

IMPACT OF HEART FAILURE PATIENT EDUCATION ON
QUALITY OF LIFE AND FUNCTIONAL CAPACITY

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Chapter I

Introduction

Heart failure (HF) is a major public health issue that is an escalating concern. The incidence of HF has not declined over 2 decades; however survival after onset has increased with improved treatment options, new medications and more advanced health education programs. It is generally expected that the incidence of HF will continue to increase as the population ages, and survival rates of patients after myocardial infarction increases (Annema, Luttk, & Jaarsma, 2009; Hunt, Abraham, Chin, Feldman, Francis Ganiatis et al., 2005; McMurray & Stewart, 2002). Although treatment options have improved, mortality rates continue to be 52.3 per 100,000 population. Incidence for race is reported as 62.1 for white males, 81.9 for black males, 43.2 for white females, and 58.7 for black females (American Heart Association, 2009).

Heart failure (HF) is a progressive chronic condition that affects 5.7 million adults, primarily over 65 years old in the United States (U.S.). An estimated 400,000 to 700,000 new cases of HF are diagnosed each year, and the number of deaths has more than doubled since 1979. Fifty percent of heart failure patients live less than 5 years after initial diagnosis and 25% live up to 10 years. HF is the most frequent cause of hospitalization in persons aged 65 years or older (American Heart Association, 2009).

Hospital discharges for heart failure rose from 877,000 in 2006 to 1,106,000 in 2007, an increase of 171% (Heart Failure Society of America, 2009).

HF is an economic burden to the health care system (Krum & Abraham, 2009; Stewart et al., 2002). The cost of HF in the U.S. was estimated to rise to \$37.2 billion in 2009 (American Heart Association, 2009). The estimated direct and indirect cost of HF in U.S. for 2009 was \$37.2 billion, an increase of 10% since 2007. Costs for HF are generally associated with hospital readmissions. Readmission usually occurs within 6 months after the first hospitalization for HF, and accounts for approximately 70% of HF health care costs (Annema et al., 2009; McMurray & Stewart, 2002).

Readmissions rates can be reduced if patient education becomes more consistent (Annema et al., 2009; Ryan, Aloe, & Mason-Johnson, 2009). Patients receiving discharge instruction education have shown a 35% decreased risk of readmission or death. However, providing complete discharge instructions is time-intensive. Only 20-30% of HF patients receive complete discharge instructions. Discharge instructions should address activity level, diet, medications, weight monitoring, follow up appointments, and actions to take if symptoms worsen (Ryan et al., 2009).

The goal of patient education self-management programs is to enable patients to assume a primary role in managing HF by monitoring symptoms and adjusting medications (Jovicic, Holroyd-Leduc, & Straus, 2006). More frequent patient education sessions increase the patient's motivation to self-manage diet and medications as a result of compliance, and may increase overall quality of life.

Quality of life is related to a sense of well-being that results from satisfaction with the areas of life that are important to an individual. Improved quality of life correlates

with improved functional capacity. Non-adherence to HF home management programs has been identified as the main reason for hospital readmissions (Annema et al., 2009; Kutzleb & Reiner, 2006; McMurray & Stewart, 2002). Readmission rates need to decline and patient education programs need to increase to decrease costs and improve quality of life for HF patients.

Background and Significance

Heart failure (HF) is defined as a condition in which the heart muscle becomes weakened from a previous condition or event, and gradually loses its ability to pump enough blood to supply the body's needs. Previous conditions or events contributing to HF include high blood pressure, prior heart attack, dyslipidemia, and diabetes. Heart failure is associated with significantly reduced physical and mental health, resulting in a markedly decreased quality of life (Bosworth et al., 2004).

Research has demonstrated that HF symptoms usually affect physical functioning, emotional, psychosocial, and socio-economic aspects of life. Although changing physical functions plays a role in patients' quality of life, mental well being and psychosocial factors are equally important to a patient's perceptions of quality of life. Sustained quality of life is an important goal in HF treatment. Quality of life has been defined as participating in the things you once did but can no longer do (Bosworth, Steinhauser, Orr, Lindquist, Grambow, Oddone, 2004; Kutzleb & Reiner 2006). The emotional strain of HF is often linked with the physical limitations of the patient. Depression, low self-worth, frustration, fear, anxiety and guilt are common. Treatment of HF focuses on reducing myocardial demand, improving cardiac contractility, and

alleviating congestive symptoms through the use of pharmaceuticals, cardiac mechanical assistive devices, and patient education (Bosworth et al., 2004).

The concept of self-management was introduced in the 1970's to help patients with chronic illnesses to maintain quality of life. The goal of self-management is to motivate patients to take an active role in managing symptoms. Self-management programs educate patients to monitor symptoms, adjust medications, manage dietary restrictions, weigh daily, adhere to medication regimens, and seek medical attention when symptoms worsen. Self-management programs targeting HF patients have been shown to decrease overall hospital readmissions, specifically heart failure readmissions, and increase quality of life (Armbrister, 2008; Edwards, 2005; Jovicic et al., 2006; Krum & Abraham, 2009; Krumholz et al., 2002).

Kutzleb and Reiner's (2006) study compared two groups of HF patients in the area of patient knowledge, self-care management and quality of life, in addition to readmission rates. One group had routine discharge patient teaching and the other group had enhanced patient education that was nurse-directed. The nurse-directed patient education program was effective in improving the patients' role in all variables. Nurses have an essential role in assisting patients to understand the basics of HF self-management. Further study is needed to validate findings from Kutzleb and Reiner's (2006) study, that enhanced nurse-directed patient education for HF can improve quality of life.

Statement of Problem

Heart failure limits patient's mobility and affects quality of life. Non-adherence to home management programs has been identified as a reason for hospital readmissions.

Many hospital readmissions can be prevented with better discharge instruction and self-management education (Kutzleb & Reiner, 2006).

Purpose of the Study

The purpose of this study is to determine differences in two groups of HF patients, one group that attends a nurse-directed patient education program focusing on lifestyle modifications and knowledge to improve functional capacity and self-care, and the other group that receives routine hospital discharge instructions. This is a modified replication of Kutzleb and Reiner's (2006) study.

Research Question

1. Is there a difference in knowledge of self-care management of HF in two groups of patients, one group that participates in a nurse-directed patient education program, and one that participates in routine care?
2. Is there a difference in quality of life and functional capacity in two groups of HF patients one group that participates in a nurse-directed patient education program, and one group who participates in routine care?
3. Is there a difference in hospital readmission rates in two groups of patients, one group that participates in a nurse-directed patient education program, and one that participates in routine care?

Definition of Terms

Quality of Life: Conceptual.

Ferrans and Powers (1992) defined quality of life as satisfaction or dissatisfaction that stems from areas of life that are important. Quality of life is a phenomenon that is most meaningful as it is experienced and perceived by individuals. Quality of life in this

study refers to patients' perceptions of ability to participate in life activities (Ferrans & Powers, 1992).

Quality of Life: Operational.

The Quality of Life Index (QLI) is a 64 item questionnaire divided into two parts, one part measures satisfaction with various areas of life, and the second part the importance of the same areas to the subject. The QLI was developed to provide an objective measure of quality of life. High scores are produced with a high satisfaction and high importance pairing; low scores are produced with a high dissatisfaction and high importance pairing (Ferrans & Powers, 1992).

Functional Capacity: Conceptual.

Functional capacity includes the physical performance of the usual activities of life such as: self-care activities, daily activities, adequate sleep and rest, mobility, independence and the capacity to participate in occupational and leisure activities (Kutzleb & Reiner, 2006).

Functional Capacity: Operational.

Functional capacity is the objective measurement of a 6-minute walk test using standardized directions and the same physical environment (Kutzleb & Reiner, 2006).

Self-care Management: Conceptual.

Self-care management is the ability of the patient to apply specific knowledge and interventions to maintain individual health. Self-care management is a collaborative learning experience between the healthcare team and the patient, the team provides the skills to monitor and manage HF symptoms (Armbrister, 2008).

Self-care Management: Operational.

Self-care management strategies incorporated into patient education programs reduces mortality and hospitalization rates. Self-care management and early identification of HF symptoms is also beneficial to quality of life (Armbrister, 2008).

Nurse-directed Patient Education Program: Conceptual.

Patients enrolled in the nurse-directed patient education program were provided with monthly follow up exams for 12 months. Patients received standardized education which included a daily weigh chart and education booklet describing HF, signs and symptoms of changes that warrant additional medical intervention, medication compliance counseling and diet and nutrition counseling. Patients also received follow up telephone calls in between monthly visits (Kutzleb & Reiner, 2006).

Nurse-directed Patient Education Program: Operational.

Measurement of the nurse-directed patient education program includes documentation of daily weights on the monthly calendar by each patient. At the initial visit and the 3 and 9 month follow up visit each patient completes the quality of life index survey. A 6 min walking test is completed on the initial visit and again at the 3 and 9 month follow up visit to measure functional capacity (Kutzleb & Reiner, 2006).

Routine Patient Education Program: Conceptual.

Patients enrolled in the routine education program were provided with follow up appointments every 3 months. Included in the follow up appointment the patient received counseling for smoking cessation, medications, diet and nutritional counseling and completed the quality of life survey and the 6 min walk test to measure functional capacity. No weekly telephone follow up was included (Kutzleb & Reiner, 2006).

Routine Patient Education Program: Operational.

Routine patient education program measurement includes the objective measure of the 6-min walk test and completion of the Ferrans and Powers QOL Index tool (Kutzleb & Reiner, 2006).

Hospital Readmission Rates: Conceptual.

Hospital readmission rates are admissions to the hospital for HF exacerbations during the period of study.

Hospital Readmission Rates: Operational.

Hospital readmission rates are measured by determining the number of admissions during the study period for HF exacerbations.

Theoretical Framework

The theoretical framework for this study is Ferrans and Powers' (1992) Quality of Life. Quality of life (QOL) is a subjective measure that can affect the results of therapeutic programs. Satisfaction in life consists of key elements that interact to provide what the individual judges to be positive. The key elements and the interaction between each element are judged subjectively by each individual (Ferrans & Powers, 1992). This framework addresses variables associated with quality of life that can be improved by increased patient self-management and patient education.

Limitations

This study is limited by sample size. The study will be conducted in one location. Additional reliable and sensitive self-reporting and observer-related specific measures are needed to provide more accurate measurements.

Assumptions

1. Heart failure patients have decreased quality of life.
2. Patient education will improve patient self-management and quality of life.
3. Routine care for HF patients does not meet the standards for self-care management and reduction of hospital readmissions.
4. Improved self-care can reduce hospital admissions.

Summary

Heart Failure affects an increasing number of people every year. Self-care management allows patients to participate in HF management and symptom monitoring. Self-efficacy and goal setting, also an integral part of self-care management, allows patients to more fully understand the life style changes. The purpose of this study is to evaluate the impact of a nurse-directed patient education program focusing on lifestyle modifications, daily weights, medication and diet compliance to improve the quality of life and functional capacity. This study will be a partial replication of Kutzleb and Reiner's (2006) study. Ferrans and Powers' Quality of Life will provide a framework which can measure the satisfaction and importance of various aspects of life. Functional capacity measurement will be obtained using a 6-minute walk test. Educational needs were assessed at each visit.

Chapter II

Literature Review

Heart Failure (HF) is the most common Medicare hospital discharge diagnosis, and represents the highest cost diagnosis for Medicare (Hunt et al., 2005). Heart failure decreases quality of life and functional capacity. It will benefit the patient and the health care system to maintain patients' health, quality of life and functional capacity.

Self-care management is critical to the management of heart failure, prevention of hospital re-admissions, and decrease of overall health care costs. Nurse-directed patient education programs emphasize knowledge of self-care management and may improve quality of life and functional capacity (Kutzleb & Reiner, 2006).

Purpose

The purpose of this study is to evaluate the impact of a nurse-directed patient education program focusing on lifestyle modifications, daily weights, medication and diet compliance to improve the quality of life and functional capacity. This is a replication of Kutzleb and Reiner's (2006) study.

Theoretical Framework

The theoretical framework for this study is Ferrans and Powers Quality of Life (1992). Quality of life (QOL) is a subjective measure that can affect the results of therapeutic programs. Each individual feels satisfaction in life provided that key

elements interact to provide what the individual judges to be positive results. The key elements, and the interaction between each element, are judged subjectively by each individual (Ferrans & Powers, 1992).

Heart failure is a chronic disease that affects patients' quality of life and functional capacity. The QLI is a tool that has been modified to address the specific issues of the heart failure patient. The QLI can help identify aspects of life that are of greatest concern to patients. The QOL is an appropriate framework for this study because it allows for the classification of multiple aspects of life that are affected by HF (Ferrans & Powers, 1992).

Patients' Perceptions of Quality of Life

Rather than using standardized measurement tools, Bosworth et al., (2004) gathered descriptions of the perceptions of quality of life (Bosworth et al., 2004). The purpose of this study was to gather descriptions of the components of quality of life as understood by patients living with HF.

Fifteen male HF patients were identified through a centralized database. Participants had a documented diagnosis of HF, had visited the general medicine clinic at least once and had an EF of < 40% by echocardiogram, nuclear cardiology studies or cardiac angiography. The participants were assigned by disease stage, and then three focus groups were established. Using a semi-structured, open-ended protocol discussions were led by a psychologist that lasted an average of 90 minutes. Participants were first asked about things that were important in dealing with a chronic illness, and then about the meaning and components of quality of life (QOL). Analysis followed a grounded theory approach. Constant comparison analysis and open axial coding techniques were

used to identify 30 attributes that fit into five broad themes. Two investigators independently read, each transcribed for common and recurrent themes pertaining to QOL (Bosworth et al., 2004).

Five themes emerged: symptoms, role loss, affective responses, coping, and social support. Symptoms were spoken about often, but never in isolation from other themes. Individuals were frustrated about the loss of the ability to participate in previous work, and this had an overall negative impact on QOL, affective response or the emotional strain associated with HF was particularly significant. Depression, low self-worth, frustration, fear, anxiety, and guilt were common among the participants. Coping strategies were discussed. Spirituality was an important coping strategy, especially for participants with more advanced HF. The positive and negative aspects of social support were discussed. Participants found that family and friends could simultaneously interfere and assist in an individual's ability to cope with HF (Bosworth et al., 2004).

Thirty aspects of QOL were identified within the five major themes. Bosworth et al. found that many of the identified aspects are not included in standard QOL measures used in clinical trials. Examples cited were: the unpredictability of the disease, hopelessness, and frustration with changes in roles and limitation, tangible and emotional support, and loss of independence (Bosworth et al., 2004). Bosworth also found that although many of the major symptoms are assessed with disease specific QOL measures the major symptoms of cognitive functioning identified by the focus groups, is not (Bosworth et al., 2004).

Bosworth et al. (2004) concluded that although current measures may assess present symptoms, measures do not address some major symptoms identified by the

focus groups. “Identifying both deficiencies and strengths of patients presents an opportunity for the clinician to build upon individual resources” (Bosworth et al., 2004, p. 89). A more complete understanding of the concerns of HF patients, and how QOL is affected, will allow clinicians to better address patients concerns (Bosworth et al., 2004).

Palliative care can be an important part of chronic disease care. Horne and Payne sought to explore the experiences of severe heart failure (HF) patients and identify needs for palliative care. A prospective qualitative structure was used to allow for the collection of detailed information about the needs and experiences of patients living with end-stage HF from the patient’s perspective (Horne & Payne, 2004).

Twenty patients, aged 60 to 83 years old, participated in this study. Fourteen of the participants were men, six were women. Patients had a diagnosis of heart failure confirmed by echocardiogram. All the participants were recruited by cardiologists, heart failure nurse specialists, or elder care consultants in Doncaster in the north of England. There were no patients excluded for co-morbidities (Horne & Payne, 2004).

Semi-structured interviews, lasting an average of 30 minutes, were conducted in the participants’ homes. The interviews were audio taped with the participant’s consent, and field notes were taken. The audiotapes were transcribed verbatim. Using a grounded theory approach the data were coded allowing for identification of the main themes and categories (Horne & Payne, 2004).

The three main themes that resulted from this study were “can’t do,” difficulties in walking,” and “relying on others.” The seven sub-themes that were identified were: concept of disease; talking about death; keep taking the tablets; feelings and attitudes;

hope and hopelessness; and symptoms and information needs (Horne & Payne, 2004, p. 292).

The “Can’t do” theme represents the inability of the HF patient to continue to perform many of the tasks that were routine before the diagnosis. The tasks ranged from the simple to the more complex, including basic personal hygiene, walking, standing or bending, to driving, shopping or cooking. The “difficulties in walking” theme was identified by many of the participants as a major challenge. This was related to loss of energy and breathlessness. Participants expressed the theme “relying on others” for basic needs as feeling like a burden. Participants depended on the goodwill of friends, family and neighbors to assist with needs. Information was not easily available about the resources available to assist (Horne & Payne, 2004).

Horne and Payne (2004) concluded that despite expert medical care the most common symptoms experienced were an extreme lack of energy and breathlessness. Most HF patients experience many losses and have feelings of hopelessness and depression. Palliative care programs would benefit the heart failure patient by providing psychological support, information about their disease and/or home care assistance (Horne, & Payne, 2004).

Patient Education Programs

The adjustment between hospital and home is important to the HF patient to prevent hospital readmissions and improve quality of life. The purpose of Harrison, et al.’s study was to determine whether the quality of life would increase and hospital readmission and emergency room use would decrease following the reorganization of the discharge planning and transition care of the usual care providers (Harrison et al., 2002).

Participants (N=192) ranged in age between 33 and 93, with an average age of 76. Exclusion criteria were: coming from or being discharged to an extended care facility, living outside the determined home care area, being too ill or deceased shortly after admission, first language other than French or English, being discharged in less than 24 hours, and diagnosis change (Harrison et al., 2002).

Participants were randomized into two groups. The usual care (UC) group received care including: hospital to home transfer using home care coordination services, home nursing care, home health teaching, direct care, administration of medications, and management of equipment and treatment. The transitional care (TC) group received the standard discharge planning. Hospital and community nurses provided additional education using the Partners in Care for Congestive Heart Failure (PCCHF). PCCHF included a patient workbook and an education map that provided the overall education plan and served as a patient held documentation tool (Harrison et al., 2002).

The Minnesota Living with Heart Failure Questionnaire (MLHFQ) is a condition specific instrument that was used to measure each participant's health-related quality of life, symptom distress, and functions at 6 and 12 weeks post discharge. The Medical Outcome Study Short Form (SF-36) is a generic measure used to measure quality of life, the number of emergency room visits, and hospital readmissions (Harrison et al., 2002).

Quality of life for participants in both groups improved at the 2nd week point. Patients receiving usual care showed no additional improvement in quality of life in the 6 or 12 week questionnaire. The TC showed both clinical and statistically significant improvements in HRQL results. For the TC, the total MLHFQ scores at 12 weeks were 43% compared to 14% for the UC group. The differences were statistically significant.

No statistically significant differences were noted in general health or physical component when participants used the SF-36 questionnaire. Emergency room visits by the TC group were recorded at 29% compared to the UC group at 46% (Harrison et al., 2002).

Transitional care is an important educational piece in the management of heart failure symptoms. An educational aid helps staff keep education standard among patients. Patient education improves specific aspects of quality of life for individuals with heart failure and results in fewer subsequent visits to the emergency rooms. Coordination and supportive assistance for patients are key recommendations for patients with heart failure. Symptoms of chronic heart failure diminish patients' quality of life, and lead to consumption of medical resources through emergency treatment and hospitalizations (Harrison et al., 2002).

Todero, LaFramboise and Zimmerman examined the effectiveness of a home-based disease management program to control HF symptoms and improve quality of life after hospitalization. Patient education was based on the Agency for Healthcare Research and Quality (AHRQ) guidelines recommendations (Todero et al., 2002).

Participants were referred by physicians to a home care program for heart failure. Fifty men and 52 women participated. The ages of the participants ranged from 39-91 with an average age of 70.5. Criteria included a diagnosis of heart failure, mental orientation, ability to speak English, no visual impairment, no history of coronary bypass surgery with the last 3 months, not currently enrolled in cardiac rehabilitation and had a phone line (Todero et al., 2002).

Each participant was enrolled in a heart failure disease management program that included routine reminders to monitor symptoms with suggestions for symptom management or control, a patient education video, and an educational manual for reference. Participants received a baseline health assessment and follow up education regarding medications, weigh daily, control salt get routine exercise and how to monitor symptoms (Toderro et al., 2002).

A modified Cardiac Symptom Survey (CSS) was used to assess frequency, severity, and interference with physical functioning and enjoyment of life. Reliability for each item ranged from 0.9 to 1.0. Medical Outcomes Study 36-item Short Form Health Survey (SF-36) was used to measure quality of life. Reliability for SF-36 was not reported (Toderro et al., 2002).

The percentage of patients experiencing each symptom at 2 months decreased, although not all decreases were significantly significant. The mean scores for frequency, severity, interference with activities and enjoyment in life from shortness of breath all decreased or improved significantly. Changes in the SF-36 from baseline to 2 months were analyzed using the paired t-test. There were trends toward improvement in physical and general health and physical, body pain, mental and vitality (Toderro et al., 2002).

There were improvements in symptoms status for the most common symptoms of HF within 2 months, with the exception of shortness of breath. Improved symptom status has been shown to improve physical functioning and quality of life. Reduction of hospitalizations will result (Toderro et al., 2002).

Home care programs have been initiated to determine the effectiveness in improving quality of life and reducing hospital readmission rates. Vavouranakis,

Lambrogiannakis, Markakis, Dermitzakis, Haroniti, Ninidaki, and et al. (2003) initiated an intensive home care program for severe heart failure patients in Crete, Greece. The purpose of Vavouranakis et al.'s study was to investigate the impact of a home based intervention in a group of middle aged patients with severe HF (Vavouranakis et al., 2003).

Twenty-eight men and four women participated. The mean age of the participants was 52, with a range of 50 to 75. Vavouranakis et al. (2003) found there were advantages to working with this age group. Participants in this age group had better cognitive abilities than more elderly individuals, were better able to benefit from continued educational support, and were better able to implement and maintain an exercise routine. Criteria for inclusion were being hospitalized in the last year with a diagnosis of HF, and being in stable condition, defined as being under the same medical regimen and without clinical deterioration for the last 2 weeks. Co-morbid conditions were criteria for exclusion as well as living > 30 km from the city and lack of telephone access.

Participants were followed for 1 year, and visited every 30 days by a home care nurse who had received special training for HF patients as well as telephone contact every 10-15 days (Vavouranakis et al., 2003). Participants were also provided access to a nurse or physician to report symptoms or problems promptly (Vavouranakis et al., 2003).

The Minnesota Living with the Heart Failure Questionnaire (LHFQ) was used to measure quality of life. LHFQ is a disease specific measure of quality of life that assesses patients perceptions of the influence of HF on physical, socioeconomic and psychological aspects of life (Riegel, Moser, Glaser, Carlson, Deaton, Armola et al., 2002, as cited by Vavouranakis et al., 2003). Hospitalization rates for cardiovascular

reasons were provided by the patients and confirmed by the department files. Questions were fully answered for participants. Readmissions were included if due to a cardiovascular complication or associated condition leading to worsening HF not effectively treated at home (Riegel, Mosr, & Glaser et al., 2002, as cited in Vavouranakis et al., 2003).

Frequent home visits allowed participants to establish a bond with the nursing staff and physician, resulting in more open sharing of problems and feelings with staff. Scheduled laboratory exams were included in the home care program. Detection and correction of electrolyte abnormalities were not infrequent and represented an important therapeutic goal (Vavouranakis et al., 2003).

The Wilcoxon paired test was used to compare readmission rates. Statistical analysis of the readmission rate/year resulted in decrease from 2.143 to 1.25. The Student t-test was used to compare quality of life scores. Statistical analysis of The Minnesota Living with Heart Failure Questionnaire resulted in a range of (on a scale from 0 to 5) 2.68 to 2.33, where an increase indicates an increase in the perception of the affect of heart failure. Vavouranakis et al. (2003) concluded that the impact of this intensive home based program, coupled with frequent laboratory tests, resulted in a reduction of hospital readmission rates and an improved quality of life for at least 1 year of follow up (Vavouranakis et al., 2003).

Health promotion is a major component of care for HF patients. A telephonic health promotions program increases patient knowledge of self care management. Few resources are available to provide this type of health promotion. The purpose of this study was to describe the health of patients with congestive heart failure and provide

meaningful community experiences for senior nursing students (Wheeler & Plowfield, 2004).

Between 1998 and 2001 there were 29 heart failure patients, 22 women and 7 men, with a mean age of 74.1 years, who were followed by student nurses. The patients had been ill for an average of 3 years with an average of 3.5 co-morbidities. Patients used an average of 7.3 medications. All the patients lived at home and were receiving home care. The students initially visited the patient with a home care nurse during a home care visit to become familiar with the patients, family, and living environment. After the initial visit the students called the patients once or twice weekly. Telephone calls continued for the 14 week semester (Wheeler & Plowfield, 2004).

Telephone calls were guided by the telephone call protocol. The goals of the telephone calls were to “reinforce patient’s education, identify signs and symptoms of worsening heart failure, and ensure compliance with medications and diet” (Wheeler & Plowfield, 2004, p. 17). The telephone call protocol provided specific patient areas to address, as well as some actions to take if necessary. The students met with the faculty member regularly. Records were kept of observations, telephone calls, home visits, patient re-hospitalizations and unexpected emergency or clinic visits (Wheeler & Plowfield, 2004).

Only two of the 29 patients were hospitalized due to exacerbations. Other patient benefits included: education and information, adherence to treatment, and emotional support. Student benefits reported included benefits of critical thinking, cultural competence, and feelings of satisfaction in the independent role of the nurse (Wheeler & Plowfield, 2004).

Wheeler and Plowfield's (2004) telephone intervention study resulted in a health promotion program that has beneficial results for the patient and students. The students were able to reinforce clinical education, assist in compliance with diet and medication and instruct patients to contact physicians when necessary. This program has a clear benefit for both the HF patient and the nursing student (Wheeler & Plowfield, 2004).

Physical limitations and the progression of symptoms of HF can cause a decrease in quality of life and psychological concerns. Scott, Setter-Kline and Britton examined the effectiveness of nursing interventions to enhance mental health and quality of life (QOL) among individuals with HF receiving home care. Nursing interventions were based on the Agency for Health Care Policy and Research (AHCPR) HF clinical practice guidelines (Scott et al., 2004).

Eighty-eight participants were recruited from two home health care agencies in the Midwest. Thirty-nine participants were men, 49 were women. The participants ranged in age from 33-94 years old. The participants had to have a primary diagnosis of HF, were 18 years old or older, and understood and spoke English. Participants were divided into three groups. Each group was visited at home during the first week for routine HF management. Three home care nursing interventions were developed for each group for the study including mutual goal setting (MGS), supportive-educative (SE), health promotion-used for the placebo group (Scott et al., 2004).

The Mental Health Inventory-5 (MHI-5) assessed anxiety, depression and loss of behavioral or emotional control over the 4 weeks prior to data collection. Reliability coefficients of 0.65 to 0.81 have been reported on the MHI-5. An alpha coefficient of 0.86 was obtained in this study. The cardiac version of the Quality of Life Index (QLI)

assessed perceived satisfaction and importance in health/functioning, family, socioeconomic and psychological/spiritual areas of life. Reliability coefficients of 0.77 to 0.90 were reported. Similar results were noted in this study. The outcome variables of perceived mental health and QOL were assessed for each group before randomization and at 3 and 6 months (Scott et al., 2004).

The within group comparison indicated that the mental health of the participants receiving the placebo intervention did not significantly change over time. The SE group did reflect an improvement in mental health from baseline to 3 months, however, this did not continue at 6 months. Participants in the MGS group had improved mental health scores at 3 months that continued to significantly improve at 6 months (Scott et al., 2004).

Baseline QOL scores were similar for all three groups. Significant differences in the overall QOL were not noted until 6 months. At 6 months, the MGS group had significantly higher QOL scores than the SE or the placebo group. The MGS group also had higher perceptions of health/functioning, psychosocial/spiritual and socioeconomic QOL areas than the other groups at 6 months. The placebo group QOL scores remained unchanged throughout the intervention. The SE and MGS groups perceived significant improvements in overall QOL when compared with baseline scores at 6 months. The SE and MGS also had significant increases in health/functioning over 6 months. QOL continued to improve in the SE group over time. The scores of the MGS and the placebo group fluctuated (Scott et al., 2004).

Findings suggested that support given by nurses may provide the resources needed to engage in self-care management behaviors and enhance QOL. MGS and SE

nursing interventions may be beneficial in the care of individuals with HF who are receiving home care. Additional study topics should include whether the use of nursing interventions may prevent psychological deterioration as well as reduce HF symptom exacerbation and frequent hospitalizations (Scott et al., 2004).

The progression of symptoms and life limitations of heart failure has been shown to affect quality of life. Smith, Forkner, Zaslow, Krasuski, Stajduhar, Kwan, and et al. (2005) examined the effectiveness of a disease management program on health related quality of life (HRQL). Using the Medical Outcomes Study 36-Item Short Form Health Survey (SF-36), Smith et al. compared the intervention and control group at 6 month intervals to determine the effectiveness of disease management program. The purpose of this study was to determine whether improvement in quality of life after a disease management program was maintained past 90 days (Smith et al., 2005).

Participants (n=1,069) joined the study. Subjects were 18 years old or older with a history of HF, and either an ejection fraction on echocardiogram of <49%, or signs of left ventricular hypertrophy. The subjects were randomly assigned into one of three study groups: usual care (control group), disease management, and augmented disease management. Assessment of medical history, physical exam, 6-minute walk test and serum chemistries were done at 6 month intervals for an 18 month period (Smith et al., 2005).

The Medical Outcomes Study 36-Item Short-Form Health Survey (SF-36) was used to measure the subjects HRQL. The SF-36 is a 35 item questionnaire that assesses change in self-reported health and asks the subject to rate health compared to 1 year ago. The SF-36 performs well among different age groups and disease groups and assesses

changes in: bodily pain, general health, mental health, physical functioning, perceived disruptions in daily routine due to emotional problems and physical problems, social functioning and vitality (Smith et al., 2005).

Smith et al. (2005) found evidence of a short term beneficial effect of disease management on HRQL outcomes in HF patients. At 6 and 12 month patients receiving disease management were more likely than the control group to report improvement. There was no statistically significant difference in changes in quality from the SF-36. Smith et al. (2005) concluded this may be due to the placebo affect, since it was impossible to blind the patients to the assigned group. The patients knew whether the patient was receiving the experimental intervention and might perceive an improvement in health even though there had been no real improvement (Smith et al., 2005).

The SF-36 was sensitive enough to detect an improvement in the HRQL where the non-disease specific HRQL instrument was not. Smith et al. did evaluate other HRQL instruments that were more specific to HF patients and found the instruments were not superior to the SF-36. Smith et al. (2005) concluded that participation in disease management has only a limited effect on HRQL outcomes in HF that appear at 6 and 12 months but are not reflected in the SF-36 scale (Smith et al., 2005).

Patient education performed in suboptimal conditions leaves the patient with multiple questions and uncertainty about what lifestyle changes to make. Kodiath, Kelly and Shively described an innovative behavioral intervention for patients with HF. The purpose of the study was to develop a disease management program that focuses on self-management, increasing motivation, and advancing functional disturbances. The goal was to develop a comprehensive education plan that focused on self-management

methods and increasing patient motivation to make lifestyle changes (Kodiath et al., 2005).

Based on the Information-Motivation-Behavioral Skills (IMB) Model originally used for human immunodeficiency virus (HIV) positive patients, motivation enhanced actual behavior change. Motivation was defined as a behavioral sequence that includes moving the participant toward recognizing a problem, needing or wanting to change, searching for a way to change, and beginning, continuing, and following through with a change (Kodiath, Kelly, & Shively, 2005).

Two advanced practice nurses, an adult nurse practitioner and one psychiatric clinical nurse specialist, facilitated the intervention with all the participants. Fifty-eight people diagnosed with heart failure participated. The program timeline covered 15 weeks, which included four patient education classes, and three follow up telephone calls. As part of the program, published resources were shared and reviewed with the participants. The participants were also encouraged to select a behavior to change and to set a goal. The identified behavior changes were monitored and evaluated throughout the program (Kodiath et al., 2005).

Participants completed a three section class feedback form including class objectives with a yes/no format, leaders' behaviors using a Likert-type scale and an overall 10 point rating scale, for the information, behavior and motivation component. All participants reported high satisfaction with the program. The class leaders kept anecdotal notes about the intervention and the program implementation. The major themes found were: satisfaction with the intervention, lack of understanding of heart

failure, the influence of age, disbelief regarding the diagnosis, and confusion regarding access to care, lifestyle changes and depression (Kodiath et al., 2005).

Kodiath et al. concluded that a quantitative measure of quality of life might not capture the richness of the issues that people with HF actually identify. Kodiath et al. also concluded that the behavioral intervention assisted participants in learning how to use the healthcare system and communicate with providers to address symptoms or questions related to their heart failure. Using the IMB model facilitated behavioral change and improved the quality of life of persons with heart failure (Kodiath et al., 2005).

HF patient education programs are essential to ensure that treatment and prevention takes place efficiently. Kutzleb and Reiner (2006) evaluated the impact of a nurse-directed approach to patient education. Patient education focused on lifestyle modification, daily weights, medication, and diet compliance to improve the quality of life (QOL) and functional capacity. Researchers evaluated the effect self-care disease management patient education and the influence on QOL and functional capacity (Kutzleb & Reiner, 2006).

The study took place in an Eastern metropolitan area. Twenty three 18-75 year old patients were followed for 12 months. The patients mean age was 58 years old. The patients were referred by a cardiology clinic. All diagnoses of heart failure were confirmed with an echocardiogram and had evidence of left ventricular systolic dysfunction or diastolic dysfunction. Exclusion criteria included patients who were not literate in English, patients with heart failure as a result of an myocardial infarction or unstable angina, heart failure as a secondary diagnosis in conjunction with multiple co

morbidities, patients who had other serious health problems that might not survive the study, such as cancer, or patients taking mood altering medications or psychiatric medications. The patients were on an average of six medications and had an average EF by echocardiogram of 47% (Kutzleb & Reiner, 2006).

The patients were assigned to one of two groups. One group received routine care with a cardiologist. The other group received nurse-directed interventions which included office visits and follow-up phone calls in between monthly visits. The questionnaire addressed overall QOL, health and function, psychological/spiritual, social and economic and family for all subjects. A standard QOL questionnaire (Ferrans & Powers) was used to measure overall QOL. The Ferrans and Powers tool has a high reliability rate. The Cronbach's alpha ranges from 0.84 to 0.98 (Kutzleb & Reiner, 2006).

The findings supported a relationship between the functional capacity and improvement of QOL. Using ANCOVA at 9 months a statistically significant improvement (62%) was shown in the nursing care group for QOL, health and function, social and economic, psychological and spiritual, and family versus only a 25% improvement of QOL for the routine care group. Functional capacity was not significantly impacted by the nursing care interventions. The improvement of QOL was directly related to the nursing care interventions. In addition, crises were averted due to improved management of patient symptoms by nursing protocols. The authors concluded that a "nurse-directed treatment strategy significantly improved the QOL for patients, improved functional capacity, and prevented hospitalization in patients in heart failure" (Kutzleb & Reiner, 2006, p. 123).

Multidisciplinary heart failure management programs have improved patient clinical outcomes and decreased care costs. Faculty at The University of Maryland attempted to confirm that close follow up of chronic heart failure patients led to improved quality of life. The purpose of this study was to determine if close follow up of HF patients would impact quality of life or physiological parameters (Gottlieb & Blum, 2006).

Two hundred and four patients were randomly assigned to a usual care control group, or a tele-monitoring group. The average participant was 72 years old, 44% were African American and 28% were women. All patients were diagnosed with HF; the mean ejection fraction was 29%. The tele-monitoring group received a scale, blood pressure cuff, and a transmitter to transmit the readings daily to a nurse practitioner. The control group was provided ready access to care by experienced nurses and physicians (Gottlieb & Blum, 2006).

The Short Form 36 (SF36) and Minnesota Living with Heart Failure (MLWHF) questionnaires were completed at baseline and at 1 year. The SF 36 is a measurement of the participants perceptions of functioning in eight dimensions of daily life. MLWHF is a self-assessment of how heart failure affects the participants daily life (Gottlieb & Blum, 2006).

Scores on the MLWHF improved significantly for both groups but were not significantly different between the two groups. The SF-36 mental composite and physical composite improved over the year for both groups but were not significantly different between the two groups. The unusual access to specialist care in the control

group may have limited the benefit possibility by providing close care by tele-monitoring to both groups (Gottlieb & Blum, 2006).

Gottlieb and Blum believed that findings were consistent with the premise that patient education and the therapeutic relationships between patients and providers can improve outcomes. Which interventions are most important and most cost-effective remains unknown because studies have been unable to verify which interventions have most effective (Gottlieb & Blum, 2006).

Patient education plays a key role in heart failure patients maintaining life functions. The purpose of Sisk, Herbert, Horowitz, McLaughlin, Wang and Chassin's study was to develop a nurse management program focused on ethnically diverse patients to compare the effects of a nurse led intervention on ambulatory care patients with systolic dysfunction (Sisk et al., 2006).

Participants (N=406) were English or Spanish speaking, over 18 years old, and being cared for at a participating ambulatory care clinic for a diagnosis of impaired systolic dysfunction. Impaired systolic dysfunction was defined as left ventricular ejection fraction less than 40%, or moderately or severely reduced systolic dysfunction on echocardiography or other testing. Participants were randomly assigned to the control or intervention group. The intervention group registered nurses met with each participant to counsel the participant on diet, fluid build up and symptoms. The nurse also served as a liaison between the participant and the clinician. Quarterly telephone surveys were performed to ask participants about hospitalizations at non-participating hospitals (Sisk et al., 2006).

The Short Form-12 (SF-12) was used to measure generic physical functioning; the Minnesota Living with Heart Failure (MLHF) Questionnaire was used to measure the condition specific functioning. Nurse management participants reported better functioning than usual care participants on both the SF-12 and the MLHF scales. Nurse management participants had 55 fewer hospitalizations by the end of the 18 month period (Sisk et al., 2006).

Nurse management programs are usually aimed at discharging hospital patients. Sisk et al. showed that ambulatory care patients can also benefit from nurse management programs. Patient education for ambulatory care patients was associated with fewer hospitalizations and improved functioned (Sisk et al., 2006).

Health care institutions are challenged to decrease the costs of caring HF patients by decreasing length of stay and readmission rates. Slater, Phillips, and Woodard reviewed data from hospitals across the country, and found that approximately 50% of HF readmissions were preventable. When readmission did occur it was usually due to noncompliance with medications and diet. The purpose of this study was to develop a comprehensive inpatient education program with an outpatient telephonic program to reinforce inpatient education. The program's goal was to serve as a resource to patients with HF and families and to empower individuals to take an active role in management of their chronic HF through education (Slater, Phillips & Woodard, 2008).

The HF Telephonic Program was completed in a not for profit teaching hospital over 3 years. Each participant was followed for 3 months unless the RN Case Manager believed the participant needed additional follow up. There were 612 total participants. Criteria for participation included admission to the hospital for chronic heart failure. A

physician's order was required for enrollment of a patient, however, as program outcomes were shared with the physician staff, the decision was made that all appropriate patients would be enrolled by any provider (Slater et al., 2008).

All HF admissions were reviewed for the length of stay, and costs of care for patients 6 months prior to being admitted to the HF Telephonic Program. The HF Telephonic Program was successful in meeting the organizational and patient focused goals. The patients' readmission rates were compared on the same patients between the 6 months before the program and after the program. Patient readmission rates for HF had dropped from 854 admissions to 200 admissions once the program was completed (Slater et al., 2008).

Length of stay (LOS) also decreased for the HF patient who had completed the HF Telephonic Program. The average LOS and cost of care for the patient before completing the program was 5.96 days and \$11,993 respectively, after completion of the program 4.95 days, and \$6,553 respectively. Slater et al. believe the reduction of LOS is a result of better patient recognition of the signs and symptoms of HF that would require hospitalization (Slater et al., 2008).

There were 379 ED visits avoided by tracking ED visits 1 week after an RN case manager in the HF Telephonic Program urged a patient to contact the primary care provider. If there was no ED visit this was considered an avoided ED visit or an ED deferment. By providing support to program participants in this way, RN's guided the participants to gain confidence in the management of a chronic illness and empowered the patient to take control of care, thus improving quality of life (Slater et al., 2008).

Summary

The review of literature presents published studies on the effects of quality of life as understood by HF patients, the need for palliative care, the effectiveness of home based disease management programs, and close follow up programs, and the development of disease management programs. A summary follows.

Bosworth et al. (2004) asked heart failure patients to describe quality of life. Five themes resulted: symptoms, role loss, affective response, coping and spirituality, and social support. Horne and Payne (2004) identified the needs for palliative care in the severe heart failure patients, and concluded that heart failure patient's needs for palliative care were similar to patients living with cancer, and that palliative care could provide psychological support, disease specific information and home care assistance to HF patients.

Harrison et al. (2002) concluded that patients had both clinical and statistically significant improvements in quality of life after transitional care was reorganized. Hospital emergency room visits and admissions were also decreased. Harrison et al. (2002) also concluded that more standardized education during discharge and transition to home for heart failure patients is beneficial for patients and hospitals without increasing the number of care providers. Todero et al. (2002) concluded that better quality of life accompanied the improvements in symptom status scores. The reduction of symptoms was more important to heart failure patients than longer survival.

Vavouranakis et al. (2003) found frequent home visits helped participants create psychological bonds with nurses and physicians allowing participants to discuss physical problems openly with staff. Vavouranakis et al. (2003) concluded that middle aged

participants had benefits in functional status resulting from continued education about diet, medications and physical activity.

Wheeler and Plowfield (2004) found students using a telephone call protocol, with specific areas to address, and some actions to take, were able to reinforce clinical education, assist in compliance with diet and medication, and instruct patients to contact physicians when necessary. Scott et al. (2004) concluded that support given by nurses may provide heart failure patients the resources needed to engage in self-care management behaviors and enhance quality of life. Smith et al. (2005) concluded disease management has only a limited effect on quality of life outcomes in HF patients.

Kutzleb and Reiner (2006) concluded a nurse directed treatment improved the quality of life, the functional capacity and prevented hospitalization of HF patients. Gottlieb and Blum, (2006) concluded that close follow up of heart failure patients with a tele-monitoring group and a nurse practitioner improves the quality of life and physiologic parameters of HF patients.

Kodiath et al. (2005) used the Information-Motivation-Behavioral Skills (IMB) Model to teach HF patients how to manage HF, and concluded the IMB was successful in helping HF patients continue lifestyle changes and improve quality of life. Slater et al. (2008) concluded RN's guiding participants through the management of a chronic illness helped patients to gain confidence and empower the patient to take control of care, thus improving their quality of life. Sisk et al. (2006) concluded that ambulatory care patients can also benefit from nurse managed patient education programs which were also associated with fewer hospitalizations and improved functioning.

Chapter III

Methodology and Procedures

Heart failure is the most common hospital discharge diagnosis in the population of people 65 years old. Patient education is a key factor in helping to motivate patients to increase treatment compliance and reduce hospitalizations. This chapter contains a description of the methods and procedures for the study.

Purpose

The purpose of this study is to evaluate the impact of a nurse-directed patient education program focusing on lifestyle modifications, daily weights, medication and diet compliance to improve the quality of life and functional capacity. This is a replication of Kutzleb and Reiner's (2006) study.

Research Question

1. Is there a difference in knowledge of self-care management of HF in two groups of patients, one group that participates in a nurse-directed patient education program, and one that participates in routine care?
2. Is there a difference in quality of life and functional capacity in two groups of HF patients one group that participates in a nurse-directed patient education program, and one group who participates in routine care?

3. Is there a difference in hospital readmission rates in two groups of patients, one group that participates in a nurse-directed patient education program, and one that participates in routine care?

Population, Sample and Setting

The sample will include 40 patients, 18 to 75 years old, admitted for a primary diagnosis of heart failure two or more times in the previous 3 months to one of two hospitals in a multi-hospital network at sit 1 or 2. Site #1 is located in a lower income neighborhood with primarily primary residences in the immediate vicinity. Site #2 is located outside a middle income primary residence neighborhood bordering on a major retail area. Exclusion criteria are patients who do not speak English, who have had a myocardial infarction in the past and have other co-morbidities that compromise patient survival. Diagnosis of heart failure will be confirmed by echocardiogram and EF < 40%.

Protection of Human Subjects

The study process will be submitted to the Ball State University Institutional Review Board for review and the hospital network. The head of Cardiology will review the study after approval by the network. Informed consent will be obtained from each participant. Each participant will be told the purpose of the study and voluntarily sign an informed consent. Participants will be aware of the confidentiality of responses and that treatment will not change based upon participation. Participants will be informed of the withdrawal process and that withdrawal will be inconsequential. Care will not be altered if patients do not participate.

Procedures

An inpatient data management system will be used to identify patients who have been admitted 2 or more times in the previous 3 months for a primary diagnosis of heart failure. Patients will be contacted during the patient stay to determine their willingness to participate in the study. Patients will be randomly divided between routine care (RC) and nursing care (NC) to ensure a comparable patient population mix in each group. The RC group is informed of the following criteria for study:

1. Follow-up appointments in the cardiology clinic every 3 months for medical management
2. A QOL survey and a 6 minute walk test to measure functional capacity
3. Counseling for smoking cessation, medications, diet and nutritional counseling at each 3 month visit

The NC group will be informed of the following criteria for study:

1. Monthly follow up appointments for 12 months
2. Baseline echocardiogram and 12-lead electrocardiogram on the initial visit
3. 6 minute walking test to measure functional capacity at the initial visit and at the 3 and 9 month visit
4. A QOL index survey completion on the initial visit and at the 3 and 9 month visit
5. Documentation of daily weights on a monthly calendar (provided)
6. Physical exam is completed by the clinical nurse specialist/researcher (CNS/R) consisting of cardiac heart sounds, pulmonary auscultation, abdominal girth measurement and extremity assessment with every visit
7. CNS/R develops the individualized educational plan at each visit

8. Interventions are monitored by telephone follow-up in between monthly visits on a weekly basis by the CNS/R using a standardized questionnaire to maintain consistency in patient response.

Methods and Measurement

The Quality of Life Index (QLI) was developed to provide an objective measure of quality of life. Ferrans and Powers defined quality of life 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). QOL as defined by Ferrans and Powers was made up of four subscales: life satisfaction, self-esteem, health and functioning, and socioeconomic status. The initial instrument was developed for the measurement of the quality of life for healthy individuals. Items specific to other illnesses were added later (Ferrans & Powers, 1992).

The QLI is a 64 item questionnaire divided into two parts which measure satisfaction with various areas of life and the importance of the same areas to the subject. A 6 point Likert type scale will be used to score Part 1 Very satisfied (6) to very dissatisfied (1) and Part 2 from very important (6) to very unimportant (1). Overall quality of life will be calculated by weighting satisfaction responses with a paired importance response. This will reflect the individual values with the satisfaction values and produces a quality of life value. The high scores are produced with a high satisfaction and high importance pairing; a low score is produced with a high dissatisfaction and high importance pairing (Ferrans & Powers, 1992).

Functional capacity will be measured with the use of a 6 minute walk test. Each patient is told to walk at a brisk pace as far as they can within the 6 minute allotted time,

resting as needed. Differences were minimized by using standardized directions, the same physical area at each site and by having the same researcher supervise all of the walking tests (Kutzleb & Reiner, 2006).

Research Design

The research design will be a comparative descriptive design. A comparative descriptive design examines the differences between two groups that occur in a natural setting. The results of this study are usually not generalized to the general population (Burns & Groves, 2005).

Intended Method for Data Analysis

The t-test will be the intended method for data analysis. The t-test will be used to compare mean scores of the two groups in self-care management and determine differences between the two groups (Burns & Groves, 2005).

Summary

The purpose of this study is to determine the impact of a nurse-directed patient education program focusing on lifestyle modifications, daily weights, medication and diet compliance on the heart failure patient's quality of life and functional capacity. Participants will include 40 patients recruited from two community hospital sites. Data will be collected over a 12 month period.

The QLI will be used to measure participant's satisfaction with various areas of life. Functional capacity will be measured using the 6 minute walk test. Pearson's correlation will determine the degree of relationship between the variables. Findings will provide information on the influence of patient education on the patients QOL and functional capacity.

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Appendix

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NUR 697 RESEARCH

Source	Problem & Purpose	Framework Or Concepts	Sample	Design	Instruments	Results and implications
Bosworth et al. (2004)	Physician's objective assessment is different than patient's perceptions of HF and improvements from medications and treatments To describe the components of quality of life as understood by patients living with heart failure.	Feldman et al.'s (1993). Vesnarinone Treatment	15 male CHF patients assigned by disease stage to three focus groups	Cross sectional qualitative grounded theory design	Semi-structured, open-ended protocol "What things are important to you in dealing with a chronic illness?" "Talk about the meaning and components of quality of life?" Probe questions for clarification	Thirty aspects of QOL were identified within five major themes: symptoms, role loss, affective response, coping and social support. Understanding of the concerns of HF patients and how their QOL is affected allows clinicians to better address patients concerns.
Horne & Payne, (2004)	Little information about how palliative care programs can benefit heart failure patients is available. To explore the experiences of severe heart failure patients and identify their need for palliative care.	Moser & Worster (2000). Palliative care treatment	20 patients, aged 60 to 83 years old 14 participants were men, 6 were women	Prospective qualitative grounded theory structure	Semi-structured interviews lasting an average of 30 minutes and were conducted in the participant's homes. The audiotapes were transcribed verbatim.	Three main themes that resulted from this study were "can't do" themes representing inability of heart failure patients to continue to perform many tasks that were routine before diagnosis. Palliative care treatment should be offered palliative care.

Source	Problem & Purpose	Framework Or Concepts	Sample	Design	Instruments	Results and implications
Harrison, et al. (2002).	<p>Can quality of life improve hospital readmissions and emergency room utilization decrease without adding additional care providers.</p> <p>To determine whether the quality of life would increase and hospital readmission and emergency room use would decrease following the reorganization of the discharge planning and transition care of the usual care providers.</p>	Cook, Render, Woods, (2000). Gaps in the continuity of care and progress on patient safety	Participants (N=192) were randomized into two groups ranging in age from 33 to 93 with an average age of 76.	Pretest Posttest Longitudinal study	<p>The Minnesota Living with Heart Failure Questionnaire (MLHFQ)</p> <p>The Medical Outcome Study Short Form (SF-36)</p>	<p>With adjustments to discharge and transition from hospital to home, heart failure patients experience quality of life improvement and decreased emergency room utilization for 3 months after hospitalization.</p> <p>Education of patients with heart failure should be provided at home after discharge using a standardized format.</p>

Source	Problem & Purpose	Framework Or Concepts	Sample	Design	Instruments	Results and implications
Toderó, et al. (2002).	<p>Physicians do not always see a clear picture of patient's limitations during routine assessments. Patients need education to understand how to assess progression of heart failure symptoms.</p> <p>To examine the effectiveness of a home-based disease management program to control heart failure symptoms and quality of life in heart failure patients after hospitalization.</p>	Friedman, (1997). Education for heart failure	50 men and 52 women Ranging in age from 39-91 with an average age of 70.5 participated.	Quantitative , one group, quasi-experimenta l pretest-post test design	Medical Outcomes Study 36-item Short Form Health Survey (SF-36).	<p>There was improvement in symptom status for most common symptoms of heart failure except shortness of breath within 2 mos. Improved symptom status improves physical functioning and quality of life.</p> <p>Increased follow up of heart failure patients that includes telephonic, electronic and home based follow up should be schedule more often for patients with heart failure</p>
Vavouranakis, et al. (2003).	<p>Consistent readmissions and deterioration of functional status and quality of life of severe heart failure patients.</p> <p>To investigate the impact of a home based intervention in a group of middle aged patients with severe heart failure.</p>	West et al., (1977). Comprehensive management system for heart failure improvement, clinical outcomes and reduces medical resource utilization	28 men and 4 women ranging in age from 50 to 75 with a mean age of 52 participated.	Pre-experimenta l design with one group and post test only	Minnesota Living with Heart Failure Questionnaire Hospitalization Rates	<p>The impact of this intensive home based program coupled with frequent laboratory tests resulted in a reduction of hospital readmission rates and improved quality of life for at least 1 year of follow up.</p> <p>Education regarding diet, medications and physical activity should continue to continue to have improvements in functional status.</p>

Source	Problem & Purpose	Framework Or Concepts	Sample	Design	Instruments	Results and implications
Wheeler & Plowfield . (2004)	<p>There are decreased resources to educate heart failure patients and needs for self-care patient education.</p> <p>To promote the health of patients with congestive heart failure and provide meaningful community experiences for senior nursing students</p>	Stewart et al., (1999). Self – care education	22 women and 7 men with a mean age of 74.1 years participated.	Descriptive	Unexpected emergency room, clinic visits, rehospitalizations, student observations, telephone calls and home visits were recorded in a journal	<p>Two of the 29 patients were hospitalized due to exacerbations. Patient benefits include; education and information, adherence to treatment, and emotional support.</p> <p>Staff should conduct education in the areas of education and information, adherence to treatment and emotional support.</p>
Scott, et al. (2004)	<p>Physical limitations and the progression of symptoms of heart failure (HF) can cause decrease in quality of life and psychological concerns.</p> <p>To examine the effectiveness of nursing interventions to enhance mental health and quality of life (QOL) among individuals with HF receiving home care.</p>	King, (1981). <i>A theory for nursing: Systems, Concepts, Process.</i>	28 patients from home care agencies. 39 men, 49 women from 33-94 years old.	Experimental repeated measure design	<p>The Mental Health Inventory-5 (MHI-5) assessed anxiety, depression and loss of behavioral or emotional control</p> <p>The cardiac version of the Quality of Life Index (QLI) assessed perceived satisfaction and importance in health/functioning, family, socioeconomic and psychological/spiritual areas of life.</p>	<p>Participants in the MGS group had improved mental health scores at 3 months and significant improvement at 6 months. At 6 months, the MGS group had significantly higher QOL scores than the SE or the placebo group.</p> <p>Home care nurses should provide support to heart failure patients with education and other necessary treatments.</p>

Source	Problem & Purpose	Framework Or Concepts	Sample	Design	Instruments	Results and implications
Smith et al. (2005)	Affects of disease management programs have been limited in time. To examine the effectiveness of a disease management program on health related quality of life (HRQL).	Best response to multidisciplinary disease management program? Case management in a heterogeneous congestive heart failure population	Participants (n=1,069) joined in this study with a history of heart failure and either an ejection fraction on echocardiogram of <49% or signs of left ventricular hypertrophy	Quasi-experimental Descriptive design	Medical Outcomes Study 36-Item Short Form Health Survey (SF-36)	Short term beneficial effect of disease management on HRQL outcomes in HF patients. At 6 and 12 months patients receiving disease management were more likely than the control group to report improvement. Participation in disease management has only a limited effect on HRQL outcomes in HF that appear at 6 and 12 therefore, disease management may not be an important piece of HRQL maintenance.
Kutzleb & Reiner (2006)	Primary care physicians treat most heart failure patients. Physicians do not have time to educate patients on self care changes. To evaluate the impact of a nurse-directed patient education program for HF patients focusing on self-care. To examine the impact on quality of life and functional capacity.	Ferrans & Powers (1992). Psychometric Assessment of Quality of Life Index. Wegner, (1989). Quality of Life.	23 18-75 year old patients with mean age of 58 years old.	Prospective quasiexperimental multicenter research study	Daily weights on a monthly calendar A 6 minute walking test at the initial visit and at 3 and 9 months Ferrans and Powers Quality of Life Index	The study findings support a correlation between the functional capacity and improvement of QOL. Increasing heart failure patients knowledge increases quality of life and functional capacity

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Kodiath, et al. (2005)	<p>Heart failure patients are not motivated to make changes necessary to maximize functional status.</p> <p>To develop a disease management program that focuses on increasing motivation, self-management, and addresses early and advanced functional disturbances.</p>	Fisher & Fisher (1992, 1996). Information Motivation – Behavioral Skills (IMB) Model	Fifty-eight people diagnosed with heart failure.	Descriptive post-test study design	A three section class feedback form including a section on class objectives with a yes/no format, a section on leaders behaviors using a Likert-type scale and an overall 10 point rating scale for the information, behavior and motivation component.	<p>Participants reported high satisfaction in using the behavioral intervention to communicate with health care providers.</p> <p>Helping heart failure patients see the small benefits from behavior changes may motivate them to continue lifestyle changes.</p>
Gottlieb & Blum (2006)	<p>Primary care physicians do not have the time to educate heart failure patients on self care changes.</p> <p>To determine if close follow up of heart failure patients would impact quality of life or physiological parameters.</p>	Dracup, Baker, Dunbar (1994). Management of heart failure, counseling, education and lifestyle modifications, Journal of the American Medical Association, 272, 1442-6.	Two hundred and four patients were randomized into two groups with an average age of 72 years old.	Post-test design with comparison group	Short Form 36 (SF36) Minnesota Living with Heart Failure (MLwHF)	<p>Scores on the MLwHF and the SF36 improved significantly over the year for both groups.</p> <p>Patient education and therapeutic relationship between patients and providers can improve outcomes.</p>

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Slater, Phillips, & Woodard (2008).	<p>To decrease readmission rates of heart failure patients.</p> <p>To develop a comprehensive inpatient education program with an outpatient telephonic program to reinforce inpatient education.</p>	Paul, (2000). Nurse-managed patient education heart failure program.	There were 612 total participants.	Pre-experimental, one group posttest only design	Length of Stay Cost of Care Frequency of admissions for heart failure	<p>Heart failure patient readmission rates dropped from 854 admissions to 200. Length of stay (LOS) decreased from 5.96 days to 4.95 days after completion of the program.</p> <p>Participants gained confidence in the management of heart failure and were empowered to take control of care, thus improving quality of life.</p>
Sisk, et al. (2006).	<p>Heart failure disproportionately affects minorities. Therapies are not received by minorities disproportionately.</p> <p>To compare the effects of a nurse led intervention on ambulatory care patients</p>	DeBusk et al., (2004). Care management through intervention	African-American or Hispanic participants (N=406) from an ambulatory care setting over 18 years old	Classic experimental design	The Short Form-12 (SF-12) The Minnesota Living with Heart Failure (MLHF) Questionnaire	<p>Patient education for ambulatory care patients was associated with fewer hospitalizations and improved function.</p> <p>Ambulatory care patients can benefit from nurse managed programs</p>

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Ferrans & Powers, (1992)	A quality of life instrument was needed that would measure subjective satisfaction. To examine the psychometric properties of the Quality of Life Index (QLI)	George & Bearon (1980). Quality of life in older persons.	Participants (N=349) with a mean age of 55.17 years ranging from 25-84 years.	Quasi-experimental one group only post-test design	Quality of Life Index (QLI) – a 64 item questionnaire that measures satisfaction with various areas of life and the importance of the same areas.	Four factors were found for the QLI: health and functioning, socioeconomic aspects, psychological/spiritual aspects and family. The QLI can help identify aspects of life that are of greatest concern to patients allowing nursing to assist patients address those concerns.