally, based on the findings in this chapter, conclusions, implications, and recommendations for future research in nursing are set forth.

Chapter V

The Outcomes

Almost 5 million Americans are living with congestive heart failure (CHF) today. An estimated 1.4 million individuals with CHF are under the age of 60 years, and the incidence of CHF is even greater than 65 years of age. CHF has become the single most frequent reason for hospitalization in individuals age 65 years and older. Despite recent medical advances in drug therapy, mortality rates remain high. Lack of knowledge has been cited as a frequent cause of CHF clients' inefficient self-care management skills. As a result, the health care industry has experienced increased economic stress and clients' quality of life has become compromised. Client education has been indicated as beneficial in promoting a better understanding of CHF and increasing clients' self-care management ability. In order to efficiently affect a change in CHF clients' health care practices, it is important to determine baseline knowledge regarding self-care measures essential for self-care management.

The purpose of this study was to assess CHF clients' knowledge about self-care measures used in day-to-day management of their chronic illness. Pender's Health Promotion Model was used to guide this descriptive survey investigation. Data were collected using researcher-designed demographic and test surveys. Descriptive statistics were used to analyze demographic data for significance. A one sample t test was used to test the research directional hypothesis.

An explanation of the findings of this study in relation to the research hypothesis is summarized and discussed in this chapter. Conclusions are drawn, implications for nursing are presented, and recommendations which evolved from these findings are stated.

Summary and Discussion of Findings

The study sample (N = 31) was composed of individuals with a primary or secondary medical diagnosis of CHF who completed the surveys. The participants had a nurse practitioner or physician as a primary care provider. The mean age of the sample was 57.9. The majority of the sample (n = 21, 67.7%) were less than 60 years of age. This finding can be related to the AHA's report that more

than 1.4 million individuals living with CHF are less than 60 years old. This finding is of great importance when considering the need for determining what CHF clients know about the illness in order to develop educational programs to meet their needs. Education about self-care measures could assist patients in maintaining functional health status and prevention of CHF exacerbation, especially among younger CHF clients whose disease is unlikely to have progressed to the severity of their older counterparts.

A second notable demographic finding was that the largest portion of the sample (48.4%) was married and living with their spouses. The remainder of the sample either lived with children, a friend, or alone. Fugita and Dungan (1994) discovered that CHF clients can become extremely dependent on their spouses and noted that spouses are often more attentive than clients to teaching interventions. They further established the importance of a therapeutic nurse-client relationship, as well as adequate social supports, in the success of CHF self-care. Nurse practitioners can, therefore, be cued to the possible importance of assessing the knowledge level of

caregivers, as well as clients, when considering CHF self-care issues.

The use of a comprehensive assessment of clients' knowledge level about self-care was recommended by researchers in the literature review. Bushnell (1992) utilized a pretest to determine knowledge levels of study subjects prior to implementing the self-care protocol study. One finding on Bushnell's pretest revealed that only a small percent of the subjects used daily weights as part of their self-care management.

Another study conducted by Sulzbach-Hoke et al. (1997) supported the use of a descriptive survey to assess characteristics of clients related to a specific self-care behavior, specifically weighing behavior. Sulzbach-Hoke discovered that 86.7% of the subjects weighed themselves, but only 40% of them did so on a daily basis. Findings from the current study also revealed that a significant number of the subjects lack knowledge regarding the pertinence of weight monitoring as a self-care management skill. In this study only 1 (3.2%) participant weighed on a daily basis. Almost 75% of CHF clients weighed themselves less than once a week. The startling lack of knowledge and compliance regarding this issue underscores

the need for emphasis on the importance of daily weights in educational programs for CHF clients. Sulzbach-Hoke et al. recommended the inclusion of information that helps CHF clients understand why weighing is important, as well as larger symptoms of CHF, such as shortness of breath and abdominal discomfort, which may accompany an acute weight gain.

The issue of medication awareness by clients has been highlighted by Fujita and Dungan (1994), Rich et al. (1993), and Schneider et al., (1993). Each of these researchers asserted that medications alone cannot control CHF and supported a multidisciplinary approach which included comprehensive assessment of client education. These researchers cited lack of knowledge about medications as a cause for rehospitalization and increased morbidity among CHF patients.

In the current study, 74.2% of the participants claimed to know the names of their medications. While specific data about medications was not elicited, the researcher noted that the overall knowledge level regarding CHF self-care was insufficient and that questions regarding medications on the Savage Heart Test were frequently missed.

In this study, the area of prevention appeared to be a major knowledge deficit area. In response to the question, "Which of the following will help to prevent an attack of heart failure," only 12 of 31 participants answered the question correctly. This finding supported Shipton's (1997) suggestion that improving clients' knowledge through education and health care provider collaboration would enable clients to make better decisions regarding prevention measures, such as exercise, nutrition, and healthier activities of daily living. Part of such education would ideally include the assessment of clients' baseline knowledge levels about CHF self-care measures. Clarification of client misconceptions is essential in the prevention of complications (Fujita & Dungan, 1994).

The core issue in this study was whether CHF patients had sufficient knowledge about CHF self-care measures. Statistical testing revealed that CHF patients had significantly less knowledge than hypothesized. This finding was supported by previous literature. Fujita and Dungan (1994) identified knowledge deficit as the major obstacle to CHF clients' maintenance of a therapeutic regimen. However, in many of the studies reviewed, researchers tended to

implement teaching interventions without assessing baseline knowledge levels (Rich et al., 1993; Shipton, 1997; Schneider et al., 1993). This researcher agrees that patient education is of the utmost importance in achievement of adequate self-care for persons with CHF. However, findings from this study, along with previous findings from the literature, strongly suggest that health care providers cannot presume to know which elements of education are needed by their CHF patients. Pre-instructional knowledge assessment has emerged as an essential component in planning educational interventions regarding self-care measures for persons with CHF.

Conclusions

Based on the fact that the directional hypothesis was rejected, the researcher concluded that the majority of the sample of CHF clients' level of knowledge was not adequate. Therefore, the researcher also concluded that this sample was in need of more education regarding self-care measures specific to CHF clients. However, the researcher further concluded that an essential element in planning educational interventions is comprehensive assessment of clients' knowledge base before attempting to teach.

Limitations

In the course of conducting this research, a number of limitations were encountered. One major limitation was barriers to data collection. Two of the physicians' offices originally approached about the study eventually failed to provide the information about CHF clients. One of the physicians later apologized for the delay, stating that he was very busy and kept forgetting despite numerous telephone calls to remind him of the needed sample. The other physician failed to return repeated telephone calls regarding the study.

Two physicians who shared an office had originally given written consent, and the office manager volunteered to obtain a computer-generated list of CHF clients to give to the researcher. However, the clinical manager posed a barrier of delay in initiation of the study by not providing the information, citing a concern regarding client confidentiality as a reason for nonparticipation. Such barriers of access to clients may indicate a very real threat to the future of nursing research and interventions among clients served by private physicians.

In addition to data collection issues, survey research carries with it some inherent threats to internal

and external validity. The greatest threats to the ability to generalize the findings were the small sample size and the lack of randomization. However, these weaknesses were admissible given the application of the research as a pilot study and the time constraints for implementation.

The final limitation concerned the research instruments. The instruments were researcher-designed, had only face validity, and were being used for the first time. Because most of the instruments were self-administered, data were not validated by the researcher.

Implications for Nursing

Findings from this study have a number of implications for nursing. Implications are proposed for nursing practice, education, research, and theory.

Nursing practice. The outcomes of the survey indicated the need for enhanced educational instructions about self-care measures for CHF clients. Regular evaluation of clients' self-care management ability is required in order to ascertain current health practices. The results of this study may make nurse practitioners more aware of the need to establish a method of assessing clients' knowledge about self-care measures and what clients are doing to manage chronic illnesses. It is

important to determine what clients know and understand about their chronic illness to effect change in health practices. The nurse practitioner is in an ideal position to facilitate health maintenance and health promotion among clients with chronic illnesses. Client education can serve as an empowering force in helping clients realize their optimal self-care management ability.

Education. Findings from this research carry a powerful implications for the incorporation of methods for comprehensive client education needs assessments into curricula in schools of nursing, especially at the advanced practice level. Increasingly, nursing practice is moving into the community and home care arena. Because of the vital role of the registered nurses in the health care education of community-based and homebound elders, nursing undergraduates also need to be firm in their knowledge of CHF assessment and danger signs of impending acute exacerbation.

Research. Findings from this study contribute to the larger body of knowledge about CHF clients' self-care measures. Assessment of baseline levels of knowledge is only a first step. Nurse practitioners must be committed to using these findings to develop educational programs

which are comprehensive but simultaneously succinct and usable in everyday life. Myriad interventions remain to be developed and empirically tested.

Theory. Nursing theory is tested and validated by nursing research. While the current research findings failed to validate the Health Promotion Model since quality of life issues were not specifically evaluated, the model continues to be an appropriate framework on which to base the development of comprehensive assessment protocols for clients with chronic illnesses because of the combination of properties related to health promotion. The goal of the Health Promotion Model is to examine or explore the complex nature of human beings which influences knowledge levels and the drive to engage in behaviors directed toward self-maintenance. The nurse practitioners' focus of client education could be based on the assumptions of the Health Promotion Model in order to provide a nonjudgmental and nonbiased opportunity for knowledge assessments of clients' health care practices. This approach to comprehensive knowledge assessments will serve as a means of providing further validation to the Health Promotion Model.

Recommendations for Future Research

Based on the findings of this study, the following recommendations were made for future research:

1. Replication of the study with a larger sample size.
2. Replication of the study with a more culturally diverse group.
3. Replication of the study to include participants with more diverse distribution of age.
4. Replication of the study allowing more time for data collection.
5. Replication of the study with an initial knowledge assessment followed by an educational intervention to increase knowledge and utilization of a posttest to evaluate for evidence of an effect on knowledge level.
6. Replication of the study based on an initial pilot study to establish preliminary validity of the researcher-designed questionnaires.

Recommendations for Nursing Practice

Based on the findings of this study, the following recommendations were made for nursing practice:

1. Implementation of standardized assessments of clients' knowledge level prior to implementing an educational program to determine specific areas of focus.

2. Implementation of follow-up assessments to evaluate client retention and application of learned self-care measures into daily life.

3. Inclusion of CHF patients' significant others in knowledge assessments and teaching interventions.

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APPENDIX A
SAVAGE DEMOGRAPHIC SURVEY

Savage Demographic Survey

The following questions are about you. Please respond by checking the answer(s) that best describes you.

1. How old are you?_____
2. What is your racial/ethnic background?
 Black
 White
 Hispanic
 Other (please specify)_____
3. What is your current marital status?
 Married
 Separated
 Divorced
 Widowed
 Single
4. With whom do you live (check all that apply)?
 Spouse
 Children
 Brother/sister
 Friend
 No one
 Other
5. Which of the following best describes your family income?
 Less than \$10,000
 \$10,000-\$19,000
 \$20,000-\$29,000
 \$30,000-\$39,000
 \$40,000-\$49,000
 \$50,000 and above
6. Are you retired from your full-time career/job?
 Yes, go to question #7
 No, go to question #8

7. Do you work now?
 Full-time
 Part-time
 Do not work
 Volunteer
 Other (please specify) _____
8. What is your highest level of education?
 Master's degree or higher
 4-year college degree
 1-3 years of college
 High school graduate
 Completed 10-11 years of school
 Completed 7-9 years of school
 Completed less than 7 years of school
9. In what year (approximately) were you diagnosed with your heart problem? _____
10. How many times have you been in the hospital for heart failure? _____
11. How many times do you see your doctor each year? _____
12. How many different types of medication do you take daily? _____
13. Is your level of activity limited by your heart failure?
 Yes
 No
14. Have you been given information on how to take care of yourself by your doctor or nurse practitioner?
 Yes
 No
15. How often do you weigh yourself at home?
 Once a day
 Once a week
 Once a month
 Never
 Other (please specify) _____

16. Do you limit how much salt you eat daily?
____ Yes
____ No
17. Do you know what the signs and symptoms of congestive heart failure are?
____ Yes
____ No
18. Do you know the name of your medication(s)?
____ Yes
____ No
19. If a class about self-care measures was available to CHF clients, would you come?
____ Yes
____ No

APPENDIX B
SAVAGE HEART TEST

Savage Heart Test

The following questions are related to your knowledge of congestive heart failure. Check (✓) the answer of your choice.

1. A person with congestive heart failure can drink all the water they want without worrying about fluid build up.
 A. True
 B. False
 C. Don't know
2. Being tired can be a symptom of congestive heart failure.
 A. True
 B. False
 C. Don't know
3. A sudden weight gain of 2 pounds in one day is normal.
 A. True
 B. False
 C. Don't know
4. A diuretic is a pill that makes you urinate a lot.
 A. True
 B. False
 C. Don't know
5. Heart failure happens when the heart cannot pump blood to other parts of the body very well.
 A. True
 B. False
 C. Don't know
6. High blood pressure can
 A. cause heart problems such as enlarged heart.
 B. help you live longer.
 C. Don't know

7. You should call your doctor when
____ A. your feet are swollen.
____ B. you are slightly out of breath after exercise.
____ C. Don't know
8. Which of the following can cause heart failure?
____ A. Heart attack
____ B. Daily exercise
____ C. Don't know
9. Which of these will NOT help your heart failure?
____ A. Limiting the amount of salt you eat each day
____ B. Smoking cigarettes
____ C. Don't know
10. Which of the following are used to treat heart failure?
____ A. Medicines and reducing stress
____ B. Increasing fluids
____ C. Don't know
11. How does Lanoxin work?
____ A. By increasing the strength of the heart contraction
____ B. Makes the heart beat faster
____ C. Don't know
12. What is the effect of a high-fat diet on your health?
____ A. Clogs up arteries with cholesterol
____ B. Makes you have more energy
____ C. Don't know
13. A client with congestive heart failure can help himself/herself by
____ A. keeping regular appointments with the doctor.
____ B. adjusting his/her own medications.
____ C. Don't know
14. Doing which of the following will help to prevent an attack of heart failure?
____ A. Drinking lots of fluids each day
____ B. Weighing each day and keeping a record
____ C. Don't know

APPENDIX C

APPROVAL OF THE COMMITTEE ON USE OF
HUMAN SUBJECTS IN EXPERIMENTATION OF
MISSISSIPPI UNIVERSITY FOR WOMEN



**MISSISSIPPI
UNIVERSITY
FOR WOMEN**

Columbus, MS 39701

Office of the Vice President for Academic Affairs
Eudora Welty Hall
P.O. Box W-1603
(601) 329-7142

April 8, 1998

Ms. Phyllis Savage
c/o Graduate Program in Nursing
Campus

Dear Ms. Savage:

I am pleased to inform you that the members of the Committee on Human Subjects in Experimentation have approved your proposed research as submitted.

I wish you much success in your research.

Sincerely,

A handwritten signature in cursive script, appearing to read "Susan Kupisch".

Susan Kupisch, Ph.D.
Vice President
for Academic Affairs

SK:wr

cc: Mr. Jim Davidson
Dr. Mary Pat Curtis
Ms. Lorraine Hamm

APPENDIX D

CONSENT FORM OF HEALTH CARE PROVIDER

Consent of Health Care Provider

Dear Participant,

My name is Phyllis Savage. I am a registered nurse and graduate nursing student at Mississippi University for Women. I am conducting a research study concerning the knowledge levels of congestive heart failure (CHF) clients about self-care measures for the management of CHF. Your participation in this study can help to determine the need for an educational class to be taught to clients with CHF about specific actions to be used in day to day management of CHF. I am asking for your consent to participate in this research study. The results of this study may be used to develop future educational programs for use in clinics and physicians' offices.

I have been given permission from your physician to ask for your consent to participate in my study. Your refusal to participate will in no way affect the care you receive from your healthcare provider. Participation is entirely voluntary and you may refuse to answer any questions or withdraw from the study any time. All information will be kept confidential as no names will be used on the surveys and questionnaires. All results of this study will be reported as group information. Completion of the survey and questionnaire will take approximately 30 minutes. You can have a family member or friend to help you read and write your response on the survey and questionnaire. A self-addressed stamped envelope is enclosed for return of this consent form, survey and questionnaire. A gift will be sent to all participants who return their information which can be valuable in your daily self-care management of CHF. I appreciate your help in carrying out this study. Please sign below if you agree or decline to participate in the study and return your response in the self-addressed stamped envelope provided.

Thank You.

Researcher _____
 Health Care Provider _____
 Date _____

 _____ Yes, I agree to participate in your study.

_____ No, I do not wish to participate in your study.

Date: _____

APPENDIX E
CONSENT FORM OF PARTICIPANT

Consent Form of Participant

Title of Research Study

Knowledge Level of Clients With Congestive Heart Failure About Self-Care Measures.

My name is Phyllis Savage. I am a registered nurse and graduate nursing student at Mississippi University for Women. I am conducting a research study concerning the knowledge level of CHF clients about self-care measures for the management of congestive heart failure. The results of this research may be used to develop future educational programs for use in the primary care setting.

I am requesting your permission for a list of your clients with a primary or secondary diagnosis of congestive heart failure to participate in this study. Participation in this study includes completing a demographic survey, answering a questionnaire. The questionnaire asks questions about daily weights, diet, exercise, routine check ups, medication, and signs and symptoms of CHF. Completion of the demographic survey and questionnaire will take approximately 30 minutes. The participants may have a family member or friend to assist them with reading and writing the responses to the survey and questionnaire. The questionnaire was formed using information from the educational manual, "A Stronger Pump: A guide for People with Heart Failure" published by Pritchett and Hull Associates, Inc. and a video tape, "Living with Congestive Heart Failure: A Patient Education Program" by Sanofi Pharmaceuticals, Inc. The book is used by a major metropolitan hospital in the Memphis area for patient education. The demographic survey and questionnaire will be mailed to study participants with a letter explaining the research study. The letter will also inform participants that completion of the survey and questionnaire is entirely voluntary and they can refuse to answer any questions. All information about your clients will be kept confidential and destroyed after an appropriate amount of time has elapsed since the study. Results of the study will be reported as group data. A copy of the results will be available at your request.

I hereby give permission for clients to be mailed a demographic survey and questionnaire about CHF for this research study.

Date

Signature

Date

Signature of Researcher