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**GENDER DIFFERENCES IN REPORTED
QUALITY OF LIFE IN CARDIAC
REHABILITATION PATIENTS**

By

Susan M. Flynn

A THESIS

**Submitted to
Grand Valley State University
in partial fulfillment of the requirements for the
degree of
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ABSTRACT

GENDER DIFFERENCES IN REPORTED QUALITY OF LIFE IN CARDIAC REHABILITATION PATIENTS

By

Susan M. Flynn

The purpose of this study was to explore the differences in the way men and women experience their cardiac problems, rehabilitation programs, and the resulting quality of life. A descriptive two group research design was utilized. A convenience sample produced 35 participants, 20 men and 15 women. At the participant's first or second cardiac rehabilitation session, a pretest on quality of life was given. Posttesting was done at 5-8 weeks later. It was hypothesized that the women would have lower quality of life scores than the men. This was not supported in a data analysis using an analysis of covariance. However, there were improvements in health and functioning for both groups from pretest to posttest. Furthermore, the men had a significant improvement in overall QOL from pretest to posttest. The women did not. The results support the need for continued research on gender differences in the care of cardiac clients.

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CHAPTER 1

INTRODUCTION

Heart disease is the leading cause of morbidity and mortality for both men and women in the United States. As the life span of women has increased, so has heart disease. It is now the leading cause of death and disability in women over 40 years old (Flavell, 1994). An estimated 500,000 women die from heart disease every year (AHA, 1994). Most of the current research on heart disease has been conducted on white males with women being underrepresented in clinical trials. Consequently, treatments that are based on the results from male dominated research have effected a decrease in mortality for men with coronary artery disease (CAD). However, mortality for women with CAD has increased (Wingate, 1991).

Heart disease in women demands attention. Current research shows that women present to emergency rooms with different symptoms than men and that there are delays in the treatment of women with heart disease (Arnstein, Buselli & Rankin, 1996). Women also have higher mortality and reinfarction rates after heart disease is diagnosed (Ayanian & Epstein, 1991). Rehabilitative programs after cardiac illness focus primarily on the issues of relevance to men with minimal attention to the experiences that affect the recovery of women (Fleury, Kimbrell, & Kruszewski,

1995). More research on gender differences would provide the basis for more effective health care.

The objective of improving the health care for cardiac patients led to the introduction of cardiac rehabilitation (CR) programs. The goal of CR programs is to return the client to a life style not diminished by disease. These programs are a major strategy of the management of heart disease. Research has demonstrated the benefits of CR to include increased return to work rates, improved work capacity, and improved coronary risk profiles (Pashkow et al., 1995). Consequently, these benefits lead to improved quality of life. However, these programs were designed in the late 1960s primarily for middle aged men with myocardial infarctions (Moore & Kramer, 1996). Currently, more men than women attend these programs. Furthermore, research shows that women score lower on perceived quality of life (QOL) than men do after attending cardiac rehabilitation (Desholtels, Planchock, Dech, & Prevost, 1995).

In replicating Desholtels et al.'s (1995) research with another population of individuals, gender differences in perceived QOL after cardiac rehabilitation can be further evaluated. The assessment of QOL relates directly to the goals of nursing which include promoting health and helping clients return to their maximum level of functioning (Varricchio, 1990). It is important for nursing to examine the issue of QOL for clients in cardiac rehabilitation so the responses can be used in planning and evaluating CR programs. Interactions and treatments may need to be modified based on different needs for men and women.

The purpose of this study was to explore differences in the way men and women experience their cardiac problems, rehabilitation programs, and the resulting quality of life. The results may serve as a basis for tailoring programs to enhance quality of life after cardiac disease.

CHAPTER 2

CONCEPTUAL FRAMEWORK AND LITERATURE REVIEW

The theoretical framework for this research study was based on Imogene King's general systems theory and the theory of goal attainment. The focus of the literature review concerned gender differences in cardiac disease.

Conceptual Framework

Imogene King's general systems theory and theory of goal attainment provided the conceptual framework for this study. The goal of the theory is health for individuals (King, 1981). King defined health as a "factor in life that contributes to one's ability to perform activities of daily living and to function in one's usual role" (King, 1994 p. 29). In examining the nurse-patient relationship and the transactions that occurred, she focused on mutual goal setting and goal attainment. When goals are reached, health for the client is enhanced. First, general systems theory which explains King's view of human beings is reviewed followed by the theory of goal attainment.

King's general systems framework states that the focus of nursing is the care of human beings. She proposed that human beings are dynamic open systems interacting with the environment (King, 1981). The model consists of three interacting systems; personal, interpersonal, and social (Figure 1).

The personal system is equated with the individual. It includes the concepts of self, body image, perception, learning, growth and development, personal space, and time. Each person is considered a total system. It is important to comprehend the individual as a total system in order to clearly understand the groups or families which comprise interpersonal systems (King, 1981). The interpersonal system is where two or more individuals interact. The interpersonal system is comprised of a group and involves roles, communication, interaction, transaction, interpersonal relations, and stress. The social system is comprised of groups of people coming together with common goals, interests, and values. The concepts included in social systems are organizations, power, authority, status, and decision making (King, 1981). Social systems are uniquely different reflecting the specific characteristics necessary for that system to meet the needs and goals of the group.

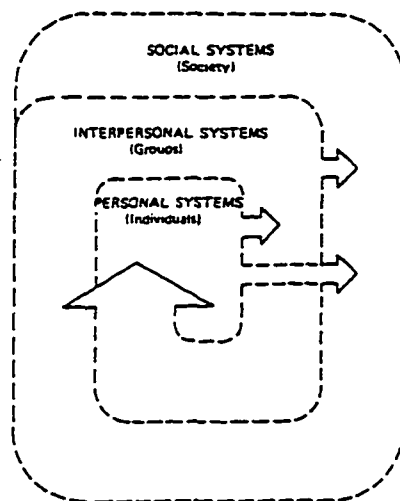


Figure 1. A conceptual framework for nursing¹

The nurse's domain includes all three systems; focusing on health of individuals, groups, and society. The nurse's role is to help individuals maintain their health so they can function in their roles (King, 1981). When nursing care is effective it leads

¹ From A theory for nursing: system, concepts, processes, (p. 11), by Imogene King, 1981. Albany, New York: Delmar. Reprinted with permission of the author.

to quality improvement in health which enhances quality of life (King 1994). The theory of goal attainment, which was derived from the conceptual framework, describes the nature of nurse-client transactions which lead to goal attainment. Mutual goal setting includes the client's perception of his/her health problems and the nurse's assessments of the client's concerns. Then together they collaborate to set goals and seek ways to attain them.

This process of setting goals is done through human interactions which leads to transactions and goal attainment (King, 1994) (Figure 2). The interaction is between two or more persons in mutual presence. Interactions reveal how one person thinks and feels about another person and how each perceives the other. Also included are expectations of each other and the actions and reactions of each person. Perception and judgment are also involved in the human interaction process where decisions are made by mutual goal setting. The outcome of this interaction renders a transaction leading to goal attainment. In measuring goal attainment, nurses can determine the effectiveness of their care. In evaluating nursing effectiveness, quality of interactions can be enhanced, thereby enhancing the client's quality of life

(King, 1994).

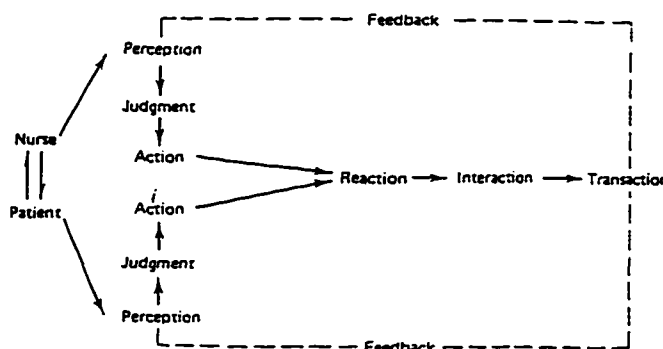


Figure 2. A Model of Transactions²

² From A theory for nursing: System, concepts, processes. (p. 145), by Imogene King, 1981. Albany, New York: Delmar. Reprinted with permission of the author.

King (1994) suggests that quality of life develops from goal setting and goal attainment. Goal setting includes shared values, clear communication, and appropriate and adequate information for decision making. Goal setting then leads to goal attainment which leads to satisfaction and to the perception of one's ability to accomplish things in life (King, 1994).

Goal setting and goal attainment are important aspects of a CR program. When beginning a CR program, the nurse and client come together to mutually set goals. Each person's perception and judgments should be included in this interaction which leads to a transaction of clear goals for the client. The interactions between the client and nurse continue throughout the client's program with reevaluation of goals at the midway point and possibly even weekly. Hopefully, the client reaches goal attainment before finishing cardiac rehabilitation and has improved her quality of life. Unfortunately, this process can be less than ideal due to, among other things, the possibility of the patient's lack of education and vulnerability.

With the onset of cardiac disease, the client is thrown into unfamiliar territory. Lacking knowledge about heart disease and the subsequent rehabilitation process may lead clients to accede to the authority of the health care professional. They often feel vulnerable and may not contribute valuable information about themselves and their preferences in the interactions with nurses. This leads to lack of mutual goal setting and to a lack of feeling as an equal partner in health care decisions.

Women historically have had their physical complaints attributed to mental rather than physical problems (Beery, 1995). Women have tended to minimize their cardiac symptoms due to the belief that coronary heart disease is a man's disease.

Dr. Bernadine Healy (1991), the first woman director of the National Institutes of Health, states that being "different than men has meant being second-class" (p. 276). Therefore it is not too surprising that women have all too often been treated less than equally in business, politics, education, and healthcare. Consequently, women have difficulty in the medical arena communicating their desires and needs. Without this valuable information it is difficult for the nurse to develop a plan of care that can help the female client meet her goals.

Current trends in the popular literature reveal differences between men and women and the way they communicate and think. John Gray (1992) has written several books including Men are from Mars, Women are from Venus, based on his work doing therapy with men and women. He explains that women think differently, handle their emotions differently, and behave differently than do men. Furthermore, when exercising and working out, women have different needs and desires. Consequently, since CR programs were designed for men it is likely that they may affect women differently and therefore affect their QOL differently as well.

To summarize, King's framework explaining QOL proved useful in this research study. Through the interaction process between the nurse and the client, mutual goal setting occurs which leads to transactions. Together the client and nurse decide a course of action for goal attainment. This in turn leads to satisfaction and the

perception of one's ability to accomplish things in life. Consequently, the client experiences an improved quality of life. The fact that women score lower on quality of life issues may suggest that their needs are not being met. A lack of mutual goal setting and subsequent goal attainment may contribute to the problem.

Literature Review

The literature review focuses on gender differences in cardiac disease and on quality of life with cardiac disease. A review of research related to cardiac rehabilitation services concludes the review.

Gender differences. A review of the literature indicated that gender differences exist in the care and management of heart disease. Recently, research on coronary artery disease revealed some unique aspects regarding women. Most research has been done on men and treatments have been based accordingly. New research on women indicated that women have different physiology, risk factor profiles, response to diagnostic testing, and needs for intervention (Flavell, 1994). Further research also showed a possible gender bias in treatment (Ayanian & Epstein, 1991).

There are several differences in anatomy and physiology in cardiovascular function between men and women. Women present with heart disease 10-20 years later than do men due to the protective effects of estrogen. Consistent with the smaller stature of women, heart size, coronary arteries, and rib cages are smaller. Women present more often with single vessel disease and vasospasm. The electrocardiogram (EKG) in women has shorter PR and QRS intervals and smaller amplitude of the R, S, and T

waves across the precordium. Women also have lower left ventricular end-diastolic pressure and volumes than do men (Wingate, 1991).

Risk factor profiles for men and women vary slightly. They both share the factors of heredity, race, obesity, hypertension, hyperlipidemia, diabetes, smoking, sedentary lifestyle, alcohol, and a high fat diet. The factors that are unique to women include oral contraceptives, menopause, and prevalence of role conflicts with work (Romeo, 1995; Wingate, 1991).

Diagnostic testing has not proven to be as valid in women as men. An example is the exercise stress test. At rest women have higher ejection fractions than do men. However up to 30% of women do not increase their ejection fraction with exercise (Rankin, 1990). This can affect the results of exercise stress tests that physicians evaluate. A study by Rimmer (1993) of exercise treadmill tests reported an eight percent rate of false-positive for men and a 67% false-positive rate for women. Wingate (1991) reported a 30-40% false positive rate for stress tests done on women. Other diagnostic tests such as cardiac scans and radionuclide ventriculography can be less accurate for women than for men. The scans may be inaccurate due to breast tissue being in the way (Rimmer, 1993). Ventriculography has been standardized for men who have greater muscle mass and thus it is frequently insensitive and nonspecific when applied to women (Wenger, 1987).

As a result of these differences women present with varying symptoms when having heart problems. The typical chest pain that spreads down the arms is documented from research on men. Rankin's (1995) recent research of 41 women

post MI revealed that only 24 % of the women she studied presented with classic left chest pain that radiated to the shoulder, arm, neck, or jaw. More often they reported a variety of symptoms such as epigastric pain or burning, shortness of breath, lower abdominal pain, severe fatigue, tiredness, depression, bilateral posterior shoulder pain, flutters without pain, breast pain, and chest cramping. The absence of classical chest pain leads to misdiagnosis and the delay of treatment for women with heart attacks.

There is also research which concluded that women are treated less aggressively than are men. Steingart et al. (1991) examined 1842 men and 389 women enrolled in a post myocardial infarction (MI) intervention trial. They investigated the care received previous to MI using questionnaires that inquired about whether they had been told they had angina and their ability to perform general activities. The results revealed that, despite reports by women of greater functional disability from angina, fewer women (15.4%) than men (27.3%) had a cardiac catheterization. Even when results were adjusted for important covariates such as coronary risk factors and cardiovascular medications which might have led physicians to a less aggressive approach, men were twice as likely to undergo a cardiac catheterization. In addition, 5.9% of the women had coronary artery bypass grafting (CABG) while 12.7% of the men experienced the surgical procedure. However, researchers concluded that this difference in the number of CABG surgeries performed was not statistically significant.

Ayanian and Epstein (1991) also concluded that women had fewer major diagnostic and therapeutic procedures than did men. Their study was a retrospective

chart analysis of over 80,000 discharges of men and women hospitalized with CAD in Massachusetts and Maryland. They also adjusted for covariates such as congestive heart failure, diabetes, diagnosis, insurance, and race. They too discovered that the rate of cardiac catheterization was 28% and 15% higher for men than for women in Massachusetts and Maryland respectively. In addition, they discovered that men had a 45% and 27% higher rate of undergoing an percutaneous transluminal coronary angioplasty (PTCA) and CABG than did the women. Limitations of this study included the inability to control for patient preference, the extent of CAD present, and the appropriateness of such procedures. Maynard, Litwin, Martin, and Weaver's (1992) chart review of 4891 patients post MI also concluded that women less often received cardiac catheterization than did men.

Women have higher mortality rates and poorer prognoses than do men after an MI.

When a woman has an MI, she is twice as likely to die from it than a man is and twice as likely to suffer a second infarction. Consequently, one half of women die during the first 60 days after MI compared to one fourth of men (Legato & Colman, 1991). Young and Kahana (1993) researched 246 patients post MI by contacting them by phone for interviews at six weeks and one year. They revealed that in the first year post-MI, women had a greater risk of death, cardiac distress, and reinfarction. In addition, their study revealed less aggressive cardiac care for women.

Gender differences in recovery from a cardiac event. Research revealed that there are differences between how men and women deal with recovery from a cardiac event. Women attended cardiac rehabilitation less or not at all with higher drop out rates

reported due to family commitments (Wingate, 1991; Flavell, 1994). Frequently women are older and more disabled with other disease processes occurring that prevent their attendance. However, many simply choose not to attend. According to Arnstein, Buselli, and Rankin (1996) women were not socialized to exercise and work up a sweat in the company of men and often expressed discomfort with the CR services. The percentage of women in CR is 20% lower than one would anticipate based on coronary morbidity data (Kitler, 1994).

A national survey of CR programs by Thomas et al. (1996) revealed that only a minority of eligible patients use CR services. Two study questionnaires designed to assess program and patient characteristics were randomly sent to 500 CR programs in the United States in 1990. Patient characteristics and enrollment data were combined with data from the National Hospital Discharge Survey to estimate the percentage of eligible patients who participated in CR after MI, PTCA, and CABG. Completed surveys were returned from 163 programs with information on 1,322 women and 1,418 men. The women were older, more likely to be single, and had more traditional cardiac risk factors than men. Only a minority of MI, PTCA, and CABG survivors enrolled. The enrollment was particularly low for women than for men post-MI and post-CABG at 6.9% and 13.3% respectively. The program directors identified several barriers to the participation of women in their programs. These included conflicts with family responsibilities, a lack of external support, and a perception of CR programs as male-oriented with regard to class schedules, educational materials, and the privacy of facilities.

Women display a different post cardiac event recovery pattern than do men. Conn, Taylor, and Abele (1991) examined patients one to two years after their first MI. One hundred ninety-seven patients were surveyed using a number of questions. Results revealed that increased age was associated with higher depression scores, lower quality of life, less social support, and poorer health. Consequently, these were associated with the female subjects since they were older, a finding consistent with most research of MI patients.

Hawthorn's (1994) research revealed a significant difference in how men and women perceive coronary artery surgery. She interviewed ten women and six men in their homes. The women averaged about ten years older than the men. The men experienced the surgery as a major crisis and recovery often included major shifts in relationships and patterns of self care. However, for the women, the experience was minimized and perceived more as an expected inconvenience of aging. Women also reported greater mediastinal incisional discomfort than did men. Furthermore, the author also states that women's interactions with caregivers reflected the traditional sex-role and status differences with deference to males and those holding higher status. She interpreted this as affecting quality of care and health outcomes.

Rankin (1995) investigated 41 women after an acute MI. Subjects were recruited before hospital discharge and followed by telephone and mail for six weeks. Data was collected by short interviews and questionnaires before discharge and at one and six months post-MI. The subjects had a mean age of 68 years. Sixty-one percent were separated, divorced, widowed, or single, but only 34% lived alone. Results revealed a

slower return to physical activity than is seen in studies of men. At six weeks, only 57% of the women were walking two level blocks outdoors and only 59% were climbing a flight of stairs. However, in line with traditional household roles, 64% reported doing light housework. Only 19% had resumed sexual relations, while the remaining 81% said they were limited by cardiac or other problems. Furthermore, this group of women reported 24 out of 38 items on a social support questionnaire as very important indicating that there is a large number of social support needs for this sample of women.

Bar et al. (1992) investigated the return to leisure and social activities in the first year after an MI. Questionnaires were filled out at 3 weeks, 3 months, and 1 year after discharge from the hospital. The sample consisted of 305 men and 61 women. The leisure and social activity score for men was significantly higher than for women at all times and men reported an earlier recovery. In addition, the patients younger than 55 years of age had higher scores than the patients aged 55-70. Unfortunately, the authors did not conduct a correlation of age and gender to identify if that explained some of the results.

The research reveals that there are significant differences in how men and women experience and are treated for cardiovascular disease. With poorer outcomes for women documented intensively in the literature it is imperative to continue to focus on and increase research of women with heart disease. The goals for this group of women would be to decrease mortality rates, increase physical activity levels, and improve overall health, thereby improving their quality of life.

Quality of life. One of the major goals in treating the patient with cardiac disease is to maintain or improve quality of life. The physical, psychological, spiritual, and social well-being of the client are all important components of quality of life which are affected by this disease. CR programs aim at helping the clients improve their physical health by strengthening the heart muscle and increasing their exercise endurance. Working with a group and receiving support from the nursing staff contributes to their psychological and social well-being. Improving QOL is an important benefit of CR and therefore CR is a mainstay of treatment for cardiac patients.

Ferrans (1992) has done extensive research with the concept of QOL. She states that it is a complex construct that must be defined clearly to be clinically useful. Therefore, she examined how QOL was defined in 22 studies of patients with cardiovascular disease. The majority of conceptualizations were grouped into five broad categories: (a) social utility, (b) happiness/affect, (c) satisfaction, (d) achievement of personal goals, and (e) normal life. Normal life is based on the patient's own definition of normal. Ferrans (1990) continues by defining 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. 15).

Ferrans (1990) also states that in addition to the definition of QOL there are three other dimensions to consider in defining the concept. First, it is important to include the perception of the person who's QOL is being evaluated. Second, due to the broad nature of the concept, more than just health must be considered. Lastly, differences

between individual values need be considered. Consequently, Ferrans along with Powers (1984) developed the QLI instrument that is divided into four subscales: (a) health and functioning, (b) socioeconomic, (c) psychological/spiritual, and (d) family.

Studies examining the psychosocial needs of women with cardiovascular disease indicate that their roles within home and family produce the most anxiety. Fleury, Kimbrell, and Kruszewski's 1995 study using qualitative data analysis, researched women's experience of healing after a cardiac event. Their sample consisted of 13 women who attended a support group where data was collected for nine months. They concluded that family members often have unrealistic expectations and underestimate the amount of work involved in taking care of the household. They also stressed the importance of working with family members to identify and resolve differing perceptions related to individual expectations and roles. The women in this study also expressed a need for closeness and the need to share their story of what happened with others.

In Artinian and Duggan's (1995) research involving 132 men and 47 women after CABG surgery, women experienced more problems with physical activity than did men. They used a repeated measures between groups (men versus women) design that utilized data collected before discharge and at one, three, and six weeks post discharge. Women reported more problems than did men with home management activities such as cleaning, shopping, doing laundry, and other work around the house. Furthermore, they indicated more problems with walking distances, walking up hills and stairs, and walking with any speed than did men. They also expressed physical

complaints such as chest incisional pain and discomfort. Consequently, they described poorer perceptions of their physical health and reported more depression than did men. The investigators indicated that the women's histories included higher numbers of chronic illnesses such as arthritis and lung disease than men and this may have contributed to some of the results. Limitations of this study consisted of use of a convenience sample, a 30% attrition rate, and low levels of reliability for several of the measures.

There are several studies that showed that women experience an acceptable QOL after a cardiac event. Wingate (1995) investigated QOL for women after MI using the Ferrans and Powers Quality of Life Index (QLI)-cardiac version. She studied 96 women who had an MI but did not have cardiac surgery. The QOL scores in this sample were higher than expected and were similar to those of a healthy population. Severity of illness, length of illness, age, marital status, and social status did not significantly affect quality of life. However, women who returned to work and had higher levels of social support and self-esteem reported higher levels of QOL than did the other women.

Riegel and Gocka (1995) explored gender differences in adjustment to acute MI. This was a longitudinal study comparing 32 women and 32 men who had experienced their first MI with data collected at one and four months post hospital discharge. The women reported improved perceptions of current health whereas their ratings of prior health decreased. However the men's ratings of prior health increased. Overall emotional distress, anxiety, and depression decreased over time for both men and

women. In addition, women appeared to activate their social support system more effectively than did men.

Rankin (1990) conducted a prospective cohort designed study of a convenience sample of 117 patients undergoing cardiac surgery. Questionnaires and short interviews were done before surgery and again at one and three months post surgery. She reported that at one and three months after discharge from cardiac surgery, women's recovery did not differ that much from men's recovery when compared on sexuality, recreation, and return-to-work variables. Women reported less mood disturbances than did men and scored higher on measures of family satisfaction. There were three times as many men in the sample as women. The results reflected responses of healthier individuals in that patients who died or were very ill were not able to complete the study.

The results of many of the studies reviewed need to be evaluated in light of their limitations such as small sample size, one time measurements, convenience sample, and few female subjects. Regardless, QOL after a cardiac event varies from individual to individual with some gender differences noted in the literature. Furthermore, research also reveals some gender differences in the cardiac rehabilitation experience.

Cardiac rehabilitation. Cardiac rehabilitation programs were designed in the late 1960's primarily for middle aged men after an MI (Moore & Kramer, 1996). Now, 30 years later there are more elderly patients and women attending these programs. Still women are less likely to enroll in CR programs and have higher drop out rates

(Flavell, 1994). Some studies explored CR programs further to see if men's and women's needs are being met.

Moore and Kramer's (1996) study examined men's and women's preferences for different cardiac rehabilitation features. Their sample consisted of 33 men and 32 women at one CR program who completed a questionnaire that inquired about 17 features of CR programs. Results demonstrated a substantial similarity in the importance ratings of the program features by women and men. Both women and men identified "discussing progress" and "encouragement from professionals" as highly important features. Areas that both men and women expressed in which their preferences were not well met were in choosing their exercises, setting their own goals, and discussing their progress. Men expressed more dissatisfaction with setting their own goals than did women. Women expressed "not having frequent pain while exercising" and "not tiring while exercising" as preferences not well met. The authors concluded that gender based programs were not necessary. However, they suggested there be more attention to individual preferences with more joint goal setting. They also recommended a wide selection of exercises be provided and frequent encouragement given. In addition, they indicated that attention to women's concerns about pain and fatigue while exercising should be included in the program. This was a convenience sample from only one program. Further, functional status, comorbidity, and age were not considered in the conclusions.

Daumer and Miller (1992) did a quantitative descriptive study involving 47 clients with CAD. They investigated participation in a CR program and psychosocial

functioning and life satisfaction. They used the QLI to measure life satisfaction. They found a strong relationship between the perception of life satisfaction and the level of psychosocial functioning. The clients also reported the most satisfaction with family and the least satisfaction with health. The small sample was predominantly male and gender differences were not evaluated.

Desholtels, Planchock, Dech, and Prevost (1995) researched gender differences in perceived quality of life in CR patients. Their sample consisted of 87 women and 87 men from six CR programs. They used the Ferrans and Powers QLI. The results revealed that men's mean QLI scores were significantly higher than were the women's scores. This was also true for each of the four subscales: health and functioning, socioeconomic, psychological/spiritual, and family. The men expressed a higher regard for their health, experienced less chest pain and less shortness of breath. Men also expressed more control over their lives, more leisure time activities, and more fulfilled family responsibilities. The questions about employment revealed a higher score for the men suggesting more job satisfaction. In the psychological/spiritual area, men scored higher on peace of mind, and personal appearance. In addition, the men in this study had more invasive cardiac procedures than did women. Many of these findings are similar to other research study reports regarding men versus women. However the severity of cardiac disease was not controlled for or considered in this study.

Summary and hypothesis

The cited studies reveal that women and men have similar, yet different, needs during cardiac rehabilitation. Both men and women expressed a need to set more of their own goals and have more choices over their exercises. They also both expressed a desire to discuss their progress and receive encouragement from the professionals. Women however expressed a desire to experience less pain and fatigue while exercising. Women also expressed a lower QOL than did the men.

Research showed significant differences between men and women with heart disease not only in their treatment but in their recovery. Women experienced higher mortality rates after a cardiac event and reported lower attendance at CR programs. Investigations of perceived QOL of both men and women in CR programs provided more information on the needs of both men and women. This information will help not only CR nurses but also the medical professionals who work with cardiac patients. This study addressed the following hypothesis. Among patients who have experienced a cardiac event, there will be a significant difference in QOL between men and women who complete five to eight weeks of a CR program.

CHAPTER 3

METHODOLOGY

Study Design

A descriptive two group comparison design was used to examine gender differences in QOL in cardiac rehabilitation patients. One group was men and the other women. Data were collected using a pretest at the beginning of CR and a posttest after the clients had been in CR for at least 5-8 weeks.

Cardiac Rehabilitation is a program of exercise, education, and counseling which aims at returning the client to their optimal physical, emotional, psychosocial, and vocational potential. This program includes continuous cardiac monitoring for a 12-week session which includes two to three sessions a week. The client may choose to continue the program after 12 weeks for ongoing support but is no longer cardiac monitored. Educational programs and counseling are individually offered.

Selection of Subjects. Twenty men and fifteen women participated in this research. They were attending a cardiac rehabilitation program at a 368 bed acute care hospital in northwestern Michigan. The data were collected over a five month period from January 1997 to May 1997 on a convenience sample of clients who met the eligibility requirements. Eligibility requirements were as follows:

1. could read and speak English

2. be at least 30 years old
3. had documented cardiovascular disease
4. enrolled in CR and participated for at least 4-8 weeks
5. gave consent to participate in the study.

Characteristics of Subjects. Thirty-six cardiac patients met the criteria to participate in this study. The pretest QLI and a demographic questionnaire were completed by all 35 participants. However, the posttest QLI was completed by only 35 of cardiac rehabilitation participants with one female withdrawing from the study. According to this participant, her cardiologist stated that she no longer needed CR services. When comparing the demographic characteristics of this participant with those who remained in the study, no differences were noted. She was married and lived with her husband, had a high school education, and reported minimal health factors that would limit her ability to exercise. The loss of this participant from the study resulted in a three percent attrition rate.

Table 1 provides a summary of the demographic data of the female and male participants.

Female subjects. Fifteen Caucasian women participated in the study. The age of the respondents ranged from 37 to 80 years old with the mean age of 65.87 (s.d.=11.54). The majority were married (66.7%) with a few divorced (6.7%) and several widowed (26.7%). Their educational levels ranged from 9-18 years of school. The mean educational level was 13.60% (s.d.=2.39). Less than half of the women were employed (43.8%).

Women reported some significant health problems such as diabetes, arthritis, stroke, hypertension, stress, and assorted other problems which made exercising difficult. Hypertension was the most significant occurring in 85.7% of the female participants. Also reported by 33.3% of the women were other problems which made exercising difficult. Further, 33.3% of the women reported a significant stressful event other than their heart disease in the previous three months.

Table 1. Summary of Demographic Characteristics

Characteristic	Women		Men	
	n = 15	%	n = 20	%
Marital status				
married	10	66.7	18	90.0
divorced	1	6.7	1	5.0
widowed	4	26.7	1	5.0
Income				
< 10,000	1	7.1	0	0.0
10,000 - 20,000	4	28.6	2	10.5
21,000 - 30,000	3	21.4	5	26.3
31,000 - 40,000	1	7.1	4	21.1
41,000 - 50,000	0	0.0	2	5.3
51,000 - 60,000	5	35.7	1	5.3
> 60,000	0	0.0	5	26.3
Health factors				
Diabetes	3	20.0	6	30.0
Arthritis	3	21.4	2	10.0
Stroke	1	8.3	0	0.0
Hypertension	12	85.7	6	33.3
Other problems which make exercising difficult	5	33.3	5	25.0
Significant stressful event in last 3 months	5	33.3	4	22.2

Male subjects. Twenty men participated in the study. They were 90% Caucasian. The age of the respondents ranged from 41 to 83 years with a mean age of 61.55 (s.d.=13.43). Most were married (90.0%) with one divorced (5.0%) and one widowed (5.0%). The men's educational levels ranged from 10-18 years of school. The mean educational level was 13.60 years (s.d.=2.34). Forty percent reported being employed.

The men also reported some significant health problems similar to the women. Both arthritis and hypertension were reported by 30% of the men with a significant stressful event other than their heart disease reported by 25%.

In order to ascertain if there were significant differences in the demographic characteristics between the male and female samples, independent t-tests and chi square analyses were performed. Overall, chi square results indicated that the groups were similar. Most were Caucasian, married, lived with others, and had friends that could be relied on in times of a health crisis. Furthermore, there was not a significant difference in their ages or years of education. The ages of the participants ranged from 37 to 83 years old with an average of 13 years of education.

There were two factors that were significantly different between the men and women: hypertension and income. Eighty three percent of the women reported hypertension compared to thirty percent of the men ($\chi = 9.53$; d.f. = 1; $p = .002$). Also there was a significant difference among income levels ($\chi^2 = 14.36$; d.f. = 6; $p = .03$). However, since the scale that was used to measure income resulted in a small percentage of people at each level, the scale was dichotomized into two categories;

those with incomes less than 30,000 and those with incomes greater than 30,000. After dichotomizing the scale, no significant differences were noted in income.

Instruments

Two instruments were used in this study: Ferrans and Powers Quality of Life Index, Cardiac Version III (QLI-Cardiac III) and a demographic questionnaire.

Ferrans and Powers QLI-Cardiac III. Appendix A is a copy of permission to use the tool. The Ferrans and Powers QLI-Cardiac III was used to measure perceived QOL. The instrument was modified from the original Quality of Life Index by adding questions related to angina and lifestyle changes due to heart disease. The tool is comprised of subscales which measures four dimensions of QOL: (a) health and functioning, (b) socioeconomic, (c) psychological/spiritual, and (d) family. See Appendix B for further view of subscales. The instrument consists of two parts. The first part asks 36 questions about satisfaction with quality of life and the second part has 36 questions about the importance of those aspects of QOL to the individual. Respondents rate their answers for both parts of the questionnaire from one to seven with one being very dissatisfied, six being very satisfied, and seven being not applicable.

This instrument is scored by weighting satisfaction responses with importance responses according to the authors' guidelines. A formula for calculating the overall and subscale scores is provided with the instrument. See Appendix C for the actual formula. The range of scores for the total of each subscale is from zero to 30. Scores reflect both satisfaction and importance of an item to the individual.

Papadantonaki, Stotts, and Paul (1994) reported internal consistency for the QLI-Cardiac III from scores on patients pre-coronary bypass surgery. Cronbach's alpha for the overall QLI-Cardiac III score was .98. The internal consistency for each subscale was: (a) health and functioning, .90; (b) socioeconomic, .89; (c) psychologic/spiritual, .90; and (d) family .79. Table 2 compares Papadantonaki, Stotts, and Paul's data with data from this research. Polit and Hungler (1991) state that reliability coefficients of .70 or greater are sufficient in making group comparisons. The internal consistency of the family subscale rates just below this at .67. This may be reflective of the low number of items of this subscale and the small sample size.

Table 2. QLI Reliability Coefficients

Scales	Reliability Coefficients	
	Previous Studies	Current Study
Overall Quality of Life	0.98	0.94
Health & Function	0.90	0.91
Socioeconomic	0.89	0.83
Psychological/Spiritual	0.90	0.80
Family	0.79	0.67

The Demographic Data

Demographic data was obtained on a separate questionnaire. Items include age, gender, race, marital status, education, employment, income level, social support, and health history (Appendix D).

Data Collection Procedures

The proposal was submitted to the Grand Valley University Human Research Review Committee and the study hospital and met with approval. Subjects were recruited after obtaining permission from the nursing department at Munson Medical Center.

The CR staff includes five nurses and one exercise specialist who were educated about the research and given a script for introducing the clients to the research. They also viewed a video of the researcher explaining the study that they played for potential participants. See Appendix E for both scripts. They were instructed to follow the script to minimize the potential for bias and coercion of the clients.

The subjects were chosen after a chart review to verify that they met the criteria for inclusion. This was done by the researcher and the CR staff. The clients who met the criteria were approached about being in the study on their first or second visit. This took place in the cardiac rehabilitation gym either before or after their workout. A video briefly explaining the methodology, risks, potential benefits, voluntary participation, and the right to withdraw at any time was shown. A script of the video was also written up for clients who elected to not watch the video. Written consent was obtained. See Appendix F for a sample of the consent form. Sampling bias may have resulted from using only one setting and a small self-selected convenience sample.

After consent was obtained, subjects were given both the demographic tool and the QLI-Cardiac III. They either filled out the questionnaires in the CR gym or took them

home and returned them at their next session. After they were in CR for five to eight weeks they were mailed another QLI-Cardiac III with instructions. A stamped addressed envelope was included for them to return it to the researcher. Follow up phone calls were made to participants who did not return the posttests within ten days. Results of the study were made available to the participants who requested them.

The number of sessions that each individual attended was not controlled in this study. A random sample of five men and five women after they completed CR revealed an average of 28.2 sessions per person. The CR staff state that most people attend their sessions as ordered but there is some variability among the clients.

CHAPTER 4

RESULTS

The purpose of this research was to explore differences in how men and women experience their cardiac problems, rehabilitation programs, and the resulting quality of life. Data analysis was accomplished using the Statistical Package for Social Studies (SPSS/WIN) software. Significance was set at $p < .05$ for all tests.

Quality of Life Scores

The pre-test scores for the men and women are presented in Table 3. Scores could range from one to thirty with thirty rating as the highest QOL score achieved. The maximum scores for overall QOL and for the four subscales were similar between the men and women and were near the high end of the range. Consequently, several people started CR with high QOL scores. The mean scores were in the low to mid twenties (20-25).

The minimum range of scores is more variable between the men and women. The women's minimum scores were all lower than the men's except for the socioeconomic subscale in which the men had a lower score by four points. The minimum range of scores for overall QOL, psychological/spiritual, and family subscales rated four to seven points less for the women than the men. In addition, the mean scores for overall QOL and for all the subscales were slightly lower for the women than for the men.

Table 3. Pretest Score Results

Scale	<u>Range of Scores</u>		Mean	STD
	Minimum	Maximum		
Overall Quality of Life				
Men	13.86	27.13	22.46	4.04
Women	9.81	28.27	21.45	4.50
Health and Functioning				
Men	8.46	26.84	20.46	5.13
Women	7.91	28.56	20.01	5.84
Socioeconomic				
Men	12.44	28.06	22.86	4.08
Women	17.16	28.92	22.16	3.27
Psychosocial/Spiritual				
Men	13.64	30.00	24.13	5.18
Women	8.57	30.00	23.15	5.19
Family				
Men	17.25	30.00	25.37	4.34
Women	10.50	30.00	23.29	5.53

The posttest scores for the men and women are presented in Table 4. The mean scores for overall QOL and the four subscales ranged from 22 to 26. The maximum ranges of scores were similar between the men and women and ranked between 28-30. The minimum scores for the women continued to be slightly lower in overall QOL, psychological/spiritual, and family dimensions by two to thirteen points. Especially noted is the broader range of scores for the women on the psychological/spiritual subscale and the family subscale. Similar to the pretest, the men had a two to three point lower minimum score on the socioeconomic subscale than did the women. Furthermore, the women's mean scores for overall quality of life and for all the

subscales were all slightly lower than the men's scores which is consistent with the pre-test.

Table 4. Posttest Score Results

Scales	Minimum	Maximum	Mean	STD
Overall Quality of Life				
Men	17.43	28.75	24.19	3.31
Women	15.71	28.62	22.86	3.92
Health and Functioning				
Men	10.34	29.31	23.57	4.45
Women	16.84	28.86	22.51	5.05
Socioeconomic				
Men	14.83	28.33	24.03	3.50
Women	17.50	28.33	22.11	2.93
Psychosocial/Spiritual				
Men	15.07	30.00	24.78	4.53
Women	7.71	30.00	23.66	5.10
Family				
Men	14.38	30.00	25.61	4.45
Women	1.50	30.00	24.00	6.98

Hypothesis Testing

Analysis of covariance (ANCOVA) was the statistical procedure used to test the hypothesis. The purpose of the ANCOVA is to measure differences between group means after allowing for other differences between the participants. By using the pretest QOL score as the covariate, differences between the men and women before they entered cardiac rehabilitation were controlled for so as not to affect the results.

The assumptions for the use of ANCOVA were examined and all the criteria were met.

The hypothesis for this study was: among patients who have experienced a cardiac event, there will be a significant difference in the QOL between men and women who complete five to eight weeks of a CR program. Although the above data reveals the women had slightly lower QOL scores, the research hypothesis was not supported. The ANCOVA revealed no significant difference between the two groups ($F = .70$; $p = .41$). Table 5 reveals ANCOVA results.

Table 5. Ancova Results

Source of Variation	d.f.	MS	F	p
Between Groups	1	4.20	.70	.41
Covariate	1	230.78	38.32	.00
Within groups	32	6.02		

Further Analysis

Further statistical analyses included an independent t-test and a paired t-test. An independent t-test assessed statistical significance of the means between the men and women on each of the four subscales. Then a paired t-test was performed on the pre-test and posttest scores. This was done to note any improvements in the QOL from the beginning of CR to five to eight weeks later.

The independent t-test examined each of the four subscales to see if there were significant differences between the men and women. The mean scores of the health and functioning, psychological/spiritual, and family subscales revealed no statistical

differences. The socioeconomic subscale had the biggest difference in means with the men scoring 24.03 (s.d. = 3.49) and the women scoring 22.12 (s.d. = 2.92) yet it was not statistically significant with a $p = .10$.

A paired t-test evaluated differences between the pretest and posttest QOL scores for the two groups. Several significant differences emerged with the results in Table 6. The men experienced an increase in their overall quality of life scores from a pretest mean of 22.47 (s.d. = 4.04) to a posttest mean of 24.19 (s.d. = 3.13) which was statistically significant. Although the women's overall quality of life scores revealed a slight increase from a pre-test mean of 21.45 (s.d.= 4.50) to a posttest mean of 22.86 (s.d.= 3.92) it was not statistically significant.

Table 6. Paired t-test between Pretest and Posttest Scores

Scales	t-value	d.f.	p
Overall Quality of Life			
Men	2.49	19	.02*
Women	2.10	14	.06
Health and Functioning			
Men	3.06	19	.01*
Women	2.40	14	.03*
Family			
Men	.18	19	.86
Women	2.09	13	.06

* Denotes significant values

In further evaluating the paired t-tests scores, significant differences arose in the health and functioning subscale. Both the men and women reported improved health and functioning after attending cardiac rehabilitation. The men had an increase in

their QOL scores from a pre-test mean of 20.47 (s.d. = 5.12) to a posttest mean of 23.56 (s.d. = 4.44). Likewise the women experienced an improvement with a pre-test mean of 20.01 (s.d. = 5.84) to a posttest mean of 22.51 (s.d. = 5.05).

The paired t-test on the other subscales did not reveal any significant differences. However the family subscale for the women nearly reached significance ($p = .06$). They had an increase from a pre-test mean of 23.29 (s.d. = 5.53) to a posttest mean of 25.60 (s.d. = 3.29) whereas the men had a pre-test mean of 25.36 (s.d. = 4.34) to a posttest mean of 25.61 (s.d. = 4.45).

In summary, the hypothesis for this study was not supported. There was no significant difference in the overall QOL scores between the men and women who participated in cardiac rehabilitation. In addition, there was no significant difference between the men's and women's scores on each of the four subscales. However there were significant increases in the men's overall QOL scores from pre-test to posttest and in both the men's and women's health and functioning scores from pre-test to posttest.

CHAPTER V

DISCUSSION/IMPLICATIONS/LIMITATIONS

Improving quality of life is an important aspect of cardiac rehabilitation programs.

The findings of this study did not support the hypothesis that there would be a significant difference in quality of life between the men and women who complete five to eight weeks of a cardiac rehabilitation program. There were, however, important differences between the men and women and between the pre-test and posttest scores that are worthy of discussion.

Most research on the cardiac patient population reveals that the women are usually older with more disabilities and co-morbidities than men. In this research the women were not older or sicker. The sample of men and women were relatively homogenous with few differences between the groups. A significant difference was that women reported more hypertension than did men. However, since hypertension does not limit the ability to exercise and can be well controlled with medication, it is less likely to affect QOL scores.

Although the women did not have lower QOL scores than the men, the women showed only a slight improvement in their QOL scores after attending CR whereas the men revealed a significant improvement. When comparing the pre-test to the posttest scores, both groups reported significant improvement in health and functioning after

participating in CR. However in overall QOL scores, the men had greater improvement than women. Therefore, in this sample of CR participants the women's health and functioning significantly improved but not their overall QOL scores. Since this was a relatively homogenous sample, demographic differences probably do not account for this difference between the men and women. Therefore, evaluation of meeting the needs of the women as well as those of men needs to be taken into consideration.

This sample was similar to other cardiac populations in that there were fewer women attending CR. Obtaining the sample of women took two months longer than obtaining the sample of men. Consequently, the final female sample remained smaller than the male sample. Many women chose not to participate in the study. Reasons cited were that they were afraid they would ruin the research, they were tired of answering questions, and they just did not want to participate.

Relationship of Findings to the Conceptual Framework

King's general systems theory and the theory of goal attainment provided the conceptual framework for this study. The goal of King's theory is health for individuals which she defines as being able to perform activities of daily living and fulfill one's usual roles (King, 1994). The nurse's role is to help individuals maintain and improve their health through human interactions and transactions. This is done in the CR setting through mutual goal setting, continued encouragement, and positive feedback to the participants each week from the staff nurses.

King (1994) suggests that QOL develops from goal setting and goal attainment. Goal setting leads to goal attainment which leads to increased QOL. This is the structure and aim of a CR program. At the beginning of CR, the nurse and the client discuss the participant's hopes and expectations. Then they establish mutual goals to be reached and strived for over the next 5-8 weeks. In addition, the nurse may also realize some areas of needed improvement and note these, such as improve self esteem, increase socialization, and further educational knowledge base.

This research supports King's view that when goals are reached, health is enhanced. Both the men and women in this study experienced improved health and functioning from the beginning of CR to five to eight weeks later. It is assumed that the participants attained some of their goals which improved their health.

King's view of goal setting leading to goal attainment which leads to increased QOL was true for both the men and women but to a lesser degree for the women. Since the men had a greater improved QOL after participating in CR than did the women, one may speculate that the women may not be reaching their goals. Since their health and functioning increased perhaps there are other goals not accomplished in a CR setting that involve their home life, psychological/ spiritual, and socioeconomic areas that may affect QOL. CR programs' role focuses more on health and functioning than on the other aspects of their life. Socioeconomic, psychological/spiritual, and family issues are included in these programs on a limited scale. Perhaps what the women need to further improve their QOL are services not provided by a CR program such as counselling for financial, psychological or family

issues. The CR staff being aware of the client's needs, frequently make referrals to other sources.

Relationship of Findings to the Previous Research

This study was based on the research done by Deshotels et al. (1995) on gender differences in QOL in a CR setting. They noted a significant difference in the perceived QOL between men and women in cardiac rehabilitation with the women scoring significantly lower. The research was done on a much larger sample of six CR programs using a one time convenience sample. Conclusions included that individualized and gender specific plans of care would be beneficial in CR programs.

This study modified the above research by using a longitudinal two group comparison design. A pretest and posttest was done to rule out differences attributed to the pre cardiac rehab experience. This study did not support Desholtels et al. (1995) research in regard to women having a significantly lower QOL than the men in cardiac rehabilitation. However, the women did not report a significant increase in QOL scores from the beginning of cardiac rehab to five to eight weeks later, whereas the men did. These results must be reviewed considering this was a much smaller sample, fewer women than men participated, and that data was collected at only one site.

Previous research also reveals that there are gender differences in the care and management of heart disease. Women attend cardiac rehabilitation less or not at all with higher drop out rates attributed to family commitments (Wingate, 1991; Flavel, 1994). Furthermore, several barriers to women's participation are sighted in the

literature. Thomas et al. (1996) states that family responsibilities, a lack of external support, and a perception of CR programs as male oriented with regard to educational material and privacy of facilities prevent women's participation. This study did not evaluate barriers to participation, however, social support questions were included in the demographic questionnaire. Participants were asked about living situation, percent of responsibility for the household, and if there were individuals on whom they could rely in times of health crisis. No significant difference was apparent between the men and women regarding social support and family responsibilities.

Further, previous research reveals that many women return to traditional roles of caring for the family and home after a cardiac event. The women also indicated that their roles within family and home produced the most anxiety (Fleury, Kimbrell, & Kruszewski, 1995). Since the women had less improvement in their QOL scores after attending CR but had an improvement in their health and functioning, perhaps their roles within the family and degree of social support were a factor. Their health and functioning improved in cardiac rehab but perhaps the women were still responsible for family, household, and supporting others. Clients as well as family have difficulty changing roles and letting go of previous expectations. Women have reported putting their energy back into their families rather than caring for themselves by attending CR. Since the men had significant increases in both health and functioning and QOL, perhaps their physical health is more involved in their perception of QOL than it is for women.

Limitations and Recommendations

The findings of this study are from a small convenience sample (n = 35), therefore the findings cannot be generalized to the larger population. Self-selection may have occurred with individuals with higher QOL choosing to participate. In addition, the participants were relatively homogenous in demographics as a group and therefore may not be representative of the population. Most were married, Caucasian, and had a high school education. Generalizability is limited due to these variables and the fact that the data was collected at only one site. Future studies including several CR sites, larger sample size, and equal numbers of men and women would be beneficial.

Another limiting factor was that the number of cardiac rehabilitation sessions was not controlled for in this study. Some individuals attended more sessions than others. Future trends in CR programs may reduce the number of sessions due to the financial crisis of America's health care. It could be postulated that the number of sessions would affect goal attainment and QOL. Including this variable in future studies would be beneficial.

QOL is a time dependent variable. A client's QOL on a day that a relative is hospitalized would be very different than the day before this event. Therefore, scores could be affected depending on the kind of day a person was having when he/she filled out the questionnaire. Optimal measurement would require that data be collected at sequential points in time.

Future research could include repeating this research with a larger sample including several CR programs and using equal numbers of men and women. Using several CR

sites would increase the number of participants and perhaps offer a more heterogeneous group with regard to race, marital status, and education. Using another QOL tool would also be beneficial because it would offer another perspective on QOL measurement.

Future research on women's perception of CR programs and barriers to attendance would be interesting and valuable information in improving health care for women. Furthermore, briefly interviewing the men and women who choose not to participate may reveal if self selection is biasing the results.

Suggestions for Nursing Practice

Suggestions for nursing practice need to be considered in light of the fact that the hypothesis was not supported and the limitations mentioned. Consequently, there were no direct implications yet the study can provide some recommendations to nursing practice and research based on suggestive findings, the conceptual framework, and previous research. Suggestions will focus on staff nurses in cardiac settings.

Nurses working in direct patient care areas need to be cognizant of gender differences and bias in medical care. Emphasizing the importance of CR for women as well as for men is important. Nurses need to encourage women to take care of themselves and attend CR programs. Realizing that family needs may take precedent over the client's own needs makes it important to talk with families about these issues. The nurse can help open up the lines of communication between family, client, and medical staff by talking about the support that a cardiac patient needs upon return to home.

Assessing for quality outcomes and obtaining feedback from patients on their medical care and CR experience is imperative in improving plans of care. Noting gender differences and expressions of needs can help to change programs to enhance the client's health. Changes have been made in CR programs over the years. Women who have dropped out have given reasons why and changes have been implemented. Several women expressed discomfort with warming up in front of the exercise equipment. Consequently the gym was rearranged for client comfort. Continuing to ask for feedback will help improve programs. Furthermore, staff nurses and managers need to keep up to date on new research related to women with heart disease. More and more research is being done in this area and incorporating the new information would be beneficial to all.

Staff nurses in CR could also include in their goal setting sessions questions related to QOL. For example, which goals would increase your QOL? Then each week they could assess whether their goals related to QOL were being attained. Noting differences between the men and women would prove helpful in providing for each group's special needs. Gender based programs may not be necessary in cardiac rehabilitation at this time. Offering men only and women only programs is not economically feasible at this time, but may be a consideration as more women develop cardiac disease. Continuing to address individual needs and preferences along with joint goal setting continue to be important.

In conclusion, a realistic outcome for assessing cardiac rehabilitation programs is in improved quality of life for the participants. With more research on women with

heart disease being done, gender differences are becoming evident. Evaluating CR programs for gender differences will help to better meet the needs of both the men and the women.

APPENDICES

APPENDIX A
Permission Letter

APPENDIX A

UIC The University of Illinois
at Chicago

Department of Medical-Surgical Nursing (M/C 802)
College of Nursing
845 South Damen Avenue, 7th Floor
Chicago, Illinois 60612-7350
(312) 996-7900

February 28, 1996

Ms. Susan Flynn
1005 E. State St.
Traverse City, MI 49686


Dear Ms. Flynn:

Thank you for your interest in the Ferrans and Powers Quality of Life Index (QLI). I have enclosed the cardiac version of the QLI and the computer program for calculating scores. I also have included a list of the weighted items that are used for each of four subscales: health and functioning, social and economic, psychological/spiritual, and family, as well as the computer commands used to calculate the subscale scores. The same steps are used to calculate the subscale scores and overall scores.

At the present time there is no charge for use of the QLI. You have my permission to use the QLI for your study. In return, I ask that you send me a photocopy of all publications of your findings using the QLI. I then will add your publication(s) to the list that I send out to persons who request permission to use the QLI.

If I can be of further assistance, please do not hesitate to contact me. I wish you much success with your research.

Sincerely,


Carol Estwing Ferrans, PhD, RN, FAAN
Assistant Professor

APPENDIX B
Subscale of the Quality of Life Index
Cardiac III Version

APPENDIX B

Subscales of the Quality of Life Index-Cardiac III Version

Health and functioning subscale

- | | |
|-----------------------------|--------------------------|
| 1. own health | 26. leisure activities |
| 2. health care | 27. travel |
| 3. chest pain | 28. retirement |
| 4. shortness of breath | 36. changes in lifestyle |
| 5. energy (fatigue) | |
| 6. physical independence | |
| 7. control over own life | |
| 8. long life | |
| 13. sex life | |
| 16. family responsibilities | |
| 17. usefulness to others | |
| 18. stress | |

Socioeconomic subscale

- 14. friends
- 15. emotional support
- 19. home
- 20. neighborhood
- 21. standard of living
- 22/23. job/unemployment
- 24. education
- 25. financial

Psychological/spiritual subscale

- 29. peace of mind
- 30. faith in God
- 31. goals
- 32. happiness
- 33. life satisfaction
- 34. personal appearance
- 35. self

Family subscale

- 9. family health
- 10. children
- 11. family happiness
- 12. spouse

APPENDIX C
Summary of the Scoring Procedure for the
Quality of Life Index

APPENDIX C

SUMMARY OF THE SCORING PROCEDURE FOR THE QUALITY OF LIFE INDEX*

Steps	Calculations
. Recode satisfaction scores	To center the scale on zero, subtract 3.5 from the satisfaction response for each item.
. Adjust item scores	To obtain adjusted item scores, multiply the recoded satisfaction score by the importance score, item by item.
. Obtain sum from overall adjusted score	Sum all adjusted item scores.
. Obtain sum for health and functioning subscale	Sum the adjusted scores for the individual items of the health and functioning subscale (listed on sheet entitled "Subscales of the Quality of Life Index (QLI)."
. Obtain sum for socioeconomic subscale	Sum the adjusted scores for the individual items of the socioeconomic subscale.
. Obtain sum for psychological/spiritual subscale	Sum the adjusted scores for the individual items of the psychological/spiritual subscale.
. Obtain sum for family subscale	Sum the adjusted scores for the individual items of the family subscale.
. Obtain final overall score and subscale scores	To prevent bias due to missing scores, divide each sum of items obtained in steps 3 through 7 by the number of items answered. To eliminate negative values, add 15 to every score to get the final score. (Range possible for final overall quality of life score and four subscale scores is 0 to 30.)

A computer program that performs the above calculations has been written by the author and has been tested. This program is available from the author on request.

APPENDIX D
Demographic Questionnaire

APPENDIX D
Demographic Questionnaire

I.D. NO. _____

The following personal information is needed for our data analysis. This information is completely confidential. For each question, choose only ONE answer unless otherwise indicated.

1. What is your present age in years? _____ years
2. What is your sex?
 1. male 2. female
3. What is your present marital status?
 1. single
 2. married
 3. divorced
 4. separated
 5. widowed
4. Are you presently employed? 1. yes 2. no
5. If employed do you work 1. full-time 2. part-time
6. What is (or was) your occupation? _____
7. What is your average household annual income?
 1. less than \$10,000 5. \$40,001-50,000
 2. \$10,001-20,000 6. \$50,001-60,000
 3. \$20,001-30,000 7. Greater than 60,000
 4. \$30,001-40,000
8. What is the highest grade or year of school you have completed?

	<u>years completed</u>	PLEASE CIRCLE
none	00	
Elementary	01 02 03 04 05 06 07 08	
High school	09 10 11 12	
College/technical school	13 14 15 16	
Some graduate school	17	
Graduate or professional degree	18	
9. What race do you consider yourself to be?
 1. Asian
 2. Black
 3. Caucasian
 4. Hispanic
 5. Native American
 6. Other _____
10. Who do you live with?
 1. alone
 2. others _____ (please specify)

11. What level of responsibility do you have for the household?
 1. none
 2. 20-40 %
 3. 41-60%
 4. 61-80%
 5. 81-100%
12. Do you have friends or family that you can rely on in times of a health crisis?
 1. yes 2. no
13. Check if you have any of the following conditions.
- 1. Diabetes 1. yes 2. no
 - 2. Arthritis that requires medication for pain control
 1. yes 2. no
 - 3. A significant stressful event in the past 3 months other than your heart
 problems 1. yes 2. no
 - 4. Stroke 1. yes 2. no
 - 5. High blood pressure 1. yes 2. no
 - 6. Other condition which makes exercising difficult_____ (please specify)

APPENDIX E
Video and Nursing Scripts

APPENDIX E

Video and Nursing Scripts

Video Script

Hello, I am Susan Flynn and am a graduate student at Grand Valley State University in the nurse practitioner program. I am doing research on Quality of life for people enrolled in cardiac rehabilitation. Your participation is totally voluntary and you may withdraw at any time. To participate in my study, you need to read and sign the consent form.

There are two questionnaires to fill out. The first one gives me information about you for demographic purposes. The second one has two parts. The first part asks you how satisfied you are with different areas of your life and the second part asks you how important those areas of your life are for you. The time involved should be no longer than 30 minutes. After you have been in CR for at least six weeks you will receive another Quality of life questionnaire in the mail to complete at your convenience. You will receive a stamped addressed envelope to mail it in or you may return it when you go back to CR. Questionnaires will be coded with numbers so information will be confidential. I may also need to view your chart. There is no risk involved. Your participation may help CR programs improve to meet the needs of clients in the future. Thank you for participating and helping to increase our knowledge level to better meet our clients needs.

Nursing Script

You have been selected to participate in a research study on QOL and CR. Your participation may help us improve our program to better meet the needs of future clients. Would you like to watch a short video to decide if you would care to participate? It will take about 5 minutes of your time today and about 30 minutes to fill out the questionnaires at home to mail in or bring back with you at your next session. Everything is confidential. After you have been in CR for 6-8 weeks you will be mailed the same questionnaires to fill out again.

APPENDIX F
Consent Form

APPENDIX F
Consent Form

I understand that this is a study of the differences between men and women in cardiac rehabilitation programs with regard to their perceived quality of life. The knowledge obtained from this study may enable nurses and physicians to design cardiac rehabilitation programs to increase quality of life for both men and women.

I understand that:

-If I agree to participate in this research study that I will answer the questionnaires attached to this consent form which includes questions about my quality of life and cardiac rehabilitation. My participation is voluntary.

-I have been selected for this study because I have started cardiac rehabilitation and hopefully will continue to participate until 6-8 weeks when I will be sent questionnaires to fill out again.

-It is not anticipated that this study will cause me any physical or emotional harm but it may be helpful to have someone to talk to about my quality of life. This study may not benefit me directly, but it may help nurses to improve cardiac rehabilitation programs.

-The information I provide will be kept strictly confidential and the data coded so that identification of individual participants will not be possible.

-a summary of the results will be made available to me upon my request.

I acknowledge that:

-I have been given an opportunity to ask questions regarding this research study, and that these questions have been answered to my satisfaction.

-In giving my consent, I understand that my participation in this study is voluntary. Choosing not to be involved in this study will not affect my care at Munson Medical Center or from my physician.

The investigator, Susan Flynn, has my permission to review my chart in cardiac rehabilitation.

I hereby authorize the investigator to release the information obtained in this study to scientific literature. I understand that I will not be identified by name.

If I have any questions concerning my participation in this study now or in the future, I may contact Susan Flynn at 929-0956.

If I have any questions regarding my rights as a research subject, I may contact Jan Jackson, Munson's Vice President, at 935-6703 or Paul Huizenga at Grand Valley State University at 616-895-2472.

I acknowledge that I have read and understand the above information and that I agree to participate in this study.

Witness

Participant Signature

Date

Date

-----I am interested in receiving a summary of the study results

LIST OF REFERENCES

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