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Effects of a Supportive-Education Nursing Intervention on Quality of Life in Patients with Heart Failure

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EFFECTS OF A SUPPORTIVE-EDUCATION NURSING INTERVENTION ON QUALITY OF LIFE IN PATIENTS WITH HEART FAILURE

By

Melodee L. Vanden Bosch

A THESIS

Submitted to
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EFFECTS OF A SUPPORTIVE-EDUCATION
NURSING INTERVENTION ON QUALITY OF LIFE
IN PATIENTS WITH HEART FAILURE
ABSTRACT

EFFECTS OF A SUPPORTIVE-EDUCATIVE NURSING INTERVENTION ON QUALITY OF LIFE IN PATIENTS WITH HEART FAILURE

By

Melodee L. Vanden Bosch

The purpose of this secondary analysis was to examine the difference in quality of life (QOL) in home-care patients with heart failure (HF) receiving nursing intervention. The specific nursing intervention of interest was supportive-education (SE), based on Orem's (1995) self-care deficit theory. The second intervention of general health teaching acted as a placebo effect. The convenience sample of randomly assigned patients with HF was from two home-care agencies. The paired t-test was used to analyze the difference in QOL within the SE group and the placebo group from baseline to six months. The independent t-test was used to compare the means of the SE group to the placebo group at baseline and at six months. Results indicated that QOL did increase from baseline to six months in the SE group. While the placebo group and the SE group were similar at baseline and differences were noted by six months, these differences were not statistically significant. Nursing intervention by SE can improve QOL in patients with HF receiving home-care.

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DEDICATION

To my foster mother-in-law, Dottie House, whose lived experience of heart failure taught me about perseverance, hope, and quality of life.

To my Lord and Savior, Jesus Christ, who is my only comfort in life and in death.
ACKNOWLEDGMENTS

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R  Relatives who provided encouragement: Kurt, Alynn, Paul and Michael

D  Dedicated husband, without whom the dream would be impossible

I  Interpreter of statistical data: Linda Scott

A  All those who provided social support – friends, colleagues and family

C  Colleagues at KSON
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CHAPTER 1

INTRODUCTION

Chronic illness affects 125 million Americans which is half of the United States (US) population (Partnership for Solutions, 2001). It is expected that by the year 2020, 157 million people will experience a chronic illness (Partnership for Solutions). Although not exclusively a condition of the elderly, chronic illness does affect 21% of people over the age of 65 (Chronic Illness, 2002). While there are numerous chronic illnesses only five chronic illnesses account for over two-thirds of all deaths in the US (National Center for Chronic Disease Prevention [NCCDP], 2002). These five chronic illnesses include heart failure, cancer, vascular disease, chronic obstructive pulmonary disease, and diabetes. One common chronic illness, heart failure, accounts for one million hospital admissions annually in the US (Boyle & Hobbs, 2002).

Heart failure (HF) affects approximately four to five million people in the United States. Each year, 400,000 more people are diagnosed with heart failure. Heart failure is the most frequent cause of hospitalization for people ages 65 and older. Hospital readmission occurs within 90 days for one-third of individuals with HF due to symptom management and exacerbation (Blaha, Robinson, Pugh, Bryan, & Havens, 2000; Boyle & Hobbs, 2002; House-Fancher & Martinez, 2000).
The NCCDP (2002) indicates that 75% of all US health care costs are spent on chronic illness. Heart failure is considered to be the “most costly cardiovascular illness in the United States” (Grady et al., 2000, p. 2443). Inpatient care, due to frequent admissions and readmission of individuals with HF, costs more than 7.5 billion dollars per year. Long-term care costs another 7.5 billion annually (Blaha et al., 2000; Jaagosild et al., 1998).

The prevalence and severity of HF continues to rise. Increased prevalence is due to reduced mortality from myocardial infarctions, and most significantly due to the aging of the population. English and Mastrean (1995) state that the incidence of HF doubles for each decade of life. The highest incidence of HF is in the elderly, affecting 1 out of 10 people (Carlson, Riegel, & Moser, 2001). The severity of HF is noted by the estimate that 240,000 deaths are caused annually by HF (Blaha et al., 2000; House-Fancher & Martinez, 2000). Individuals with heart failure experience a 15% mortality rate overall within one year of diagnosis (Grady et al., 2000).

Heart failure like many chronic illnesses affects the physical, functional and emotional aspects of an patient’s life (English & Mastrean, 1995; House-Fancher & Martinez, 2000; Price, 1996; Thorne & Paterson, 1998). The aspects of life most affected by HF include reduced activity tolerance, shortened life expectancy, exacerbation of symptoms, mood changes, and diminished quality of life. Heart failure, as a chronic illness, could be labeled the “American epidemic” due to the increased incidence, severity, and high mortality rate of the illness.

The costs of heart failure can be measured in monetary terms, length of life, and quality of life. Quality of life related to health is an important indicator of the patient’s
ability to cope with chronic illness. Measurement of health-related quality of life could be used as an outcome of intervention for HF.

Nurses have unique roles in the care and treatment of patients with HF. One role is to provide knowledge and assistance, since patients can become overwhelmed by their care. Patients with chronic illness such as HF need expert advice and teaching for decision-making (Thorne & Peterson, 1998). Because HF causes a clinical course that is characterized by a roller-coaster effect of symptom management and progression, evaluation of quality of life becomes an important issue. Nurses, as the most accessible providers of care, can evaluate and promote the quality of life of patients with heart failure. Almost thirty years ago, Armiger (1974) wrote, “nurses give service related to the quality of human life; this service is only recently being valued. After all, why should quality of life be considered before biological survival can be assured” (p. 160). Survival and longevity do not always indicate increased quality of life.

Researchers have analyzed interventions which might benefit patients with HF. Interventions that have been analyzed include medication management (Scott, 2000), exercise (Belardinelli, Georgious, Cianci, & Purcaro, 1999), a multidisciplinary team approach (Grady et al., 2000; Knox & Mischke, 1999; Rich et al., 1995; Stewart & Horowitz, 2002), and nursing intervention (Cline, Israelsson, Willenheimer, Broms, Erhardt, 1998; Jaarsma, Abu-Saad, Halfens, & Dracup, 1997; Jaarsma, Halfens, et al. 2000). Researched outcomes for individuals with HF include cost of care (Blaha et al., 2000; Cline et al., 1998; Knox & Mischke, 1999), quality of life (Belardinelli et al., 1999; Billey & Ferrans, 1993; Jaagosild et al., 1998; Scott, 2000) and readmission to the
hospital (Rich et al., 1995). Further analysis is needed to assess which specific nursing intervention might be most beneficial to patients with HF.

One nursing intervention, utilized for patients with HF, is supportive-education (Jaarsma, Halfens, et al., 2000). Supportive-education is based on Orem's theory of nursing (1995). Through supportive-education, nursing care provides access to better quality of life through education, support, and guidance for patients with HF. The nurse's role is to provide support and teaching that promotes a patient's abilities to develop behaviors and activities to stabilize their condition (self-care). Support is provided by physical presence, by encouragement, and by assisting the patient to make decisions consistent with healthy behavior (Orem, 1995). Grady et al. (2000) noted that education and support are essential aspects of care in to promote clinical stability and quality of life in patients with HF.

A primary goal of home-care is to educate patients to provide their own care. Rice (2000), in the Manual of Home Health Nursing Procedures, stated that cost-effective and caring interventions for home-care include involving patients in their own care. A nursing intervention that provides supportive-education for home-care patients with heart failure could potentially increase their quality of life. The Agency for Health Care Policy and Research (AHCPR, 1994) has set guidelines for the educational needs of patients with HF. The AHCPR guidelines need to be implemented in clinical practice, especially in the home-care setting. Recommendations by the AHCPR include measuring QOL as an outcome of intervention success.
Purpose

The purpose of this secondary analysis was to assess if quality of life increased over time in a specific nursing intervention for patients with HF. The specific nursing intervention of interest was supportive-education, which was based on Orem’s (1995) nursing system of self-care deficit. The second nursing intervention of general health education was utilized as a placebo. The outcome of interest is the quality of life for home-care patients with HF. Another purpose of this analysis was to compare the supportive-education nursing intervention to the placebo intervention. The specific objective was to evaluate if supportive-education increased the quality of life for patients with HF at six months.
CHAPTER 2
CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

Introduction

Theory-based research is necessary to advance the science of nursing. Only 3% of nursing practice studies between 1977 and 1986 were designed to test theory (Marriner-Tomey & Alligood, 1998). The utilization of a conceptual or theoretical framework not only gives definition to the phenomenon of interest, but also provides the foundation for nursing research. Nursing research provides scientific evidence to support or refute the theory. The conceptual framework for the secondary analysis is based on Orem's (1995) self-care deficit theory of nursing.

A review of literature provided the foundation for what has been written and researched about patients with HF. Although HF has been a topic of much research, only specific literature was reviewed for the secondary analysis. The literature of interest was related to patients with HF and their quality of life (QOL), the types of interventions utilized to increase QOL, and specific nursing interventions utilized for patients with HF.

Conceptual Framework

Self-Care deficit theory. Orem's self-care deficit theory of nursing provided the conceptual framework for the secondary analysis (Orem, 1995). Orem defines patients as individuals who are capable of independent self-care. Therefore, individual is
synonymous with individual and will be used interchangeably. Self-care is deliberate action based on learned behavior to maintain or promote health or to manage illness (Carlson et al, 2001; Orem, 1995). Self-care deficit theory consists of three subtheories: (a) self-care, (b) self-care deficit, and (c) nursing system (Nurses Network, 2002). Self-care deficit theory incorporates five major concepts: (a) self-care, (b) self-care deficit, (c) therapeutic self-care demand, (d) self-care agency, and (e) nursing agency. The theory of self-care deficit utilizes two concepts to identify whether there is a deficit in the individual’s ability to care for one's self. These two concepts are self-care agency and self-care demand.

Self-care agency is an individual’s capability to engage in self-care. Culture, life experiences, health experiences, and inborn characteristics affect self-care agency. Self-care agency is conceptualized as a complex, acquired human characteristic in which the individual has the power and knowledge to regulate abilities and limitations for self-care. Deficits occur when there is a discrepancy between the action the individual should take and what action the individual is capable of doing to maintain self-care (Orem, 1995).

Self-care demands are the subjective and objective information received by the individual or others that indicate a need for change in behavior. The individual can either choose to respond to this demand or ignore it. All individuals possess self-care demands. Self-care demands vary over time for the same individual and may differ between individuals. Some responses to self-care demands are therapeutic while other responses are detrimental. For instance, one self-care demand for patients with HF is a change in activity. A detrimental response to self-care demand would be that the patient decreases exercises since this activity causes shortness of breathe. A therapeutic response would be
that the patient exercises at slowly increasing levels to minimize and maximize the
body’s use of oxygen. The difference between self-care agency and self-care demand is
that self-care agency is the individual’s action capability, whereas, self-care demand is
the action required by the individual.

Self-care deficits occur when the individual is unable to meet the self-care
demands. The self-care deficits of individuals newly diagnosed with HF increase self-
care demands. The individual needs new learning about disease process, medications,
activity, and symptom management. The individual must also have the ability to use the
knowledge (self-care agency) to meet the self-care demands of the new diagnosis.
Knowledge of medications, diet, activity, signs and symptoms, and prognosis assist the
individual to determine appropriate actions to control the disease. The increase in the
self-care demands of HF cause the individual’s self-care agency to decrease.

Nursing systems. In the practice of nursing, Orem (1995) describes three types of
nursing systems. These three systems are (a) wholly compensatory, (b) partly
compensatory, and (c) supportive-education nursing systems. The three systems are based
on the individual’s ability to provide self-care. Those individuals requiring self-care by
the nurse due to physical or psychological limitations are described as wholly
compensatory. The partly compensatory system requires that the individual is able to
accomplish some self-care, but has limited energy due to decreased health. In the
supportive-education system, the individual “lacks the knowledge or skill or is not
psychologically ready to perform self-care actions” (Orem, 1995, p.306). The supportive-
education system is the appropriate nursing system to utilize for individuals with HF
receiving home care because they need teaching, support, and guidance to perform self-care activities.

In utilizing the supportive-education system, the nursing interventions include supporting, guiding, teaching, and providing an environment conducive to the development of self-care. Orem (1995) states that supportive-education, “is the only system where a patient’s requirements for help are confined to decision making, behavior control, and acquiring knowledge and skills” (p. 310). Nursing agency is the term used by Orem to describe what nurses do. For the purpose of clarity the general terminology of intervention was used for agency.

The nursing intervention (agency) of supportive-education provides facts and information about the disease process and the resources that are available. Validation of learning by support is another intervention that the nurse provides. Listening is the third nursing intervention. The fourth nursing intervention provides the individual with guidance and direction for self-care. Decreasing the self-care demands and increasing self-care agency allows the individual to accomplish self-care. All of these methods of nursing interventions (support, education and guidance) assume collaboration between the nurse and the individual (Orem, 1995).

Orem’s (1995) self-care deficit theory provides the structure for how nursing interventions (nursing agency) assist the individual with HF to meet self-care demands. Nursing interventions, using the supportive-education system, provide individuals with HF education, support, and guidance about the disease process, symptoms, medications, diet, and exercise. Individuals make decisions based on the knowledge they have to care for themselves (self-care agency). In utilizing the supportive-education intervention, the
nurse assists individuals with HF in decision-making, behavior control, and acquisition of knowledge and skills. In summary, the goals of nursing intervention for the home care individual with HF are to assist with the recognition of self-care deficits and to teach, support, and guide individuals to design, provide, and manage self-care demands while regulating the effects of heart failure.

The physical and psychological process of HF causes serious disruption in self-care for individuals with HF (House-Fancher & Martinez, 2000; Jaarsma & Halfens et al., 2000; Scott, 2000). These irreversible changes affect individuals' perception of their quality of life. Living the experience of a new diagnosis (HF) with chronic implications, individuals experience a decreased quality of life. Individuals with HF seek to meet their self-care demands and increase their self-care agency by developing knowledge and skills for self-care. By applying this knowledge, individuals with HF learn to perform effective self-care, which may theoretically improve their quality of life. A conceptual model of how the self-care deficit theory applies to patients with HF is shown Figure 1.

Literature Review

Previous knowledge about heart failure and the effects this chronic illness has on individuals are important considerations prior to research. The variables of interest to this secondary analysis include heart failure (HF), quality of life (QOL), and the specific nursing intervention of supportive-education (SE). These variables are each defined and followed by a review of pertinent literature.

Heart failure definition and characteristics. Heart failure is a clinical syndrome of inadequate perfusion. In heart failure (HF) the impaired heart is unable to pump enough oxygen to meet the metabolic needs of the body. (Boyle & Hobbs, 2002; House-Fancher
OREM'S NURSING THEORY: SELF CARE DEFICIT

Figure 1: Conceptual Framework of Orem’s Theory of Self-Care Deficit Related to Patients with Heart Failure Receiving Supportive Education to Increase Quality of Life.
This lack of oxygen causes the body tissues to compensate initially, but later exacerbates the symptoms of fatigue, shortness of breath, swelling, chest and abdominal pain, weight gain, and nocturia (Boyle & Hobbs). Common causes of heart failure include coronary artery disease, hypertension, cardiomyopathy, congenital heart disease, acute myocardial infarction, and dysrhythmias (House-Fancher & Martinez). Characteristics of HF include left ventricular dysfunction, decreased exercise tolerance, shortened life span, and decreased QOL (Boyle & Hobbs; English & Mastroean, 1995; House-Fancher & Martinez, 2000).

Heart failure and self-care. Self-care and heart failure were the foci of a study by Bennett, Cordes, Westmoreland, Castro, and Donnelly (2000). In the qualitative study of 23 patients with HF and 18 family members, the purpose was to describe symptoms, to detail self-management strategies, and to categorize self-care strategies. Two outpatient clinics, one for veterans and another for indigent patients, were the settings for the study. The mostly male patients (16) were divided into six focus groups and an audiotape of the sessions was analyzed along with field notes. Symptoms reported by all six of the groups (Bennett et al., 2000) included diuretic-related symptoms, shortness of breath, and swelling. Five of the groups noted decreased concentration or attention, loss of balance, pain in the chest, tiredness or weakness, and difficulty sleeping. Weight loss and difficulties bending over were symptoms reported by four of the groups. The most common emotional symptoms verbalized by the patients, especially the seven women, were depression, fear, and worry, including thoughts of death. Self-care management strategies used by patients with HF included a decrease in exercise (although research indicates that increased exercise is beneficial to promote muscle strength and oxygen
consumption), change in temperature or position, family support, and positive self-talk.

Self-care strategies that patients thought might be helpful were management of medications and diet (Bennett et al., 2000). The researchers felt strongly that further study is needed to find interventions that promote self-care and QOL. Bennett et al stated, “The study of self-care strategies for symptom management is foundational to intervention programs to ameliorate symptoms and enhance quality of life” (p.140).

Bennett et al. also indicated that although patients could state helpful self-care strategies, this did not indicate that patients employed these strategies.

Ni et al. (1999) assessed knowledge of self-care and factors that predict adherence to self-care practices of patients with HF. Patients (n = 113) from one heart failure clinic were asked to complete a subjective needs assessment survey. The demographic information collected indicated that 73.5% of the patients were male, 86.7% were Caucasian, and 86.7% were living with someone such as spouse or child. The study indicated that 80 of the 113 patients reported being given educational materials about HF, 85 reported being given verbal advice about self-care, and 68 received both materials and advice from health care providers. Patient knowledge of self-care for HF was assessed by questions related to recognition of symptoms, daily weight behavior, dietary sodium, fluid, and alcohol restrictions, and sexual activity.

Results of the survey (Ni et al., 1999) indicated that 22% of the patients thought that daily weight was not important and 17% were not sure if weight was important at all. Dietary sodium restrictions were recognized by 90.3% of the patients as important, although 20% did not know the recommended sodium limit. Risk of alcohol intake was rated by 25% of the patients as not important and 25% did not know if HF caused the
need for cessation of sexual activity. Some patients (38%) believed they should drink a lot of fluids and 19% did not know whether to restrict fluids.

Ni et al. (1999) used multiple regression analysis to test relationships between knowledge of patients with HF and factors that could affect their ability to gain and retain this information. Three factors that were associated with higher knowledge of self-care for HF were female gender, advice from health care providers, and hospitalization during the year of the study. Multiple linear regression was also used to analyze adherence behavior. Adherence to self-care had significant correlation to knowledge of self-care ($r = .33, p < .001$). Poor adherence was associated with lack of knowledge about self-care, but did not show statistical significance ($r = .22, p = .07$).

Limitations of the study that were noted by Ni et al. (1999) included generalizability since the study site was one heart failure clinic and the population was selected for cardiac transplantation. Cognitive level was not assessed and this may have affected the results. The subjective nature of the survey may also have caused over-reporting of healthy behaviors. Ni et al. stated the need for ongoing, repeated, and strategic patient education to assist in gaining and retaining information on self-care for HF.

Artinian, Magnan, Sloan, and Lange (2002) analyzed self-care behaviors of patients with HF. Use of Orem’s theory of self-care was the framework for the study. The descriptive correlation design utilized written self-reports and structured interviews for data collection. Sites included two metropolitan Midwestern hospitals and a cardiology Veterans Administration clinic. Two investigator-developed tools were used. The Revised Heart Failure Self-Care Behavior Scale was used to measure HF self-care.
behaviors. The Heart Failure Knowledge Test was used to measure knowledge. The patients \( (n = 110) \) were 78% male, 67% single marital status, and 63% African American decent.

Results of the study indicated that self-care knowledge was low (5.31 out of a possible score of 15). A significant relationship between the mean total knowledge score and the mean total self-care behavior score was noted \( (r = 0.21, p = .026) \). Since knowledge was related to self-care, Artinian et al. (2002) suggested that the findings support Orem’s theory that “knowledge is a power that enables self-care” (p. 171).

Carlson et al. (2001) studied the self-care abilities and difficulties of patients with HF in practicing self-care. Surveys were utilized in the descriptive, cross-sectional, comparative study of 139 patients, 114 of which were recruited at hospitalization and 25 of which were outpatients in the HF clinic. The survey was mailed to patients after discharge for a data recovery time of 18 days (average). Self-care information was obtained by using the Self-Management of Heart Failure (SMHF) questionnaire. The SMHF, a 65-question survey, evaluated recognition of change in signs and symptoms, evaluation of the change, implementation of self-care treatment, and evaluation of the treatment.

Carlson et al. (2001) defined self-care as “an active cognitive process undertaken by a patient to maintain health or manage illness and disease” (p. 351). Carlson et al. stated that self-care deficits are common for patients with HF and that QOL is often poor. The self-care activities of patients with HF include following and evaluating diet, medication regimen, and activity. The researchers postulated that elderly patients might
have difficulty with self-care due to loss of hearing, visual changes, and other co-morbid factors.

Carlson et al. (2001) evaluated common symptoms of HF to determine whether patients could recognize these as symptoms of HF. The common symptoms were sudden weight gain, ankle swelling, nocturnal dyspnea, palpitations, fatigue, and shortness of breath (SOB). Patients were unable to recognize sudden weight gain as a symptom of HF (60.5%). The percentage recognition of certain symptoms was 43.3% for ankle swelling, 43.6% for difficulty breathing, 56.5% for palpitations, 48% for fatigue, and 59.1% for SOB. Therefore, between 40-60% of the patients were not able to recognize the common symptoms of HF.

Patients who were newly diagnosed with HF had greater difficulty in symptom recognition. Reported symptom recognition scores in the newly diagnosed patients (n = 59) were a mean of 39.71 with standard deviation of 16.29 versus experienced patients (n = 77) with a mean of 58.24 and standard deviation of 22.36 (p < .05). Symptoms that were most difficult to recognize by the newly diagnosed patients included SOB, fatigue, difficulty breathing while sleeping, and sudden weight gain.

Carlson et al. (2001) also evaluated patients' perceptions of the importance of HF signs and symptoms. Patients rated their perceptions as having “not much importance,” “some importance,” “a lot of importance,” or “a whole lot of importance.” Misconceptions became evident when 85 of the 139 patients rated SOB during activity as “a lot of importance” or “a whole lot of importance” while 37 patients thought SOB at rest was of “not much importance”. A sudden weight gain of three or more pounds was rated as of “not much importance” by 65 patients. No significant difference was noted
between the experienced and newly diagnosed patients in their perception of symptom importance. Carlson et al listed no limitations of the study.

Orem's theory of self-care deficit was the conceptual framework for Artinian et al. (2002), Carlson et al. (2001), and Ni et al. (1999). Bennett at al. (2000) utilized the Health Belief Model as the conceptual framework. The research by Ni et al was the only study to clarify the theory of self-care deficit and its concepts prior to use in research. While self-care was the foundation for all of the previous articles each of the researchers studied various aspects of self-care (Artinian et al., Bennett et al., Carlson et al., Ni et al.). Ni et al. studied the factors that increase or decrease knowledge and adherence to self-care and found that knowledge was related to self-care behavior \( r = 0.21, p = .026 \) but knowledge was not always followed by adherence. Bennett et al. noted the importance of self-care strategies to overcome the numerous symptoms experienced by patients with HF but indicated that knowledge of strategies did not indicate use.

All of the studies noted a lack of knowledge in patients with HF (Artinian et al., 2002; Bennett et al., 2000; Carlson et al., 2001; Ni et al., 1999). Ability to recognize symptoms and to rate their importance is fundamental to the self-care of patients with HF. The recognition of symptoms and their importance enables the patient to be able to evaluate what course of action to take (self-care agency). Artinian et al. indicated that self-care knowledge deficit was related to an inability to do self-care and that knowledge is necessary, but not sufficient, for self-care. The research by Carlson et al. (2001) indicated that education and experience could enhance the self-care abilities of patients with HF but that some patients still lacked the self-confidence to take the appropriate action.
Quality of life definition. Quality of life is a multidimensional concept that has been defined in many ways and by numerous disciplines (Anderson, Hollenberg, & Williams, 1999; Ferrans & Powers, 1985; McGregor & Goldsmith, 1998). Numerous words are used to describe QOL. Some descriptors are unidimensional, multidimensional, construct, concept, functional assessment, health measurement, perceived health status, happiness, life satisfaction, needs assessment, health status, and health-related (Beckie, Beckstead, & Webb, 2001; Lane, Lip, & Milane, 2002; Martin, Glazion, & Simes, 1999; Riedinger, Dracup, & Brecht, 2002). Disciplines that attempted to define QOL include health science, economics, psychiatry, medicine, nursing, social science, and political science. Three definitions that hold closer relevance for QOL in this secondary analysis include medical, social science, and nursing definitions.

Functional abilities are the defining factors of a medical conceptualization of QOL. Anderson, Hollenberg, and Williams (1999) stated that QOL refers to roles and satisfaction with daily function, work performance, and emotional status. Anderson et al. described QOL as a “multifactorial, interrelated concept” that varies at different times throughout the life span. Because QOL varies between individuals, there is a lack of consensus on a comprehensive definition and assessment of QOL (Anderson et al.). While use of a functional medical definition is appropriate to the study of HF, the limits of this definition included a lack of consideration of the psychological/social factors. Psychological/social factors such as social support, spirituality, or sexuality may be important to patients with HF and their perception of QOL.

McGregor and Goldsmith (1998), who studied QOL from a social science conceptualization, stated that QOL is relative and differs between individuals.
McGregor's and Goldsmith's definition of QOL is "the level of satisfaction with one's conditional relationships and surroundings, relative to the available alternatives" (p. 3). The conceptualization stated by McGregor and Goldsmith emphasized the need for patient involvement in the measurement since QOL is based on satisfaction relative to the situation.

Nurse researchers have defined QOL as health, personal independence in decision-making, and valuing relationships (King, 1994; Orem, 1995). Henderson and Nite (1978) stated that QOL is synonymous with health, which was defined as "that margin of mental and physical vigor that allows a person to work most effectively and to reach his highest potential level of satisfaction in life" (p. 122). Baas, Fontana, and Bhat (1997) defined QOL in chronic illness as "a subjective, personal evaluation of and satisfaction with the physical, psychological, social, vocational, and spiritual dimension of one's life that are affected by the level of social support available and symptoms experienced" (p. 27). Baas et al.'s definition listed factors that are important to QOL. While QOL is affected by symptoms experienced and by social support, other factors such as the importance of roles and social support and the severity of limitations on functional abilities may also affect the patient's quality of life.

Ferrans (1990), who has spent much of her life studying QOL both in healthy and ill populations, stated that the study of QOL is a relatively new concept. Being only forty years in development, the importance of QOL to health care is vital. Providing clarity to the concept of QOL is important for research outcomes, clinical practice, and use of health care resources. Ferrans and Powers (1992) defined QOL as "a person's sense of well being that stems from satisfaction or dissatisfaction with the areas of life that are
important to him/her” (p. 29). The Ferrans and Powers conceptualization provides for consideration of the uniqueness of the individual and the differing importance of aspects of life. The individual is the best judge of his/her QOL (Ferrans, 1990). The definition by Ferrans and Powers was intrinsic to this secondary analysis since these researchers developed the instrument used to measure QOL in the primary study.

Quality of life instrument. Smith, Taylor and Mitchell (2000) stated that there are 150 different QOL instruments. Being too numerous for review, only several articles were reviewed pertaining to QOL instruments. Most of these articles utilized more than one instrument to measure QOL.

In an experimental study, Smith et al. (2000) analyzed four different QOL instruments to compare sensitivity for measuring QOL in cardiac patients. The four instruments included one generic form, (the Short Form 36 [SF-36]), two disease-specific forms, (the Quality of Life Index-Cardiac version [QLI] and the Quality of Life after Myocardial Infarction questionnaire [QLMI]), and one patient-generated form, (Schedule for the Evaluation of Individual Quality of Life [SEIQol]). Sixteen patients (15 male) were evaluated using these self-administered questionnaires at the start of a cardiac rehabilitation program and at six weeks. Moderate sensitivity was measured by index of greater than .5, which none of the QOL measures achieved. Modest sensitivity (index > .2) was noted in SF-36 subscales of role-physical, bodily pain, vitality, social functioning, and physical functioning and in the QLMI, social subscale.

Smith et al. (2000) stated that all of the patient-generated measures indicated lack of sensitivity to change. The small sample size, the possibility of inadequate cardiac intervention, and a ceiling effect that can occur with chronic disease may have limited the
results (Smith). All of the patients had either a myocardial infarction or coronary artery bypass grafting or both. Thus, the results might not be appropriate to generalize to patients with HF.

In 1992, Ferrans and Powers developed the Quality of Life Index for patients undergoing hemodialysis, based on satisfaction or dissatisfaction with areas of life that are important to the patient. The 64-item questionnaire had four domains, which included: (a) health and functioning, (b) socioeconomic, (c) psychological/spiritual, and (d) family. The construct validity of each domain was supported by alpha coefficients of 0.87, 0.82, 0.90, and 0.77 respectively. Convergent validity correlation between QLI scores and the assessment of life satisfaction was $r = .77$. Internal consistency reliability of the entire QOL was .93.

Since the initial QLI measurement in 1985, Ferrans and Powers have developed multiple disease-specific instruments to measure quality of life. One of these, The Cardiac Quality of Life Index III (QLI-III), was used in the primary study. Dean (1988) suggested factors that are important for the selection of instruments used to measure QOL. Selection, Dean stated, must be based on whether the research is qualitative or quantitative, subjective or objective in dimensions, single or multiple in instrumentation, subjective or objective in report, global or domain-specific, societal or individual in perspective, and cognitive or affective in evaluation. Selection of Ferrans and Powers Quality of Life Index for the primary study meets the requirements of Dean’s assessment (1988). The primary study was quantitative in approach, subjective on the part of the patient with HF, domain specific (HF), individualized with a perspective of HF, and
affective in evaluation of QOL. The QLI was consistent with the study of the effect of nursing intervention on the outcome of QOL.

**Quality of life and heart failure.** Quality of life has been analyzed in many differing arenas, including 15 different cultures (Power, Bullinger, & Harper, 1999), gender (Riedinger, Dracup, & Brecht, 2002), healthy populations, and chronically ill populations (Jaagosild et al., 1998). Due to the difficulty in defining quality of life, it was important to understand which definition and instruments are being used when analyzing research.

Riedinger et al. (2002) studied the effects of HF on the QOL of women. In a secondary analysis of the studies of left ventricular dysfunction (SOLVD) research, Riedinger et al. compared women with HF \( (n = 663) \) with other groups of normative women \( (n = 250 \text{ to } 1406) \) and women with chronic illnesses \( (n \text{ varied from } 40 \text{ to } 1889 \text{ depending on the illness}) \). Quality of life was defined as current life and general life satisfaction as measured by physical functioning, emotional distress, social health, and perceived health. Reidinger et al. postulated that women with HF have poor QOL. The \( t \)-test was used to test the difference between the mean scores on QOL of the women with HF to those of the other groups. The instruments used to measure QOL were a 90 item questionnaire gathered from items on the Profile of Mood Status inventory, the Functional Status Questionnaire, the Beta-Blocker Heart Attack Trial instrument, the Ladder of Life, and the RAND Medical Outcomes Study instrument.

Riedinger et al. (2002) found that women with HF, as compared to a normative population, had significantly lower scores for QOL in current life situations \( (t = -12.13, p < .001) \), vigor \( (t = -1.85, p < .05) \), intermediate activities of daily living \( (t = -14.2, \)
The women also had three times higher ratings for anxiety than the normative group \((t = 13.41, p < .001)\). Symptoms of depression in the group with HF were significantly higher than the normative group \((t = 4.85, p < .001)\).

Limitations, noted by Riedinger et al. (2002), were the use of preexisting literature for the data collection. The focus on female gender may have limited the generalizability of the results. The research is important because it gave a female perspective on an illness that affects about equal numbers of both genders but has a disproportionately higher percentage of total deaths and more hospital discharges in women (Riedinger et al.).

The study to understand prognoses and preferences for outcomes and risks of treatment (SUPPORT) was a large longitudinal research project that evaluated the care of critically ill, hospitalized patients at the end of life. Jaagosild et al. (1998) utilized the SUPPORT research data in a secondary analysis to evaluate patients who were admitted to the hospital for acute exacerbation of severe HF (New York Functional Class [NYFC] III & IV) for outcomes related to mortality, use of resources, and health related QOL.

Patients \((n = 1390)\) were followed for six months and evaluated on admission and at two and six months. Health related overall QOL was rated by the patients as excellent, very good, good, fair, or poor. Current state of health was then rated on a scale from excellent to poor. At admission, the median score of QOL was rated as fair (25\(^{\text{th}}\) percentile good & 75\(^{\text{th}}\) percentile fair), at two months QOL median score was rated as good (25\(^{\text{th}}\) percentile good & 75\(^{\text{th}}\) percentile fair), and at three months QOL median score was rated as good (25\(^{\text{th}}\) percentile very good & 75\(^{\text{th}}\) percentile fair) by the patients \((n = 621, p < .001)\).
The findings of Jaagosild et al. (1998) indicated that after an acute exacerbation, QOL in HF patients increased over time even without improvements in their functional abilities. Data was missing due to the severe condition and co-morbid disease of these patients. Patients who had the worse QOL, health perception, and functional abilities had the highest mortality. Jaagosild et al. indicated that missing data, chance, or younger patients receiving a more aggressive approach could influence the increase of QOL over time and affect the validity of the study.

Scott’s descriptive study (2000) of QOL and patients with HF was based on the care-giving/care-receiving of home-care treatment with inotropic infusion. Quality of life was defined as the “overall effect and outcome of an illness and its treatment on an individual’s physical, psychologic and social well-being as perceived by that individual” (Scott, 2000, p. 84). Scott utilized telephone interviews or mailed questionnaires to assess 20 end-stage HF patients and their 18 family caregivers. The Minnesota Living with Heart Failure Questionnaire (LHFQ), and the Quality of Life Index (QLI) Cardiac Version III (Ferrans & Powers, 1996) were used to evaluate QOL. The Mental Health Inventory-5 (MHI-5) was used to assess mental health. The LHFQ consisted of 21 items that assessed to what extent the disease affects physical and emotional domains. The QLI, a thirty-six-item questionnaire, evaluated perceived satisfaction with certain life domains as well as the importance of those domains. Domains included health/functioning, family, socioeconomic, and psychological/spiritual.

Powerlessness, worry, depression, and loss of control explained 72% of the variance in the psychologic domain of patients with heart failure ($M = 9.34$, $SD = 8.08$, $p < .05$). Caregivers esteem inversely affected patients’ QOL but positively affected
caregiver QOL. Scott (2000) postulated that increased self-esteem of the caregiver increased feelings of helplessness in the patient. Scott's study supported the multifactorial dimension of QOL. Limitations of the study included the small sample size, mostly male patient population (90%), mostly female caregivers (89%), and the cross sectional data collection.

**Educational intervention and heart failure.** In a report to healthcare professionals from the Cardiovascular Nursing Council of the American Heart Association, Grady et al. (2000) reviewed 87 pieces of current literature on management of HF and provided recommendations, including counseling and education for patients with heart failure. Educational and counseling recommendations noted by Grady et al. included general information about HF, diet, activity and exercise, and medications. Grady et al. reviewed literature that included interventions such as HF clinics (nurse-coordinated or managed care), community outreach programs (nurse-coordinated, directed or facilitated), and increased access to primary care providers. A multidisciplinary team, home-care-based intervention was recommended by Grady et al. since majorities of patients with HF are elderly and may experience difficulty with ambulation or travel. Grady et al. stated that an organized plan of education and support were critical to achieve outcomes for patients with HF.

Heart failure, education, and quality of life were the foci of studies by Rich et al. (1995), and Stewart, Marley, and Horowitz (1999). The study by Rich et al. demonstrated a relationship between education given by nurses for patients with HF and the number of readmissions to the hospital. In the prospective, randomized trial, Rich et al. studied 282 elderly (70 or older) home-care HF patients to observe whether a multidisciplinary nurse-
directed intervention could significantly reduce hospital readmission. This high-risk elderly group was at increased risk for readmission. The dependent variables included readmission rates, QOL, and costs of care.

In Rich et al.'s study (1995) QOL was assessed at baseline and at three months in a subset of patients (n = 126) with 59 in the control group and 67 in the treatment group. No definition of QOL was given. The instrument used to measure QOL was the Chronic Heart Failure Questionnaire, in which the patients rated their perceived QOL on a scale of one to seven with seven being the highest. Subscales of the questionnaire included dyspnea, fatigue, emotional function, and environmental mastery.

Readmission in the treatment group (28.9%) significantly (p < .03) decreased compared to the control group (42.1%). Cost of care decreased by $460 in the treatment group. Quality of life at three months was increased in the treatment group compared to the control group (p = .001). Rich et al. (1995) stated their conclusion that intervention can increase QOL while decreasing readmission and costs for elderly patients with HF. Rich et al. questioned which elements of the intervention were most important to the outcomes of increased QOL and decreased use of health care dollars.

Stewart, Marley, and Horowitz (1999) studied 200 patients with HF in a tertiary hospital in Australia. The patients were randomly assigned to an intervention group or usual care group. The intervention group received multidisciplinary home-based teaching and intervention by a nurse. The dependent variables included the number of unplanned readmissions, number of deaths, QOL, and functional status, measured at three and at six months from discharge. No definition of quality of life was given.
Quality of life was measured by the Minnesota Living with Heart Failure questionnaire (MLWHF), SF-36 physical health, and SF mental health instruments. In the MLWHF testing, the higher scores indicated worsening quality of life and negative scores indicated improvement in quality of life. The MLWHF scores at three months for the intervention group ($Mdn = -19$, range $-41$ to $1$) were improved compared to the usual care group ($Mdn = -1$, range of $-29$ to $10$, $p = .04$). At six months both home-based intervention and usual care groups were similar ($Mdn = -17$, range $-35$ to $-8$ vs. $Mdn = -12$, range $-35$ to $-8$, $p = .30$).

The need for education was reinforced by the fact that at the first nursing visit 40% of the patients had signs and symptoms of exacerbation, 25% were not taking medications correctly and 90% did not know information related to a low sodium diet. Readmission was reduced by 40% in the intervention group, although 10% of patients in this group died or were readmitted before the home visit by the nurse. Intervention patients had fewer unplanned readmissions (20 less per month) and fewer unplanned days in the hospital (16 less per month). Costs of hospitalization were less in the intervention group than the usual care group by $900$ (Australian). Limitations of the research by Stewart et al. included older, sicker patients from one tertiary setting being followed for only six months. Lack of a control group also limited the results.

Supportive education, heart failure, and quality of life. Supportive education, as defined by Orem (1995), is specific in approach. Literature available for review on supportive education was limited. One article related to HF was noted in the computer search for literature on the topics of SE, self-care, and QOL.
Jaarsma, Halfens et al. (2000), in an experimental study, analyzed supportive education, self-care, and QOL of patients with HF in the Netherlands. The randomly assigned sample of 179 patients with advanced HF (NYHA Class III & IV) were divided into two groups, an intervention group, in which supportive-education was used by the nurse, and a routine care group. The purpose of the study was to analyze the effects of SE nursing intervention on self-care abilities, self-care behavior and QOL of patients with HF. The hypothesis was that “a supportive educational intervention designed for patients with heart failure will increase self-care agency and self-care behavior and have a positive effect on QOL” (Jaarsma, Halfens et al., p. 320).

Tools used by Jaarsma, Halfens et al. (2000) for measurement included a self-care agency scale, three QOL dimensions, and an overall well-being instrument. Instruments used to evaluate QOL were the Heart Failure Functional Status inventory, Symptoms questionnaire and the Psychosocial Adjustment to Illness Scale (PAIS). There were no statistically significant differences noted in the self-care abilities between the two groups at baseline, three months and six months. Self-care behaviors at one month showed a statistical significant increase ($p = .001$) for the intervention groups and also at three months ($p = .005$). By nine months there were no significant differences noted ($p = .11$) in self-care behavior. There were slight differences between the intervention group and the control group with functional capabilities, and overall well-being scoring higher (better) in the intervention group and symptom severity and distress scores being higher (worse) in the control group. The number of symptoms reported was consistent between the two groups. Correlation between QOL and self-care variables of self-care agency, functional capacity, number of symptoms, psychosocial adjustment to illness and well-
being were analyzed. The correlation coefficient between QOL and self-care agency at baseline, three months and nine months was 0.48 (correction for attenuation, \( p < 0.001 \)).

Jaarsma, Halfens et al. (2000) stated that the study demonstrated a significant improvement in self-care behavior due to supportive-education intervention. The effect of intervention on QOL was limited since both groups improved over time and lacked statistical significance of change. Changes in symptom distress in the intervention group were significantly less at nine months compared to the control group \( (t = 2.1, p = .04) \). Symptom severity also lessened significantly at nine months in the intervention group versus the control group \( (t = 2.3, p = .02) \). Jaarsma, Halfens et al. stated that these statistics indicate that nursing intervention of supportive-education can have a positive effect on the patient’s experience of HF.

One limitation of the research noted by Jaarsma, Halfens et al. (2000) was attrition due to death, which was higher in the intervention group. Jaarsma and Halfens et al. suggested that the QOL instruments might lack sensitivity to changes over time or that elderly chronically ill patients needed more of an individualized approach by a multidisciplinary team. In reviewing the study it was noted that the patients in the control group were given routine care. The SE group received care that was over and above that received by the control group and therefore, it was difficult to evaluate if the SE intervention or if any type of nursing attention benefited the patients.

Summary and Implications

A review of the literature indicated that HF is a common chronic condition that affects not only the quantity of health care but also the quantity and quality of life for patients with HF (Jaagosild et al., 1998; Riedinger et al., 2002; Scott, 2000). Patients with
HF have significant self-care deficits (Bennett et al., 2000; Carlson et al. 2001; Jaarsma, Halfens et al, 2000). Orem (1995) suggested that nursing interventions by SE are essential to patients whose QOL has been affected by illness. Additional investigation about home-care interventions would be of value because “most of the battle against this disease is waged on the patient’s own home turf” (Pozen, 1998, p. 42).

While Jaarsma and Halfens et al. (2000) identified some important results and considerations related to the nursing intervention of supportive-education in home-care patients, the study was limited by lack of a control group (placebo). Analysis of an individualized, supportive-education nurse intervention for home-care patients with HF would be valuable. Analysis of SE intervention could assist nurses in evaluating the type of intervention that may be effective for self-care of patients with heart failure. Use of Orem’s self-care deficit theory (1995) was utilized in this secondary analysis to determine if nursing interventions using supportive-education increased the perceived QOL of patients with HF.

Hypotheses
1. The quality of life for the SE group will improve at six months compared to baseline.
2. Patients receiving the intervention of supportive-education will have an increased quality of life compared to patients in the placebo group at six months.

Definition of Terms

Quality of life. The Ferrans and Powers’ (1992) definition of QOL was utilized, since the QOL instrument used in the primary study was the Ferrans and Powers Quality of Life Index – Cardiac Version III. Quality of life was defined as “a person’s sense of well being that stems from satisfaction or dissatisfaction with the areas of life that are
important to him/her” (Ferrans & Powers, 1992, p. 29). The measurement of QOL has four domains, which were health and functioning, socioeconomic, psychological/spiritual, and family.

Supportive-education group. Supportive education, as defined by Orem (1995), was a nursing system, which provided for an assessed self-care deficit in which “a patient’s requirements for help are confined to decision making, behavior control, and acquiring knowledge and skills” (p. 310). The supportive-education group received nursing intervention of supportive education along with the usual home care by the agency nurse.

Placebo group. The placebo group received visits by an intervention nurse along with the usual home care. The intervention nurse provided teaching on health maintenance issues not related to HF.
CHAPTER 3
METHODS

Research Design

The purpose of the primary study, as designed by Dr. Kay Setter Kline was to test two nursing interventions for patients with heart failure (HF) receiving home care. Dr. Kline studied the effect that two nursing interventions had on the outcomes of self-management and QOL. The primary study by Kline (1999) was titled, *Home Care Outcomes for Heart Failure: A Test of Two Nursing Approaches*.

The research design of the primary study was a blind experimental approach in which patients were randomly assigned to three treatment groups. All groups received the usual home-care by the home-care agency nurse. The first group, the placebo group, received nursing interventions based on education for health promotion. The second group received nursing interventions based on mutual-goal setting (King, 1994). The third group received nursing interventions based on supportive-education (Orem, 1995). Funding for the primary study was provided in part by the Midwest Affiliate of the American Heart Association.

The purpose of this secondary analysis was to examine the difference in QOL between two specific nursing interventions for individuals with HF over time. The specific nursing intervention of interest was supportive-education (SE), which was based
on Orem's (1995) nursing system of self-care deficit. The second nursing intervention was a placebo that incorporated health promotion topics not related to HF. The primary goal of this secondary analysis was to compare the SE nursing intervention to the placebo intervention. The specific objective was to evaluate if SE improves the QOL for individuals with heart failure at six months. Another objective was to evaluate if the QOL in the SE group improved from baseline to six months. Data analysis included the QOL self-evaluated ratings by the patients with HF who received the placebo and SE nursing interventions. Only data from the SE and placebo groups were examined in the secondary analysis.

The advantages of using a secondary analysis included time efficiency and economy of cost since data collection can be expensive. As Polit and Hungler (1995) stated, “The use of available data makes it possible for the researcher to bypass time-consuming and costly steps in the research process” (p. 193). Disadvantages of using a secondary analysis included a lack of control over the research design and the instruments. Despite these disadvantages, the advantages of using a secondary analysis were of primary importance to this investigator and the data available were appropriate for this secondary analysis.

Internal validity was an important factor to consider for research. Threats to internal validity included factors that cause or affect the outcomes other than the intervention. One factor that could have influenced internal validity in this analysis included the amount of education each patient received prior to the study, such as by hospital personnel, physicians, or other sources besides the research nurses. Control of education during the study was attempted since all patients continued visits by the home-
care nurse for eight weeks and each group received either education based on American Heart Association HF guidelines or general health information not related to HF.

The selection process was also an important influence. Human factors that could have influenced this analysis were numerous. These factors included progression of the disease, fatigue, co-morbid conditions, age, gender, stage of the disease (NYHA functional class I – IV), and support systems. Mortality or drop out rate was another important factor since the study was 12 months in duration. Mortality or drop out rates should be less than 20% and about equal in all three groups for internal validity (Polit & Hungler, 1999). Since many study participants were lost over the 12-month period, the secondary analysis utilized data at baseline and at six months. Use of data collection over time as compared to a cross-sectional design increased internal validity (Polit & Hungler).

External validity determines whether the results can be generalized to other settings. Demographic characteristics of the sample, such as age, gender, and race, should be consistent for each group. To reduce the risk of contamination by setting and type of treatment, all of the participants received treatment within the setting of their own homes.

Graduate nursing students, working as research assistants, collected the data. The study was conducted over a one-year period and data were collected at baseline, and at 3, 6, 9, and 12 months. Registered nurses, as research assistants, provided the interventions and were trained in the use of only one intervention. All data were collected at the patient’s home by a different group of registered nurses. None of the patients, home care agency staff, intervention providers, or data collectors knew which patients were assigned
to which treatment group. This selective training attempted to prevent cross-contamination of the intervention groups.

Sample and Setting

The study used a convenience sample of patients who received home care. All patients were from two home care agencies in the Midwest. Patients admitted to the study had a primary diagnosis for home care of HF at the beginning of the study. All patients were over the age of 18, were able to understand and speak the English language, and were able to give informed consent. Patients were not restricted from participation due to gender, race or socioeconomic status. The goal was to include 62 patients in each of the three groups. Actual numbers of patients in the study were less than expected, for the placebo group \((n = 33)\) and the SE group \((n = 28)\).

Characteristics of Subjects

Demographic data included age, gender, marital status, employment status, highest level of education, annual income, and the length of time since patients were diagnosed with HF. Although 33 patients were enrolled into the placebo group, there were only 31 who responded for data entry. In the SE group, one individual did not respond to the data entry, leaving 27 respondents.

For the entire group of those who received SE and those who received the placebo, the mean age was 75.53 with a standard deviation of 11.66. Approximately half of the individuals were age 79 or older. Males accounted for 25 of the 58 patients, thus the majority (56.9%) were females. Twenty-eight of the 58 patients were married and 30 were unmarried. Only one patient, who worked two hours per week, was employed.
The majority of patients (55.2%) had 11th to 12th grade education levels. Thirteen patients had some college education and 13 had education levels of 10th grade or less. Annual income for the patients was $40,000 or less. Those who made $20,000 or less were in the majority (61.4%). Less than a third of the participants (29.3%) were diagnosed with HF for less than one year, 39.6% were diagnosed with HF for one to five years, and 31% were diagnosed with HF for greater than five years. See Table 1 for the demographic comparison between the placebo group and the SE group.

Instruments

The instruments utilized for data collection in the study included a tool to record the demographic information of the sample. The second tool measured self-management (Self-Management Tool). The third tool, the Ferrans and Powers Quality of Life Index: Cardiac Version III (QLI – III), measured quality of life (Appendix A). This tool measured overall QOL, which included four domains that are specific to QOL. The domains included health and functioning, social and economic, psychological/spiritual, and family.

The QLI – III was divided into two parts. Part I evaluated how satisfied the patient was with the four domains of health by asking the patient to rate satisfaction from one to six on 36 questions. An answer of one indicated that the patient was “very dissatisfied” and an answer of six indicated that the patient was “very satisfied” with the item. Part II asked the same 36 questions based on importance of the item to the patient. The rating scale was from one to six. One indicated “very unimportant” and six indicated “very important”.

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Table 1

*Demographic Comparison Between the Placebo and the Supportive Education Groups*

<table>
<thead>
<tr>
<th>Demographic Variables</th>
<th>Placebo Group</th>
<th>SE Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Participants</td>
<td>31</td>
<td>27</td>
</tr>
<tr>
<td>Age: Mean</td>
<td>75.68</td>
<td>75.33</td>
</tr>
<tr>
<td>Standard Deviation</td>
<td>9.96</td>
<td>13.54</td>
</tr>
<tr>
<td>Range</td>
<td>56-94</td>
<td>42-94</td>
</tr>
<tr>
<td>Gender: Male</td>
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<td>13</td>
</tr>
<tr>
<td>Female</td>
<td>19</td>
<td>14</td>
</tr>
<tr>
<td>Marital Status: Married</td>
<td>15</td>
<td>13</td>
</tr>
<tr>
<td>Unmarried</td>
<td>16</td>
<td>14</td>
</tr>
<tr>
<td>Employment: Unemployed</td>
<td>29</td>
<td>26</td>
</tr>
<tr>
<td>Employed</td>
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<td>0</td>
</tr>
<tr>
<td>*Missing</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Highest Level of Education:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>High School of Less</td>
<td>27</td>
<td>18</td>
</tr>
<tr>
<td>College</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Annual Income in Dollars:</td>
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<td></td>
</tr>
<tr>
<td>20,000 or less</td>
<td>18</td>
<td>17</td>
</tr>
<tr>
<td>20-30,000</td>
<td>11</td>
<td>8</td>
</tr>
<tr>
<td>30-40,000</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>*Missing</td>
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<td>1</td>
</tr>
<tr>
<td>Length of Time Since Diagnosis:</td>
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</tr>
<tr>
<td>&lt; 1 Year</td>
<td>10</td>
<td>7</td>
</tr>
<tr>
<td>1 – 5 Years</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>&gt; 5 Years</td>
<td>10</td>
<td>8</td>
</tr>
</tbody>
</table>

*Note: missing data*
The QLI – III was developed to measure QOL in terms of the patient’s satisfaction with life. The importance of the ratings of Part II were used to weight the satisfaction responses of Part I. Scores, therefore, reflected the patient’s satisfaction with the areas of life they valued most. The QLI has been used in over 100 published studies (University of Chicago, 2003). No training was required to administer the test and the reading level was at fourth grade which was well below the established 7th to 8th grade reading level suggested by Polit and Hungler (1999).

*Reliability.* In previous studies, internal consistency reliability with cardiac patients has been reported from .86-.96 (Bliley & Ferrans, 1993). Papadantonaki, Stotts, and Paul (1994) in a study of cardiac patients and QOL determined the alpha coefficients for the four domains: health and functioning (.90), social and economic (.89), psychological/spiritual (.90), and family (.79). Polit and Hungler (1999) stated that reliability coefficients should be greater than .70 to be valid. In this secondary analysis, reliability coefficient was alpha of .88 for overall QOL. Cronbach’s alpha coefficients for the four domains measured in QLI-III were health and functioning (.85), social and economics (.67), psychological/spiritual (.82), and family (.65). Two internal coefficients did not meet the .70 criterions. This may be related to sample size and the number of items in the domain.

*Validity.* Ferrans and Powers (1992) supported content validity of the QLI. Good convergent validity between QOL and life satisfaction was indicated by the correlation of .77. Contrasted groups, as well as factor analysis, supported the construct validity of the four domains. Factor analysis explained 91% of the total variance.
Procedures

The study was introduced to the patient by using a predetermined script (Appendix B). The home care nurse notified the data collection nurse if the patient expressed interest. The data collection nurse visited the patient to explain the study and obtain informed consent (Appendix C). Demographic information and baseline data were collected at that time. The data collector next notified the primary investigator who randomly assigned the patient to an intervention group.

Once assigned to a group, patients received a weekly visit by the intervention nurse. During the time of initial intervention, patients were still receiving care by the home care agency nurse. All three interventions provided additional education to the care received from the home-care agency nurse. Additional education for the placebo group included information about health promotion not related to HF. The second group received interventions using mutual goal setting. In mutual goal setting, the patient and the nurse decided together on the goals of treatment and methods to reach those goals (King, 1994) The third group received interventions using supportive-education. The SE approach utilized teaching, guidance, and support for the patient to self-manage HF (Orem, 1995). The SE intervention is the approach of interest for this secondary analysis (Appendix D). The additional information for the SE group and the mutual goal setting was based on the AHCPR Heart Failure Guidelines (Appendix E).

Participation in the primary study was completely voluntary and patients were allowed to withdraw at any time. Selection of patients to a particular group was maintained by random selection. All patients received non-prejudiced treatment since all received some type of intervention. No risks to the patients were identified for
participation in the study, other than those encountered in normal daily life. Since fatigue could be a risk factor for patients with HF, data collectors and interventionists were to reschedule the visit if fatigue was identified. Confidentiality was maintained so that no public disclosure of names would occur in publication of the research. Patients were given the option of receiving study results when the study was completed.

The primary study complied with Federal Register regulations as noted by the Human Research Committee of Grand Valley State University and permission for the secondary analysis was granted by the primary investigator, Dr. Kline (Appendix F). Approval for the secondary analysis was granted by the Human Research Committee of Grand Valley State University (Appendix G).
CHAPTER 4

RESULTS

Purpose

The purpose of this secondary analysis was to examine the difference in quality of life between two specific nursing interventions for patients with heart failure. The specific nursing intervention of interest was supportive-education, which was based on Orem’s (1995) nursing system of self-care deficit. One objective was to evaluate if QOL increased in the SE group from baseline to six months. Another objective was to evaluate if SE intervention will increase QOL for patients with heart failure at six months compared to the placebo group.

Measurement of Variables

The dependent variable was QOL. This dependent variable was measured using the Ferrans and Powers Quality of Life Index, Cardiac Version III (QLI - III). The measurement tool was ordinal with values ranging from one to six. The scores on the QLI - III were based on interval level data. Overall QOL was measure. Four domains of QOL were also measured. These included (a) social-economic, (b) family, (c) health related, and (d) psychological-spiritual domains. The overall QOL and the domains were measured at baseline and at six months Scores of QLI-III ranged from 0-30 and higher scores indicated an increased QOL.
The independent variables were the two nursing interventions. The two nursing interventions were placebo and supportive-education. The independent variables were measured by nominal data since a patient can only be in one of the two groups. Polit and Hungler (1999) stated that nominal data are “mutually exclusive and collectively exhaustive” (p.440). The dependent variable, the QOL score, was measured at internal level. The scores were ranked and there were equal distances between the numbers.

Data Analysis

The Statistical Package for the Social Studies (SPSS) was used to analyze data. The level of significance was set at less than .05 for all statistical procedures.

Descriptive statistics. The descriptive statistics for QOL at baseline for the placebo group and the SE group are listed in Table 2. As noted in Table 2 all of the mean scores for overall QOL and the four domains were smaller in the placebo group than in the SE group. The standard deviations for the means were greater in the placebo group than in the SE group. The range also indicates that values were more widely distributed in the placebo group and that the family and psychological scores reached the highest value of 30 for both the placebo group and the SE group.

The descriptive statistics for QOL at six months for the placebo group and the SE group are listed in Table 3. All of the scores for QOL and the four domains were higher in the SE group than the placebo at six months except the social/economic domain. All of the mean scores for the placebo group increased from baseline to six months except the family domain. All of the mean scores for the SE group increased from baseline to six months except the social/economic domain. The sample size of the placebo group had
decreased at six months from 33 patients to 26. The sample size at six months in the SE group had decreased from 27 to 18 patients.

As noted in Table 2 and Table 3, the range of scores for the family and psycho-spiritual domains for the placebo and SE groups both had maximal scores of 30. The highest ranges of scores were equal for the SE and placebo groups for social-economic, family and psycho-spiritual domains. At the lowest end of the range, all scores for the placebo group were lower than the SE group at six months. All values for the means at six months were greater than the means at baseline.

**Hypothesis one.** The first hypothesis stated that quality of life for the SE group would improve over time (6 months) compared to baseline. When analyzing the SE group and the placebo group from baseline to six months, the paired t-test was the appropriate test to use. Analysis was within the same group but tested at two differing points in time.

**Outcome.** The overall quality of life significantly increased from baseline to six-months for the SE group \( (p = .006) \). See Table 4. The domains that indicated statistically significant improvement were health/functioning \( (p = .002) \) and psychological/spiritual \( (p = .041) \). The domains that did not show statistically significant improvement were social/economic \( (p = .564) \) and family \( (p = .349) \). The first hypothesis was supported by the indication that QOL improved in the SE group from baseline to six months and especially in the health/functioning, and psychological/spiritual domains.

**Inferential statistics.** The placebo group indicated no significant change in QOL from baseline to six months \( (p = .867) \). The data for the paired t-test for the differences in QOL between baseline and six months for the placebo groups is listed in Table 5. Overall quality of life indicated no significant increase from baseline to six-months \( (p = .867) \).
Table 2

*Descriptive Statistics of QOL and Domains at Baseline in the Placebo and Supportive-Education Groups*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Placebo (n=33)</th>
<th>Supportive Education (n=26)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (SD)</td>
<td>Range</td>
</tr>
<tr>
<td>Social/Economic</td>
<td>22.88 (4.65)</td>
<td>7.44-28.33</td>
</tr>
<tr>
<td>Family</td>
<td>23.42 (5.28)</td>
<td>13.38-30</td>
</tr>
<tr>
<td>Health/Functioning</td>
<td>17.88 (6.16)</td>
<td>7.44-28.69</td>
</tr>
<tr>
<td>Psychological/Spiritual</td>
<td>22.91 (6.65)</td>
<td>6.86-30</td>
</tr>
</tbody>
</table>

Table 3

*Descriptive Statistics for QOL and Domains at Six Months in the Placebo and Supportive-Education Group*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Placebo (n=26)</th>
<th>Supportive Education (n=18)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean (SD)</td>
<td>Range</td>
</tr>
<tr>
<td>Overall QOL</td>
<td>20.60 (4.78)</td>
<td>9.3-27.47</td>
</tr>
<tr>
<td>Social/Economic</td>
<td>23.21 (2.75)</td>
<td>17.11-26.94</td>
</tr>
<tr>
<td>Family</td>
<td>22.09 (6.13)</td>
<td>9-30</td>
</tr>
<tr>
<td>Health/Functioning</td>
<td>19.20 (5.23)</td>
<td>7.75-28.44</td>
</tr>
<tr>
<td>Psychological/Spiritual</td>
<td>23.43 (6.72)</td>
<td>.86-30</td>
</tr>
</tbody>
</table>
Table 4

*Paired t-Test for Differences in QOL and Domains between Baseline and Six Months for The Supportive Education Group*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Baseline Mean (SD)</th>
<th>Six Months Mean (SD)</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall QOL</td>
<td>21.04 (3.79)</td>
<td>22.95 (4.75)</td>
<td>-3.104</td>
<td>17</td>
<td>.006</td>
</tr>
<tr>
<td>Social-economic</td>
<td>23.21 (2.75)</td>
<td>21.04 (5.35)</td>
<td>-.588</td>
<td>17</td>
<td>.564</td>
</tr>
<tr>
<td>Family</td>
<td>23.80 (4.85)</td>
<td>24.72 (3.82)</td>
<td>-.962</td>
<td>17</td>
<td>.349</td>
</tr>
<tr>
<td>Health/Functioning</td>
<td>18.26 (5.64)</td>
<td>20.94 (6.68)</td>
<td>-3.558</td>
<td>17</td>
<td>.002</td>
</tr>
<tr>
<td>Psychological/Spiritual</td>
<td>23.07 (5.44)</td>
<td>24.98 (4.87)</td>
<td>-2.213</td>
<td>17</td>
<td>.041</td>
</tr>
</tbody>
</table>

Table 5

*Paired t-Test for Differences in QOL and Domains between Baseline and Six Months for the Placebo Group*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Baseline Mean (SD)</th>
<th>Six Months Mean (SD)</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall QOL</td>
<td>20.72 (4.88)</td>
<td>20.80 (4.78)</td>
<td>-1.69</td>
<td>25</td>
<td>.867</td>
</tr>
<tr>
<td>Social-economic</td>
<td>22.88 (4.65)</td>
<td>23.21 (2.75)</td>
<td>2.56</td>
<td>25</td>
<td>.017</td>
</tr>
<tr>
<td>Family</td>
<td>23.42 (5.28)</td>
<td>22.09 (6.13)</td>
<td>.69</td>
<td>25</td>
<td>.497</td>
</tr>
<tr>
<td>Health/Functioning</td>
<td>17.88 (6.16)</td>
<td>19.20 (5.23)</td>
<td>-1.16</td>
<td>25</td>
<td>.256</td>
</tr>
<tr>
<td>Psychological/Spiritual</td>
<td>22.91 (6.65)</td>
<td>23.43 (6.72)</td>
<td>-0.76</td>
<td>25</td>
<td>.454</td>
</tr>
</tbody>
</table>
The domain that indicated statistically significant improvement was social/economic ($p = .017$). The domains that did not show statistically significant improvement were family ($p = .497$), health/functioning ($p = .256$), and psychological/spiritual ($p = .454$).

**Hypothesis Two.** The second hypothesis stated that patients receiving the intervention of SE would have an increased QOL compared to patients in the placebo group at six months. The statistical significance of the differences between the means of the placebo group and the SE group at six months were measured by the independent $t$-test. The results, listed in Table 6, indicated that there was not a statistically significant difference between the placebo group and the SE group at six months ($p = .148$). The one domain that was closest to statistical significance was the socioeconomic domain ($p = .050$). The family domain did not show statistical significance ($p = .087$). The health/functioning domain ($p = .339$) and psychological/spiritual ($p = .409$) domains also did not indicate significant difference. No statistically significant differences were noted between the two groups.

**Outcome.** The independent $t$-test between the means of the placebo group and the SE group at six months indicated that there was not a statistically significant difference between the placebo group and the SE group at six months ($p = .148$). The one domain that was closest to statistical significance was the socioeconomic domain ($p = .050$). Therefore, the second hypothesis was not supported.
Table 6

*Independent t-Test for Differences in QOL and Domains between the Placebo and Supportive-Education Groups at Six months*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Placebo n = 26</th>
<th>Supportive Education n = 18</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall QOL</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>-1.475</td>
<td>42</td>
<td>.148</td>
</tr>
<tr>
<td>Social-economic</td>
<td>20.80 (4.78)</td>
<td>22.95 (4.75)</td>
<td>-2.020</td>
<td>42</td>
<td>.050</td>
</tr>
<tr>
<td>Family</td>
<td>22.09 (6.13)</td>
<td>24.72 (3.82)</td>
<td>-1.752</td>
<td>41.62</td>
<td>.087</td>
</tr>
<tr>
<td>Health/Functioning</td>
<td>19.20 (5.23)</td>
<td>20.94 (6.68)</td>
<td>-.967</td>
<td>42</td>
<td>.339</td>
</tr>
<tr>
<td>Psychological/Spiritual</td>
<td>23.43 (6.72)</td>
<td>24.98 (4.87)</td>
<td>-.834</td>
<td>42</td>
<td>.409</td>
</tr>
</tbody>
</table>

Table 7

*Independent t-Test for Differences in QOL and Domains between the Placebo and Supportive-Education Groups at Baseline*

<table>
<thead>
<tr>
<th>Variable</th>
<th>Placebo n = 26</th>
<th>Supportive Education n = 18</th>
<th>t</th>
<th>df</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall QOL</td>
<td>Mean (SD)</td>
<td>Mean (SD)</td>
<td>-1.475</td>
<td>42</td>
<td>.148</td>
</tr>
<tr>
<td>Social-economic</td>
<td>20.72 (4.88)</td>
<td>21.04 (3.79)</td>
<td>-.286</td>
<td>59</td>
<td>.776</td>
</tr>
<tr>
<td>Family</td>
<td>22.88 (4.65)</td>
<td>23.21 (2.75)</td>
<td>-.340</td>
<td>53.172</td>
<td>.735</td>
</tr>
<tr>
<td>Health/Functioning</td>
<td>23.42 (5.28)</td>
<td>23.80 (4.85)</td>
<td>-.297</td>
<td>59</td>
<td>.768</td>
</tr>
<tr>
<td>Psychological/Spiritual</td>
<td>17.88 (6.16)</td>
<td>18.26 (5.64)</td>
<td>-.250</td>
<td>59</td>
<td>.803</td>
</tr>
</tbody>
</table>

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CHAPTER 5
DISCUSSION

Summary of Results

Increased overall QOL in the SE group was indicated by statistically significant differences from baseline to six-months. The first hypothesis stated that quality of life for the SE group would improve at six months compared to baseline. The first hypothesis was supported by the significant increase in QOL for the supportive education group ($p = .006$). Other researchers have also noted an increase in QOL over time (Jaagosild et al., 1998; Stewart et al., 1999).

The second hypothesis stated that patients receiving the intervention of SE would have an increased QOL compared to the patients in the placebo group at six months. The second hypothesis was not supported since there was not a significant difference in QOL at six months between the placebo group and the SE group ($p = .148$).

As noted in Table 2, the mean values for QOL in both the placebo and the SE groups at baseline were lower. The overall QOL was rated at 20.72 by the placebo group and 21.04 by the SE group. The lowest ratings were in the health/functioning domain, with 17.88 as the mean in the placebo group and 18.26 in the SE group. These low values
are an indicator of the impact HF has on the QOL for the patients. Heat failure decreases QOL in patients diagnosed with this syndrome.

Similarities of the placebo and SE groups at baseline are noted in Table 7. Overall QOL differed very little between groups \((p = .776)\). The domain that indicated the least amount of difference between the placebo and SE groups was the psychological/spiritual domain \((p = .920)\). The social/economic domain indicated the biggest difference with a \(p\)-value of .735. Since there was great similarity between the placebo group and the SE group at baseline, it is interesting to note the differences in QOL and domains at six months, noted in Table 6. Overall QOL by six months had a \(p\)-value of .148, which was not statistically significant but was closer to significance than at baseline. All of the domains and especially the social/economic and family domains were very close to being significantly different at six months between the placebo group and the SE group. The change in \(p\)-values from baseline to six months between the groups suggests that SE does increase the QOL of patients with HF. The significance of this finding is that nursing intervention can increase QOL. The intervention of SE is a nursing system that does provide benefits to patients with HF. One benefit noted in this secondary analysis was increased QOL.

Certain domains of QOL seemed to increase more than other domains. Two domains that did not change significantly over a six-month period of time were the family domain and social-economic domain. Reasons for this lack of change may be due to the fact that many individuals with HF have a fixed annual income and stabilized family situations. In fact, social/economic QOL decreased at six months in the SE group compared to baseline. Factors that might have caused this decline include increased cost
of medication and lack of employment. The differences in the two groups could also be attributed to employment since one individual in the placebo group was working.

Domains that could change over time such as health and psycho/spiritual factors increased significantly which may have produced a significant increase in overall QOL. The importance of the lack of change in some domains should encourage nurses to focus on all factors related to QOL. The use of a multifactoral instrument also indicated that QOL is a multifactoral concept and should be measured by various domains or factors and not just by one scale.

Smith et al., 2000 noted an increase in QOL to a certain point in time and labeled this a ceiling effect. Data in Table 2 indicated that at baseline some of the patients (at least one) rated the family domain and/or the psychological/spiritual domain at the highest possible score of 30. Any improvement from this high score is not possible and may have caused the ceiling effect. Perhaps, the six-month time period for the study caused a ceiling effect so that no statistical difference was noted.

Researchers have analyzed changes over time in QOL and noted increased QOL scores (Smith et al., 2000; Stewart, Marley & Horowitz, 1999). Stewart, Marley and Horowitz, in a secondary analysis of the SUPPORT research, noted an increase in QOL over time. The research by Stewart, Marley, and Horowitz was most like this secondary analysis since SE was the nursing intervention used. The study by Stewart et al. indicated a statistically significant difference in QOL at three months but not at six months. In the secondary analysis, significant changes were noted at six months in QOL scores in the SE group but not when compared to the placebo group. Nursing intervention was better controlled (placebo group) in the secondary analysis than in the study by Stewart et al.
The secondary analysis indicated that there was an increase in QOL over time in the SE group. While significant improvement was not shown compared to the placebo group in this small sample, any improvement may be important to the patient with HF. Since the costs of HF are more than monetary and the individual is the best judge of what these costs are and what interventions most helpful to the lived experience, more research is needed.

The secondary analysis also indicated that QOL is a multifactoral concept. The QOL of an individual is best measured by use of scales that provide for the many factors that are affected by HF. Use of the QLI-III provided for evaluation of four factors that are affected by HF.

Relationship to Orem's Theory

Orem's theory of self-care deficit (1995) provided the framework for the study of SE and QOL in patients with HF. While QOL did increase in the SE group from baseline to six months, the use of SE was not significant compared to the placebo group. The self-care deficits of individuals with HF have been documented in the literature and noted in practice. While self-care deficits seemed to decrease the self-care agency, the intervention may or may not have increased the individual's self-care agency. Much depends on the individual.

Orem's theory made assumptions that nursing intervention with supportive-education would increase self-care agency, decrease self-care demands, and increase self-care. Artinian et al. (2002) stated that knowledge is necessary but not sufficient for self-care. Carlson et al. (2001) noted that knowledge of self-care does increase over time from the initial diagnosis. No assumptions about knowledge and self-care can be made since
knowledge level was not analyzed. Also, supportive education involves more than teaching. The intervention of supportive education also incorporates guidance and support.

Although, tools are available to measure self-care, this was not addressed in the secondary analysis. By not knowing if the intervention caused an increased in self-care, no assumptions can be made about whether an increase in self-care agency would cause an increase in QOL. The connection between self-care agency and quality of life was not substantiated by this secondary analysis.

Orem’s (1995) theory of self-care deficit allowed assumptions to be made about the effects of HF on self-care demands and self-care agency. Using the nursing agency of supportive-education could then test self-care deficit theory. The outcome of QOL could be used to measure the effect of the supportive-education nursing agency. Use of theory gives research definition and direction.

Limitations

Limitations of this secondary analysis included attrition, use of existing data and tools, and lack of information about the health of individuals at the beginning of the study. Attrition of patients occurred throughout the study. The rate of attrition was especially high in the SE group. Approximately a third of the participants in the SE group had dropped out of the study by six months. This investigator is not aware of reasons for this attrition but could suggest that death, progression of the disease requiring hospitalization, or incapacitating symptoms may have caused the dropout rate. Attrition is difficult to control, especially in a population with a chronic illness that frequently leads to death. To avoid problems of a small sample size due to attrition, steps need to be taken
to ensure a large sample population. Increasing the sample population by using other agencies besides home-care agencies would have benefits in numbers but also lacks control of environment.

According to Polit and Hungler (1999), a small sample size could increase the risk of Type I and Type II errors. External validity determines whether the results can be generalized to other settings. For external validity the demographic characteristics of the sample, such as age, gender, and race, should be consistent for each group. As noted in Table 1, the characteristics of the groups were similar except for gender and length of time having had HF.

Several studies have noted differences in gender for individuals with HF. Bennett et al.'s (2000) study noted that women with HF had more depressive symptoms than men. Research by Ni et al. (1999) indicated several factors that could increase individuals' knowledge of self-care. One of these factors included female gender. Riedinger et al. (2002) studied only female patients with HF. Gender differences may cause differing results. Perhaps it would be best to study these two very distinct groups separately. This secondary analysis could not be generalized to other populations such as younger or gender-specific groups.

Another factor that might have limited the results included the use of existing research. Missing data and errors in data were potential problems that could not be identified by a secondary analysis. The use of existing tools, such as the QLI-III, might not have allowed for measurement of all factors that are important to QOL such as non-family social support and community resources.
Researcher and patient characteristics such as emotional investment, affect, and setting can affect the results and should be kept as similar as possible between patients and researchers. Setting and treatment can also affect human subjects. The mostly elderly population who needed home care was a very specific population. These results should not be generalized to a younger group of individuals with HF who were not in need of home-care by visiting nurses.

Nursing Implications

Nursing implications that can be derived from the secondary analysis included individualized care, nursing intervention, and need for education. Individuals with HF experience a variety of symptoms, needs, and experiences. While all individuals may need support, guidance, and teaching, not all will respond to SE with the desired outcome of self-care. Some may not have the cognitive function or the desire to change or the ability to change. These factors are as individual as the condition of HF itself. Nurses need to assess the individual and family to determine what nursing interventions are most important and most effective. Assumptions about certain populations, such as the elderly, should not be made when determining intervention.

Types of nursing intervention that can benefit individuals with HF are important considerations for nurses in advanced practice, in education and in administration. Research has indicated that 50% of hospital admissions by individuals with HF are preventable (Knox & Mischke, 1999). Nursing administrators have an opportune position to find ways to decrease the cost, readmission rates, and management for patients with HF. Programs to manage HF are needed. Advanced practice nurses have the knowledge...
and skills to be able to manage and maintain a holistic, individualized program of intervention for patients with HF.

Nursing education has an impact on the profession and the community. Nurses give guidance, support, and education in many differing arenas. Some of these arenas include schools of nursing, inpatient and outpatient settings, community programs, and continuing education for nurses. Nurses educate patients, families, communities, and each other. Education based on research findings is important to the continuity of quality services that nurses provide.

The numbers of people needing information about HF continues to escalate since HF is such a pervasive condition. Nurses who disseminate information and give supportive advice and guidance may be instrumental in decreasing the costs of HF. Supportive-education is one nursing intervention that nurses can use to increase the quality of life for patients with HF.

Recommendations for Research

Research recommendations noted from the secondary analysis include type of population, type of intervention and use of theory. Future research of individuals with HF could focus on individual differences within the boundaries of a HF diagnosis. These individual differences include gender, severity of disease, available support systems and resources, and factors that could affect well-being such as depression and co-morbidities.

Interventions for individuals with HF and their families are important considerations. Nursing interventions provide a framework to promote self-care. The importance of these interventions is not in question but questions do remain about what interventions are most helpful. Research continues to give definition to nursing
interventions. Research should also focus on what individuals with HF find to be the most beneficial nursing interventions.

Continued use of theory in research to form a framework for practice is necessary for nursing. Basing practice on research and theory defines nursing practice and gives practice stability and definition. Use of Orem’s (1995) theory of self-care deficit defines the problem. Continued research based on nursing interventions provides increased knowledge about outcomes for patients with HF.
APPENDICES
Appendix A
Ferrans and Powers
QUALITY OF LIFE INDEX®
DIALYSIS VERSION - III

PART I. For each of the following, please choose the answer that best describes how satisfied you are with that area of your life. Please mark your answer by circling the number. There are no right or wrong answers.

<table>
<thead>
<tr>
<th>HOW SATISFIED ARE YOU WITH:</th>
<th>Very Dissatisfied</th>
<th>Moderately Dissatisfied</th>
<th>Slightly Dissatisfied</th>
<th>Slightly Satisfied</th>
<th>Moderately Satisfied</th>
<th>Very Satisfied</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Your health?</td>
<td>1 2 3 4 5 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Your health care?</td>
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57
**HOW SATISFIED ARE YOU WITH:**

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<td>17. Your ability to take care of family responsibilities?</td>
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<td>18. How useful you are to others?</td>
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<td>19. The amount of worries in your life?</td>
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<td>20. Your neighborhood?</td>
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<td>25. How well you can take care of your financial needs?</td>
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<td>26. The things you do for fun?</td>
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<td>27. Your chances for a happy future?</td>
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<td>28. Your peace of mind?</td>
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<td>29. Your faith in God?</td>
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<td>30. Your achievement of personal goals?</td>
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<td>33. Your personal appearance?</td>
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PART 2. For each of the following, please choose the answer that best describes how important that area of your life is to you. Please mark your answer by circling the number. There are no right or wrong answers.

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<td>32. Being satisfied with life?</td>
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Appendix B

Script to Obtain Consent

My name is __________________________. I am a registered nurse. I am taking classes at Grand Valley State University to obtain a master’s degree in nursing. I have been given permission by your home care agency to come here today with your home care nurse, to determine if you are willing to let me explain a nursing research study that is being conducted with people like yourself, who have been diagnosed with heart failure and are receiving home care.

After your nurse has finished providing your care today, may I stay a few minutes to explain the nursing research study we are doing? (If verbal permission is granted, proceed with explanation of study and obtaining informed consent after the home care nurse has left.)

Explanation of the Study

As nurses we are concerned with how people adjust to the medical diagnosis of heart failure. We want to find nursing approaches that will help you learn how to self-manage your heart failure. We believe that when you can self-manage your heart failure you will live a better life.

The study will consist of five (5) interviews of approximately 45 minutes duration, for the purpose of obtaining information about your heart failure. You will be given $10 at the completion of each of these five (5) interviews as compensation for your time. The interviews will be spaced three months apart, staring this week. If you agree to participate, you will be placed in one of three groups.

Each group will receive a different approach to managing health. Each of the nursing approaches will be provided in addition to the regular care you receive from your home care nurse, at no extra cost. Each nursing approach will be provided to you in weekly 30-minute visits by another graduate nursing student who will call you to make an appointment to come to your home. If you participate in the study, I will give you the names of the students who are participating in this study so you will recognize the name of the student who calls you. There will be a total of eight (8) weekly visits, Each visit will provide you with information about managing your health. All visits will be scheduled at your convenience, similar to your current home care visits. You will not be given compensation for these eight (8) weekly visits.

Your participation in this study will in no way affect the regular care you receive from your home care nurse, and it may help you improve your self-management of heart failure symptoms. The results of this nursing study may help nurses determine better ways to help other people with heart failure to improve their lives.

Because this is a nursing research study, I will maintain the confidentiality of the information obtained during the interview. Your name will not be identified with any of the information I collect. When reporting the results of the study, only group results will be shared, no names of individuals will be published. The nurses providing your home care will not be told that you are participating in the study.

10/28/99
Appendix C

Informed Consent

I, ____________________________, agree to participate in the nursing research study for persons with heart failure who are receiving home care. I understand that as a participant in this study:

- I will be interviewed five (5) times for approximately 45 minutes each time, once within this week and again at 3, 6, 9, and 12 months. I will be compensated $10 at the completion of each interview.
- I will receive information about managing my health and that this information will be delivered by a registered nurse who is a graduate nursing student at Grand Valley State University.
- I will receive this information once a week over the next eight (8) weeks and that each visit will last approximately 30 minutes. I will not be compensated for receiving this information.
- I will be able to withdraw from the study at any time by notifying Dr. Kay Setter Kline, the Principle Investigator, at 616-895-3517, and that my withdrawal will in no way affect the care I receive from the home care nurse.
- I will not be identified by name with any of the information obtained and that any sharing of information obtained in this study will be in the form of group summaries of all participants.
- There is no identified risk from participating in this study and I may benefit from receiving information about ways to manage my health.
- If in the process of gathering information, any symptoms are identified that might need attention, the nurse gathering the information will refer me to either the home health agency or my health care provider.
- I also give permission for review of my health records to verify my health care status. If I have any questions about the research study I may contact the Primary Investigator, Dr. Kay Setter Kline at 616-895-3517, the Chair of the Research Review Committee, Paul Huizenga, at 616-895-2472.

__________________________   ____________________________
Signed                                      Date

__________________________   ____________________________
Witness                                    Date

The names of the students who are participating in this study are: ________________________
__________________________, and ________________________

Kay Setter Kline

62
### Supportive/Educative Nursing Approaches for Persons Having Congestive Heart Failure - Home Care

*(This plan is an addendum to the usual care given by agency staff)*

#### Nursing Approaches

<table>
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<tr>
<th>Week #1</th>
<th>Week #2</th>
<th>Week #3</th>
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<tbody>
<tr>
<td>• Identify patient/family strengths (supportive)</td>
<td>• Assess for barriers to self-management (6)</td>
<td>• Assess knowledge of individual disease process &amp; indications for drugs (1a)</td>
</tr>
<tr>
<td>• Identify patient's learning style - Ask patient how he/she best learns (educative)</td>
<td>• Assess food &amp; fluid habits (4)</td>
<td>• Assess patient's emotional status, acceptance of limitations &amp; adaptive coping abilities (5)</td>
</tr>
<tr>
<td>• Identify with patient his/her role in treatment plan (1 h)</td>
<td>• Assess adherence to medication schedule (5)</td>
<td>• Evaluate consistency of patient's fluids and sodium intake - make necessary adaptations; may need to repeat information re need for restrictions (4a,b,c)</td>
</tr>
<tr>
<td>• Identify family or caregiver support structure</td>
<td>• Teach dietary sodium restrictions &amp; appropriate fluid intake (4 a, b, c)</td>
<td>• Introduce information re disease process, etiology of CHF, personal risk factors (1 a, b)</td>
</tr>
<tr>
<td>• Identify role of caregiver in the treatment plan (1)</td>
<td>• Teach early sx recognition to patient &amp; caregiver (1 a)</td>
<td>• Reinforce early sx recognition &amp; self-management (1 c, d, e)</td>
</tr>
<tr>
<td>• Determine individual sx for CHF (1U)</td>
<td>• Review patient/caregiver knowledge of medication schedule (5)</td>
<td>• Discuss AHCPR Patient/Family Guide: &quot;Living with Heart Disease: Is it Heart Failure?&quot; (Supportive/educative)</td>
</tr>
<tr>
<td>• Assess functional capacity &amp; ADLs - refer to pretest(3a,b,c)</td>
<td>• Introduce work simplification/energy conservation techniques (3)</td>
<td>• Assess knowledge of advance directives(2b)</td>
</tr>
<tr>
<td>• Assess knowledge of medication schedule (5b)</td>
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<td>• Assess caregiver information re plans in the event of patient's sudden death (2 c)</td>
</tr>
<tr>
<td>• Teach recognition of individual sx of CHF to patient &amp; caregiver (1 a, c)</td>
<td></td>
<td>• Verbalizes etiology of CHF &amp; relationship to sx exacerbation &amp; hospital readmission</td>
</tr>
<tr>
<td>• Review wt, record keeping (1 l)</td>
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<td>• Verbalizes personal risk factors for exacerbation &amp; hospital readmission</td>
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<td>• Review discharge instructions (1h,j)</td>
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<tr>
<td>• Explain treatment &amp; care plan (1 g)</td>
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<td>• Explain outcome &amp; benefits of plan (6)</td>
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<td>• Discuss AHCPR Patient/Family Guide: &quot;Living with Heart Disease: Is it Heart Failure?&quot;</td>
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#### Weekly Outcomes

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<th>Patient &amp; caregiver verbalize role in treatment/care plan</th>
<th>- Verbalization by patient &amp; caregiver of early sx recognition which requires medical intervention</th>
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*(The numbers refer to AHCPR Guidelines for the suggested topics for patient, family, and caregiver education and counseling)*

6-28-98
## Supportive/Educative Nursing Approaches for Persons Having Congestive Heart Failure - Home Care

(This Plan is an Addition to the Usual Care Given by Agency Staff)

### Nursing Approaches

#### Week #4
- Assess activity/work/pleasure/recreation/exercise tolerance (3a)
- Assess knowledge of patient & caregiver of previously presented information (Supportive/educative)
- Assess knowledge of diagnosis, life expectancy (2a)
- Assess knowledge of need for vaccinations against influenza & pneumococcal disease (1l)
- Review sodium restrictions & fluid intake to avoid overload/dehydration (4a,b,c)
- Give information re early sx recognition, s/s of dehydration (1a)
- Give information re medications as they relate to disease process & self-management; including side effects and what to do if they occur (5c)
- Discuss availability of lower cost medications or financial assistance to maintain medication regimen (5d & e)
- Discuss patient's sexuality needs & adaptations with disease process (3c)
- Review & identify patient/caregiver support systems & coping abilities (91, 6)
- Review AHCPR guidelines re care in event of emergency (1e)

#### Week #5
- Assess knowledge of patient & caregiver of previously presented information (Supportive/educative)
- Identify resources for life style modifications, including tobacco and alcohol use; methods to minimize risk factors, and methods to assist with overcoming barriers to responsibilities related to treatment/care plan (1 h, i, 4 d)
- Review information re medications & give any additional information needed (5)
- Identify patient's ability to maintain medication regimen (5)
- Identify community resources, including support groups, to assist with adaptation to illness and maintain treatment/care plan (1 k)
- Identifies & prioritizes lifestyle changes necessary to minimize exacerbations & hospital readmissions
- Verbalizes & demonstrates appropriate medication regime including relationship & impact on disease process & sx management

#### Week #6
- Evaluate knowledge of previously presented information & review as necessary (Supportive/educative)
- Able to identify support system, sexuality needs, financial needs re meds
- Able to identify need for appropriate vaccinations
- Demonstrates acceptance & adaptive coping to the limitations of the disease process
- Verbalizes acceptance & adheres to treatment/care plan

### Weekly Outcomes

- Able to identify support system, sexuality needs, financial needs re meds
- Able to identify need for appropriate vaccinations
- Identifies & prioritizes lifestyle changes necessary to minimize exacerbations & hospital readmissions
- Verbalizes & demonstrates appropriate medication regime including relationship & impact on disease process & sx management

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8-28-98
WEEK #7

NURSING APPROACHES

- Assess activity/work/failure/recreation tolerance (3)
- Assess coping patterns of patient & caregiver (1 h & j)
- Assess access to support systems including support groups (1k)
- Assess knowledge of previously presented material (Supportive/educative)
- Review individual medications as they relate to:
  - Pt's etiology
  - Pt's sx self-management
  - Outcomes
    (5 a, b, c, d, 0)

WEEK #8

- Review outcomes, develop plans for any needs related to self-management & needs for referral to agency staff or health care provider (Supportive/educative)

WEEKLY OUTCOMES

- Demonstrates independence in ADL, exercise, recreation, leisure, work activities
- Able to maintain maximum functional capacity within limitations of disease
- Able to verbalize acceptance of limitations & adaptations
- Patient & caregiver able to utilize appropriate support services
- Patient & caregiver able to verbalize needs
- Patient & caregiver coping appropriately with limitations of disease process and maintaining responsibility for treatment/care plan
- Clinically stable and demonstrates ability to recognize changes in health status & self-manage in collaboration with health care provider
- Demonstrates ability to bridge to outpatient services for self-management of disease process

(The numbers refer to AHCPR Guidelines for the suggested topics for patient, family, and caregiver education and counseling)

8-28-98
Appendix E

AHCPR GUIDELINES
Suggested Topics for Individual, Family, and Caregiver Education
and Counseling

1. General Considerations
   a. Explanation of heart failure and the reason for symptoms
   b. Cause or probable cause of heart failure
   c. Expected symptoms
   d. Symptoms of worsening heart failure
   e. What to do if symptoms worsen
   f. Self-monitoring with daily weights
   g. Explanation of treatment/care plan
   h.Clarification of patient’s responsibilities
   i. Importance of cessation of tobacco use
   j. Role of family members or other caregivers in the treatment/care plan
   k. Availability and value of qualified local support group
   l. Importance of obtaining vaccinations against influenza and pneumococcal disease

2. Prognosis
   a. Life expectancy
   b. Advance directives
   c. Advice for family members in the event of sudden death

3. Activity Recommendations
   a. Recreation, leisure, and work activity
   b. Exercise
   c. Sex, sexual difficulties and coping strategies

4. Dietary Recommendations
   a. Sodium restriction
   b. Avoidance of excessive fluid intake
   c. Fluid restriction (if required)
   d. Alcohol restriction

5. Medications
   a. Effects of medications on quality of life and survival
   b. Dosing
   c. Likely side effects and what to do if they occur
   d. Coping mechanisms for complicated medical regimens
   e. Availability of lower cost medications or financial assistance

6. Importance of Compliance with the Treatment/Care Plan
January 12, 1999

Kay Setter Kline
222 HRY
Kirkhof School of Nursing

Dear Kay:

The Human Research Review Committee of Grand Valley State University is charged to examine proposals with respect to protection of human subjects. The Committee has considered your proposal, "Home Care Outcomes for Heart Failure: A Test of Two Nursing Interventions", and is satisfied that you have complied with the intent of the regulations published in the Federal Register 46 (16): 8386-8392, January 26, 1981.

Sincerely,

[Redacted]

Paul Huizenga, Chair
Human Research Review Committee
March 19, 2003

Melodee Vanden Bosch
2244 Westwinde NW
Grand Rapids, MI 49504

RE: Proposal #03-162-H

Dear Melodee:

Your proposed project entitled Effects of a Supportive-Educative Nursing Intervention on Quality of Life in Patients with Heart Failure has been viewed. It is exempt from the regulations by section 46.101 of the Federal Register 46(16):8336, January 26, 1981.

Sincerely,

[Name redacted]

Paul Huizenga, Chair
Human Research Review Committee
List of References


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