EVALUATION OF EDUCATIONAL NEEDS OF PERSONS WITH HEART FAILURE

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ABSTRACT

Five million Americans are currently living with heart failure, and the numbers are expected to rise. Optimal self-management of heart failure requires a considerable amount of knowledge in order to make the recommended lifestyle changes and recognize the signs and symptoms of worsening heart failure. Educational interventions are more effective when they are tailored for the individual. The purpose of this study was to identify the information persons with heart failure believed to be most important to learn, as well as whether or not it is realistic to learn the information while hospitalized. A survey tool was administered to 24 hospitalized patients to assess their responses to heart failure topics in seven categories including: anatomy and physiology, psychological factors, risk factors, medication information, diet information, activity, and other pertinent issues. Respondents identified all of the categories as both important and realistic to learn while hospitalized. Medication information and anatomy and physiology of the heart were identified as most important and most realistic to learn, while diet information was believed to be the least important and least realistic to learn. Results support the recommendation that education about heart failure should be done before patients are discharged from the hospital and the need for continued assessment of learning needs. Implications for practice and areas for further research are presented.

CHAPTER 1

INTRODUCTION

In 2003 more than 5 millions Americans were living with heart failure. The American Heart Association (AHA) estimates that more than 500,000 cases are diagnosed each year (Heart Disease and Stroke Statistics, 2006). Heart failure has a high prevalence, especially among the elderly. Three quarters of those hospitalized for heart failure are at least 65 years of age and older and one-half are at least 75 years of age, with heart failure being the primary diagnosis for hospital admission among Medicare beneficiaries (Krumholz, Chen, Wang, Vacacrino, Radford, & Horwitz, 2000). Readmission rates for heart failure patients are estimated to be 29% to 47% in the first 3 to 6 months following discharge. As age-adjusted mortality rates from cardiovascular disease decrease, and the number of older person's increases, the number of persons living with heart failure is expected to increase dramatically.

National attention has focused on the proportion of health care dollars being spent on heart failure (Riegel, Carlson, & Glaser, 2000). In 2003, the annual cost of treating heart failure was estimated at $29.6 billions dollars (Heart Disease and Stroke Statistics, 2006). This recognition has resulted in efforts to help persons with heart failure better manage their own care.

The majority of heart failure care is self-managed and requires considerable expertise in disease management. Because of this, comprehensive education is vital to heart failure self-management. The goals of heart failure education identified in the

Heart Failure Society of America (HFSA) comprehensive heart failure practice guideline are to help patients and their caregivers acquire the knowledge, skills, strategies, and motivation necessary for effective self-care (Adams, Lindenfeld, Arnold, Baker, Barnard, Baughman, et al., 2006). Adams et al. identified the following essential elements of patient education:

1. Definition of heart failure and cause of the patient's heart failure
2. Recognition of escalating symptoms such as increasing fatigue, increasing shortness of breath with activity or at rest, need to sleep with an increasing number of pillows, waking at night with shortness of breath, and edema
3. Performance and documentation of daily weights
4. Indications and use of each prescribed medication
5. Importance of risk factor modification including smoking cessation, management of hypertension, management of HgA1c if diabetic, and maintenance of specific body weight
6. Specific diet recommendations including low-sodium diet and limiting alcohol intake
7. Specific activity and exercise recommendations
8. Importance of treatment adherence and behavioral strategies

Dracup, Baker, Dunbar, Dacey, Brooks, Johnson, et al. (1994) reported the majority of hospitalizations for heart failure are a result of non-compliance with medications and dietary restrictions, which reinforces the need for better patient counseling and patient education. Several studies have demonstrated that patient education and better illness self-management can improve the outcomes of those with heart failure (Jaarsma, Halfens, Abu-Saad, Dracup, Gorgels, van Ree, et al., 1999; Krumholz, Amatruda, Smith, Mattera, Roumanis, Radford, et al., 2002; and Miranda, Gorski, LeFevre, Levac, Nidederstadt, & Toy, 2002).

Problem

Persons with heart failure require a good understanding of heart failure in order to minimize exacerbation of the disease process and maintain quality of life. Recent clinical guidelines recommend that clinicians counsel persons with heart failure about lifestyle modifications such as medications, a low sodium diet, activity modifications, as well as symptoms of deterioration. It is especially important to learn whether persons with heart failure have an adequate understanding of heart failure, in order to enable them to participate in their own self-care (Horowitz, Rein, & Leventhal, 2004). Although there is evidence that patient education can improve outcomes of persons with heart failure (Jaarsma et al., 1999; Krumholz et al., 2002; Naylor, Brooten, Campbell, Maislin, McCauley, & Schwartz, 2004), there may be a discrepancy between persons with heart failure and health care providers about what information is most important. Hagenhoff, Feutz, Conn, Sagehorn, and Moranville-Hunziker (1994) reported a general trend for patients to rate all heart failure education content as more important to learn than nurses rated the information. Determining the educational preferences and needs of persons with heart failure is a critical first step toward improved outcomes.

Background and Significance

In 2004, heart failure was the most common reason for hospitalization of Medicare beneficiaries (Heart Failure Fact Sheet, n.d.), and the number of persons admitted with heart failure continues to rise. Hospital discharges with diagnosis of heart failure rose from 377,000 in 1979 to 995,000 in 2001 (Heart Failure Fact Sheet, n.d.). While there is a greater than 50% mortality rate within five years of a heart failure diagnosis, there are also millions of persons living with and managing heart failure.

Typical treatment of heart failure includes medications, modifications to diet, and exercise. Symptoms must be monitored daily in order to recognize deterioration and act quickly to prevent hospitalization. Heart failure is a chronic condition and most likely will result in a decreased life expectancy. Self-care can improve a person's ability to live well with heart failure. When self-care is lacking, persons with heart failure often experience rapid deterioration in their condition, precipitating the need for emergency intervention (Horowitz et al., 2004).

Persons with heart failure require knowledge and skills in order to make lifestyle adjustments and care for themselves effectively (Jaarsma et al., 1999). It is important that patients and their families receive education and support which will enhance their self-care abilities. Jaarsma et al. reported that heart failure education can positively influence lifestyle modification and recognition of worsening symptoms, as well as coping with chronic illness, for persons with heart failure.

Because the majority of care occurs away from the supervision of health care providers, most health care for heart failure patients is in the form of self-care (Hagenhoff et al., 1994). Illness self-management programs are designed to provide patients with the knowledge and skills necessary to manage their health conditions on a daily basis (Lorig, 2002) and have been shown to have long-term positive effects on the behaviors of patients with chronic disorders. Learning to solve one's own problems is much different than having the health care provider do it. Patients who receive the proper education and support are more apt to do things in their own best interest. Patients with confidence in their ability to manage their condition usually have the best outcomes (Lorig, 2002).

Due to the frequency of hospital admissions for heart failure among Medicare beneficiaries, the Centers for Medicare and Medicaid Services (CMS) are very motivated to improve treatment plans and promote desirable health outcomes (Roman & Paul, 2003). The CMS have developed a number of initiatives using heart failure as a prototype to explore ways to improve treatment, reduce hospital admissions, and improve health outcomes. The goal of these projects is to use performance measurement to evaluate outcomes, and some include incentive payments to those programs meeting the outlined measures of heart failure care. Thus there is a financial incentive to provide optimal management of heart failure.

Hospital nurses caring for heart failure patients are most often responsible for providing education in self-care for hospitalized patients. Heart failure education is usually done while the person is hospitalized, in order to facilitate performance of self-care when the person returns home. Due to the short length of stay experienced by many patients, the nurse must be efficient in providing education. In order to design effective educational interventions, nurses need to know what patients believe they should learn (Hagenhoff et al., 1994). Assessment of these elements will enhance the educational process and learning.

Purpose

The purpose of this study was to determine which topics person with heart failure believe are most important to learn. The study will also explore what patients think can realistically be taught in the hospital about HF self-care. The study goal will be achieved by asking patients to rate heart failure topics on a scale from very important to not important at all. The patients will also be asked to rate how realistic it is to learn the information while in the hospital. The first research question is “what do heart failure patients think is important to learn?” The second question is “what can be realistically learned while in the hospital?”

Conceptual/Theoretical Framework

The framework used for the study was Dorothea Orem’s Self-Care Deficit Nursing Theory (SCDNT). Orem (1995) proposed that nursing is human action, and nursing systems are formed by nurses for persons with limitations in self-care or dependent-care. Orem’s SCDNT is composed of three constituent theories: Theory of

Nursing Systems, Theory of Self-Care Deficit, and Theory of Self-Care (Tomey & Alligood, 1998).

Orem (1995) proposed in the Theory of Nursing Systems that nursing is human action that exists to assist persons with health-derived or health-associated limitations in self-care, or for those individuals assisting in dependent-care. Orem has identified three basic nursing systems:

1. Wholly compensatory system: the nurse's action is to accomplish the patient's therapeutic self-care, compensate for the inability of the patient to engage in self-care, and support and protect the patient.
2. Partly compensatory system: the nurse performs some self-care for the patient, assists the patient as needed, and compensates for the self-care limitations of the patient. The patient accepts care and assistance from the nurse, and is able to perform some self-care measures.
3. Supportive-educative system: the patient is able to accomplish the self-care, and the nurse action is to regulate the development and implementation of the self-care agency.

In the Theory of Self-Care Deficit, Orem (1995) proposed that persons may have health-related or health-care-related action limitations that leave them completely or partially unable to engage in care measures affecting their own, or their dependent's, functioning and development. The self-care deficit is a relationship between the action the person should take and the action the person is capable of providing.

Finally, with development of the Theory of Self-Care, Orem (1995) proposed that self-care is a function that individuals must deliberately perform for themselves to maintain life, health, development, and well-being. Self-care must be learned and performed consistently to meet the requirements for human functioning and development. Self-care is affected by many factors, including age, developmental stage, health state, environment, and effects of medical care.

Lorig and Holman (2003) discussed that self-management is a term frequently used to describe health promotion and patient education programs. The concept of self-management is especially important for those living with chronic illness where only the patient can be responsible for their self-care. Lorig and Holman reinforced that persons living with a chronic illness must have the knowledge necessary to make decisions in response to changes in their condition.

Definition of Terms for the Purpose of This Study

1. Dependent care agent: Person who is psychologically and physically able and willing to meet a dependent person's self-care demands (Orem, 1995).
2. Education: "the act or process of imparting or acquiring general knowledge, developing the powers of reasoning and judgment, and generally of preparing oneself or others intellectually for mature life" (*Webster's New Universal Unabridged Dictionary,* 1996, p. 621).
3. Heart failure: "Heart failure is a syndrome caused by cardiac dysfunction, generally resulting from myocardial muscle dysfunction or loss and

characterized by left ventricular dilation or hypertrophy" (Adams et al., 2006, p. 10).

4. Nursing Agency: A power developed through specialized education, training of self in the practical operations of nursing practice, and clinical experiences that enable the nurse to know and meet the patient's therapeutic self-care demands, as well as protect and develop the patient's ability to provide self-care (Orem, 1995).
5. Nursing System: A helping system between the nurse and patient, designed to identify and meet the patient's therapeutic self-care demands, compensate for self-care deficits, and to assist in the development of the patients' self-care abilities (Orem, 1995).
6. Perception: "the act or faculty of apprehending by means of the senses or of the mind; cognition; understanding, (*Webster's New Universal Unabridged Dictionary,* 1996*,* p. 1437.)
7. Self-care: A human function that individuals must deliberately perform for themselves in to order to maintain life, and have optimal functioning and development (Orem, 1995).
8. Self-care agency: The acquired capability to meet one's requirements for care of self in order to regulate life process, maintain human functioning, and promote well-being (Orem, 1995).
9. Self-care agent: The provider of self-care (Orem, 1995).

10. Self-care deficit: Limitations which render the person completely or partially unable to perform self-care requisites (Orem, 1995).
11. Self-care demand: Self-care actions which must be performed in order to meet known self-care requisites (Orem, 1995).
12. Self-management: Learning and practicing the skills necessary to continue on with an active and emotionally satisfying life in the presence of a chronic disease (Lorig, 1993).

Assumptions

The assumptions made for this study included:

1. Persons with heart failure will need to engage in self care.
2. Improved self-management improves quality of life and health outcomes (including reduced risk of re-hospitalization).
3. Education improves a person's ability to self-manage heart failure care.
4. Identifying educational needs and preferences will improve the efficacy of education.

CHAPTER 2

REVIEW OF LITERATURE

Chapter two contains a review of the literature undertaken using PubMed Central (PMC) and the Cumulative Index to Nursing and Allied Health Literature (CINAHL). Keywords used during the search included “chronic disease, clinical guidelines, disease management, education, heart failure, hospital readmission, home care, incidence, intervention, outcomes, prevalence, quality initiatives, self-care, self-efficacy, and self-management.” The following major topics identified from the review of the literature that are described in this chapter include: definition of heart failure, risk factors, signs and symptoms of heart failure, incidence and prevalence, morbidity and mortality, readmission rates, economic impact of heart failure, multidisciplinary management, self-management, educational needs, and self-care deficit.

Definition of Heart Failure

Heart failure is a clinical syndrome rather than a disease (American College of Cardiology/American Heart Association [ACC/AHA], 2005). Heart failure has many etiologies and presents with diverse clinical features. Heart failure is the loss or dysfunction of the myocardium as a result of elevated cardiac filling pressure and/or inadequate peripheral oxygen delivery (Adams et al., 2006). Heart failure is characterized by left ventricular dilation or hypertrophy. The dysfunction experienced may be primarily systolic, diastolic, or of mixed etiology. Heart failure is progressive and often fatal however persons can be stabilized and may even have some improvement of myocardial dysfunction as a result of therapy. The main causes of heart failure are coronary artery disease, hypertension, valvular disease, infection, and cancer chemotherapy (ACC/AHA, 2005). Heart failure is a chronic condition, characterized by remissions and exacerbations. Because heart failure is a chronic condition, nursing and medical care should address symptom burden, functional status, psychological state, compliance with therapy, self-management and quality of life.

Heart Failure Risk Factors

A thorough medical history is important to help guide clinical decision-making, to help design quality performance measures, and to assess treatment outcomes (ACC/AHA, 2005). The following risk factors indicate the need for further evaluation for heart failure: hypertension, diabetes, obesity, coronary artery disease, peripheral arterial disease, cerebrovascular disease, valvular heart disease, first-degree relative with cardiomyopathy, history of exposure to cardiac toxins, and sleep-disordered breathing (Adams et al., 2006). Those persons identified as at risk for heart failure need aggressive management of modifiable risk factors in order to help preserve their cardiac function.

Signs and Symptoms of Heart Failure

Persons with known risk factors for heart failure should be evaluated for signs and symptoms indicative of heart failure (Adams et al., 2006) including: dyspnea at rest or with exertion, reduction in exercise capacity, orthopnea, paroxysmal nocturnal dyspnea or nocturnal cough, edema, and ascites or scrotal edema. Less specific signs may be early satiety, nausea and vomiting, abdominal discomfort, wheezing or coughing, unexplained fatigue, and confusion or delirium. On physical examination the examiner should look for elevated venous jugular pressure, S3 gallop, rales, hepatojugular reflux, ascites, dependent edema, laterally displaced apical impulse, or murmurs suggesting valvular dysfunction (Adams et al., 2006).

Incidence and Prevalence of Heart Failure

According to Heart Disease and Stroke Statistics (2006) for 2003, 5 million Americans were living with heart failure, and 550,000 new cases were diagnosed. Of those persons with heart failure, 2.4 million were men, and 2.6 million were women. More than 1,093,000 persons were discharged from the hospital with a diagnosis of heart failure in 2003. The lifetime risk of developing heart failure at age 40 is 1 in 5 for both men and women. The risk of developing heart failure doubles for persons with blood pressure greater than 160/90 mmHg compared to those with blood pressure less than 140/90 mmHg. There is an increased risk of developing heart failure after a heart attack. The risk of heart failure is greater for women after heart attack, with 46% of women developing heart failure within 6 years compared to 22% of men. Cardiac arrest occurs 6-9 times more often in persons with heart failure.

Mortality from Heart Failure

Heart failure deaths are defined as those for which the underlying cause is listed on the death certificate as congestive heart failure, left heart failure, and unspecified heart failure. The mortality rate from heart failure declined from 1980-1995 ("Changes in

Mortality," 1998). However, the numbers are now on the rise, with an increase of 20.5% for deaths from heart failure in the period from 1993-2003 (Heart Failure Fact Sheet, n.d.). During that same time period, the death rate declined by 2.0%. Eighty percent of men and 70% of women under the age of 65 will die within eight years of diagnosis of heart failure. The 1-year mortality rate is also high, with one in five persons diagnosed with heart failure dying during the first year.

Factors Contributing to Hospital Readmission for Persons with Heart Failure

Older persons with heart failure have a high rate of rehospitalization, often as a result of problems with self-care (Happ, Naylor, & Roe-Prior, 1997). The rates of readmission for heart failure ranged from 29 to 47 % within three to six months of the initial discharge (Rich, Beckham, Wittenberg, Leven, Freedland, & Carney, 1995). Rich, et al.reported that behavioral factors, such as failure to comply with medication and diet regimens, and social factors, such as social isolation are often associated with early readmission, and those readmissions may be preventable.

Krumholz et al. (2002) conducted a prospective, randomized trial for patients with heart failure (n = 88) to study the effects of a formal education and support intervention on one-year readmission and mortality rates. The intervention focused on patient knowledge of the condition, medications, health behaviors, knowledge of early signs and symptoms of decompensation, and where and when to seek assistance. The number of patients who were readmitted to the hospital or died was 22 (50%) in the intervention group and 35 (80%) in the control group. The median time to all-cause readmission or death was 193 days in the intervention group and 126 days in the control group. Krumholz (2002) concluded that an education and support intervention was highly effective in reducing readmissions.

Schwarz and Elman (2003), used a prospective longitudinal design to analyze hospital admissions for heart failure (n = 156) and identify predictors of readmission. Data were collected by chart review and through patient and caregiver interviews. Schwarz and Elman reported high readmission rates, with 44% of persons discharged with a primary diagnosis of heart failure being readmitted within a 3-month period. Risk factors for readmission identified in their study were the interaction of severity of patient cardiac illness and functional status, interaction of caregiver depression and stress, and caregiver informal support.

Happ et al. (1997) did a retrospective analysis of hospital records (n = 16) to identify factors associated with the readmission of elderly patients with heart failure. They found three major factors correlated most often to hospital readmission including medication supply, dietary non-adherence, and poor general health behaviors, such as smoking, substance abuse, and non-adherence to the treatment regimen. Preventive factors for hospital readmission were identified as supportive family or friends, and individual motivation. Most of the persons who were readmitted had a documented history of non-adherence to the treatment regimen. They suggested that multidisciplinary interventions are needed for persons with heart failure and should be developed with input from the patient, in order to design a medication and diet regimen that fits the person’s lifestyle and available resources.

Lack of knowledge about how to participate in heart failure care is common and often leads to non-adherence (Adams et al., 2006). Poor adherence to medical therapy for heart failure has been implicated as a common cause of rehospitalization (Tsuyuki, Fradette, Johnson, Bungard, Eurich, Ashton, et al., 2004). Programs designed to improve heart failure therapy and outcomes should include interventions which are designed to increase adherence. Tsuyuki et al. suggested that optimizing treatment with available therapies, in partnership with patient education, may be as beneficial to improved outcomes as any single new therapy.

Cost of Heart Failure

The estimated cost of heart failure in the United States is $29.6 billion for the year 2006 (Heart Disease and Stroke Statistics, n.d.). In the year 2001, $4.0 billion was paid to Medicare beneficiaries for heart failure, which translated to $5912 per discharge. The number of hospitalizations for heart failure rose from 402,000 in 1979 to 1,101,000 in 2004 (Heart Failure Fact Sheet, n.d.). If this trend continues the cost of treating heart failure will continue to rise as well.

Multidisciplinary Management of Heart Failure

Grady, Dracup, Kennedy, Moser, Piano, Stevenson, et al. (2000), published a statement for healthcare professionals recommending an integrated approach for the treatment of persons with heart failure. They recommended physicians, advanced practice nurses, home health nurses, dietitians, and pharmacists work together using a common plan to direct patient education and counseling about heart failure. Written materials may supplement patient teaching, but should not be a replacement for one-on-one education. Grady et al. concluded that an integrated approach to management of heart failure can contribute to favorable outcomes including reduced rates of rehospitalization, reduced cost, enhanced compliance, improvement in functional status, and prolonged survival.

Glasgow, Funnell, Bonomi, Beckham, and Wagner (2002) reported on a team approach to integrate self-management support in health care systems using the Chronic Illness Care Breakthrough Series Collaboratives (Collaboratives). Health care teams (the Collaboratives) from multiple health care settings attended three 2-day group-learning sessions with the goal of developing and refining their quality-improvement plans. Diabetes and heart failure were the chronic conditions addressed by the teams reported in this article. The teams chose outcome measures related to their goals for quality improvement, and then submitted data on these measures at the beginning of the Collaborative, and monthly thereafter. One of the outcomes measured by the heart failure teams was percentage of persons reporting the self-monitoring of daily weights. The median score during the first 3 months of the Collaborative was 19%, but the score had improved to 93% during the last three months of the Collaborative. Although it was too soon to tell if there would be long-term improvements in patient outcomes, the initial results were very promising.

Heart failure guidelines recommend that persons with heart failure and their families and caregivers receive individualized education and counseling centered on self-care (Adams et al., 2006). The American College of Cardiology and the American Heart

Association (ACC/AHA, 2005) recommend the following topics for patient education: medication instruction, recognition of worsening symptoms, weight counseling, diet counseling, counseling about alcohol abstinence/restriction, activity counseling, smoking cessation counseling, and immunization counseling. The ACC/AHA also recommended the regular assessment of patient's understanding of and adherence to care recommendations.

Adams et al. (2006) recommended that providers should use a team approach to deliver the education and counseling. The majority of the education should be provided by nurses trained in heart failure management. Physicians should supplement and reinforce the information delivered by the nurses. Recommendations from dietitians concerning a low-sodium diet and from pharmacists about medication therapy are also beneficial to the learning process.

Self-Management

Lorig (1993) defined self-management as "learning and practicing the skills necessary to carry on an active and emotionally satisfying life in the face of a chronic condition" (p. 11). Self-management is one of the components of self-care. Self-care is centered on maintaining health through a process of positive health practices (Riegel et al., 2000). The concept of self-management relates to Orem's Theory of Self-Care (1995) which proposes that self-care is a function that individuals must perform for themselves to maintain life, health, development, and well-being.

Self-management occurs both when a person is engaging in a healthful behavior, and when they are not actively managing their disease (Lorig & Holman, 2003). By choosing to make healthy lifestyle modifications, or to continue with high risk behaviors, the person is still managing their care. It is impossible not to manage one's own health, since not managing a disease is also a management style. Self-management becomes especially important for persons with a chronic disease, such as heart failure, where improved self-care can have a positive outcome on quality of life. For persons living with heart failure, self-management requires lifestyle changes.

According to social cognitive theory, there are two major reasons for people to practice a new behavior (Clark, Janz, Dodge, & Sharpe, 1992). The first is outcome expectancy, the belief that a certain behavior will achieve a desire outcome. The second is the expectation of self-efficacy, the belief that they are capable of performing the behavior at an acceptable level of competence. Clark et al. reported that the most powerful source of learning and change is self-regulation, or learning from one's own experiences. As people become more adept at carrying out a new behavior, they are more motivated to perfect a task or attempt new ones. Support and reinforcement for their behavior provides additional motivation.

To be successful, self-management requires a detailed needs assessment and must be based on patient's concerns and perceived problems (Lorig & Holman, 2003). Self-management must include three tasks: medical management, role management, and emotional management. Self-management of heart failure involves such tasks as taking medications, adhering to a specific diet, monitoring weight, and adhering to an exercise program.

Lorig and Holman (2003) identified five core self-management skills: problem solving, decision making, resource utilization, forming of a patient/health care provider partnership, and taking action. Problem solving involves the teaching of basic problem solving skills including problem definition, generation of possible solutions, solution implementation, and evaluation of results. Decision making involves those decisions which must be made on a daily basis in response to changes in disease condition. Patients must be informed about how to find and utilize resources and work in partnership with their health care provider. The health care provider acts as teacher, partner, and supervisor of care, with the patient being made responsible for reporting on disease trends and making informed choices about treatment. Taking action involves learning how to change a behavior, such as making an action plan.

Self-management programs are designed to allow participants to make informed choices, learn problem solving skills, practice new health behaviors, and maintain emotional stability (Lorig, 1993). Self-management is aimed at improved health status or the slowing of deterioration. A secondary outcome of self-management is the reduced need for healthcare services. Self-management education is intended to help the participant become an active partner with healthcare providers.

Changes in the health care delivery system in the United States have required patients to assume the responsibility for much of their own care, in part due to the decreased length of stay for most hospitalized patients. Polanczyk, Rohde, Dec, and

DiSalvo (2000) reported on a study of the outcomes of patients hospitalized with heart failure over a ten-year period from January 1, 1986, through July 31, 1996. They found that heart failure severity increased, as measured by the CHF-specific index, while at the same time, the length of stay for those persons with heart failure decreased significantly. They report the availability of home-based care services and increasing payer constraints on hospital reimbursement as likely explanations for earlier discharges for persons with heart failure. Whatever the reason, persons with heart failure are being sent home from the hospital earlier, and often sicker, than in the previous decade.

Heart failure patients participate in self-management in order to maintain a balance between relative health and symptomatic heart failure (Riegel et al. 2000). Self-management of heart failure involves cognitive decision making in response to signs and symptoms of heart failure exacerbation. Because the majority of heart failure care is done at home it is important for the persons with heart failure, and their caregivers, to understand their condition and treatment (Adams, 2006). If persons with heart failure do not understand what their self-care requires, or do not understand the importance of the recommendations, they will not be effective in self-management.

It is important for clinicians to assess the knowledge, skills, attitudes, and motivation of persons with heart failure in order to focus teaching efforts in the most productive manner (Riegel et al., 2000). The symptoms of heart failure are often subtle, and affected persons may fail to recognize problems or delay seeking treatment due to a lack of knowledge about the importance of certain heart failure symptoms.

Advanced practice nurses (APNs) are highly skilled, as well as being prepared to use a holistic approach to help guide the self-management of persons with heart failure (Naylor, 2004). Trials have been conducted by Naylor et al (2004), Palmer, Appleton and Rodrigues (2003), and Rich et al. (1995) to study the effectiveness of nurse-led interventions for heart failure education and management utilizing APNs. The findings of these studies showed favorable outcomes with a nurse-led heart failure program. Naylor et al. (2004) reported increased length of time between hospital admissions, reduction in total number of hospitalizations, and a reduction in healthcare costs associated with heart failure. Palmer et al. (2003) reported a reduction in number of days of hospitalization, along with a decrease in the number of hospitalizations. Rich et al. (1995) demonstrated a reduction in hospital admissions and a reduced overall cost of care in their intervention group.

Ni, Nauman, Burgess, Wise, Crispell and Hershberger, (1999) conducted a survey of persons with heart failure (n = 113) to assess their knowledge level and adherence to self-care. They discovered that although most persons with heart failure had received self-care education and advice from their health-care providers, 40% of those surveyed reported having little or no knowledge about heart failure. There appeared to be a large discrepancy between receiving and retaining information. Ni et al. identified a need for ongoing education, and improved strategies to help persons with heart failure retain the information being provided.

Ni et al. (1999) suggested that knowledge alone does not necessarily lead to improved self-care. Although most persons in their study recognized the importance of sodium restriction and daily monitoring of weight, only a small percentage actually followed those guidelines. Ni et al. recommended that adherence to self-care recommendations may be improved by increasing patient's knowledge level and confidence in the ability to manage their own care. Adherence to a therapeutic self-care regimen is influenced by many factors including the person's personality, age, state of health, education, and ethnic and cultural background (Ågård, Hermerén, & Herlitz, 2004).

Rogers, Addington-Hall, McCoy, Edmonds, Abery, Coats, et al. (2002) reported on a qualitative study of persons with heart failure (n = 27), and their understanding of symptoms and drug therapy. They found those persons lacked knowledge of the relationship between symptoms of heart failure, relief of symptoms by medications, and the side effects of heart failure medications. Those persons surveyed were often anxious about identifying changes in their condition, and when it would be appropriate to seek medical consultation. They often tolerated increasing symptoms for a period of time before contacting their provider. Rogers et al. also discussed that persons with heart failure often have cognitive impairment and high levels of depression and anxiety, which may contribute to their difficulty in the understanding of self-management of heart failure.

Education

Expert patients are those who take responsibility for decisions about their health, and work with health-care providers to achieve the best health possible under the circumstances (Lorig, 2002). Those persons living with a chronic condition, such as heart failure, need to be provided with education in order to manage their health on a daily basis. In order to participate in self-care and self-management, persons with heart failure need knowledge about their condition, risk factors, medications, dietary requirements, activity, and what to do if symptoms worsen. Self-management of heart failure often requires major lifestyle changes. It is important that persons with heart failure understand this, and that the material is presented in language they are able to understand (Dracup et al., 1994).

Patient education should be an ongoing process (Dracup et al., 1994). Patients do not absorb and retain all the required information in a single session, so their needs should be continually evaluated. The providers of education need to be sensitive to differences in culture, language, and the educational level of patients and their families. Education should be individualized for each patient and their family in order to be more effective (Jaarsma et al., 1999).

Toman, Harrison, and Logan (2001) discussed the importance of a comprehensive teaching program that is based on adult education literature and adapted to the health status and unique learning challenges of persons with heart failure. They recommended that personal characteristics and challenges of individuals with heart failure should be considered when developing the education plan as no one learning strategy will work for all individuals. Adult learners need to see the connection between the content being provided and their particular situation. Structured education programs can overwhelm the person and decrease the motivation to learn. Evidence-based practice should be used to guide the content presented, but the program should be individualized to each person's particular needs and medical treatment. Socio-cultural adaptations may be necessary to make the information easier to understand.

Health care professionals need to provide essential information about heart failure, while being careful to avoid unwanted or redundant information (Ågård, Hermerén, & Herlitz, 2004). Ågård et al. recommended a strategy where education initially was concentrated on a few central aspects of heart failure, and additional information was provided when the person understood the previous information. This step-by-step approach allows the information to be adjusted to the needs and capacity of the individual learner.

Scharf Donovan and Ward (2001) described a representational approach to patient education using a five-step process. The first step involved representational assessment, where the person was encouraged to describe their illness in terms of identity, cause, timeline, consequences, and cure or control. The second step involved exploring misconceptions. The third step was creating conditions for conceptual change, where the limitations and consequences of the misconceptions were explored. The fourth step was replacement information, with information provided to replace the misconceptions or to fill in gaps in knowledge. The fifth step served to summarize the new information, as well as the benefits expected from initiating the change in behavior.

Scharf Donovan and Ward (2001) recommended evaluating the person's preexisting perception of the illness before new information was presented. The assumption of this approach was that the person already has knowledge and ideas about their health problem, and there occurs an interaction between new information and these previous perceptions. Non-adherence often occurs when new information is contrary to preconceived ideas about the illness and its treatment. The emphasis was on participation of the person with the condition in all phases of the learning process.

Ågård et al. (2004) conducted a study which explored person's knowledge of heart failure and their attitudes toward medical information (n = 40). They reported that persons with heart failure were adequately informed when they had attained a level of knowledge that allowed them to be managed as effectively as possible, while being satisfied with the amount and content of the information provided. Ågård et al. believed persons have both the right to know, and the right to choose not to know, dependent on their preference. An increase in knowledge about heart failure does not guarantee changes in behavior.

Patient compliance is thought to be enhanced when there is open communication between patients and their providers (Dracup et al., 1994). Discussions should help patients come to a realistic outlook about their prognosis, as well as various treatment options available to them. Patients will generally do things in their own best interest if they receive the proper support (Lorig, 2002). Therapy goals are best accomplished when the patient and family are well informed and actively involved in development of the plan of care.

As a result of cost constraints, many institutions have decreased the number of staff members. Decreased staffing means nurses face additional challenges to provide education, and often question the effectiveness of their teaching. Allowing the patient's to prioritize their individual learning needs can help the nurse begin the teaching with the most important topic and end with the topic perceived as least important (Luniewski, Reigle, & White, 1999).

Physicians are instrumental not only in the management of persons with heart failure, but also in helping them gain the confidence to self-manage their condition for the best health outcomes. To facilitate self-care of heart failure, physicians should collaborate with their heart failure patients, and make it clear they want them to become expert patients (Lorig, 2002). Persons are more likely to change their behaviors if they perceive their health-care providers to be supportive.

Many persons with heart failure were found to believe that controlling symptoms was the physician's responsibility, as shown in a study of 38 older cardiac patients (Kennelly & Bowling, 2001). Although most still preferred the physician to make final treatment decisions, they did express a desire to be involved in the decision making process. Kennelly and Bowling discussed that persons with heart failure have different understandings of their illness and treatment depending on how long they have had the condition, the education that has been provided to them previously, and how well they understood the material which was presented. It is important for physicians to tailor their education to the person's needs, in order to provide relevant information.

There is a considerable amount of research identifying the supportive role of patient education in the self-management of heart failure. As discussed previously it is important to determine the learning needs of the individual when developing their educational program. Because patient education is so critical to the person's understanding of heart failure, it is vital that information be presented in a manner that is meaningful to the person in order to facilitate learning.

Barriers to Learning and Education

Ågård et al. (2004) conducted a qualitative study using semi-structured interviews with 40 patients who had various stages of chronic heart failure. They reported that a significant number of those surveyed did not strive to obtain a higher level of knowledge. They identified several barriers to the improvement of a person's understanding of heart failure. Some patients were indifferent, and did not feel that increased knowledge would change anything. Other persons expressed trust in their health care professionals, and preferred to leave medical issues to them. Another reason cited was lack of schooling, and the feeling of being incapable of understanding more complex issues. Finally, many of the participants were unaware of their limited understanding.

Strőmberg (2005) discussed in a review of the literature that persons with heart failure should be involved in the discussion of educational materials and models. Because of the gap between the receiving and retaining of information, it is necessary to be aware of the barriers to learning in this population. Braunstein, Anderson, Gerstenblith, Weller, Niefeld, Herbert, et al. (2003) reported that many of these persons also had co-morbidities such as diabetes, chronic obstructive pulmonary disease, ocular disorders, osteoarthritis, dementia, and chronic renal failure, leaving them at higher risk for functional and cognitive limitations. Another factor to consider is the patient's health literacy. Williams, Baker, Parker, and Nurss (1998) concluded in a study of patients with hypertension and diabetes (n = 582) that the low-literate patient is not able to fully comprehend medical advice using standard patient education interventions. Barriers to learning recognized in persons with heart failure included: functional limitations, such as visual, hearing, or mobility issues; cognitive limitations and memory problems; misconceptions and lack of basic knowledge; low motivation and interest; and low self-esteem (Strőmberg, 2005).

CHAPTER 3

METHODOLOGY

Project Design and Data Collection

Study Design

A descriptive, cross-sectional design was used to identify the topics persons with heart failure believed were most important to learn, and topics they believed could realistically be learned during a hospital stay. A survey tool was used to collect the data to answer the research question. Data collection took place over a 2-month period of time, from November 1 to December 31, 2006.

Sample Selection

A convenience sample of persons admitted to the telemetry floor of an acute care hospital located in a small urban area of a large rural state in the western United States were asked to participate in the study. Inclusion criteria were hospital admission with primary diagnosis of heart failure, ability to understand English, oriented to person, time, place, situation, and willing to participate in an oral interview or complete the survey tool.

Procedure

The Principal Investigator (PI) obtained the names and room numbers of eligible persons from the unit charge nurse. Eligible persons were then contacted by the PI and informed of the opportunity to participate in the study. Participation was completely voluntary, and consent was given by agreeing to complete the survey. The PI read the survey and recorded the results on the form for those persons who were unable to complete the survey due to visual impairment or other physical limitations.

Of the 36 patients who were approached by the primary investigator, 67% (n=24) agreed to participate and completed the survey. The PI assisted four of those persons in completing the survey by reading the questions to them and recording their answers.

Identifying information such as name, address, medical record number, social security number, etc, was not collected in order to protect confidentiality. Room numbers and patient names were only obtained to contact the patients for participation, and were not recorded on the survey form. Participants were assigned an identification number to facilitate data management. Data were kept in a locked cabinet in the office of the PI.

Instrument

The instrument used for the study was the Congestive Heart Failure Patient Learning Needs Inventory (CHFPLNI), developed by Hagenhoff et al. (1994) (see appendix A). The CHFPLNI was adapted from the Cardiac Patient Learning Needs Inventory which has established validity, test-retest reliability, and internal consistency for both the overall scale and the subscales (Hagenhoff et al., 1994). The CHFPLNI was then reviewed by a panel of cardiovascular nursing experts, but was not tested for reliability and validity.

The CHFPLNI consists of 44 questions divided into two sections: the first section focuses on how important information is to know, and the second section focuses on how realistic the information is to learn while hospitalized. Each section includes individual topics grouped into seven categories including: anatomy and physiology, psychological factors, risk factors, medication information, diet information, activity information, and other pertinent information. Participants rated each topic in each section using a 5-point Likert scale with 0 = not important or not realistic, 1 = somewhat important or somewhat realistic, 2 = important or realistic, 3 = moderately important or moderately realistic, and 4 = very important or very realistic. This instrument was chosen because it addressed many of the categories of information recommended in the current heart failure education guidelines (Adams et al., 2006). Permission was obtained from the author to use the CHFPLNI (V. S. Conn, personal communication, April 22, 2006).

Additional items were added to the survey by the PI to collect demographic information including: age, gender, formal educational level, population in town of residence, annual income, co-habitation status, previous cardiac related illness, and other chronic illness. Persons were also asked about the number of times previously hospitalized for heart failure, previous education about heart failure, and whether or not this was their first diagnosis of heart failure. Time to complete the survey was approximately 30 minutes.

Human Subjects Consideration

The study was approved by the St. Patrick Hospital and Health Sciences Center/Community Medical Center Inc. Joint Institutional Review Board (IRB) and the

Montana State University IRB. Permission to conduct the study was also obtained from the director of the telemetry unit of the hospital where the data collection took place.

Statistical Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS v 15.0). Responses to the survey were entered into the database by the PI. Descriptive statistics and frequencies were produced to identify possible data entry errors. A mean Likert rating was computed for all respondents on each of the seven categories in both sections of the instrument. Data are presented as means with standard deviation, frequencies, and percentages to characterize the sample and examine frequencies in topic preferences and those that could be realistically taught during hospitalization. Due to the small sample size, measures of association were not used to examine differences among subgroups of participants.

CHAPTER 4

RESULTS

The purpose of the study was to determine the educational needs of persons with heart failure and the feasibility of learning the information while hospitalized. The research questions answered are “what do persons with heart failure think is important to learn”, and “is it realistic to learn the information during a hospital admission”.

Demographics

Twenty-three of 24 persons answered the questions about demographics. The sample was predominately male (65%) with a mean age of 67.9 (SD = 12.1). All of the participants were Caucasian, with one being of Hispanic or Latino descent. Table 1 lists the demographic characteristics of the sample population.

Table 1. Demographic Characteristics

	Number	%
Gender: Male	15	65.2
Female	7	34.8
Age: 43-49	2	8.7
50-59	5	21.7
60-69	4	17.4
70-79	8	34.8
80-84	4	17.4
Race: Caucasian (1 of the 23 of Hispanic ethnicity)	23	100.0
Ethnicity: Hispanic or Latino	1	4.3
Not Hispanic or Latino	22	95.7
Population in the town nearest where you live		
Less than 2,500 persons	2	9.1
2,501 – 10,000	4	18.2
10,001 – 50,000	6	27.2
Greater than 50,000	10	45.5

Table 1. Demographic Characteristics continued	Number	%
Highest education level completed		
8th grade or less	3	13.0
Attended some high school	1	4.3
Graduated from high school	6	26.1
Some college	9	39.2
College graduate	4	17.4
Annual income before taxes		
Less than $10,000	3	15.0
$10,000 – 20,000	3	15.0
$20,001 – 50,000	13	65.0
$50,001 – 100,000	1	5.0
Current employment situation		
Employed full time	3	13.6
Retired	15	68.3
Homemaker	1	4.5
Unable to work due to health reasons	3	13.6
Marital status		
Married	13	59.2
Divorced	7	31.8
Widowed	1	4.5
Separated	1	4.5
Living situation		
Live alone	1	4.5
Live with spouse/significant other/other family	17	77.3
Other	4	18.2

Note: Not all respondents answered all questions.

Table 2 lists information about length of diagnosis, number of hospitalizations, and other chronic illnesses. Nine (40.9%) of those surveyed reported this admission as their initial diagnosis of heart failure. Seven persons (31.8%) also had other heart related illness, and seven (31.8%) reported other chronic illness.

Table 2. Heart Failure and other Chronic Illness

	Number	%
First diagnosis of heart failure		
Yes	9	40.9
No	13	59.1
When was heart failure diagnosed?		
0 – 6 months ago	9	40.9
7 – 12 months ago	1	4.5
2 – 3 years ago	2	9.1
4 – 5 years ago	1	4.5
More than 5 years	9	40.9
Number of hospitalizations for heart failure, including the current one		
1	9	36.3
2	2	9.1
3	4	18.2
4	1	4.5
5	4	18.2
8	1	4.5
9	1	4.5
10	1	4.5
Other heart related illness		
Coronary artery disease	4	18.2
Atrial fibrillation	2	9.1
Other arrhythmia	1	4.5
Valvular disease	2	9.1
Other chronic illness		
Diabetes mellitus	4	18.2
Rheumatoid arthritis	1	4.5
Renal failure	1	4.5
Hypertension	1	4.5
Sarcoidosis	1	4.5
Asthma	2	9.1

Note: Not all respondents answered all questions.

About one-half of the participants who responded (n = 12, 54.5%) had received heart failure education. Educational formats included booklets, videos, discussion, demonstration, and an e-mail sent by a friend. Nurses (n = 7, 31.8%) and heart specialists (n = 7, 31.8%) were reported as the persons providing education most frequently. Two participants (9.1%) had received the education from their personal physician. Education was most often provided in the hospital (n = 11, 50%), followed by the physician's office (n = 6, 27.3%).

CHFPLNI Results

The CHFPLNI (see Appendix A) was used to determine the learning needs of persons with heart failure (part 1) and the feasibility of learning the information while hospitalized (part 2). Individual topics were grouped into seven categories. The categories in the survey included: anatomy and physiology, psychological factors, risk factors, medication information, diet information, activity, and other pertinent information. The possible scores ranged from 0 being the least important or least realistic to learn, to 4 being the most important or most realistic to learn.

Table 3 lists the categories of information addressed in the survey ranked in order of importance based on the category mean. All of the categories were identified by the participants as moderately (score = 3.0) to very important to learn (score = 4.0). Medication information was identified as the most important to learn (M = 3.45), followed closely by anatomy and physiology of the heart (M = 3.44). Psychological information ranked low at number six (M = 3.12), and diet information was reported to be the least important to learn, ranking number seven (M = 3.08).

Table 3. Overall Ranking of Importance by Category

Category	Order of Importance	Mean	SD
Medication Information	1	3.45	0.63
Anatomy and Physiology	2	3.44	0.59
Risk Factors	3	3.36	0.76
Activity	4	3.25	0.71
Other Pertinent Information	5	3.18	0.84
Psychological Factors	6	3.12	0.85
Diet Information	7	3.08	0.78

Note: Rank 1 is most important, with rank 7 being least important. SD = standard deviation.

Table 4 lists the participant's perceptions of how realistic it is to learn the information while in the hospital. All of the categories were scored by the participants as moderately (score = 3) to very (score = 4) realistic to learn while in the hospital. Anatomy and physiology of the heart was identified as the most realistic (M = 3.41) to learn while hospitalized, with medication a very close second (M = 3.40), followed by activity (M = 3.30) and risk factors (M = 3.28). Interestingly enough, diet information was not only identified as the least important to learn (M = 3.08), but diet was also ranked as least realistic to learn (M = 3.15) while in the hospital.

Table 4. Overall Ranking of How Realistic to Learn the Information While in the Hospital by Category

Category	Order of Importance	Mean	SD
Anatomy and Physiology	1	3.41	0.61
Medication Information	2	3.40	0.77
Activity	3	3.30	0.81
Risk Factors	4	3.28	0.78
Psychological Factors	5	3.19	0.99
Other Pertinent Information	6	3.18	0.84
Diet Information	7	3.15	0.87

Note: Rank 1 is most realistic to learn, with rank 7 being least realistic. SD = standard deviation.

All of the heart failure topics listed on the CHFPLNI ranked as somewhat to very important to learn. Table 5 lists the individual topics participants ranked as most important to learn. The top nine topics are listed in order of most important to least important. Measures to improve the function of the heart were identified as the topic most important to learn (M = 3.83). Other topics identified as most important included "why heart failure causes shortness of breath" (M = 3.75), "what to do for problems with medications" (M = 3.57), and "symptoms of heart failure and other heart disease" (M = 3.52). Topics were included in this table if they had a mean score of greater than 3.50.

Table 5. Topics Ranked Most Important to Learn

I need to know…	Mean	n	SD
What can I do to improve the heart's function	3.83	23	0.58
Why I am short of breath	3.75	24	0.68
Can the heart's function improve	3.71	24	0.62
When to call a doctor	3.70	23	0.70
What symptoms are caused by congestive heart failure	3.67	24	0.64
What happens when someone has heart failure	3.61	23	0.72
What to do if I have problems with my medications	3.57	23	0.73
What my physical activity restrictions are, if any	3.54	24	0.72
The signs and symptoms of other heart disease	3.52	23	0.90

Note: n = number of respondents, SD = standard deviation. Not all respondents answered all questions.

Table 6 lists those topics which were identified as least important to learn, ranked in the order of most important to least important. Many of the topics identified as least important to learn were concerned with diet and fluid. The topic ranked least important to learn (M = 2.63) was "What the heart looks like and how it works." Topics were included in this table if they had a mean score of less than 3.00.

Table 6. Topics Ranked Least Important to Learn

It is realistic for me to learn here today…	Mean	n	SD
How to adapt the recommended fluid restriction to my lifestyle	2.96	23	1.11
How to adapt the recommended diet to my lifestyle	2.96	23	1.12
How diet affects my heart disease	2.96	23	1.11
Where my family can go to learn CPR	2.96	23	1.07
How to take my pulse	2.87	23	1.33
General rules about eating	2.83	23	1.19
What the words sodium, salt and NaCl mean	2.83	23	1.30
Why I can engage in sexual activity	2.78	23	1.38
What my heart looks like and how it works	2.63	24	1.21

Note: n = number of respondents, SD = standard deviation. Not all respondents answered all questions.

Table 7 lists the topics ranked as most realistic to learn while in the hospital, in order from most to least important. The topic identified as most realistic to learn while hospitalized was “why heart failure causes shortness of breath” (M = 3.82). Other topics ranked as very realistic to learn dealt with improvement of heart function (M = 3.55) and symptoms of heart failure (M = 3.52). Topics included on this table had a mean score of 3.50 or greater.

Table 7. Topics Ranked Most Realistic to Learn While in Hospital

It is realistic for me to learn here today…	Mean	n	SD
Why I am short of breath	3.82	22	0.50
Can the heart’s function improve	3.57	21	0.75
What I can do to improve my heart function	3.55	20	0.76
What symptoms are caused by congestive heart failure	3.52	21	0.75

Note: n = number of respondents, SD = standard deviation. Not all respondents answered all questions.

Table 8 lists the topics ranked as least realistic to learn in the hospital, in order from most to least important. Although all topics were ranked as realistic to very realistic to learn while in the hospital, certain items such as “How to take my pulse” (M = 2.95) and “Where my family can go to learn cardiopulmonary resuscitation” (M = 2.90) were reported to be less realistic to learn. The topic identified as least realistic to learn while hospitalized was “What the heart looks like and how it works” (M = 2.76). Topics in Table 8 were included if they had a mean score of less than 3.00.

Table 8. Topics Ranked Least Realistic to Learn While in Hospital

It is realistic for me to learn here today…	Mean	n	SD
How to take my pulse	2.95	22	1.09
The normal psychological response to having a serious illness	2.90	21	1.30
Where my family can go to learn CPR	2.90	21	1.26
The importance of talking to someone about my fears, feelings, and thoughts	2.86	21	1.24
What the term risk factor means	2.85	20	1.23
What my heart looks like and how it works	2.76	21	1.22

Note: n = number of respondents, SD = standard deviation. Not all respondents answered all questions.

Although there was not a large enough sample to examine differences between subgroups statistically, the responses were examined for trends in the descriptive results for men and women (see Table 9). In general, women ranked all topics as more important to learn than did their male counterparts, with the exception of activity information (Female M = 3.20, Male M = 3.30). Both groups however ranked anatomy and physiology of the heart (Female M = 3.54, Male M = 3.42) and medications (Female M = 3.56, Male M = 3.43) as the most important information to learn.

Table 9. Importance of Educational Topics by Gender

Respondent's Sex	Anatomy	Psychological	Risk Factors	Medication	Diet	Activity	Other
Male							
Mean	3.42	3.03	3.32	3.43	2.95	3.30	3.17
n	14	15	14	14	12	14	13
SD	0.60	0.89	0.77	0.64	0.76	0.74	0.83
Female							
Mean	3.54	3.30	3.53	3.56	3.40	3.20	3.20
n	7	8	8	8	8	8	8
SD	0.65	0.87	0.76	0.68	0.73	0.75	0.93

Note: n = number of respondents, SD = standard deviation. Not all respondents answered all questions.

There was also a discrepancy between male and female respondents in the ranked perception of how realistic it is to learn the information while hospitalized (see Table 10). Women again ranked the information as more realistic to learn while hospitalized than did the men surveyed. Anatomy and physiology of the heart (Female M = 3.55, Male M = 3.32) and medications (Female M = 3.55, Male M = 3.33) were ranked as most realistic to learn by both groups.

Table 10. Realism of Learning Educational Topics during Hospitalization by Gender

Respondent's Sex	Anatomy	Psychological	Risk Factors	Medication	Diet	Activity	Other
Male							
Mean	3.32	3.09	3.23	3.33	3.06	3.20	3.17
n	12	14	13	12	12	13	13
SD	0.64	0.90	0.85	0.83	0.85	0.82	0.83
Female							
Mean	3.55	3.40	3.36	3.55	3.30	3.48	3.20
n	7	7	7	5	7	8	8
SD	0.57	1.21	0.67	0.67	0.97	0.82	0.93

Note: n = number of respondents, SD = standard deviation. Not all respondents answered all questions.

CHAPTER 5

DISCUSSION

The findings of this study provide important information about the perceived learning needs of persons hospitalized with heart failure. As a group all of the respondents rated all of the information on the CHFPLNI (see Appendix A) as moderately to very important to learn. They also rated the information as moderately to very realistic to learn during a hospital stay. The findings support the idea that persons with heart failure believe in the importance of education about heart failure. These findings are similar to results reported in other studies conducted by Evangelista, Berg, and Dracup (2001), Hagenhoff et al. (1994), and Wehby and Brenner (1999).

Anatomy and Physiology

Anatomy and physiology of the heart were considered both very important (rank = 2), and very realistic to learn while hospitalized (rank = 1). Similar results were reported in studies by Hagenhoff et al. (1994), and Wehby and Brenner (1999). The anatomy and physiology category included information about signs and symptoms of heart failure, reasons for shortness of breath, and causes of heart failure. These findings support earlier findings that it is important for persons with heart failure to know what is happening to them and why (Wehby & Brenner, 1999). Educating persons with heart failure about signs and symptoms before discharge may help improve health outcomes by allowing them to monitor their own symptoms, and recognize signs of early decompensation, such as orthopnea, shortness of breath, decreased appetite, edema, and increased fatigue.

Medication Information

Medication information was also identified as very important (rank = 1) and very realistic to learn (rank = 2) by persons with heart failure. These findings are congruent with the rankings for medication information in the study conducted by Wehby and Brenner (1999). Participants in the Hagenhoff et al. (1994) study ranked medication information as number one in both importance and feasibility of learning while hospitalized. The medication regimen for heart failure is complex, and evidence supports the use of multiple medications for decreased morbidity and mortality (Adams et al., 2006). Persons with heart failure appear to recognize the importance of understanding their medications. Evangelista et al. (2001) reported a high compliance rate (96.34%) for taking prescribed medications in persons with heart failure. It may be the participants in the Evangelista et al. study were more motivated to do those things that they believed were most important.

Diet Information

Survey respondents rated diet as least important (M = 3.08), as well as least realistic to learn (M = 3.15) while in the hospital. Many of the individual topics which received the lowest rank had to do with diet and fluid, which is not surprising since diet information received the lowest score. Reports from other studies have also demonstrated a low ranking for diet information (Evangelista et al., 2001; Hagenhoff et al., 1994; Wehby & Brenner, 1999). Persons with heart failure may not understand the importance of diet in heart failure self-care. Another explanation may be that persons with heart failure already have considerable knowledge about diet, and therefore feel it is less important than the other topics. It is also possible that persons with heart failure are not interested or not willing to make the recommended dietary changes. The survey tool did not assess previous knowledge or attitudes about the heart failure topics, so there is no way of knowing why those persons felt diet to be the least important topic to learn.

Current guidelines for heart failure management recommend diet education including specific diet recommendations, e.g. low-sodium diet, fluid restriction, and the importance of daily weights (Adams et al., 2006). In a retrospective study of 16 heart failure patients conducted by Happ et al. (1997) factors leading to rehospitalization for heart failure included dietary non-adherence. Ni et al. (1999) conducted a needs-assessment of 113 new patients at a heart failure clinic. They reported that although 80% of the patients knew they should limit their sodium intake, only one-third (34.5%) avoided salty foods all the time, and less than half (46.0%) avoided salty foods most of the time. Although almost three-quarters (69.9%) of the patients knew to contact their provider for a weight change of 3-5 pounds for 2 or more days, less than half (44.2%) of the patients in their survey reported daily weight monitoring and 25% responded that weighing yourself daily is not important. These findings support the notion that knowledge alone does not ensure compliance.

Other Categories

Activity and risk factors were ranked in the middle for both importance (M = 3.25) and realism (M =3.30), although they were still considered by the participants to be moderately to very important and realistic to learn. The rating for activity in this cohort differed from the Hagenhoff et al. study (1994) where activity was rated seventh in importance, and fifth in realism. It was also ranked higher than in the Wehby and Brenner study (1999) where activity was rated sixth for importance, and seventh for realism. The risk factor topic however was congruent with the results reported by Hagenhoff et al. (1994) and Wehby and Brenner (1999) with a ranking of third and fourth respectively for both importance and realism.

Activity information may seem less important to those with heart failure given that their exercise capacity is often severely limited by their condition. It is important however, that persons with heart failure learn to pace their activities, and remain as active as possible, in order to maintain or increase the strength of their heart. Exercise training can help reduce fatigue, increase the pace of activity, and improve quality of life (Dracup et al., 1994).

Psychological factors and other pertinent information were felt to be less important and realistic to learn than all other categories with the exception of diet information. These categories also received a lower rating in the Hagenhoff et al. (1994) and Wehby and Brenner (1999) studies. Although persons with heart failure rated the psychological factors (M = 3.12) and other information (M = 3.18) as important and realistic to learn, it may be necessary to limit the amount of information delivered at one time. Education may need to be done in more than one sitting in order to allow the person time to process the information. Agard et al. (2004) recommended a strategy initially concentrating on a few central features of the condition, and providing more information when it is clear the person has a good understanding of the previously given information.

Gender Differences in Assignment of Importance and Realism

It is interesting to note that women in this study rated all categories as more important to learn than men, with the exception of activity. The largest difference was in diet information with women rating diet as moderately to very important (M = 3.40), compared to the men's rating of somewhat important to important (M= 2.95). The men's ranking of diet information was the only item in the survey to be rated as only somewhat important. Further inquiry is needed to determine why diet information is rated so low in comparison to other information, when evidence-based practice strongly supports its role in self-care management of heart failure (Adams et al., 2006). Men rated activity only slightly higher than the women, but both groups felt it was moderately important to learn. Women also believed that all items were more realistic to learn during hospitalization than did the men in the study. There is a lack of literature to describe gender differences in the perceived learning needs of persons with heart failure, indicating a need for research in this area. Perhaps future educational programs should also consider gender differences.

Conceptual Framework

Orem (1995) proposed that self-care is a function that persons must perform for themselves in order to maintain their health and well-being. The goal of self-care is for the person to learn the skills needed for optimal functioning. The nursing system is designed to identify the person's self-care needs, and develop interventions to assist them toward that goal. Participants in this study identified areas they believed to be the most important and realistic to learn while in the hospital. Using patient preferences, education can be tailored to better meet the learning needs of persons with heart failure, targeting those skills necessary to manage health and well-being while living with the chronic condition of heart failure.

Incorporating SCDNT into the primary care practice allows the APN to maintain a nursing perspective in the evaluation of a person's self-care requirements and development of interventions towards meeting the goal of effective self-management (Geden, Isaramalai, & Taylor, 2001). Persons have the ability to grow, and the potential to engage in the actions of self-care, with the ANP acting as an advocate.

Limitations

The study used a small convenience sample obtained from one clinical setting. All of the participants were Caucasian, with the majority of them being older, white, married males, which may limit the ability to apply the results to other populations. Those persons who agreed to participate may be more receptive to teaching, and it is possible those persons who chose not to participate in the study may have answered quite differently than this group. The study also did not assess the participant's current knowledge of self-care management of heart failure. Although the small sample size may affect the ability to generalize the findings to other populations, the findings will provide a direction for further inquiry.

Implications for Future Research

This study was intended only to describe the perceived learning needs of persons with heart failure, whereas previous studies have compared the patient's learning needs with the needs identified by nurses (Hagenhoff et al. 1994, and Wehby & Brenner, 1999). Future studies should take into account the person's baseline knowledge of heart failure in order to more accurately develop individualized educational programs.

Nursing research should also examine the relationship between patient education and knowledge acquisition, and self-care practices. Additional research should be conducted to determine why diet information is considered to be less important than other information in the self-management of heart failure. Other areas for study include comparison by age, gender, length of diagnosis, and literacy level to determine if different groups require a different learning approach.

It is also important to further investigate the changing educational needs of persons with heart failure after discharge from the hospital. Ni et al. (1999) reported that often persons with heart failure do not retain the information provided during their hospital admission. Ågård et al. (2004) recognized the changing informational needs of persons with heart failure and recommended they be asked at each contact if there is anything they would like to ask about.

Implications for Practice

All of the persons in this study indicated that the categories addressed by the CHFPLNI are both moderately to very important and realistic to learn while in the hospital. This supports the recommendation that education about heart failure should be done before patients are discharged from the hospital (Wehby & Brenner, 1999). Although there may be physical barriers to learning such as fatigue and shortness of breath during an acute exacerbation of heart failure, these participants recognized the importance of learning about their condition.

During oral interviews with those unable to complete the tool on their own, it was noted that the CHFPLNI does have some limitations for use in practice. The second part of the questionnaire that explores how realistic it is to learn while hospitalized is very similar to the section about importance, and as a result some of the participants confused realistic with important, or did not complete the second part of the survey. Another factor was the time to complete the survey. Although the questionnaire could be completed in approximately 30 minutes, this is a long time for persons who are not feeling well. Since other studies (Hagenhoff et al 1994, and Wehby & Brenner, 1999) using this or similar tools have reported that persons with heart failure believe it is realistic to learn the information while in the hospital, that portion of the survey could be omitted. Shortening the form would decrease participant burden and may allow persons to put more thought into their answers.

The perception of persons with heart failure that diet information is least important and least realistic to learn must be explored further. Non-adherence to diet restrictions often contributes to worsening of heart failure (Happ et al., 1997). Lifestyle changes are often the most difficult for people to make, and innovative strategies must be developed to work toward that goal.

Information gleaned from the CHFPLNI can be used to help set priorities for education of persons with heart failure. Special attention should be paid to those areas indicated as most important for the individual person. In addition to identifying the topics most important to learn, it is also important to assess the preferred learning style of the person, an area not assessed by the CHFPLNI. Pamphlets, booklets, and videos should supplement discussion by the nurse, physician, and other members of the health care team.

Evidence-based practice supports the education of persons with heart failure in order to increase their self-care abilities (Jaarsma et al., 1999; Krumholz et al., 2002; Ni et al., 1999). Education should also be an ongoing process, with continued evaluation and reinforcement after discharge from the hospital (Ni et al., 1999). People often remember only a small portion of what they are taught, so it is important to provide a variety of options for learning which reinforce the educational topics according to individual preferences. Adams et al. (2006) recommended that education begun during hospitalization should be reinforced within two weeks of discharge, with continued education for three to six months, and periodic reassessment. Higher risk persons with heart failure may need to be followed indefinitely (Adams et al., 2006).

One of the major goals of nursing is to increase a person's abilities to carry out self-care activities in order to optimize their personal health and well-being. APNs are well trained to evaluate self-management needs and develop interventions towards meeting those needs. The first section of the CHFPLNI is a tool that can be used by APNs to help identify the individual preferences of persons with heart failure in order to more effectively develop an education plan based on their identified needs.

Conclusion

Heart failure is a clinical syndrome which requires considerable knowledge and skills for effective self-management. There are currently a large number of persons living with heart failure, and the numbers are expected to rise dramatically. Persons with heart failure require information about their current therapies (including recommended lifestyle modifications) and knowledge of signs and symptoms of worsening heart failure in order to make informed decisions in response to heart failure exacerbation.

Patient education is vital for those persons living with heart failure. The educational content should be individualized to the person's particular needs. Health care professionals need to consider the person's individual preferences when designing an educational plan for heart failure.

This descriptive study examined the perceptions of persons with heart failure about the importance of heart failure information topics, and whether or not it is realistic to learn the information during a hospital admission. Persons in this study indicated that all of the information about heart failure is quite important to learn, and believed they could learn the information while they are in the hospital. Patient education is an important component of self-management of heart failure. Information learned from this and similar studies can be used to guide the direction and content of the education of persons with heart failure.

REFERENCES

Adams, K. F., Lindenfeld, J. Arnold, J. M.O., Baker, D. W., Barnard, D. H., Baughman, K. L., Boehmer, J. P., et al., (2006, February). Executive summary: Heart Failure Society of America 2006 comprehensive heart failure practice guideline. *Journal of Cardiac Failure, 12,* 10-38.

Ågård, A., Hermerén, G., & Herlitz, J., (2004, July/August). When is a patient with heart failure adequately informed? A study of patients' knowledge of and attitudes toward medical information. *Heart & Lung, 33,* 219-226.

American College of Cardiology/American Heart Association, (2005, September 20). ACC/AHA key data elements and definitions for measuring the clinical management and outcomes of patients with chronic heart failure. *Journal of the American College of Cardiology, 46,* 1179-1207.

Braunstein, J. B., Anderson, G. F., Gerstenblith, G., Weller, W., Niefeld, M., Herbert, R., et al., (2003, October 1). Noncardiac comorbidity increases preventable hospitalizations and mortality among Medicare beneficiaries with chronic heart failure. *Journal of the American College of Cardiology, 42,* 1226-1233.

Changes in mortality from heart failure – United States, 1980-1995, (1998, August 7), *Morbidity and Mortality Weekly Report, 47,* 633-637. Retrieved April 17, 2006 from http://www.cdc.gov/mmwr/preview/mmwrhtml/00054249.htm.

Clark, N. M., Janz, N. K., Dodge, J. A., & Sharpe, P. A., (1992, Fall). Self-regulation of health behavior: The "take PRIDE" program. *Health Education Quarterly, 19,* 341-54.

Dracup, K., Baker, D. W., Dunbar, S. B., Dacey, R. A., Brooks, N. H., Johnson, J. C., et al., (1994, November 9). Management of heart failure: Counseling, education, and lifestyle modifications. *Journal of the American Medical Association, 272,* 1442-1446.

Evangelista, L. S., Berg, J., & Dracup, K., (2001, July/August). Relationship between psychosocial variables and compliance in patients with heart failure. *Heart & Lung, 30,* 294-301.

Geden, E. A., Isaranali, S., & Taylor, S. G., (2001, January). Self-Care Deficit Nursing Theory and the nurse practitioner's practice in primary care settings. *Nursing Science Quarterly, 14,* 29-33.

Glasgow, R. E., Funnell, M. M., Bonomi, A. E., Beckham, V., & Wagner, E. H., (2002). Self-management aspects of the improving Chronic Illness Care Breakthrough Series: Implementation with diabetes and heart failure teams. *Annals of Behavioral Medicine, 24,* 80-87.

Grady, K. L, Dracup, K., Kennedy, G., Moser, D. K., Piano, M., Stevenson, L. W., et al., (2000, November 7). Team management of patients with heart failure: A statement for healthcare professionals from the cardiovascular nursing council of the American Heart Association. *Circulation,102,* 2443-2456.

Hagenhoff, B. D., Feutz, C., Conn, V. S., Sagehorn, K. K., & Moranville-Hunziker, M., (1994). Patient education needs as reported by congestive heart failure patients and their nurses. *Journal of Advanced Nursing, 19,* 685-690.

Happ, M. B., Naylor, M. D., & Roe-Prior, P., (1997, July). Factors contributing to rehospitalization of elderly patients with heart failure. *Journal of Cardiovascular Nursing, 11,* 75-84.

Heart Disease and Stroke Statistics – 2006 Update. A Report from the American Heart Association Statistics Committee and Stroke Statistics Subcommittee. Downloaded from circ.ahajournals.org on March 31, 2006.

Heart Failure Fact Sheet, (n,d.). Trends in hospitalizations for heart failure by age group, 1979-2004, United States. Retrieved April 17, 2006 from http://www.cdc.gov/cvh/library/fs_heart_failure.htm.

Horowitz, C. R., Rein, S. B., & Leventhal, H., (2004). A story of maladies, misconceptions and mishaps: Effective management of heart failure. *Social Science & Medicine, 58,* 631-43.

Jaarsma, T., Halfens, R., Huijer Abu-Saad, H., Dracup, K., Gorgels, T., van Ree, J., et al., (1999, May). Effects of education and support on self-care and resource utilization in patients with heart failure. *European Heart Journal, 20,* 673-682.

Kennelly, C. & Bowling, A., (2001). Suffering in deference: A focus group study of older cardiac patients' preferences for treatment and perceptions of risk. *Quality in Health Care, 10,* 123-28.

Krumholz, H. M., Amatruda, J., Smith, G. L., Mattera, J. A., Roumanis, S. A., Radford, M. J., et al., (2002, January 2). Randomized trial of an education and support intervention to prevent readmission of patients with heart failure. *Journal of the American College of Cardiology, 39,* 83-89.

Krumholz, H. M., Chen, Y., Wang, Y., Vaccarino, V., Radford, M. J., & Horwitz, R.I., (2000, January). Predictors of readmission among elderly survivors of admission with heart failure. *American Heart Journal, 139,* 72-77.

Krumholz, H. M., Parent, E. M., Tu, N., Vaccarino, V., Wang, Y., Radford, M. J., et al., (1997, January 13). Readmission after hospitalization for congestive heart failure among Medicare beneficiaries. *Archives of Internal Medicine, 157,* 99-104.

Lorig, K., (2002. March 9). Partnerships between expert patients and physicians. *Lancet, 359,* 814-15. Retrieved February 22, 2006, from the Academic Search Premier database.

Lorig, K., (1993, Fall). Self-management of chronic illness: A model for the future. *Generations, 17,* 11-16. Retrieved February 22, 2006, from the Academic Search Premier database.

Lorig, K. R., & Holman, H. R., (2003). Self-management education: History, definitions, outcomes, and mechanisms. *Annals of Behavioral Medicine, 26,* 1-7.

Luniewski, M., Riegle, J., & White, B., (1999, September). Card sort: An assessment tool for the educational needs of patients with heart failure. *American Journal of Critical Care, 8,* 297-302.

Miranda, M. B., Gorski, L. A., LeFevre, J. G., Levac, K. A., Neiderstadt, J. A., & Toy, A. L., (2002, October). An evidence-based approach to improving care of patients with heart failure across the continuum. *Journal of Nursing Care Quality, 17,* 1-14.

Naylor, M. D., Brooten, D. A., Campbell, R. L., Maislin, G., McCauley, K. M., Schwartz, J. S., (2004, May). Transitional care of older adults hospitalized with heart failure: A randomized, controlled trial. *Journal of the American Geriatrics Society, 52,* 675-84.

Ni, H., Nauman, D., Burgess, D., Wise, K., Crispell, K., & Hershberger, R. E., (1999, July 26). Factors influencing knowledge of and adherence to self-care among patients with heart failure. *Archives of Internal Medicine, 159,* 1613-19.

Orem, D. (1995). *Nursing: Concepts of Practice (5th ed.).* St. Louis: Mosby

Palmer, N. D., Appleton, B., & Rodrigues, E. A., (2003). Specialist nurse-led intervention in outpatients with congestive heart failure: Impact on clinical and economic outcomes. *Dis Manage Health Outcomes, 11,* 693-698.

Polanczyk, C. A., Rohde, L. E. P., Dec, G. W., & DiSalvo, T., (2000, February 14). Ten-year trends in hospital care for congestive heart failure. *Archives of Internal Medicine, 160,* 325-332.

Rich, M. W., Beckham, V., Wittenberg, C., Leven, C. L., Freedland, K. E., & Carney, R. M., (1995, November 2). A multidisciplinary intervention to prevent the readmission of elderly patients with congestive heart failure. *The New England Journal of Medicine, 333,* 1190-1195.

Riegel, B., Carlson, B., & Glaser, D., (2000, January/ February). Development and testing of a clinical tool measuring self-management of heart failure. *Heart & Lung,29,* 4-15.

Rogers, A., Addington-Hall, J. M., McCoy, A. S. M., Edmonds, P. M., Abery, A. J., Coats, Andrew J.S., et al., (2002). A qualitative study of chronic heart failure patients' understanding of their symptoms and drug therapy. *European Society of Cardiology, 4,* 283-287.

Roman, S. H. & Paul, B. R., (2003, August). Strategies today for higher quality heart failure care tomorrow. *Journal of Cardiac Failure, 9,* 255-257.

Scharf Donovan, H., & Ward, S., (2001, Third quarter). A representational approach to patient education. *Journal of Nursing Scholarship, 33,* 211-216.

Schwarz, K. A., & Elman, C. S., (2003, March/April). Identification of factors predictive of hospital readmissions for patients with heart failure. *Heart & Lung, 32,* 88-99.

Strőmberg, A., (2005, March 16). The crucial role of patient education in heart failure. *European Journal of Heart Failure, 7,* 363-369.

Toman, C., Harrison, M. B., & Logan J., (2001). Clinical practice guidelines: Necessary but not sufficient for evidence-based patient education and counseling. *Patient Education and Conseling, 42,* 279-87.

Tomey, A. M., & Alligood, M. R., (1998). *Nursing Theorists and Their Work, (4th ed.)..* St. Louis, MO: Mosby-Year Book, Inc.

Tsuyuki, R. T., Fradette, M., Johnson, J. A., Bungard, T. J., Eurich, D. T., Ashton, T., et al., (2004, December). A multicenter disease management program for hospitalized patients with heart failure. *Journal of Cardiac Failure, 10,* 473-480.

Webster's New Universal Unabridged Dictionary, (1996). New York: Barnes & Nobles Books, Inc.

Wehby, D., & Brenner, P. S., (1999, January/February). Perceived learning needs of patients with heart failure. *Heart & Lung, 28,* 31-40.

Williams M. V., Baker, D. W., Parker, R. M., & Nurss, J. R., (1998, January 26). Relationship of functional health literacy to patients' knowledge of their chronic disease: A study of patients with hypertension and diabetes. *Archives of Internal Medicine, 158,* 166-172.

APPENDIX A

CONGESTIVE HEART FAILURE LEARNING NEEDS INVENTORY

APPENDIX A

CHF Patient Learning Needs Inventory

For each of the following statements, please rate how important that information is for you to know

Not Important, Somewhat Important, Important, Moderately Important, Very Important

	Not Imp.	Som. Imp.	Imp.	Mod. Imp.	Very Imp.
Anatomy and Physiology					
I need to know…					
…why I am short of breath.					
…what my heart looks like and how it works.					
…what causes congestive heart failure.					
…what happens when someone has congestive heart failure.					
…what the difference is between right heart failure and left heart failure.					
…what symptoms are caused by congestive heart failure.					
…can the heart’s function improve.					
…why my heartbeat may be irregular or I may have “skipped beats.”					

Psychological Factors					
I need to know…					
…the normal psychological response to having a serious illness.					
…the importance of talking to someone about my fears, feelings, and thoughts.					
…what effect stress has on my heart.					
…what I can do to reduce stress while in the hospital.					
…what I can do to reduce stress when I go home.					

For each of the following statements, please rate how important that information is for you to know

	Not Imp.	Som. Imp.	Imp.	Mod. Imp.	Very Imp.
Risk Factors					
I need to know…					
…what the term risk factor means.					
…which risk factors may have contributed to the onset of my heart disease.					
…how these risk factors affect my heart.					
…what I can do to improve my heart function.					
Medication Information					
I need to know…					
…general rules about taking medications.					
…why I am taking each of my medications.					
…what side-effects of each medication are.					
…what to do if I have problems with my medications.					
Diet Information					
I need to know…					
…general rules about eating.					
…how diet affects my heart disease.					
…what the words sodium, salt, and NaCl mean.					

…what my diet restrictions are, if any.					
…how to adapt the recommended diet to my lifestyle.					
…what fluid restriction means.					
…how to adapt the recommended fluid restriction to my lifestyle.					
…why daily weights are needed.					
…how to adapt daily weights to my lifestyle.					

For each of the following statements, please rate how important that information is for you to know

	Not Imp.	Som. Imp.	Imp.	Mod. Imp.	Very Imp.
Activity					
I need to know…					
…why I am not able to do so much physically as I was before I had my heart disease.					
…general guidelines for physical activity.					
…what my physical activity restrictions are, if any.					
…how to tell if I can increase my activity.					
…why I can engage in sexual activity.					
Other pertinent information					
I need to know…					
…how to take my pulse.					
…why oxygen is used for congestive heart failure.					
…how to use oxygen.					
…the signs and symptoms of other heart problems.					
…if any other tests will be done after I leave the hospital.					
…the reason for further testing after I go home.					
…where my family can go to learn CPR.					
…when to call a doctor.					

For the following statements, please rate how realistic it is for you to learn it today in this setting.

Not realistic, Somewhat realistic, Realistic, Moderately realistic, Very realistic

	Not Real.	Some. Real.	Real.	Mod. Real.	Very Real.
Anatomy and Physiology					
It is realistic for me to learn here today…					
…why I am short of breath.					
…what my heart looks like and how it works.					
…what causes congestive heart failure.					
…what happens when someone has congestive heart failure.					
…what the difference is between right heart failure and left heart failure.					
…what symptoms are caused by congestive heart failure.					
…can the heart's function improve.					
…why my heartbeat may be irregular or I may have "skipped beats."					

Psychological Factors					
It is realistic for me to learn here today…					
…the normal psychological response to having a serious illness.					
…the importance of talking to someone about my fears, feeling, and thoughts.					
…what effect stress has on my heart.					
…what I can do to reduce stress while in the hospital.					
…what I can do to reduce stress when I go home.					

For the following statements, please rate how realistic it is for you to learn it today in this setting.

	Not Real.	Some. Real.	Real.	Mod. Real.	Very Real.
Risk Factors					
It is realistic for me to learn here today…					
…what the term risk factor means.					
…which risk factors may have contributed to the onset of my heart disease.					
…how these risk factors affect my heart.					
…what I can do to improve my heart function.					
Medication Information					
It is realistic for me to learn here today…					
…general rules about taking medications.					
…why I am taking each of my medications.					
…what side-effects of each medication are.					
…what to do if I have problems with my medications.					
Diet Information					
It is realistic for me to learn here today…					
…general rules about eating.					
…how diet affects my heart disease.					
…what the words sodium, salt, and NaCl mean.					
…what my diet restrictions are, if any.					
…how to adapt the recommended diet to my lifestyle.					
…what fluid restriction means.					
…how to adapt the recommended fluid restriction to my lifestyle.					
…why daily weights are needed.					
…how to adapt daily weights to my lifestyle.					

For the following statements, please rate how realistic it is for you to learn it today in this setting.

	Not Real.	Some. Real.	Real.	Mod. Real.	Very Real.
Activity					
It is realistic for me to learn here today…					
…why I am not able to do so much physically as I was before I had my heart disease.					
…general guidelines for physical activity.					
…what my physical activity restrictions are, if any.					
…how to tell if I can increase my activity.					
…why I can engage in sexual activity.					
Other pertinent information					
It is realistic for me to learn here today…					
…how to take my pulse.					
…why oxygen is used for congestive heart failure.					
…how to use oxygen.					
…the signs and symptoms of other heart problems.					
…if any other tests will be done after I leave the hospital.					
…the reason for further testing after I go home.					
…where my family can go to learn CPR.					
…when to call a doctor.					