Coronary Heart Disease (CHD) accounts for almost 20% of all deaths in the United States and is a leading cause of premature death and disability. The cost for this disease includes not only lost work years, but billions of health care dollars. Women account for almost half of the deaths from CHD and rates for the death of young women have risen 30% from 1988 to 1998. For the two-thirds of women who survive the initial coronary event, the risk of future events and disability increases. Cardiac rehabilitation (CR) is a multi-disciplinary program designed to reduce this risk. Unfortunately, only 25% of eligible women attend the program. Few studies have analyzed the factors that influence women’s CR enrollment choices making a careful examination of these factors particularly relevant.

The purpose of this study was to qualitatively explore the factors associated with a woman’s decision to enroll, or not enroll, in CR from the perspectives of the patient and her support person.

Twenty-five women (15 enrolled in CR, 10 not enrolled in CR) and 24 matched support persons (one person’s supporters refused to participate) were interviewed using a semi-structured format from September, 1999 to January, 2001.
Questions addressed the beliefs, affect, social referents, past experiences/habits, and facilitating/constraining conditions related to CR enrollment choices. Support persons were asked to respond to these questions from their perception of their loved one's attitudes, beliefs and health care seeking behaviors.

Information from the interviews was transcribed verbatim, entered into NUD*IST, and coded using the components of the Expanded Theory of Reasoned Action (Triandis, 1977) as a framework. Descriptive analyses was done on basic demographic information, including perceptions of health and depression.

There were specific factors identified in each of the primary categories of affect, beliefs, facilitating/constraining factors, and social referents and information. The key findings indicated that a lack of information on CR, feelings related to the perceived necessity of CR, transportation, finances, and accessibility were primary factors in enrollment behavior. Overall agreement between the cardiac female and her support person existed in most categories, except affect, where a minimum number of emotions was stated by the supporter.

Cardiologists are a preferred source for CR information and they and primary care physicians need to increase the amount of positive support they provide to post-coronary event women. Emphasis on the necessity of attending CR as well as solutions for transportation and finances may increase enrollment. More research should be completed on the context of depression related to CR, importance of factors identified as having an impact on CR decision making, and the role of support persons in the enrollment choices of women.
FACTORS INFLUENCING WOMEN’S ENROLLMENT IN CARDIAC REHABILITATION: PATIENT AND SUPPORT PERSON PERSPECTIVES

by
Kathlynn Northrup-Snyder

A DISSERTATION

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I understand that my dissertation will become part of the permanent collection of Oregon State University libraries. My signature below authorizes release of my dissertation to any reader upon request.

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DEDICATION

This paper is dedicated to my spiritual guide for my life's journey. Without the guidance, strength, persistence and abilities gifted to me, I would have never completed this goal.
This paper has been competed in a format which blends the traditional chapters with articles. The traditional chapters include - Chapter 1: Introduction; Chapter 2: Review of the Literature; Chapter 3: Methods; and Chapter 5: Conclusion. Articles are found in Chapter 4: Results. The first article is a literature review specific to the Expanded Theory of Reasoned Action relative to cardiac events and women's CR enrollment choices. A second article details the results found in the cardiac female population alone. A third article discusses the perceptual similarities and differences of the post-cardiac event female and her support person on the factors influencing CR enrollment.
Factors Influencing Women’s Enrollment in Cardiac Rehabilitation: Patient and Support Person Perspectives

CHAPTER 1
INTRODUCTION

Background

Coronary heart disease (CHD), primarily myocardial infarction (MI), accounted for one fifth of deaths in the United States in 1999 and over half of the deaths in cardiovascular disease categories (American Heart Association [AHA], 2002). Despite a decrease in rates for cardiovascular disease and CHD since the 1960's, over 34% of all U. S. deaths occur prematurely due to one or more cardiovascular disease (CVD) complications (AHA, 2002; McGovern, Pankow, Shahar, Doliszny, Folsom, Blackburn & Luepker, 1996; Morbidity and Mortality Weekly Review [MMWR], 1992; Sytkowski, Kannel, & D’Agostino, 1990). These numbers represent both an enormous economic burden on the health care system and a tremendous national burden in years of potential life lost, pain, and suffering.

Although estimates of the magnitude of the economic burden vary, one indicator of costs comes from Medicare charges. Of the $24 billion paid by Medicare toward hospital costs, CHD accounts for $10.8 billion (a range of $3,919 to $11,273 per discharge) of the total expenses (AHA, 1998, 2001). This burden of disease can also be assessed in terms of disability adjusted life years which
combine functional disability with morbidity and the years of life lost from mortality. By the year 2020, in spite of an overall declining CHD mortality rate, heart disease is projected to rank as one of the top three leading causes of disease burden worldwide (Murray & Lopez, 1996).

CHD poses an additional difficulty as the leading cause of premature death and permanent disability in the U.S. labor force, affecting 7.9 million individuals over the age of 15 (AHA, 1998). The cost to society for this disability is 19% of the money spent by the Social Security Administration (AHA, 2002). Furthermore, the indirect cost of lost productivity, plus the direct health care costs attributed to CHD in the total US population, are estimated at $111.8 billion (AHA, 2002).

Although the declines in CHD mortality and spiraling costs may be noteworthy, an important caveat is that most of these changes have been disproportionately weighted among white males. Great disparities in CHD mortality and concomitant costs are reported between white males and their female and black counterparts. Between 1987-1994, overall CHD mortality in 35-74 year olds decreased only 4.5% in white women, 4.1% in black women, and 2.5% in black men as compared to a decrease of 4.7% among white men. (Rosamond, Chambless, Folsom, Cooper, Conwill, Clegg, Wang & Heiss, 1998). A similar trend is reported for the years 1980-1988 (MMWR, 1992).
Morbidity and Mortality in Women with Heart Disease

While men have historically been the focus of heart disease attention worldwide, it is important to note that this balance has shifted in recent years. Women accounted for almost half (49.5%) of the deaths from CHD in 1999 (AHA, 2002), causing an increased national concern about women's risk of heart disease. Recent evidence indicates that CHD has been a primary cause of morbidity and mortality in women for decades even though research had largely ignored this segment of the population. The Framingham Study enrolled few women, but in a 20-year follow-up, the women in the 1965-67 cohort demonstrated CHD morbidity and mortality rates at 25% that of younger males and up to 50% of older males (Eaker, Pinsky, & Castelli, 1992). Similar to recent statistics, CHD was also the leading cause of death for women in this cohort.

A large surveillance database reported that women have a higher median 28-day population case fatality (51% versus 49%) and higher age adjusted in-hospital mortality than men (27% versus 22%) (Chambless, Keil, Dobson, Mahonen, Kuulasmaa, Rajakangas, Lowel, & Tunstall-Pedoe, 1997). In younger women, 15 to 34, the death rates have risen 30% from 1989-1996 (AHA, 2002). These statistics suggest that women have been at serious risk from CHD in the past and currently demonstrate risk of immediate post cardiac event mortality similar to or higher than men.

Sudden deaths account for one third of all CHD fatalities in women. In 63% of women and 50% of men these deaths occur without prior overt cardiac symptoms
(AHA, 2002; Kannel, Wilson, D’Agostino, & Cobb, 1998). While most women do not demonstrate symptoms, they have a high incidence of sudden death. However, they also tend to be more likely to survive the initial coronary event long enough to reach the hospital for initial assessment and treatment (Chambless et al., 1997). Women with CFID are typically older than men and present more frequently with congestive heart failure, hypertension, diabetes, and unstable angina, yet diagnostic evaluation indicates women have similar left ventricular function and multivessel disease profiles compared to men (Jacobs, Kelsey, Brooks, Faxon, Chaitman, Bittner, Mock, Weiner, Dean, Winston, Drew, & Sopko, 1998). Significant complications to successful cardiac care arise because women also have higher levels of serum cholesterol, seek medical care later, are in shock longer post-myocardial infarction, and are referred for medical care later than men (Jenkins, Flaker, Nolte, Price, Morris, Durz, & Petroski, 1994). Overall, when compared to men, these studies indicate that women present to the hospital with a poorer clinical status and not surprisingly, have poorer outcomes overall.

After hospital treatment women continue to manifest poor prognosis compared to men, even after controlling for demographic and clinical data (Shumaker, Brooks, Schron, Hale, Kellen, Inkster, Wimbush, Wiklund, & Morris, 1997). The American Heart Association (2002) reports that after an MI, 38% of women as compared to 25% of men will die within 1 year. Within the first six years after an MI, 35% of women have a second MI compared to only 18% of men. In addition,
after a heart attack, 27% of men and 14% of women will develop angina, and about 22% of men and 46% of women will be permanently disabled with heart failure.

Exploratory studies examining the reasons for these gender differences in co-morbidities and symptoms at initial hospitalization, cardiac treatment, and post hospitalization morbidity and mortality are inconclusive (Eysmann & Douglas, 1992; Fetters, Peterson, Shaw, Newby, & Califf, 1996; Hsia, 1998; Wenger, 1998). The confounding variables of age, race, clinical, socioeconomic, and psychosocial differences indicate that more research is necessary before any understanding of the differences in a woman’s response to heart disease can be reached.

The Female Experience within Research Related to Coronary Health Care

Historically, CHD studies were limited to men because of concern over women’s reproductive status. This limitation led to health care protocols and policies derived from the male response to the research studies. Analysis of this issue (Weisman & Cassard, 1994; Zimmerman, 1994) suggests women’s health needs have been overlooked in three critical areas directly affecting cardiac care of women in the United States.

The first critical area relates to a restricted approach to overall research on women’s health. Researcher reluctance to deal with potential hormonal confounders and an innate bias toward a focus on male health needs led to a plethora of research on male health issues and virtually no research focused on women. Coronary research reflects an almost non-existent focus on women in the
the 1950’s-1980’s. Related pharmacologic and surgical interventions were primarily tested on men (Weisman & Cassard, 1994; Zimmerman, 1994) and largely ignored the unique female physiology of smaller blood vessel size, differences in psychosocial issues, and inaccurate screening tools which primarily had been standardized for male models (Hsia, 1998).

Second, CHD has been narrowly defined and classified based upon this male-centered research. Medical students trained to assess MIs still include male based parameters within their definition of “classic” heart disease symptoms not yet understanding that women often present with different symptoms (Peterson & Alexander, 1998; Rosenthal, 1995). Current research reports that other than the common complaint of chest pain, women more frequently report nausea, neck, back, and jaw pain (Goldberg, O’Donnel, Yarzebski, Bigelow, Savageau & Gore, 1998). Therefore, physicians must re-evaluate their guidelines for diagnosing CHD to better evaluate different illness phenomena in women. Society must also be educated on female susceptibility to heart attack to effectively decrease the number of women who ignore symptoms of the problem and delay treatment (Gurwitz, McLaughlin, Willison, Guadagnoli, Hauptman, Gao & Soumerai, 1997).

The third critical area reflecting the societal and professional ignorance of female cardiac health needs, recognizes the creation of policies that set parameters for inadequate female health care (Weisman & Cassard, 1994; Zimmerman, 1994). Past health care policies reduced female centered research creating the current level of misdiagnosis and male directed treatment (Weisman & Cassard, 1994;
Zimmerman, 1994). Current health care policies defining insurance coverage for post-cardiac treatment significantly impact the options available to a woman and her health care. For example, physician referral, still the primary predictor of female cardiac rehabilitation enrollment, was determined by perceptions of insurance coverage (Missik, 2001). Since poor women are at three times the risk of having no health care insurance and 30% of those who are uninsured have no regular source of medical care (National Center for Health Statistics, 1995), the issue of rehabilitation referral based upon insurance coverage has serious implications. Further research may reveal alternative resources for women.

Post-coronary treatment options should be as available to women as they are to men. Those options that focus on CHD prevention and lifestyle changes have the potential for reducing re-hospitalization, morbidity, and mortality in both men and women and should be examined for these benefits. If, after examination, an effective program is found, then all barriers that reduce female utilization of the program should be removed.

**Cardiac Rehabilitation: Secondary Prevention in Heart Disease**

One strategy for preventing subsequent CHD complications is cardiac rehabilitation (CR), a form of secondary prevention. Described as a long-term comprehensive program involving medical evaluation, prescribed exercise, cardiac risk factor modification, education, counseling, and behavioral interventions (Pashkow, 1993). Studies demonstrate up to 25% reduced CVD mortality in
individuals who participate in CR and women of all ages gain equal or more benefits from participating in cardiac rehabilitation when compared to men (Wenger, Froelicher, Smith, Ades, Berra, Blumenthal, Certo, Dattilo, Davis, DeBusk, Drozda, Fletcher, Franklin, Gaston, Greenland, MCBride, McGregor, Oldridge, Piscatella, and Rogers, 1995). However, in spite of apparent positive benefits to be derived from CR, referral rates follow a disappointing pattern of between 8.7% (Bittner, Sanderson, Breland, & Green, 1999) and 89% (O’Farrell, Murray, Huston, LeGrand, & Adamo, 2000) of eligible individuals. Of primary concern, women, especially older women, are referred to CR less frequently than males and less than 25% of eligible women are enrolled in cardiac rehabilitation compared to 50% of eligible men (Evenson, Rosamond & Luepker, 1998; Thompson, Bowman, Kitson, de Bono & Hopkins, 1997).

Increasing the participation of women in CR may be an effective post-hospitalization intervention for reducing CHD related morbidity and mortality. Multiple clinical studies document the effectiveness of CR for both men and women (Bairey Merz, Felando & Klein, 1996; Engblom, Korpilahti, Hamalainen, Puukka & Ronnemaa, 1996; Hamalainen, Luurila, Kallio & Knuts, 1995; Klainman, Fink, Zafrir, Pinchas & Spitzer, 1997; Lavie & Milani, 1994a; Lavie & Milani, 1996a; Lavie & Milani, 1996b; Lavie & Milani, 1997a; Maines, Lavie, Milani, Cassidy, Gilliland & Murgo, 1997; Milani, Lavie & Cassidy, 1996; Wenger et al., 1995). Most multi-dimensional CR programs address the issues of cardiac symptoms, blood lipid levels, and psychosocial well-being. Programs also include
exercise and other lifestyle components, which are perhaps the most crucial components.

National reports suggest that many women are in need of an opportunity for education and strategies that encourage lifestyle changes post cardiac event to reduce future risk of CHD (AHA, 2002). For example, over 46.8% of women are overweight and 23.2% are obese. Further, almost 40% of white women and of 57% black and Hispanic women are not physically active. Twenty-two percent of women are smokers. Almost half of all white, black, and Mexican-American women over the age of 20 have hypercholesterolemia. Diabetes, a risk factor for heart disease, is a special concern as women accounted for 54.5% of total deaths from diabetes in 1999 (AHA, 2000). These lifestyle risks in women may account for some of their poor post-cardiac event morbidity and mortality rates. Multidimensional rehabilitation program outcomes suggest that female participants will improve exercise tolerance, reduce cigarette smoking, stress levels, and CHD related mortality levels (Wenger et al., 1995).

Consequently, although more research is necessary, studies indicate that CR, by addressing lifestyle issues, reduces rehospitalization costs and compares favorably to other medical and health promotion interventions for both men and women (Ades, Huang, & Weaver, 1992; Bondestam, Breikss, & Hartford, 1995; Miller, Warren, & Meyers, 1996; Oldridge, Furlong, Feeny, Torrance, Guyatt, Crowe, & Jones, 1993; Picard, Dennis, Schwartz, Ahn, Kraemer, Berger, Blumberg, Heller, Lew, & DeBusk, 1989). Because of these potential cost savings
and the documented outcomes of cardiac rehabilitation, medical groups are supporting CR as a viable intervention. The California Cardiology Working Group on Post-MI Management published clinical guidelines on the management of cardiac patients, including recommendations to refer patients to cardiac rehabilitation (Deedwania, Amsterdam, & Vagelos, 1997). Members of the Cardiology Preeminence Roundtable (1994) recommended that cardiac rehabilitation be seriously considered for CHF patients because of the potential for moderate reductions in the total cost of care. These cost considerations, coupled with the apparent health benefits for CR participants, should prompt more research on the reasons women are not participating in CR. Additional studies must be conducted before a complete understanding of the significant difference in referral and participation rates can be understood.

Only in the last decade has the pattern of limiting women’s participation in CHD research been broken with a national policy calling for more research to include women. Therefore, information can now be collected on heart disease evaluation, treatment, and recovery in women. Because of the dearth of information in each of these areas, an emphasis should be placed on developing research to explore the female cardiac experience in a manner that is sensitive to a woman’s emotional and physical health care needs. This research proposes to add to the knowledge of the female experience of cardiac illness by exploring factors that influence a woman’s decision to enroll or not enroll in CR. Limited studies on the differences in participants and non-participants in CR have primarily assessed
socioeconomic and demographic differences with respect to a predominantly male population (Cannistra, Balady, O'Malley, Weiner DA, & Ryan, 1992; Evenson et al., 1998; Friedman, Williams & Levine, 1997; Harlan, Sandler, Lee, Lam, & Mark, 1995; Thompson et al., 1997; Wenger et al., 1995). Research that includes women and moves beyond demographic issues may provide more information on the enrollment choices of women. Encouraging women to describe their needs in a qualitative inquiry may foster the discovery of additional information on CHD recovery experiences and CR enrollment decisions through the collection of narrative information in an open dialog that is not available in quantitative research.

Statement of the Problem

Female risk of CHD mortality and morbidity has gained increasing national attention as the gravity of the risk has been revealed. For those women who survive cardiac disease, preventive interventions such as CR and education may reduce the risks of post cardiac event complications, disability, and mortality. Furthermore, limited information suggests that women appear to benefit as much or more than their male counterparts from CR (Wenger et al., 1995). Regardless of the potential benefits, only one quarter of the eligible women are enrolled in CR. Women are frequently not referred to CR by their provider and insurance does not always cover the cost of this service (Missik, 2001) suggesting accessibility as an issue. While issues related to CR enrollment have been investigated among males, little of the research has been applied specifically to women. Further, few studies
have explored women’s expectations of, response to, and use of CR. Qualitative research on the factors influencing female enrollment in CR programs may provide a better understanding on the reasons for low enrollment patterns, the related poorer outcomes, and women’s needs during cardiac recovery.

Limitations of previous research have been explored and are summarized below: (a) Research on heart disease and cardiac rehabilitation reports few female subjects, causing any gender comparisons to be statistically suspicious. (b) Studies on the gender differences related to CHD and CR have primarily focused on physiologic and demographic issues. (c) Theory is rarely applied in studies associated with coronary heart disease and the recovery process. (d) Few studies have assessed the psychosocial and behavioral factors associated with patient enrollment in CR. (e) The literature has not addressed the unique needs of women who are recovering from a coronary event and provides clear indications of the need for grounded and extensive studies on the female cardiac recovery experience. Qualitative research methods can address these issues through open discussion and exploration of the female cardiac experience and the many reasons for CR enrollment behaviors.

**Purpose of the Study**

The unique experience of a female who is recovering from a coronary event is poorly documented in the literature; consequently, little is understood about the effect of emotions, beliefs, social support, facilitating/constraining factors, habits,
and intentions of women after this life-altering experience, thus creating the need for a gender specific research effort. The purpose of this study is to qualitatively explore the factors associated with a woman’s decision to enroll, or not enroll, in CR from the perspectives of the patient and her support person. Although other studies have explored the demographic differences between those who participate in CR and those who do not, few studies have assessed the multi-dimensional psychosocial and environmental factors associated with the decision. Further, quantitative research captures a brief and narrow scope of information, thereby limiting the interpretation of the results. Qualitative research widens the scope of the results by discussing the post-cardiac experience of a woman in her terms and by exploring issues that may be limited by quantitative research parameters. Interviewing a support person trusted by the cardiac patient will provide an additional perspective to assess the factors associated with CR enrollment choices. To achieve this purpose the following research questions will be examined.

Research Questions

Research Question # 1- Which descriptors do patients and their support persons use to describe patient affect and how it might be associated with CR? Which descriptors are commonly listed? How is affect associated with patient CR enrollment patterns? How does the support person’s perceptions of the patient’s affect align with the patient’s perceptions?
Research Question # 2- What do patients and their support person’s list as the perceived outcomes associated with CR enrollment patterns? Which of these perceived outcomes are commonly stated? How do the support person perceptions of the patient’s beliefs about CR align with the patient’s perceptions?

Research Question # 3- Which individuals, groups or information sources influence patient CR enrollment patterns? Which referents are commonly stated? How do the support person’s perceptions of the patient’s social norm referents align with the patient’s perceptions?

Research Question # 4- Which, if any, facilitating/constraining factors are associated with patient CR enrollment patterns? Which of these factors are commonly stated? How do the support person’s perceptions of the patient’s descriptions of facilitating/constraining factors align with the patient’s perceptions?

Research Question # 5- What habits or past experiences in the patient’s history are related to CR enrollment? Which of these habits or past experiences, if any, are commonly stated? How does the support person’s perceptions of the patient’s habits or past experiences align with the patient’s perceptions?

Significance of the Study

For women, the lifetime risk of developing coronary heart disease after age 40 is 35% (AHA, 2002). CHD is associated with functional limitations in women, increasing the difficulty of recovery from a disease process that is already problematic. The literature, although inconclusive on the issues of gender
differences in cardiac care and treatment, documents significant CHD mortality and morbidity rates for women before diagnosis, during treatment, and post-coronary event. Research including a representative number of women to test current assumptions on coronary care can affect a change in these rates by encouraging new standards of care based upon female specific information.

This research is necessary to explore the factors that influence women as they consider CR options. Few studies have explored the psychosocial, environmental and support variables that may influence decisions to participate in CR. The fields of nursing, health promotion, and public health can benefit from more information on the female experience post-coronary event. Information on the beliefs of women regarding the cardiac recovery experience and the CR enrollment decision making process will provide a foundation for future interventions that may decrease the post-coronary event morbidity and mortality of women.

**Delimitations**

This study has the following delimitations:

1. Males and females who may be eligible for CR, but have conditions other than those described will not be represented.

2. Generalizability of findings will be limited, due to sample characteristics, the non-random sampling technique, and the qualitative nature of the research.
Limitations

This study has the following limitations:

1. The sample is limited to hospitals in the Portland, Oregon area, a primarily metropolitan area with outreach to rural areas.

2. Subject participation is limited to English speaking individuals with good hearing ability. They must also be cognitively capable and able to read and write to fill out the pen and paper survey.

3. This is a purposive sample of women who are referred to cardiac rehabilitation post-MI or post-CABG and are within the four to twelve weeks following discharge from the hospital.

Definition of Terms

The following terms are defined for use in this document:

1. CABG- coronary artery bypass graft also called coronary artery bypass surgery (CABS).

2. MI- myocardial infarction or heart attack.

3. Stent- a specific procedure performed for stenosis of coronary arteries using a catheter which is placed within the lumen of the vessel to provide support and assure patency (Stedman, 1990).

4. PTCA- percutaneous transluminal coronary angioplasty. An operation for enlarging a narrowed arterial lumen by peripheral introduction of a balloon-tip
catheter and dilating the lumen on withdrawal of the inflated catheter tip (Stedman, 1990).

5. Affect- the emotional feeling, tone, and mood attached to a thought including its external manifestations (Stedman, 1990).


7. Social Construct- a construct consisting of the person’s perceived information sources and referents related to performance of the behavior (Triandis, 1977).

8. Habit or Past Behaviors Construct- factors composed of situation-behavior specific sequences that are or have become automatic (habit) and previous experiences (past behavior) which may influence behavior regardless of intention (Triandis, 1977).

CHAPTER 2
REVIEW OF THE LITERATURE

Meta-reviews of the coronary heart disease (CHD) literature have suggested that because women have not been included in clinical and observational trials until recently, many of the assumptions made about cardiac care in women may be false. As a result, researchers are now attempting to identify female issues related to cardiac care. The emerging picture indicates that women have higher incidence and mortality rates than were initially assessed.

Several factors appear to contribute to this disproportionate level of risk. Women are at higher risk for mortality from heart disease because of the differences in their physiological response to treatment, patterns of the referring physicians, prevalence of risk factors, and their clinical presentation upon screening (Fetters, Peterson, Shaw, Newby & Califf, 1996; Hsia, 1998; Moser, 1997).

For women who survive their coronary event and are released from the hospital, gender differences are also found in the social and medical support that post-coronary event individuals receive and in the secondary prevention procedures that are implemented for cardiac disease. This may be because women demonstrate a different response to the disease process than men (Brezinka & Kittel, 1996). It could also be related to the older age of women at the time of CHD, the differences in functional ability or demographic differences. Regardless, preventive efforts post-coronary event are as important for women as for men.
Cardiac rehabilitation (CR) has been established as an effective method for reducing additional cardiac morbidity and mortality. Yet, women and the elderly, who benefit from cardiac rehabilitation, are referred and participate less frequently than younger and middle aged male patients (Wenger, Froelicher, Smith, Ades, Berra, Blumenthal, Certo, Dattilo, Davis, DeBusk, Drozda, Fletcher, Franklin, Gaston, Greenland, McBride, McGregor, Oldridge, Piscatella, & Rogers, 1995). Research on both men and women suggest that poor enrollment is influenced by a variety of factors (Evenson, Rosamond, & Russell, 1998; Thomas, Miller, Lamendola, Berra, Hedback, Durstine, & Haskell, 1996).

**Secondary Prevention of Cardiac Disease in Post-Coronary Women**

Although cardiac rehabilitation as a secondary prevention has been part of cardiac medical care for decades, researchers estimate that enrollment is limited to only 11% of myocardial infarction (MI) patients, 23% of coronary artery bypass graft (CABG) patients, and 10% of percutaneous transluminal coronary angioplasty (PTCA) patients who are discharged from the hospital (Thomas et al., 1996). In total only 11% to 36% of those considered medically stable and eligible for CR participate (Gulanick, 1998; Wenger et al., 1995). This pattern of under use has stimulated researchers to assess the CR participants and non-participants for information on factors affecting the use of phase II cardiac rehabilitation. The following sections explore this research after a brief overview of the CR program.
Cardiac Rehabilitation

Cardiac Rehabilitation is a multi-phase program designed to reduce disability and functional limitations in individuals while improving cardiac risk behaviors. The American Association of Cardiovascular and Pulmonary Rehabilitation (1995) provides guidelines for cardiac rehabilitation programs. Patients who have had a MI, CABG, PTCA and/or coronary stent implantation, in addition to individuals with other cardiac and pulmonary related problems often start the rehabilitation process in the hospital shortly after the cardiac event. This is called Phase I cardiac rehabilitation and consists of progressive activity from the bedside, lifestyle behavior education, and psychosocial evaluation and treatment. Once the patient is discharged from the hospital and after a period of home care, Phase II cardiac rehabilitation is started. Traditional programs are structured on a three times per week, three month basis, following Medicare reimbursement structures. Outpatient rehabilitation consists of a variety of activities including exercise, behavior modification classes, smoking cessation, and psychosocial care. Additional rehabilitation programs address maintenance of lifestyle changes. All CR programs require a physician to refer the patient for enrollment.

After a review of 441 studies on CR, the Agency for Health Care Policy and Research published guidelines and recommendations for effective CR (Wenger et al., 1995). Today, the purpose of an effective program is to limit the physiologic and psychologic effects of cardiac illness, reduce the risk of sudden death or reinfarction, control cardiac symptoms, stabilize or reverse the atherosclerotic
process, enhance patient’s psychosocial and vocational status, improve exercise tolerance and exercise habits, and optimize risk factor status (such as blood lipid and lipoprotein profiles, body weight, blood glucose, blood pressure levels, and cessation of smoking) (Wenger et al., 1995).

Evaluation of current programs of CR demonstrate positive change in the CHD risk factors of attendees (Maines, Lavie, Milani, Cassidy, Gilliland, & Murgo, 1997). Improvement is seen in cardiac related depression and quality of life (Milani, Lavie, & Cassidy, 1996) in addition to improved use of lipid-lowering medications (34%, p < .05 compared to non-CR) and reduction of total cholesterol levels (48% with <200 mg/dL, p < .05 compared to non-CR), (Bairey Merz, Felando, & Klein, 1996), although there is less of an impact on high-density lipoprotein cholesterol (Lavie & Milani, 1996c).

Longitudinal research indicates that participants in a CR program have lower rates of sudden death post-cardiac event, lower rates of coronary mortality (Hamalainen, Luurila, Kallio, & Knuts, 1995), and reversal of arterial damage (McSherry, Benison, Shaw, & Davies, 1999), however, long-term reduction of CHD risk factors is moderate (Engblom Korpilahti, Hamalainen, Puukka, & Ronnemaa, 1996). Studies that have focused on CR impact in populations other than traditional post-MI and post-revascularization patients, have demonstrated improved CHD risk factors and quality of life in obese patients (Lavie & Milani, 1996b; Lavie & Milani, 1997b) and in individuals who enter the program with healthy lifestyle habits and high exercise capacity (Lavie & Milani, 1994a). CR is
most effective in patients with one to two coronary arteries affected and may have limited impact on those with more serious CAD (Klainman, Fink, Zafrir, Pinchas, & Spitzer, 1997).

**Gender Differences in Cardiac Rehabilitation Participation and Referrals**

The literature reviewed in the previous section suggests that cardiac rehabilitation makes a significant contribution to CHD prevention efforts. Yet, the enrollment patterns indicate a variable response to this program by physicians and patients. Two studies assessed cardiac rehabilitation patterns for referral and participation between women and men (Evenson et al., 1998; Thomas et al., 1996). Thomas and colleagues, (1996) reported that there was a lower probability of women being referred to cardiac rehabilitation post-MI (30.2% vs 34.7%, p < .001) and post-CABG (35.9% vs 44.3%, p < .001) than men. Conversely, women are more likely than men to be referred to CR with a diagnosis of angina, (16.7% vs 8.3%, p < .001) or post-PTCA (15.9% vs 12.6%, p<.01) (Thomas et al, 1996). However, Evenson and team (1998) found that women diagnosed with angina were less likely to participate in CR compared to men. Also, the regional female-to-male enrollment ratio was similar for those diagnosed with MI, however, among whites, the gender discrepancies were more pronounced (7.2% women vs 14.4% men) (Thomas et al., 1996). Those individuals who have had revascularization procedures are more likely to be referred and attend cardiac rehabilitation, however among post-CABG attendees, a reversal of gender differences is seen as more non-
white women attend CR compared to men (24.3% vs 14.2%, p < .001) as compared to whites (19.8% women vs 25.6% men, p < .001) (Thomas et al., 1996). Individuals suffering from MI who were in shock, had cardiopulmonary resuscitation, or cardioversion were also more likely to use CR (Evenson et al., 1998). A third study indicated that there were no differences in referral patterns for men and women discharged post-CABG and post-MI, however the sample of women was small (30 females vs 183 males) (Burns, Camaione, Froman & Clark, 1998).

There are many factors that may account for gender differences in CR enrollment and participation patterns. Women enrolled in CR are an average of three years older than men (63.7 years vs 60.6 years, p < .001), are more likely to be from a racial/ethnic minority group (9.3% vs 4.9%, p < .0001), and are less likely to be currently married (59.2% vs 87.4%, p < .0001). Women are also more likely to have several traditional CHD risk factors, including diabetes (23.4% vs 15.9%, p < .001), hypertension (60.3% vs 48.4%, p < .001), hyperlipidemia (59.7% vs 51.6%, p < .001) compared to men. Fewer women than men are current cigarette smokers (9.2% women vs 11.6%, p < .001) or former smokers (46.5% vs 65.4%, p < .001). Fourteen percent of women under the age of 60 years and 12% of those older than 60 are using estrogen replacement therapy (Thomas et al., 1996). Women in CR are usually more functionally impaired than men (Harlan, Sandler, Lee, Lam & Mark, 1995). Men also tolerate physical activity better, are less anxious, and perceive themselves as being more efficacious in enduring
exercise and activities of daily living than women (Schuster & Waldron, 1991).
The gender differences listed above are supported in other clinical studies
(Cannistra, Balady, O’Malley, Weiner, & Ryan, 1992; Evenson et al., 1998).

Gender disparities in CR use increase with age. Elderly women are referred
less often than men to CR, yet all baseline measures improve in a comparable
manner after CR (Ades, Waldmann, Polk & Coflesky, 1992; Lavie & Milani,
1997a). In fact, though older individuals are more likely to stop exercising before
they have reached their maximal training heart rate, they have similar relative
improved outcomes after CR to younger patients (Ades & Grunvald, 1990). Elders
frequently present with poorer baseline measures of body mass index, triglycerides,
aerobic capacity, and lipid profiles compared to younger post-cardiac event patients
(Lavie, Milani & Littman, 1993). Staff awareness of differences in functional
ability combined with related modifications to a CR program allows elderly
women, even those over 75 years of age, to exercise and improve coronary risk
factors, mental health, and quality of life, similar to younger patients (Carroll &
Pollock, 1992; Lavie & Milani, 1995; Lavie & Milani, 1996a; Lavie et al., 1993;
Wenger, 1994).

Post-cardiac event women at all ages have poorer baseline measures of quality
of life, functional capacity, energy level, depression, exercise capacity and lipid
profiles than men, yet overall gains and improved outcomes are similar to men or
better after participation in CR (Ades et al., 1992; Cannistra et al., 1992; Lavie &
Milanie, 1995; McGirr, Rukholm, Salmoni, O'Sullivan & Koren, 1990). When
both men and women were assessed for cholesterol and high-density lipoprotein levels at one and five years after a CR program, both were found to improve at the one year mark and only the women’s lipoprotein levels continued to improve at the five year check (Warner, Brubaker, Zhu, Morgan, Ribisl, Miller, & Herrington, 1995). In another study, female cholesterol levels remained dangerously high and the number of patients exhibiting hypertension increased with CABG alone and without the additional health promotion efforts of cardiac rehabilitation (Allen & Blumenthal, 1995). Therefore, both older and younger women can improve functional ability and cardiac status similar to men, suggesting that CR should be prescribed for all eligible post-coronary event women.

Other Determinants of Enrollment in Cardiac Rehabilitation

Factors other than age and gender are associated with decreased CR participation. In a 1990 national survey of 500 randomly selected CR (phase II) centers, researchers found many discrepancies among geographic regions, post-cardiac event profiles, and gender (Thomas et al., 1996). The western region of the United States had the lowest number of CR programs (448) compared to other regions where the Midwest had the highest (914) number of programs. Enrollment patterns for eligible individuals post-MI were similar across the nation, but the western region had a significantly higher enrollment pattern of individuals post-CABG (44.2%) compared with other regions, especially the northeast (20.8%).
Research has also found significant age and gender discrepancies in enrollment data.

Other factors are more individual in nature, based upon demographics, perceptions, and functional ability. Those who have fewer years of education, are unemployed, have a previous history of MI, have home to site travel distances greater than 10 miles, and have higher levels of functional impairment are less likely to attend CR (Cannistra et al., 1992; Evenson et al., 1998; Harlan et al., 1995). Married men are more likely to attend CR, possibly because they perceive fewer barriers and more benefits. This is potentially related to spousal support given by women such as accompanying husbands to both CR and physician visits and preparing meals (Evenson et al., 1998).

Financial factors, including insurance, are frequently determinants of participation when considering fee-based health care services. Median earnings for women dropped from $22,834 in 1994 to $22,497 in 1995 (1.5% drop after adjusting for inflation) where men in 1995 were earning an average of $31,496 (U.S. Department of Commerce, Economics and Statistics Administration, 1997). Poor women are at three times the risk of having no health care insurance, where 30% of those who are uninsured have no regular source of medical care (National Center for Health Statistics, 1995). Up to 12% of women 40-65 years of age are uninsured and those with less than a high school education are more likely to have only Medicare coverage (Makuc, Freid, & Parsons, 1994). Unfortunately, few studies address the issue of how CR enrollment is effected by financial or insurance
status. In one study, a comparison of patients who had private insurance compared to those on public assistance or with no health insurance reported that participation, compliance and outcome rates were the same in both groups (Friedman, Williams & Levine, 1997). This study suggests that although there are significant barriers for women with poor insurance coverage, addressing the financial aspect in the proper CR setting can reduce the differences and improve outcomes in most individuals, regardless of fee structure.

Secondary to finances, insurance availability, and other factors, women receive more fragmented health care from health providers than do men (Clancy & Massion, 1992). For example, men often have the same provider for their lifetime health care needs. Conversely, when women reach middle age they have seen a variety of caregivers for gynecologic and obstetric needs, but may never establish a primary health care provider relationship where lifetime CVD risk and other chronic diseases are assessed (Bidikov & Meier, 1997; Clancy & Massion, 1992).

Habit or past experience related to cardiovascular exercise has also been addressed as a possible determinant of participation. One study indicated that previous experience with CR and poor levels of physical activity may influence physician referral to cardiac rehabilitation (Burns et al., 1998). Also, patients with a prior history of exercise habit are more likely to participate in CR (Harlan et al., 1995).
The Burden of Illness in Women Recovering From a Coronary Event

As discussed in previous sections, many factors affect women's participation in cardiac rehabilitation as well as their coronary morbidity and mortality. A significant determinant of health, post-cardiac event, is the psychosocial health of an individual. Additionally, psychosocial functioning is related to life satisfaction (Daumer & Miller, 1992). Again, few studies have been completed to detail the specific needs of women as they recover from the experience of a coronary event, but those few do indicate that women have poorer adjustment compared to men (Brezinka & Kittel, 1996).

Women move through the recovery process from any major illness in a manner unique from men. Responses to the disease process may be different for women compared to men as are the support providers, expectations and roles functions (Brezinka & Kittel, 1996). A woman's many roles include that of a homemaker, mother, wife, caregiving daughter of elderly parents or worker. Literature reviews suggest that low social class, low educational attainment, the double loads of work and family, chronic troubling emotions and lack of social support are psychosocial risk factors for CHD in women (Brezinka & Kittel, 1996). Each of these variables can affect the burden any one woman is expected to bear post-hospitalization. These variables will also affect the likelihood of attending CR. Cardiac rehabilitation programs need to take into account the female need for support groups, age and gender appropriate exercise classes, and the social and role
commitments women have difficulty delegating to others during their recovery (Arnold, 1997).

**Psychosocial Determinants of Health for Women Recovering from a Coronary Event**

Psychosocial variables including patient affect and social support from family, friends, and health care professionals may affect the recovery experience as well as participation in CR. The beliefs and perceptions of the woman experiencing cardiac illness may be different from the supportive others in her environment, reflecting differences in recovery. Other factors which facilitate or prevent recovery and CR participation should also be considered. Each of these psychosocial variables may impact the intention and actual behavior of the post-cardiac female to attend CR in addition to the effect the variables may have on her recovery experience. To enable CR professionals to achieve an effective and supportive program, an understanding of the post cardiac event experience and patient perceptions of needs must be explored.

**The Relationship of Cardiac Illness to Affect and Depression**

Variables related to affect, such as depression, are significant predictors of female cardiac recovery potential. Yet, three out of four cardiac patients with depression are not diagnosed. Of those that are diagnosed only half receive the appropriate treatment (Carney as cited in Gunby, 1996). More cardiac patients are
depressed after revascularization surgery (61%) than are affected prior to surgery (47%) (Burker, Blumenthal, Feldman, Burnett, White, Smith, Croughwell, Schell, Newman & Reves, 1995). This study identified women as a population at risk for depression, in addition to anyone with higher state anxiety (per State-Trait Anxiety Inventory) and poor social support (Burker et al., 1995). Middle aged women also reflect a poorer quality of life and higher values of emotional reaction to their cardiac disease (Lukkarinen & Hentinen, 1997). Cardiac patients diagnosed with moderate levels of depression have a 69% greater chance of cardiac death (Barefoot, Helms, Mark, Blumenthal, Califf, Haney, O’Connor, Siegler & Williams, 1996).

In addition to depression, there may be a difference in emotional response based upon the type of coronary event experienced. A longitudinal study assessed patient’s affect at one month and then one year after the cardiac event. Initially, acute MI patients experienced more anxiety (P = 0.001) than CABG patients, but there were no differences at the one year measure (Westin, Carlsson, Israelsson, Willenheimer, Cline & McNeil, 1997).

Cardiac rehabilitation and other outpatient resources may provide psychosocial evaluations and treatment for negative affect problems. When psychosocial treatment was part of the CR program, patients showed greater reductions in psychological distress and related physiologic measures (Denollet & Brutsaert, 1995; Linden, Stossel & Maurice, 1996). If negative affect is not addressed there are serious consequences to health. Individuals with poor stress management skills,
and associated high levels of stress, increase their risk of MI and are up to three times more likely to die of a coronary event (Allison, Williams, Miller, Patten, Bailey, Squires & Gau, 1995; Gullette, Blumenthal, Babyak, Jiang, Waugh, Frid, O’Connor, Morris & Krantz, 1997; Jiang, Babyak, Krantz, Waugh, Coleman, Hanson, Frid, McNulty, Morris, O’Connor & Blumenthal, 1996).

More research is needed to assess the importance of affect in the recovery phase. Although social support has been assessed relevant to coronary disease (Moser, 1994), few intervention studies, low female sample sizes, and non-standardized social support variables increase the difficulty of evaluating the relationship of social support to the female cardiac recovery process (Brezinka & Kittel, 1996; Fleury & Cameron-Go, 1997; Sullivan & Sullivan, 1997) or even the relationship of social support to general health (Broadhead, Kaplan, James, Wagner, Schoenbach, Grimson, Heyden, Tibblin, & Gehlbach, 1983).

Social Support

Social support, as a concept, has been defined in the literature in multiple disciplines. Social support characteristics describe the structure, processes, and functions of social relationships. Basically, social support incorporates the acts of the sender, which are intended to be helpful and are usually respectful of the receiver’s right to self-determination (Heaney & Israel, 1997). The umbrella concept of social support incorporates the social network, the type and amount of social support, and the adequacy of that support (Oxman & Hull, 1997). The
sender's behaviors can be divided into four functions of a relationship: emotional support, instrumental support, informational support, and appraisal support (House as cited in Heaney & Israel, 1997). A woman who has survived a cardiac event needs emotional support from those who would allow her to experience her emotions in a supportive environment. This emotional support might be related to positive comments on her choice to attend cardiac rehabilitation or possibly support to not attend CR. Other types of support might reinforce dietary changes and smoking cessation. Both positive and negative referents can include family, friends, and health care providers.

A relationship that is based upon instrumental support provides services or assistance to the post-cardiac female. This type of assistance might be providing transportation to cardiac rehabilitation, a willingness to go to the rehabilitation program with the patient, or volunteering to pick up information regarding lifestyle changes. Instrumental support enables the patient to follow through on CR recommendations. When these needs are not met the patient may perceive the barriers to enrollment and attendance to be insurmountable. The person offering instrumental support may be a hospital or CR staff member, a family member, or a health care professional.

Informational support consists of sharing information and education relevant to the individual's needs and questions. Frequently, this type of support falls to the health care professional and CR staff to supply information on the patient condition, service options, and financial coverage for each option. The person
supplying the information has the opportunity to increase the patient’s understanding of the benefits of attending CR and decreasing the perceived disadvantages.

To provide appraisal support the sender offers self-evaluative information to the individual, such as constructive feedback and affirmative statements. This type of support may also relate to the type of information a provider can give a post-coronary event female. For example, the post-hospitalization physical exams and stress tests provide information to the patient on her condition and her heart’s ability to meet her physical needs. This type of information is important to increasing the patient’s belief in their ability to perform physical activity. Further appraisal support is provided by family, friends and co-workers and may relate to the patient’s ability to perform in their chosen life roles. This type of information may again support the patient’s decision to attend CR or to choose to ignore the physician referral.

Although each form of support is independently important, a review of the literature suggests a need for multiple support individuals and a blend of forms of support as well as professional and personal support services (Yates, 1995). In a qualitative analysis of ten first-time post-CABG women and men, individuals were interviewed six weeks after the coronary event. Prior to the interview the subjects kept diaries. The combined data indicate areas for improving social support (Goodman, 1997). Patients in Goodman’s study did not feel they had been adequately prepared to manage the discomforts and changes, indicating a lack of
informational support. More information was needed on the expected and unexpected pain and bodily discomfort, sleeping difficulty, and decreased energy levels frequently found in cardiac patients post-hospitalization (Denollet, 1994; Goodman, 1997). Patients also want more information on their medical condition in the form of assurance on their health status, details on their surgery, and reasons for their coronary event. Other practical information needs relate to exercise status, changes in appetite and nutrition requirements, medication, appropriate use of pressure control hose, complete wound care instructions, and driving restrictions (Goodman, 1997).

Goodman’s (1997) study group reported a connection of psychological state with the recovery process. In the initial stages of recovery clients experienced more negative affect, such as apathy, depression, mood swings, and an unwillingness to be with others, when enduring restricted activity and boredom. As functional ability increased and pain decreased, clients experienced the more positive emotions of euphoria and joy. Individuals indicated a need for appraisal support to encourage a positive attitude and personal responsibility to accept early limitations, pace activities, provide self-care and to take charge of personal health (Goodman, 1997). The frustration of limited activity in daily routine requires emotional and instrumental support until functional ability returns. Most of Goodman’s subjects reported a desire to be linked to the hospital via literature and phone contact as well as a need for peer support, general companionship and a strong need for spousal support in the first six weeks. One client stated “you
leave here [hospital] having been nurtured and looked after and you go outside and there is nothing. There is one big cut-off” (Goodman, 1997, p1249).

Yates (1995) found that health care professional support was more frequently associated with short- and long-term physical recovery. Instrumental support was related to better short-term psychological recovery in men after a cardiac event. Whereas, emotional support and a satisfying relationship were associated with better short- and long-term psychological recovery outcomes. In a recent study, older heart surgery patients, who perceived adequate support after surgery, had lower levels of depression and fewer functional impairments at six months post-surgery (Oxman & Hull, 1997). The authors also found that the number of close network members in contact with the patient was associated with perceived adequacy of support as well as decreased depression and improved activities of daily living (ADLs).

Between husband and wife, depression is inversely related to the level of intimacy within the marriage (Waltz, Badura, Pfaff & Schoot, 1988). This level of intimacy is perceived by the husband to provide adequate social support. Perceptions of social support can be related to depression in chronically ill cardiac patients up to four years after diagnosis (Holahan, Moos, Holahan & Brennan, 1997).

Social support studies related to diagnoses other than CHD provide additional evidence of the influence of social support on health. Researchers followed the recovery process of stroke victims for six months assessing the impact of social
support on the recovery process (Glass & Maddox, 1992). The analyses indicated that while emotional, instrumental, and informational support were all related to recovery, the impact of social support did not appear until after the first month of recovery. In this study, individuals who received high levels of emotional support showed dramatic improvements in functional capacity, even when starting with low baseline functional abilities. Instrumental support was most effective when provided in moderate amounts. Outcomes associated with the provision of informational support were mediated by disease severity. Even in a healthy population, appraisal and informational support are important variables for determining whether women will adhere to an exercise program (Duncan, Duncan & McAuley, 1993).

The perception and use of social support is also subject to gender differences. Women may be more sensitive to the different types of support they need, request assistance more frequently, perceive less social support within their marriage compared to men, but more often perceive help being available from members of their primary support network (Butler, Giordano & Neren, 1985; Depner & Ingersoll-Dayton, 1985; Duncan et al., 1993). Women may also differ in the use and make-up of their social support systems (Connidis & Davies, 1990). Women have larger networks and gain support from a variety of sources, where as men tend to rely on their wives (Antonucci & Akiyama, 1987). Finally, while quality of support is an important factor for well being, women achieve higher levels of well-being when both quantity and quality of the support are high (Antonucci &
Akiyama, 1987). The number of primary support persons in the network, the quality of those contacts, and the perception of the participants appear to be important characteristics of a health buffering social support system.

**The Relationship of Social Support to Cardiac Disease and Health**

The strength of the individual support system may have an effect not only on health in general, but specifically at both primary and secondary prevention levels. Enabling an individual to change negative lifestyle behaviors is an important consideration of prevention, both before and after a cardiac event. A study in Oregon reported that strong social support systems at 25 work sites were associated with healthy coronary risk behaviors (Terborg, Hibbard & Glasgow, 1995). Social support positively influences the physical ($r = .62, p < .01$) and emotional ($r = .34, p < .01$) health of individuals in dual income families (Ulione, 1996), and family support may have a lifetime protective effect (Russek & Schwartz, 1997). On the other hand, when women are heads of households, the family support that might protect them can also require an enormous drain on personal resources increasing the risk of CHD mortality (LeClerc, Rogers and Peters, 1998). When individuals feel connected to the larger world view, there is an increase in diet behaviors and treatment compliance (Hawks, Hull, Thalman & Richins, 1995). Additional support from the community and work environment increases the chances that those who are making positive health behavior changes maintain these behaviors in future (Goble & Worcester, 1992).
After the coronary event, at the secondary prevention level, longitudinal studies indicate that diagnosed cardiac patients also benefit from healthy support systems (Krumholz, Butler, Miller, Vaccarino, Williams, Mendes de Leon, Seeman, Kasl, & Berkman, 1998; Sullivan & Sullivan, 1997; Oxman & Hull, 1997). In a study of 232 adults older than 55 years of age, researchers found that those without social groups and religious affiliation increased their risk of dying by over 300% (Oxman, Freeman, Manheimer, 1995). Individuals aged 65 and older (n = 292) who were hospitalized with a diagnosis of heart failure who had no emotional support were at an increased risk (OR, 2.4, 95% CI, 1.1-4.9) of additional cardiovascular problems. After adjusting for demographic factors, clinical severity, comorbidity, functional status, social ties, and instrumental support, the individual without emotional support had three times the risk (OR, 3.2, 95% CI, 1.4-7.8) of increased morbidity or mortality. The risk of illness or death for women was significantly higher (OR, 8.2, 95% CI, 2.5-27.2, p=.01) compared to men (Krumholz et al., 1998).

**The Social Network of the Recovering Post-Coronary Female**

Clearly, social support is an important factor to explore when assessing the experience of cardiac recovery in women. The primary support system for most cardiac patients are family, physicians, and if accessible, the cardiac rehabilitation staff. The following sections will address the specific issues related to primary support during the cardiac recovery experience.
Cardiac Rehabilitation Professional Support

Support from physicians, other medical support staff, and with peers who have suffered similar crises is an identified need of cardiac patients (Bramwell, 1990; Gerlach, Gambosi & Bowen, 1990; Goodman, 1997; Montgomery & Amos, 1991; Thoits, 1986). This type of support provides a sense of control and understanding of the recovery process and an assurance of current health after a brush with mortality.

The need for informational, instrumental, emotional and appraisal support can be assessed and addressed by cardiac support staff in the hospital and continued in Phase II CR. This type of continuous care allows for evaluation of the patient and their needs, planning for individualized interventions, and discussion of specific information for independent functioning (Fletcher, 1993). When patients are not referred to CR or other post-coronary educational services, they are being denied primary resources for support of both themselves and their primary support network of family, friends, and companions.

Hospital staff contact with and education programs for discharged coronary patients improve patient learning and health outcomes, regardless of the type of program or of who delivers the message (Baranson & Zimmerman, 1995; Mullen, Mains & Velez, 1992). Patients respond to information on how to survive the first six weeks at home, especially when provided in a rehabilitation intervention that meets their specific needs and interests in a supportive environment (Castelein & Kerr, 1995). In today’s health care environment, the key to providing this type of
continuing care for coronary patients is the health care provider, usually the cardiac
surgeon, the cardiologist or the primary care physician (Ades, Waldman, McCann
& Weaver, 1992). Unfortunately, physicians have not demonstrated strong referral
and educational practices for health promotion in general or cardiac rehabilitation
in specific. One study of 1002 women reported that women had a poor
understanding of their cardiac risks and that almost half of these women had
received no CHD information from their physicians during regular office visits
(Legato, Padus & Slaughter, 1997). In addition, many physicians have a poor
understanding of the type of services available for patients who require physician
referral, reducing the ability of other professionals to provide support (Pray, 1991).

There are many factors regulating physician referral practices, including
reimbursement issues. Medicare reimbursement for CR includes exercise
rehabilitation for eligible patients, but not health promotion education programs
alone which "are not considered reasonable and necessary" (Medicare Coverage
Issues, 1989), because health promotion and life adjustment education is intended
to be covered by the physician in the time immediately after the cardiac event.
Therefore, if physicians do not feel that their patient has an ability or need for
exercise, they will not refer the patient to CR. Patient non-compliance is another
factor where physicians who assess a patient as non-motivated will refer less to
other resources (Leslie & Broome, 1992). Primary care physicians assume the
primary follow-up care of the patient, after the cardiac specialist, and manages any
lifestyle changes to reduce CHD risk (Kahn, 1993). Primary care physicians may
be reluctant to support physical activities of post-cardiac patients because of their concern over the prognosis, even in the face of the cardiologist recommendations (Pillote, Thomas, Dennis, Goins, Houston-Miller, Kraemer, Leong, Berger, Lew, Heller, Rompf, & DeBusk, 1992).

Physician beliefs about CR play an important role in the referral process. A typical response of the non-supportive MD is reflected in the comment of one cardiologist “Cardiac rehab doesn’t do anything physical that I can tell except take a poorly conditioned, middle-aged, potbellied businessman and tune him up a little. It’s just an opportunity to proselytize no cigarettes and cut down on cholesterol.... Twenty minutes of exercise three times a week does not prolong life. You’ll never convince me of that.” (Cardiology Preeminence Roundtable, 1994, p161). Another study surveyed physician beliefs about their role in providing emotional, informational, and instrumental support to their clients (Weschler, Levine, Idelson, Schor, & Coakley, 1996). Less than half of the physicians felt that it was their responsibility to know about community resources or educate their patients about those resources. Sixty-three percent believed they should provide emotional support, but only 29% believed it was their responsibility to involve or motivate other family members to participate in patient’s health behavior. Yet, many of the patients need a source of social support, such as CR, for information and assistance to change negative lifestyle behaviors and improve post-hospital self-care.
**Family/Caregiver Support**

Several studies have assessed the burdens associated with care giving. A reciprocal relationship exists between the sender and receiver of support in a care giving situation. Resource support of the family is as important as support provided directly to the patient, because the family is a primary source of support for the recovering cardiac female and the cardiac illness impact on the family is significant (Ell, 1996). Cardiac patient’s primary supporters are their families. As care giver burden increases, the recovering cardiac female may be further burdened by the perceived stress of her support system (Antonucci, Sherman, and Vandewater, 1997). Caregivers may perceive the level of difficulty of their support differently when comparing physical assistance efforts with emotional or appraisal support of the ill family member (Antonucci et al., 1997). The perception of caregiver burden and primary support reaction to the cardiac illness of the woman are dependent on resources available. Accuracy of perception of the provision of social support by both the care giver and the receiver of the care is influenced by the feelings of closeness, but is not related to life satisfaction, happiness, or negative affect (Antonucci & Israel, 1986). Agreement between the recipient and the receiver of social support ranged from 49% to 60%, where spouses agreed most frequently with patient perceptions, then other family members, and finally friends.

Family members may experience heightened affect during hospital cardiac treatments (Bengtson, Karlsson, Wahrborg, Hjalmarson & Herlitz, 1996; Ross & Graydon, 1997) or CR. This sense of stress may not be relieved by typical hospital
support services (Dickerson & King, 1998; Norman, 1997). Dhooper (1983) assessed family coping when one member had a heart attack. About two-thirds of the families in the study reported permanent changes in the family lifestyle because of the illness. Emotional health was the most vulnerable characteristic of the family, necessitating specific support services. Families also experienced financial burden, stress, and changes in roles. Families coped with these changes by relying on their social networks, unfortunately few of the families received any help from formal programs.

**Role of the Spouse in Sick Role Behaviors**

Most of the literature that explores spousal care giving and response to cardiac illness of their mate has examined women in the spouse role. While these studies and similar studies of women with other life-threatening and chronic diseases benefit clinical understanding of the support process, there is limited information available for a full understanding of the support needs and responses of women post-coronary event. Therefore, the literature in the following section will draw on other research populations for information, but this information may be limited in its applicability to a post-cardiac event female and her spouse.

In families with young children, the wife's chronic illness and the number of her needs significantly predicted depression in the spouse (Lewis, Woods, Hough, & Bensley, 1989). Spousal depression and the type of illness directly effected the marital adjustments made.
Barriers most frequently associated with the spouse of a cardiac patient not seeking help included ineffective communication, social isolation due to patient needs, and an inability to access resources or an unavailability of resources (Dickerson & King, 1998). These researchers found that the spouses’ perception of the illness influenced their help-seeking responses. Perceptual influences included past experience with illness and the health care system. Spouses who attended CR with the patient increased their confidence that they could care for their spouse after witnessing the recovery of others.

When the individual returns home after the cardiac event the spouse often feels a sense of sole responsibility for care, increasing their need for informational support (Dickerson & King, 1998). Spouses sought informational support from a variety of health care professionals, but nurses, CR staff, and observation of other cardiac patients offered more effective support.

Spouse and patient needs most commonly included education, prevention and social services (Doherty & Power, 1990; Montgomery & Amos, 1991), support groups and referral to community services (Monahan, Kohman & Coleman, 1996). Perceptions of services provided and compliance with recommendations were similar for both spouses and patients, although there was some variance in reports of actual services received (Montgomery & Amos, 1991).

Professionals who are attempting to gain spousal support for programs are more successful when directing efforts to the spouse on how their support effects the cardiac patient (Daltroy & Godin, 1989). This is contrary to attempts to
directly affect spousal attitudes regarding the behavior change to be made, such as exercise.

**Role of the Daughter or Daughter-in-law in Sick Role Behaviors**

Families provide almost 80% of informal, unpaid care to community dwelling elderly who have chronic illness and/or functional limitations (Beal, Pratt, & Schafer, 1993). Adult daughters are the primary providers of this care (Beal et al., 1993). Studies of single, women over 65 with chronic conditions reported that daughters who provided tangible aid were married (71%), averaged 51 years of age, were employed (68%), had children of their own, completed an average of 14 years of education, had an average household income of $27,000, and lived with the mother or within 45 miles of her (Allen & Walker, 1992; Walker & Pratt, 1991). The most important predictor of strain for the daughters who cared for a parent was the interference with work and the quality of their relationship with their parent (Mui, 1995).

There is no evidence that widowed mothers are more dependent on their daughters for care giving than are married mothers although the amount of contact time may vary (Walker, Thompson & Morgan, 1987). Daughters of women 65 years of age and older provide both psychological and instrumental aid to their mothers (Walker & Pratt, 1991). Those women that are self-sufficient more frequently receive non-essential aid compared to mothers who are dependent and require actual care giving. In fact adult daughters do attempt to prevent and care
for health problems by completing many tasks within a home, provide emotional
and appraisal support through nurturing activities which foster growth, and

Types of support daughters provide mothers include running errands,
household tasks, money management, meal preparation, some outdoor tasks,
financial aid and bureaucratic mediation (Beal et al., 1993; Walker & Pratt, 1991).
Hours spent on these instrumental support behaviors were less than one hour up to
almost four hours. Comparatively, emotional support consisted of 12-18 hours
including 14-17 hours of contact time and 6-7 hours of shared leisure activities

In summary, families are the principal providers of support for the post-
coronary event female and frequently the burden of care and illness is difficult for
the family and the patient to cope with. Although CR has been shown to be
beneficial for both the female cardiac patient and her primary care giver, poor
enrollment figures indicate women and their families are not deriving benefit from
this resource. Reasons include lack of physician referral because of belief patterns
about CR and health promotion or limitations by reimbursement agencies. Social
support is an important predictor of CHD morbidity and mortality, both prior to and
after a coronary event. Other health promotion efforts by the physician are limited
and referrals to community resources are frequently not sought by caregivers. This
lack of support for the family and the female cardiac patient creates an undue
burden on individuals who are already overwhelmed with the recovery process.
Other influences such as affect, perceived benefits of CR, facilitating and constraining conditions, and habit are factors that need to be explored for a better understanding of women’s CR enrollment choices. This research proposes to assess the factors influencing women’s cardiac rehabilitation enrollment decisions once they are referred to the program. The primary determinants of enrollment must be identified to enable creative interventions to increase female participation in this secondary prevention program. The potential reduction in post-coronary event mortality and morbidity in women who complete CR makes this a significant public health research concern.
CHAPTER 3
RESEARCH DESIGN AND METHODS

This research was designed to qualitatively explore the factors associated with women's enrollment in cardiac rehabilitation (CR) from the perspectives of the female coronary patient and her support person. The Expanded Theory of Reasoned Action (Triandis, 1977) was used as a framework for the design of the qualitative data collection questions and data analysis. This chapter will describe the research methodology.

Subjects

In total, four groups of subjects were purposively recruited for qualitative data gathering: (a) women who were enrolled or planning to enroll in CR (enrolled post-cardiac female- ECF), (b) women who were not enrolled and were not planning to enroll in cardiac rehabilitation (non-enrolled cardiac female- NECF), (c) primary support persons of women who were enrolled or were planning to enroll (enrolled female support person- ESP), and (d) primary support persons of women who were not enrolled and not planning to enroll (non-enrolled cardiac female support person- NESP). Women were recruited from Good Samaritan and Emmanuel Hospitals in the Legacy Hospital Systems and from Portland Adventist Hospital from September 1999 through January 2001. All subjects who met specific inclusion criteria were enrolled. In this study subjects were recruited and
interviewed in each category until no new information was heard. The phone numbers of participants were filed confidentially to allow for follow-up questioning on any topic that was unclear to the researcher or was poorly recorded by the taping process.

Patients

Eligibility requirements included: (a) being a female between the ages of 30-99 who had suffered a cardiac event (myocardial infarction, coronary artery bypass graft, or combination of myocardial infarction and revascularization), (b) referral to a phase II cardiac rehabilitation program, (c) living within one hour of the hospital's CR program, and (d) within 4-12 weeks post-hospital. After ascertaining eligibility and enrollment status with the phase II CR program, the subjects were separated into behavior categories. Subjects were ineligible for the study if they were: (a) unable to speak English, (b) had poor communication ability due to an extreme difficulty in hearing or speech, (c) were enrolled previously in a CR program, (d) or would not routinely qualify for referral to phase II CR based upon the hospital protocol. Phase I CR staff were trained by the researcher on the study methods, informed consent, and enrollment criteria for subjects. Patients were evaluated by hospital CR nurses and asked if they would permit the researcher to contact them to discuss the study. If the patient indicated interest, the researcher either visited with the person in the hospital or called the individual at their home post-discharge once the client consented to release their phone number. At
Portland Adventist and when possible in the Legacy System, Phase I CR staff discussed the study and the informed consent with the patient and their support person during routine discussion of phase II CR. If the patient/support person dyad was interested in participating in the study, they signed the informed consents and provided their address and phone number to the researcher.

**Support Persons**

In this study, the subject's support person was deemed a valuable resource of information for assessing the subject's perception of the factors influencing their enrollment choices. For example, the post-cardiac event female may have described a lack of transportation as a barrier to enrollment in CR. Interviewing the support person provided further information designed to validate such statements. This type of perception checking provided valuable information related to patient choices. Post-coronary event females who agreed to participate in the study were asked to identify a support person whom they trusted to discuss their health care decisions and who might have provided support during the recovery process. Once the support person was identified, and a phone number was released, the researcher called the support person to discuss the research. Identified support persons, 18 - 99 years of age, were invited to participate in the study. Eligibility criteria included an ability to speak English and communicate without undue difficulty in hearing or speech.
Qualified women and their support persons were provided with the informed consent and an explanation of the study. The consent form was presented at the hospital, mailed prior to an interview or signed at the appointment prior to conducting the interview. Care was taken to provide the consent form prior to the interview being scheduled, but many patients lost the original form requiring an additional form to be signed prior to the interview. A copy of the signed consent form was provided to each participant. Prior to beginning each interview the voluntary nature of subject participation and the confidentiality of all information was reemphasized.

Patients and support persons were contacted via telephone by the researcher to schedule separate individual interviews in the 4 - 12 week post-discharge window. Subjects were recruited and interviewed until the point at which saturation of information was reached as defined within the qualitative literature (Berg, 1998). The initial goal was to recruit 40 patient/support person dyads in a purposive manner that captured women of different ages, coronary events, and enrollment behaviors. The point of saturation was reached with fewer subjects and recruitment stopped (n = 15 ECF, n = 10 NECF, n = 15 ESP, n = 9 NESP). During the interviews, factors associated with the subject’s CR enrollment were explored with the post-coronary event female and were supported or contradicted by the support person’s experience with the patient. The support person was also asked to provide their perspective on the cardiac experience providing some information on issues specific to the support of the post-coronary event female.
Instrumentation

Data Collection

Institutional Review Board approval was gained prior to the beginning of the study. The patient and support person were interviewed separately, usually in their homes or other place designated by subject. Interviews varied in time from 30 minutes to three hours (most interviews averaged 45 minutes). Some individuals requested to be interviewed over the phone and were accommodated. Each participant was assigned a code to insure confidentiality. This code was used on all interview and survey materials and during analyses. Audiotape and field notes were used to record the information from the individual interviews. A background survey for demographic assessment purposes (please see attached Background Survey in Appendix A) was provided to each subject by mail prior to the scheduled interview or during the interview. All participants completed their interviews. Most respondents related satisfaction with the thoroughness of the interview in answer to a final question asking participants if they wished to address any topic not covered in the interview.

Open-ended questions in a semi-structured interview were used in which individuals were encouraged to answer questions fully and in their own words. The interviewer explored the meaning of individual statements to gain a deeper understanding of the dynamics of the recovery and decision-making process. Qualitative researchers recommend that during successive interviews the
interviewer modify the questions being asked to more closely reflect the individual's language and to address issues that were raised in previous sessions (Merriam, 1998; Reid, 1991). A type of confirmatory exploration called “member checks” included discussing word choices from previous interviews with a current subject to assess agreement between subjects over time (Merriam, 1998). The initial interview questions used by the researcher are found in Appendix B.

**Interview Guide Format**

Researchers using the Expanded Theory of Reasoned Action (EXTRA) and related models suggest that qualitative data be gathered to fully define the behavioral beliefs (cognitive construct), affect, facilitating/constraining conditions, social referents, and habits of individuals in the target groups (Ajzen & Fishbein, 1980; Fishbein, 1980; Montano, Thompson, Taylor, & Mahloch, 1997; Thompson, Montano, Mahloch, Mullen, & Taylor, 1997). Ajzen and Fishbein (1980) provide a recommended format of questions for the related variables.

In this study, interview questions were developed using Ajzen and Fishbein's (1980) recommendations and formatted to address the typical behavioral beliefs, feelings, facilitating/constraining conditions, social referents and norms, habits, and intention that might be associated with CR enrollment decisions. The interview guide paralleled the research questions (See Table 1).
Table 1. Expanded Theory of Reasoned Action variables and their associated interview questions.

<table>
<thead>
<tr>
<th>Affect</th>
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<tbody>
<tr>
<td>How do you feel about enrolling in cardiac rehabilitation (CR)?</td>
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<table>
<thead>
<tr>
<th>Cognitive Construct</th>
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</thead>
<tbody>
<tr>
<td>*What do you think are the advantages of attending CR? What would you define as the short-term benefits of attending CR? What would you define as the short-term benefits of attending CR?</td>
</tr>
<tr>
<td>*What do you think are the disadvantages of attending CR?</td>
</tr>
<tr>
<td>*For anyone who chooses not to attend CR [or if you have chosen not to attend CR], what are the advantages and disadvantages of this decision?</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Social Construct (referents and roles)</th>
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<tbody>
<tr>
<td>*Referents: *What individuals, groups, organizations, or other information sources would you get information from to make your decisions about CR? Who would you trust/rely on the most for this information?</td>
</tr>
<tr>
<td>*Which individuals or groups (anyone in particular) want you to go to CR?</td>
</tr>
<tr>
<td>*Which individuals or groups don’t want you to go to CR?</td>
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</table>

<table>
<thead>
<tr>
<th>Facilitating/Constraining Factors</th>
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<tbody>
<tr>
<td>*Can you describe anything else that would keep you from going to CR if you want to go?</td>
</tr>
<tr>
<td>*Can you describe anyone or any situation that makes (or would make) it easier for you to get to CR?</td>
</tr>
<tr>
<td>*What things have made it hard for you to do things like change your diet, exercise, manage stress, or make other health related changes? Are there any specific people or aids that you have found increase your chances of making a positive health change?</td>
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</table>

<table>
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<tr>
<th>Habits/Past Behavior Construct</th>
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<tbody>
<tr>
<td>*Have you engaged in physical activity regularly ([walking, exercise class, yard or housework] at least 3x/week for 30 minutes) over the past year? How does this affect your choices about CR? Are there other lifestyle habits you have that would affect your choice to enroll or not enroll in CR? For example, smoking cessation, dietary changes, stress management, or exercise.</td>
</tr>
<tr>
<td>*What type of experiences with illness have you, or someone you know, had that might influence your decision to attend CR?</td>
</tr>
</tbody>
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<table>
<thead>
<tr>
<th>Intention</th>
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<tbody>
<tr>
<td>*At what point in time, since your cardiac event, did you make the decision about CR enrollment? (For those not enrolled at the 3 months post-hospital discharge) Did you ever intend to go to CR?</td>
</tr>
</tbody>
</table>
The additional survey questions not associated with the EXTRA variables have the potential to help clarify the possible mechanisms involved in a woman’s decision to enroll or not enroll in CR. The following section discusses the research questions as they relate to the EXTRA variables and the actual interview questions.

**Research Question # 1 - What descriptors do patients and their support persons use to describe their *affect* and how it might be associated with CR?**

Which descriptors are commonly listed? How is *affect* associated with patient CR enrollment patterns? How does the support person’s perceptions of the patient’s *affect* align with the patient’s perceptions?

Recommendations for questions to elicit this information include asking the women how they feel about the idea of going to cardiac rehabilitation (Thompson et al., 1997). This type of question enables researchers to collect the adjectives from the population that best describes their thoughts about the behavior.

Questions asked in the interview include: How do you feel about enrolling in CR? Additional questions posed in the Background Interview focus on the experience of depression many women report post-coronary event. Have you ever had any of the following feelings, nearly every day for two or more weeks at a time: down, depressed, hopeless, little interest or pleasure in doing things? (Answer choices: 1. No, 2. Yes). How much of the time, during the past month, have you felt downhearted and blue? (Answer choices: 1. None, 2. Some, 3. A lot, 4. All).

**Research Question # 2 - What are the perceived outcomes or beliefs associated with CR enrollment patterns that patient’s and their support
persons would list? Which beliefs are commonly stated? How do the support person perceptions of the patient’s beliefs about CR align with the patient’s perceptions?

Ajzen and Fishbein (1980) recommended questions that address perceived outcomes of the target behavior, in this case, enrollment in CR. Suggested questions were listed as: (a) What do you see as the advantages of participation in this behavior? (b) What do you see as the disadvantages of participation in this behavior? (c) Is there anything else you associate with participation in this behavior? Each of these questions is connected to the behavioral statement under study. Questions asked in the interview included: (a) What do you think are the advantages of attending CR? (b) What do you believe are the long-term benefits for attending CR? (c) What do you believe are the short-term benefits for attending CR? (d) What do you think are the disadvantages of attending CR? (e) For anyone who chooses not to attend CR [or if you have chosen not to attend CR], what are the advantages and disadvantages of this decision? Included to more fully explore the decision of non-enrollment are the following questions: (a) Why did you not enroll? (b) What are the benefits to not enrolling? (c) What are the risks to not attending CR?

Research Question #3- What individuals, groups or information sources influence patient CR enrollment patterns? Which referents are commonly stated? How does the support person’s perceptions of the patient’s social norm referents align with the patient’s perceptions?
To best assess the social referents who may influence behavior, Ajzen and Fishbein (1980) suggested the following sentence stems to ask the subjects: (a) Are there any groups or people who would approve of your ..., (b) Are there any groups or people who would disapprove of your..., (c) Are there any other groups or people who come to mind when you think about....? These questions are then connected to the behavioral statement. Researchers also recommend adding the category of “things” to the list of referents to establish all sources, such as television or magazines that might lead an individual to participate in CR (Thompson et al., 1997). Questions asked in this interview included: (a) Which individuals or groups (anyone in particular) want you to go to CR? (b) What have each of these people done or said to get you to CR? (c) Which individuals or groups don’t want you to go to CR? (d) What have each of these people done or said to stop you from going to CR? To better assess the information sources women use to gain more information on CR, the following questions were also asked: (a) What individuals, groups, organizations, or other information sources would you get information from to make your decisions about CR? (b) Who would you trust/rely on the most for this information?

Research Question #4- Which, if any, facilitating/constraining factors are associated with patient CR enrollment patterns? Which of these factors are commonly stated? How does the support person’s perceptions of the patient’s descriptions of facilitating/constraining factors align with the patient’s perceptions?
Thompson and colleagues (1997) recommended asking the following question for addressing facilitating and constraining factors related to obtaining a mammogram. These women were asked to describe anything that would make it easier or harder to obtain a mammogram. Probing questions and examples were used to assist women with identification of environmental barriers. Questions asked during the interview included: (a) Can you describe anyone or any situation that makes (or would make) it easier for you to get to CR? (b) Can you describe anything else that would keep you from going to CR if you want to go? To more fully assess the facilitating/constraining conditions related to other health behaviors choices, such as diet or stress management, that might impact CR enrollment decisions, the following questions were asked: (a) What things have made it hard for you to do things like change your diet, exercise, manage stress, or other health related changes? (b) Are there any specific people or aids that you have found increase your chances of making a positive health change? A summary question was offered to invite individual suggestions for solutions to facilitating/constraining issues: Of the barriers that you have mentioned in this discussion, are there any solutions that you would propose to reduce the problems you might have in enrolling in CR?

Research Question #5- What habits or past experiences in the patient’s history are related to CR enrollment? Which of these habits or past experiences, if any, are commonly stated? How does the support person’s
perceptions of the patient's habits or past experiences align with the patient's perceptions?

Research presented earlier identifies that previous positive experience with CR, coronary events, and exercise increase the chance the individual will participate in CR. One question addressed the influence of past experience with other cardiac illness or other experiences that might have affected the patient’s decision. To explore the possibility that other habits, such as smoking, dietary changes, and stress management may influence a decision to participate in CR, a separate question addressing the previous lifestyle habits of the individual was added. Subjects were asked to discuss the post-coronary female’s previous experience with exercise. The Surgeon General’s report provided the definition for physical activity (Department of Health and Human Services, 1996). Questions posed during the interview included: (a) Have you engaged in physical activity regularly ([walking, exercise class, yard or housework] at least 3x/week for 30 minutes) over the past year? (b) How does this affect your choices about CR? (c) Are there other lifestyle habits you have that would affect your choice to enroll or not enroll in CR? For example, smoking cessation, dietary changes, stress management, or exercise. (d) What type of experiences with illness have you, or someone you know, had that might influence your decision to attend CR? (Might include previous attendance of CR with a relative).

The interview session concluded with an open-ended question designed to elicit possible factors not discussed that may play a role in CR decision-making: In
summary, are there any other topics you think should be discussed or is there anything from our discussion that you would like to add more information to? This allows the individual to summarize information or to discuss a topic that was omitted during the interview.

Establishing the Reliability and Validity of the Qualitative Process

Throughout the interview process and subsequent analysis of the data, the researcher attempted to establish reliability and validity. Criteria to establish reliability and validity within qualitative research includes assessing the researcher as a data collection instrument in addition to assessing the questions in the interview guide. Thus, the process of data collection, analyses, and researcher integrity were continually assessed throughout the study via mechanisms described within the qualitative literature. Cresswell (1994) suggested that meeting two of the criteria proposed by Lincoln and Guba (1989) offers adequate rigor for qualitative research. The following information describes the mechanisms used to establish trustworthiness in this study.

Credibility, the qualitative equivalent of internal validity, is established through multiple techniques used during data collection (Lincoln & Guba, 1989). These techniques include prolonged engagement with the population of interest, persistent observation of the relevant problem or issue, and triangulation of sources, methods or investigators to establish the validity of a source. During the interview process and content analysis, techniques include peer debriefing on findings and
data collection techniques, attempts to account for all cases without exceptions within the findings, and member checks where data, interpretations and conclusions are tested with interviewees.

**Pilot Study**

Credibility was established in this study through prolonged engagement and “member checks”. Long-term data collection and a pilot study fulfilled the requirements for prolonged engagement. The interview guide questions used for the personal interview process were assessed in a pilot study (n = 4 post-coronary event women). The initial wording of the questions was assessed for applicability and understanding. Although the framework of questions remained consistent, some adaptation was made in the language and style of questions to address the life issues of women at different ages. For example, women in the pilot study encouraged the researcher to adapt general work related questions to better represent workers versus non-workers or retirees. Additional adjustments were made to the interview guide with feedback from experienced qualitative and quantitative researchers. The final version of the interview guide included 19 primary questions with associated secondary questions.

Two related sets of questions were created to adapt the language for the post-coronary event female and her related support person. For the post-coronary event woman the questions reflected a request for her beliefs, attitudes, and opinions on the topic of the cardiac experience and, specifically, CR. The interview guide for
the support person asked how the support person believed his or her loved one would answer the question. In cases where perceptions of a situation differed, support persons were encouraged to include their thoughts on reasons for the different perceptions.

**Prolonged Engagement with the Population of Interest**

Credibility was further enhanced because the researcher remained engaged with the subject population for almost two years. This amount of time allowed the researcher to learn the culture, gain trust, and test for potential misinformation which might be introduced by personal or subject biases. Interviewing a series of subjects over a long period of time minimized the threat from history, maturation, maturation/selection interaction, testing and problems with instrumentation. Choosing to interview subjects at different points within the 4-12 week post-hospital discharge window enabled the researcher to gather different perspectives of the cardiac experience and to assess attitudes and beliefs throughout the CR process. To further address issues of trust and cultural awareness, the researcher chose to identify herself as a nurse and established familiarity with the CR programs and staff. Clients appeared to be comfortable with the researcher and the interview process as demonstrated by the open discussions and other behaviors (such as displaying surgical scars or remaining in reclining positions during the interview).
Confirmatory Exploration or Member Checks

Throughout the interviews member checks were completed. This process involved validating the word choices of the subject and interviewer perception by asking clarifying questions where meaning of the word or phrase and the speaker’s tone were assessed (Merriam, 1998). A clarifying statement had stems such as “When you said..., did you mean ...?” Additional assessment of the validity of the data being collected was addressed when the researcher summarized previously interviewed subject statements on affect or other points to the current subject. A statement similar to “Several women have described feelings of fear, or a need for reassurance when describing their feelings for cardiac rehabilitation. Have you experienced any feelings like this?” was included in the appropriate context within later interviews. This type of perceptual exploration allowed the researcher to assess the validity of patterns and word choices collected from earlier interviews with the population of interest.

Audit Trail of the Research Process

To insure objectivity, reliability and external validity, a record of the research process was maintained by the researcher. The techniques that can be used to establish these criteria include: (a) providing enough descriptive information to allow reproducibility of the study (transferability or external validity) and (b) maintenance of an audit trail or record of the research process which reported the researchers thoughts, decisions, and the paths of the research analysis (reliability
and objectivity) (Lincoln & Guba, 1989). Many methods were used to fulfill the requirements for reliability and objectivity in this study, including a log kept by the researcher recording the progress of the research and researcher thoughts, memos, notes, files of analysis ideas and paperwork associated with the research process, and index themes explored within NUDIST. This audit trail provided descriptive data to allow for transferability of the research process and analysis to other similar populations. The researcher's log identified conditions of the interview process, researcher insights, and concerns that would enable others to assess the fallibility of the instrument (the interviewer) and the data collection process. Records of the process of this study were kept in a personal journal, memos on NUD*IST, and the paperwork describing different phases of the research process. Audiotapes, transcribed narratives and field notes from the individual interviews provide confirmation of the objectivity that was established in clarifying statements and responses and inter-subject agreement on patterns found in the respondent's answers to the interview questions. Close work with experienced qualitative and quantitative researchers encouraged reliability and objectivity checks on the research process and the records that were kept for the audit trail.

**Analysis of Data**

Interview data were transcribed from the audiotapes and the field notes using word processing programs. Transcripts were recorded as actually stated and were not modified in any way to better reflect the thoughts of the subject and the mood
of the interview. Each document was assigned a code which reflected the order of subject recruitment, the hospital recruited from, and the category of post-coronary female or her support person. Forty-nine documents were imported into NUD*IST (15 ECF, 15 ESP, 10 NECF, 9 NESP). Each document was coded with the demographic data gathered in the Background Survey and with the population category of the subject.

The first organization and coding of the data occurred using the themes provided by the EXTRA variables: affect, habits, facilitating/constraining factors, social construct (social referents and information), and cognitive construct. Each was coded in a similar manner. Within these primary themes the narratives were analyzed for similar words and phrases which were classified and prioritized as secondary themes. From this analysis a list of words or phrases related to cardiac rehabilitation enrollment behavior, were constructed for each of the EXTRA variables and any other patterns that were found.

As patterns were noted across and within population categories reorganization of the coding structure was addressed. New themes or simplification of a concept were coded as appropriate. Comparison of the patient/support person dyad statements and coding structures explored perceptual agreement within the dyad. Analysis of coding structures found in the enrolled and non-enrolled subject documents provided data on the factors believed to influence CR enrollment behavior.
CHAPTER 4
RESULTS

Article 1: Using A Behavioral Theory (EXTRA) To Develop A Qualitative Study On The Cardiac Rehabilitation Choices Of Women

Abstract

Although there is a significant body of research exploring the male use of cardiac rehabilitation (CR), there is a paucity of research exploring the female CR experience. Analysis of the literature highlights some indicators of differences in women’s expectations of, response to, and use of CR. To better understand the relevance of these differences, it is important to explore the multifaceted elements of a woman’s attitudes, beliefs and the environmental factors that may serve to explain CR enrollment decisions. Utilizing an existing behavioral theory, such as the Expanded Theory of Reasoned Action (EXTRA) (Triandis, 1977), may strengthen this exploration. EXTRA appears to provide the ecological approach necessary for broad exploration of behavioral antecedents. This article summarizes EXTRA, its constructs, and discusses the female experience with CR within the context of the model constructs. This discussion lays the foundation for determining what factors influence women’s CR enrollment choices.
Introduction

Although there is a significant body of research that explores the male use of cardiac rehabilitation (CR) and its corresponding effects, there is a paucity of research that explores the unique elements of a woman's experience. The lack of research on gender differences has resulted in an incomplete understanding of the factors involved in women's CR enrollment decisions. Analysis of the cardiac literature suggests that there is a difference in women's expectations of, response to, and use of CR.

The few studies completed indicate that post-coronary event women at all ages have poorer baseline measures of quality of life, functional capacity, energy level, depression, exercise capacity and lipid profiles than men, yet overall gains and improved outcomes are similar to men or better after participation in CR (Ades, Waldmann, Polk & Coflesky, 1992; Cannistra, Balady, O'Malley, Weiner, & Ryan, 1992; Lavie & Milani, 1995). Gender disparities in cardiac rehabilitation use increase with age. Elderly women are referred less often than men to CR, yet all baseline measures improve in a comparable manner after cardiac rehabilitation (Ades et al., 1992; Lavie & Milani, 1997a).

Most of the research conducted on the female post-coronary experience and CR enrollment choices have been quantitative in nature. At best, most quantitative models explain an average of 45% of the variance in behavioral choices. Quantitative studies provide a snapshot view of some of the issues and primarily explore the relationships among those issues. Qualitative research
expands the snapshot approach and explores a slice of the cardiac patient experience in a more richly detailed method. Yet, even qualitative research can be limited by the nature of its open ended exploration and the information may not easily translate to a quantitative approach for further exploration of the relationships found.

This paper proposes that exploring the details of CR enrollment behavior in women in a qualitative manner using an appropriate behavior model as a framework may provide a more effective research methodology. A qualitative analysis of possible variables and constructs will better prepare quantitative researchers for a more comprehensive analysis of all potential mediating variables. Phase one of this proposed method included exploration of the literature for related constructs focusing on women to explore possible factors that might influence the behavior of CR enrollment behavior.

The second phase of this focused on the use of a construct relevant behavioral model that might address factors believed to be operational in the female cardiac patient’s CR decision-making. Literature reviews of models used in related research such as exercise, health seeking behavior, and the health behaviors associated with cardiac illness such as weight loss, diet, and smoking cessation, revealed many potential models. It was then necessary to compare the potential factors influencing a woman’s CR enrollment choice with the constructs of the models and choose the model with the most appropriate constructs. This paper
will discuss the relevant literature and a behavioral model that provided the best fit for framing a qualitative study on women and their CR enrollment choices.

**EXTRA - The Model of Choice for Examining CR Enrollment Behavior**

To better understand the relevance of the multiple factors influencing the CR choices women make post-coronary event, a model that is culturally sensitive and allows exploration of the predictors behind the behavior must be used to provide an exploratory foundation. The Triandis Model (1977), also called the Theory of Interpersonal Behavior (Godin & Shephard, 1990), and the Expanded Theory of Reasoned Action (EXTRA) (Montano & Taplin, 1991) is a comprehensive framework with variables that are relevant to investigation in any culture (Sheth, 1982; Triandis, 1980). The variables include: (a) an affect measure to assess the feelings associated with thoughts of performing the behavior which influence behavioral intention, (b) a cognitive component which is a construct of the perceived consequences and value of those consequences related to the performance of the behavior, and (c) a social component which is another construct consisting of the person’s perceived information sources, referents, roles, norms, and moral beliefs related to performance of the behavior, (d) a related habit or past behaviors construct which may influence behavior regardless of intention, and (e) facilitating/constraining conditions which may also influence behavior regardless of intention, as well as having a direct influence on intention. Refer to figure 1 for additional information.
The model was proposed by Triandis in 1971, detailed in 1977, modified in 1972 and 1975 with the most recent version presented in 1980 (Triandis, 1982). The Triandis model is designed to be adaptive to the population being studied, allowing the experiences, demographic and clinical differences which inform the belief patterns of that population to be filtered through the model variables (Triandis, 1977; Montano, personal communication, 1998). This type of approach allows for tailored interventions to be designed to modify behaviors.

A tailored approach includes the important component of culture when assessing populations for behavior change interventions. For example, when looking at women as a separate population within the larger population of those with cardiac illness, a sensitive understanding of the differences between men and women is necessary. Cultural sensitivity in health care is not limited to an understanding of the social/behavioral patterns of culture and ethnicity, but include
the patterns seen in demographic characteristics such as gender, (Facione, 1993) age, and social class, (Triandis, 1980). Attempts to understand a culture are actually categorizations of experiences, beliefs, attitudes, ideals, roles, norms, and values from a defined group of people. EXTRA is an excellent tool for understanding the different cultural responses to health behaviors (Facione, 1993).

A review of studies including variables from EXTRA suggests the model may have applicability in a variety of health settings and populations. For example, EXTRA has strong predictive ability and helps to understand individual decisions to be vaccinated for influenza (Montano, 1986), to exercise (Valois, Desharnais & Godin, 1988), to obtain a PAP test for cervical cancer screening (Seibold & Roper, 1979), and to use family planning (Jaccard & Davidson, 1975). The addition of a variable to assess past behaviors or habit strengthens the ability to predict behaviors, especially in difficult to explain actions, such as hard drug use (Bentler & Speckart, 1979). Depending on the study population each variable is more or less important to the understanding of individual behavioral choices. In this article, variables from EXTRA are explained within the context of women and cardiac rehabilitation.
An Overview of Specific EXTRA Constructs

**Attitude - The Triandis Difference**

Many social psychiatrists define *attitude* as a combination of affect toward the behavior and perceived consequences associated with the behavior within a total construct. However, reviews of the literature have indicated that at times it is appropriate to separate the cognitive and affect components as each may reflect an element of general attitude toward specific behaviors (Ajzen, 1989, Ajzen & Timko, 1986). Triandis has based his framework upon this observation, and although he agrees the concepts of affect and beliefs can be correlated to the point of being redundant, he believes valuable information is frequently gained by looking at these measures in separate analyses (Triandis, 1972). Very little is understood about the feelings and belief patterns of women related to CR. Both these areas within the attitude construct must be explored separately before a determination can be made about uniqueness of either feelings or beliefs toward CR.

**The Cognitive Construct**

The *cognitive construct* is a key factor in the overall concept of attitude. Within the EXTRA, the cognitive component is divided into the measures of (a) the actual beliefs or perceived consequences of the behavioral outcome and (b) the value placed upon those beliefs. When asking about the consequences of attending
CR, some women may believe that CR will improve their stamina. Usually this consequence is considered positive; however, the personal evaluation may be that increased stamina is not necessary. Therefore, while the individual may understand the benefit of attending CR, she may not value that benefit.

An analysis of the literature suggests the benefits of participation in CR could include increased stamina, medical supervision of activities, reduced stress, increased confidence, weight control, and forced regular participation (Muench, 1987). Exploration outside the CR literature (health behavior and exercise) suggests additional beliefs potentially associated with CR attendance. These include prevention of health problems (Timko, 1987), improved sense of well being, increased ability to cope with the stress of a cardiac event, recovery from the event, weight control (Courneya & Friedenreich, 1997), health assessments, increased longevity, pain, cost, effort, and positive or negative interaction with staff (Montano, Thompson, Taylor, & Mahloch, 1997; Thompson, Montano, Mahloch, Mullen, & Taylor, 1997). Women may also believe that CR takes too much time, increases tiredness, requires too much discipline (Sonstroem, 1982), may cause a fatal heart attack or stroke, and may be uncomfortable because others are watching (Riddle1980). Additional beliefs suggest that CR may interfere with other responsibilities because of increased tiredness, interfere with daily routine, as well as, increase energy and improve appearance (Schmelling, 1985). Understanding the potential behavioral beliefs associated with seeking health care interventions, exercise and cardiac care may help the researcher to probe for a full list of
perceived consequences when exploring the female experience of CR enrollment choices.

The beliefs or consequences of CR indicated by the respondents are based upon information received or a personal understanding of the behavior (Davidson & Thompson, 1980), reflecting the need for quality information sources on CR. Individuals will construe this information into both positive and negative beliefs. The strength of the cognitive component is increased when there are clearly stated consequences for the individual (either positive or negative) and an equally strong evaluation of that consequence when associated with the behavior (Triandis, 1977). Other factors related to the weight of the cognitive construct are individual locus of control beliefs and delayed or immediate gratification personality traits. Higher levels of internal locus of control and an ability to delay gratification indicate a cognitive ability rather than an emphasis on affect, suggesting additional reasons for separating affect and perceived consequences when analyzing attitude. These belief patterns frequently increase proportionate to the amount of information the individual has about the behavior (Ajzen, 1989).

When exploring these behaviors with individuals it should be noted that perceived consequences may be quite different from actual consequences (Triandis, 1977). In addition to recognizing perceptual differences, it is important to explore the beliefs related to a specific behavior in groups made up of diverse individuals. An assumption of behavioral beliefs based upon the information provided by health care staff would not capture the perceptions of the population who is expected to
perform the behavior. Only exploring these beliefs with diverse populations in a qualitative approach can improve the understanding of the reasons women enroll in CR.

**Affect Construct**

*Affect* is the second component of the attitude concept and is considered by some theorists to be a primary predictor of behavioral intention. Triandis (1982) defines affect as an immediate, certain emotion, associated with the thought of the actual act as opposed to consequences which reflect potential connections to the behavior. Exploration of the emotional feeling, tone, and mood attached to the behavior of attending or not attending CR is part of the qualitative assessment. Verbal affect is usually measured, although, facial expressions and physiologic changes are non-verbal affective responses. The individual's mental status may have an impact on the affect displayed during an interview. For example, if a woman is depressed or anxious related to her post-coronary condition, she may display this feeling in her responses to interviewer questions about CR. It is important to distinguish the feelings for CR and the overall affect the woman is demonstrating. Both may be important in the information being collected.

There is an expectation that people's affective reactions will generally be consistent with their behaviors (Ajzen, 1989; Triandis, 1977). Because, the desire to achieve a certain behavior rests with the positive or negative feelings associated with that behavior, one would assume a positive affect would be associated with a
perception of positive consequences toward the target behavior. However, inconsistency between the cognitive and affective components of attitude is common and may cause difficulty in predicting behaviors (Ajzen, 1989; Triandis, 1977). For example, an individual can desire better health and recognize the potential for CR to provide help toward that goal, however if the individual cannot move past a sense of anxiety over exercise or an uncertainty over a new social situation, they may forego the potential benefit of CR for the known emotion.

A search of the literature on exercise, CR, and health promotion indicates a range of emotions may be found when exploring the positive and negative feelings about CR. Feelings such as useless/useful, sick/healthy, bad/good, harmful/beneficial, objectionable/acceptable, impossible/manageable (Timko, 1987), important/unimportant, stressful/nonstressful (Montano et al., 1997), scary/reassuring, comfortable/uncomfortable, (Thompson et al., 1997), pleasant/unpleasant, exciting/boring, and convenient/inconvenient (Godin, Colantonio, Davis, Shephard, & Simard, 1986).

The Social Construct

The social construct includes individual perceptions of norms, roles, morals, ethics, interpersonal agreements, and even memories of past behaviors couched in the perceived relationship the individual has with other people and individual perceptions of behavior consistent with personal self-concept (Triandis, 1977, 1982). Regardless of a positive affect or positive consequences associated with a
behavior, if the individual or key referents do not believe the behavior is appropriate, the individual may not complete the act (Triandis, 1977). This evaluation of social self is dependent on demographics, such as race, religion, gender, and other cultural belief systems and the reinforcements/punishments of that social group for the behavior.

One component of the social construct is the norms that an individual accepts. These norms define the appropriateness of a behavior and are specific to both the individual and the behavior (Triandis, 1972). Individual compliance with social norms is dependent on the intensity of the relationship with the social group, the commonality of the goals, personal benefit, and investment of the individual in the outcome. When the individual participates in designing the product and structure (rules) of the situation, they are more likely to follow the norms (Triandis, 1977). When the post-coronary female participates with the CR staff and her physician in the decisions regarding her recovery and participation in CR, she may be more likely to follow this plan compared to non-individualized approaches.

Perceptions of social support can be an important predictor of intention suggesting a relationship between affect and the social component. The weight of the affect component increases with impulsive individuals, when social and cognitive constructs are de-emphasized, and when there are minimal requirements for cultural conformity in a particular behavior. Because most people prefer consistency, individuals usually conform to the behavior or attitudes of people they find attractive or in authority (Triandis, 1977). Therefore, the opinion of a valued
health care provider has the potential to increase the woman's desire to attend CR and the neutral or negative opinion of the same provider may decrease the intention to attend.

A variety of support persons can be defined in the post-coronary event female support group including family, friends, work, and health care providers. Courneya and McAuley (1995) investigated the relationship of social support to exercise and the variables found in EXTRA. They found that social support toward exercise intention was mediated by the perception of how easy or difficult the exercise would be. Another study incorporated the primary support persons of the cardiac patient to develop health goals (Miller, Wikoff, McMahon, Garrett & Ringle, 1988). This study reported that the attitudes and perceived beliefs of these support persons were predictive of adherence to smoking cessation, activity, stress, and medication usage at thirty days post-event. At sixty days post-event, significant others influenced adherence to diet, smoking cessation, activity, stress management, and medication usage. Influence of significant others extended into the workplace, social situations, sport and recreational situations as well as at home (McMahon, Miller, Wikoff, Garrett & Ringle, 1986). In another study, no relationship was noted between social support and general health motivation (Muench, 1987). Apparently, the support system has a variable influence on the individual's behavior based upon the perceived difficulty of that behavior in a given time and place.
An important source of support is the spouse. One study assessing spousal intention to encourage participation in exercise for cardiac patients reported that any intervention to improve spousal support for exercise should be directed at the spouses’ role rather than their attitudes toward helping (Daltroy & Godin, 1989). Although the study included a few female cardiac patients and their male spouses, it was limited to those already enrolled in CR. More information is needed on the social support of the non-participating cardiac female. Recommended exploration of this construct includes documenting which individuals and groups influence and support the subject’s CR enrollment decisions. The size and strength of the social network may be an important factor within this structure.

**Habit/Past Behavior Construct**

Triandis proposes that the two primary determinants of behavior are *habit* and behavioral intentions (Triandis, 1977). These two determinants are related where intention to act provides the direction for the behavior. Initially when the behavior is new, the behavioral intention is the primary determinant of the act, however as the act is repeated several times, the behavior becomes habit and intention is then a weak predictor (Triandis, 1982). Old, learned, and over-learned behaviors that have occurred frequently, such as cooking a favorite meal, are likely to be maintained as a habit. When an individual is highly emotionally aroused, the habit rather than the intention will more likely govern the behavior (Ronis, Yates & Kirscht, 1989; Triandis, 1977). After a coronary event, when emotions are
heightened, habits may play a key role in determining behavior. Changes in dietary, exercise, and stress management skills may be more difficult to maintain until the emotional turmoil is stabilized. Behaviors such as smoking cessation attempts, exercise attempts, dietary management, and stress management may be related in the individual’s mind in a positive or negative manner. This association with affect should be consistent for validity of the information provided on habit (Triandis, 1977). Previous patterns of exercise may have an impact on the willingness of women to enroll in CR in addition to an effect on their attitude to attend. Those who exercised regularly were more likely to attend CR (Harlan, Sandler, Lee, Lam, & Mark, 1995). Kendzierski & Lamastro (1988) suggest that previous experience with other exercise components, such as weight lifting, may influence attitudes toward exercise behavior choices. Seeking help through CR may also reflect a general habit demonstrated in past illness situations to seek health care (Timko, 1987). Research indicates that past experience with cardiac rehabilitation was associated with a return to CR after a second coronary event (Burns, Camaione, Froman, Clark, 1998).

Although research using the habit component measures both habit and past behaviors, there is a difference in the context of these two descriptors. Habit is composed of situation -behavior sequences that are or have become automatic, in that they occur without self-instruction and without conscious thought (Triandis, 1977). The person will carry out the action when placed in the appropriate situation. Habits may include patterns of thought, fantasy, or emotion (Triandis,
Intelligence in a specific area increases the ability to form habits. For example, a person with musical ability can learn to play a piano starting with an intention to play certain notes and becoming automatic (Triandis, 1977). Habits are usually associated with recurring or repetitive events and reflect both the learning history of the individual and their level of ability relative to the difficulty of the task. Examples of habits seen in the post-coronary female would include smoking and meal preparation. Past behavior can reflect habits, but can also incorporate a one time experience with a revascularization experience which then influences an individual's recovery after a second revascularization procedure.

Habit and past behavior can be explored by asking the client to list how often an activity has occurred at different points in their lifetime. Exercise habits may be more relevant to the recent past whereas previous experience with some form of rehabilitation may have happened at any time in the individual's lifetime. Either may impact CR enrollment behavior.

**Facilitating/Constraining Factors Construct**

After intention, affect, cognitive, and the social constructs indicate personal agreement to perform a behavior, the presence or absence of barriers to that action can determine actual behavioral performance. The facilitating/constraining factors construct is the independent variable construct which explores the individual and environmental factors related to follow through on an action (Triandis, 1982). All variables which have been discussed prior to this indicate a reliance on personal
volitional control for an action to take place. Several studies focus on this control and attempt to change the individual’s approach to a behavior. EXTRA is one of the few theories which combines both the individual and aspects of environmental approach to explore behaviors. EXTRA explores these environmental aspects to assess the effects of past experience and anticipated obstacles such as time, money, transportation and resource availability.

When an individual perceives a large number of opportunities and resources, the perception of personal control over a given situation may be high. Likewise, when the individual perceives few supportive structures, the perception of control is likely to decrease (Triandis, 1980). Because the physical environment is such an important part of an individual’s experience, facilitating/constraining conditions will directly and indirectly impact an individual’s behavior (Davidson & Thomson, 1980) through internal belief formation and actual external societal factors (Triandis, 1980). Therefore, facilitating/constraining conditions have the ability to influence CR enrollment intention as well as the recognized influence on CR enrollment. Health care seeking behavior suggests that environmental factors that may facilitate or constrain CR enrollment might be related to provider prescription for CR, scheduling issues, transportation and access, previous experience and comfort with CR staff, and financing issues (Montano et al., 1997; Thompson et al., 1997)

The facilitating/constraining factors construct includes the individual ability to perform the act, the individual level of arousal in regard to the act, the perceived
difficulty of the act, the current level of knowledge required to perform the act, as well as the environmental factors that increase the probability of the act (Triandis, 1977). Intention as well as behavior can be influenced by facilitating/constraining conditions related to the perceived ability of the individual to follow through with an action. One study found that perceived difficulty to performing exercise in a cardiac patient population was defined by the psychological difficulties of adapting to life again, fear of having another cardiac event, lack of an exercise partner, and laziness (Godin, Valois, Jobin & Ross, 1991). Perceived psychological constraining factors produced different intentions to exercise in the population. The statement of “laziness” reflects one aspect of arousal toward the behavior. Thus, if a woman recently had an MI and had not been a previous exerciser, her desire to prevent future MI’s, her anxiety about her ability to exercise in an unknown social situation, and her physician’s recommendation are likely to influence her decision. If the program is also paid for with insurance and easily accessible, she may be more likely to deal with her anxiety and attend.

A Review of EXTRA Components Related to Women and Cardiac Rehabilitation

Although individual constructs from the Expanded Theory of Reasoned Action and its correlating models have been used to study cardiac illness, use of the full model is unusual in the exploration of cardiac illness behaviors. The literature provides interesting indications that all the components should be explored in
relation to the study of women and their CR enrollment choices. A review of the
current literature may provide some understanding of the constructs that should be
explored qualitatively. Although each of the studies listed below included both
male and female cardiac subjects, the sample size of females was relatively low in
each case. The results of these studies may not reflect the same influences toward
CR enrollment intention as a sample population of women alone would detail.

One longitudinal study measured the intention to perform exercise over a one
year period of time (Godin et al., 1991). The habit of recent exercise prior to the
cardiac illness was a significant predictor of future exercise in individuals with
CHD. Another significant finding in this study was the difference between
psychological barriers and environmental barriers to the intention to exercise. The
psychological barriers were much more likely to impede exercise intention. These
psychological components included difficulties with time management, difficulties
in psychological adaptation to life after the illness, fear of another heart attack, and
laziness. Interestingly, the population was drawn over several years and many of
the subjects had had their myocardial (MI) many years prior to the study. These
psychological barriers related to the coronary event may have a long-term
influence on behavioral intentions. The environmental barriers significantly
correlated with intention to exercise included lack of access to an exercise facility
and no exercise partner. Attitude toward exercise was not a significant predictor
of exercise intention in this population although other studies of healthy
individuals have found that attitude toward exercise is an important factor (Godin, 1994; Godin & Shephard, 1986).

First-time MI subjects indicated strong intentions to follow medical regimes at home, work, in sport and recreational situations and social situations. Individuals reported that when they are home it is easier to follow recommendations compared to work situations which create the most difficulty for following medical instructions. However, the actual behaviors performed were less than the intention to perform them (McMahon et al., 1986). Attitudes and intentions to perform the medical regime were positive while in the hospital after the coronary event (Miller, Wikoff, McMahon, Garrett & Ringle, 1985). While attitudes remained favorable six to nine months after discharge from the hospital, actual adherence to certain recommendations decreased. Again, perceptions of significant others strongly influenced adherence.

An important caveat to the studies by Miller and colleagues is that the instrument used to gather data, the Miller Attitude Scale, was developed using relevant descriptors from the literature (Miller, Wikoff, McMahon, Garrett & Johnson, 1982). This is contrary to the recommendations that the survey instrument be developed from qualitative data gathered specifically from the population of interest for a more accurate analysis of the beliefs, facilitating conditions, and social norms of that population (Ajzen & Fishbein, 1980; Montano, Kasprzyk & Taplin, 1997).
Subjects who were enrolled in an exercise teaching program after a coronary bypass reported that knowledge of the program and barriers to participation were the strongest influence on walking compliance (Tirrell & Hart, 1980). Demographics of gender, education, age, occupation, marital status, and time since the operation had no influence on the analysis of walking compliance. However, those who worried least about their health were found to be the most compliant.

Muench (1987) reported that subjects who perceived benefits from CR exercise also perceived fewer barriers. The benefits of participation in CR included improved stamina, medical supervision of activities, reduced stress, increased confidence, weight control, and forced regular participation. The barriers included early morning class times, conflicts with other activities, and transportation problems. Muench (1987) did not find a correlation between perceived susceptibility to heart attack and motivation, however there was a correlation between age and perceived susceptibility which affected health beliefs.

Further exploration of the concepts of barriers, beliefs, and other EXTRA constructs can be conducted within healthy subject population studies. These populations are often assessed for behaviors related to CR and cardiovascular health promotion and can provide some understanding in the analysis of behavioral choices. Evaluations of cardiovascular health promotion behaviors supported the idea that attitude toward the behavior is the most important predictor of behavior compared to the other variables (Fleury, 1992; Sonstroem, 1982). In these healthy
subjects referents usually have a weak influence on behavior because most subjects feel they are responsible for their own decisions and related actions.

In healthy adults, attitude toward exercise has directly predicted the behavior (Godin, Valois, Shephard & Desharnais, 1987; Kendzierski & Lamastro, 1988; Schmelling, 1985). Previous exercise habit is related to positive attitudes about exercise in healthy (Kendzierski & Lamastro, 1988) and disabled adults (Godin et al., 1986). Habit predicted initial behavior up to three weeks, then intention became the stronger predictor (Godin et al., 1987) and was the strongest predictor to exercise intention in a group of electric power commission employees (Godin & Gionet, 1991). This contrasts with a group of individuals coping with colorectal cancer treatment where intentions and perceived ease or difficulty of the exercise were the primary determinants of behavior (Courneya & Friedenreich, 1997). In disabled adults, intention was also the primary predictor of behavior, where the cognitive construct influenced behavior only through individuals who had a strong previous habit of exercise. This suggests that healthy individuals may differ significantly in the influences on their decisions to enroll in exercise related programs, such as CR, compared to individuals who are chronically ill. Both attitude and intention are predictors of intention to exercise (Riddle, 1980).

In undergraduate females, intentions to lose weight were significantly correlated with attitude, subjective norm and facilitating/constraining conditions (Schifter & Ajzen, 1985). In another study, intentions to lose weight predicted weight loss behavior, but the behavior could also be influenced by other internal
and external variables (Saltzer, 1981). Attitude was related to intentions to exercise, lose weight and avoid stress in 18-60 year olds (Pender & Pender, 1986). This group was predominantly female (60%). Attitude is also a significant predictor in dietary change (Sparks, Shepherd, Wieringa & Zimmermanns, 1995).

Studies specific to women and using EXTRA components, focused on breast cancer and mammography. Affect, attitude, subjective norm and facilitating conditions were all significantly predictive of intention and behavior to get a mammogram (Montano & Taplin, 1991; Montano et al., 1997). Interestingly, in this population habit was inversely related to behavior. Women who had several previous mammograms were less likely to obtain one during the study time frame than women who had less experience with this screening tool (Montano & Taplin, 1991). Timko (1987) found that intentions to delay seeking medical care for suspected breast lumps was positively associated with favorable personal attitudes toward delaying care and perceived social pressure to delay. In this study the perception of what others in the female’s personal or social life might believe was appended to her personal desire to ignore the possible breast lump. Another study found that when assessing intention to conduct a breast self-exam, the model’s direct measures of attitude (affect) and social norm (referents) did not predict intention as well as indirect measures of attitude (cognitive construct) and global social norm (Lierman, Young, Kasprzyk & Benoliel, 1990). The social construct is also predictive of intention to obtain a cervical cancer screening exam (Seibold & Roper, 1979).
Designing Research Using the Expanded Theory of Reasoned Action

Researchers familiar with EXTRA recommend that qualitative information be gathered from the population of interest, stratifying subjects by those who intend to perform a behavior and those who do not intend to perform a behavior (Ajzen & Fishbein, 1980; Fishbein, 1980; Montano et al., 1997). Focus groups are one form of gathering qualitative data from women. The group format stimulates interaction, where the women build on each others ideas in a shared experience (Oakley as cited in Berg, 1998). However, interviewing women individually can capture more details than is possible in a focus group (Berg, 1998). Additionally, interviews allow clarification of details and a chance to ask additional questions to assess validity of the information.

Regardless of the data gathering method chosen, each group is unique related to exploration of the EXTRA components because of the effect of that group’s demographics. Montano and colleagues illustrate the importance of this approach in a set of research studies on women’s intentions to obtain a mammogram (Montano et al., 1997; Montano & Taplin, 1991; Thompson et al., 1997). In each of the study populations the intent of the research and the interview guide was the same. One study population consisted of white, middle income, women from a health maintenance organization (Montano & Taplin, 1991). The other study population consisted of low-income, minority women accessing an urban hospital (Thompson et al., 1997). The authors reported that between the two populations of women only five of the behavioral beliefs regarding mammography were similar,
whereas other beliefs about mammograms were specific to each individual population (Thompson et al., 1997). There may be many reasons for the population differences in beliefs, but this example reinforces the need to explore each of the constructs of EXTRA within a specifically defined population using a qualitative method.

After the population has been defined and recruited, stratification of the population by behavioral intention is necessary to explore different perspectives on a single behavior. The next logical steps in this type of research include shaping the qualitative data gathering process by assessing and providing for the validity and reliability of the data collected. Qualitative researchers recommend an ongoing analysis of the data throughout the data collection process. Initial analyses provides an opportunity to add interview questions and probe respondents about patterns and word choices noted in early narratives. Further exploration of the behavior can then be streamlined or broadened as necessary within the data collection phase. Concurrent analysis and data collection provides the ability to start testing initial coding structures and themes as they emerge from the data. Once the data is collected, the analysis phase should include both inductively and deductively exploring the data for themes within the framework of the model and factors separate from the model. Because EXTRA can be used as a framework for exploration of possible variables it is reasonable to initially investigate and code the raw data within the constructs of the model. However, in a qualitative exploration of the factors influencing women’s CR enrollment choices, it is just as important to
examine and code the data with themes outside the model rather than setting limits on the potential information available. This open exploration does not limit the possibility of finding other valuable influences that might not be related to the EXTRA constructs. The coding and recoding of data during qualitative analysis is an ongoing process and is supported by the many computer analysis programs available. By using EXTRA as both a framework to establish interview questions and later as a start for analyzing the narrative information, it may be possible to more completely explore CR behavioral choices.

**Summary**

In summary, factors associated with cardiac illness, exercise, and CR are frequently researched topics. Yet, few studies have included large samples of women to provide information on female experience, particularly as it relates to the post cardiac event, recovery phase of treatment (Pinn, 1992; Wenger, Froelicher, Smith, Ades, Berra, Blumenthal, Certo, Dattilo, Davis, DeBusk, Drozda, Fletcher, Franklin, Gaston, Greenland, MCBride, McGregor, Oldridge, Piscatella, and Rogers, 1995).

Because CR is documented as an effective treatment for improving poor lifestyle behaviors and functional ability, more women should participate in CR programs to increase the chances of successful recovery and limit functional problems. Unfortunately, while research has started to explore the problems of referral, participation, attendance, and drop-out problems, to date the information
has been limited to demographic differences and frequently the population studied has already been enrolled in a program. More research needs to be conducted on the female decision making process, beliefs, emotions, habits, barriers and facilitators, and social support related to CR enrollment.

EXTRA provides an excellent framework for qualitatively exploring these issues because of the encompassing nature of its components and functions. These functions include guiding data collection; clarifying the diverse relationships of concepts in different aggregates; summarizing several studies within a single framework; incorporating variables to understand, predict and possibly control human behavior; and describing similarities and differences in the way people actualize behavior (Triandis, 1972, 1977). Although some studies have used individual components of EXTRA to explore CR behaviors, few studies have combined the constructs for a full assessment of the influences on women's CR enrollment choices. By starting with a qualitative approach to explore women's CR behavioral influences framed within a relevant behavioral model, a foundation of information can be established to explain the female experience of cardiac illness during the recovery phase. If exploration of EXTRA in the context of women's decision-making about CR appears to be successful, a more complete analysis using quantitative methods will be indicated.
Article 2: Factors Influencing Women's Cardiac Rehabilitation Enrollment Decisions: A Qualitative Exploration Using Extra

Abstract

Heart disease is still the primary cause of death in Americans despite a decrease in overall CHD rates. Women account for almost half of these deaths and young women are demonstrating increased risk (American Heart Association, 2002). Women are also at an increased risk for post-coronary disability and second coronary events, highlighting the need for preventive action. Although cardiac rehabilitation (CR) is a widely recognized, available, and effective treatment option, relatively few women enroll in this program.

This study qualitatively explored the influences on women’s CR enrollment decisions. Twenty-five women (15 enrolled; 10 non-enrolled) were interviewed in a semi-structure format 4-12 weeks post hospital discharge.

Results of this study revealed that up to 100% of women are not being given the information they need or the support for CR enrollment from their preferred sources, cardiologists and primary physicians. This lack of information may influence women’s perceptions and emotions about CR and shape their observation of the necessity of the program, another influence. Further, women who resent being scheduled or who feel overscheduled with appointments are not willing to go to CR and need to be made aware of the flexibility of classes. This information can be delivered before hospital discharge, but might be heard better a
few weeks after discharge. Anxiety, although a concern of both enrolled and non-enrolled women does not appear to influence their enrollment decision.

Recommendations include providing information to women in the hospital and after discharge, increasing physician verbal support for CR, and creating descriptive information on CR using the reported beliefs, emotions, and facilitating conditions detailed by the respondents.

**Introduction**

This year over one million Americans will experience a heart attack and currently over seven million adults have a history of myocardial infarction (MI) (American Heart Association [AHA], 2002). In addition to acknowledging the high percentage of women suffering from this disease, the 30% increase in sudden cardiac death in women 15-34 from 1989-1996 is a reason for concern (AHA, 2002). These numbers represent a tremendous national burden in years of potential life lost, pain, and suffering, they also represent an enormous economic burden on the health care system.

**The Status of Research on Women, Heart Disease and Cardiac Rehabilitation**

Although much of the concern about coronary heart disease (CHD) in the last 50 years has focused on men, it is important to note that women accounted for almost half (49.5%) of the deaths from CHD in 1999 (AHA, 2002), causing an
increased national concern about women's risk of heart disease. Women who survive their coronary event often have a worse clinical, socioeconomic, and psychosocial profile post-MI than men, even after controlling for demographic and clinical data (Shumaker, Brooks, Schron, Hale, Kellen, Inkster, Wimbush,Wiklund, & Morris, 1997). The American Heart Association (2002) also reports that after an MI, 38% of women, as compared to 25% of men, will die within 1 year. Within the first six years after an MI, 35% of women have a second MI compared to only 18% of men. In addition, after a heart attack about 22% of men and 46% of women will be disabled with heart failure.

**The Benefits and Suggested Benefits of Cardiac Rehabilitation Participation**

To reduce the risks of post-cardiac event complications, disability, and mortality, preventive therapies, such as cardiac rehabilitation (CR) and education must be emphasized. Multiple clinical studies document the effectiveness of CR (Wenger, Froelicher, Smith, Ades, Berra, Blumenthal, Certo, Dattilo, Davis, DeBusk, Drozda, Fletcher, Franklin, Gaston, Greenland, MCBride, McGregor, Oldridge, Piscatella, and Rogers, 1995). These studies demonstrate up to 25% reduced CVD mortality in individuals who participate in CR and women of all ages gain equal or more benefits from participating in cardiac rehabilitation when compared to men (Wenger et al, 1995).

Although much work has been done in the field of CR, little of this research has been applied specifically to women with cardiovascular problems. Yet, analysis
of the cardiac literature suggests there is a difference in women’s expectations of, response to, and use of cardiac rehabilitation. Analysis of the primarily male subject cardiac literature, suggests that women might perceive the benefits of participation in CR as including improved stamina, medical supervision of activities, reduced stress, increased confidence, weight control, and forced regular participation (Muench, 1987). Other health behavior and exercise studies suggest positive reasons for attending CR might include feeling better, an improved sense of well being, coping with the stress of a cardiac event, recovery from the event, the possibility of controlling weight (Coruney & Friedenreich, 1997), prevention of other health problems (Timko, 1987), an opportunity for an assessment of overall health, the possibility for increased longevity, positive interaction with staff (Montano, Thompson, Taylor, & Mahloch, 1997; Thompson, Montano, Mahloch, Mullen, & Taylor, 1997), better mental health (Sonstroem, 1982), and increased energy (Schmeling, 1985).

**Limited Cardiac Rehabilitation Referral for Women**

Although the literature reports promising results and potential benefits for women, referral rates to CR follow a disappointing pattern of between 8.7% (Bittner, Sanderson, Brelaid, & Green, 1999) and 89% (O’Farrell, Murray, Huston, LeGrand, & Adamo, 2000) of eligible individuals. Women, especially older women, are referred to CR less frequently than males and less than 25% of eligible women are enrolled in cardiac rehabilitation compared to 50% of eligible men.
(Evenson, Rosamond & Luepker, 1998; Thompson, Bowman, Kitson, de Bono & Hopkins, 1997). The limited participation of women in CR may account for some of the variability in the post-coronary outcomes between men and women. Increasing female participation may be an effective post-hospitalization intervention for reducing CHD related morbidity and mortality.

**Potential Reasons for Poor CR Enrollment from Related Health Literature**

Benefits of CR participation are significant and research into the factors influencing female enrollment in CR programs may provide a better understanding of the reasons for low enrollment patterns and women’s needs during cardiac recovery. Past studies provide limited information on female subjects, their CHD morbidity and mortality, and have not assessed the psychosocial and behavioral aspects associated with enrollment patterns. Future studies should apply behavioral theories to focus data collection and strengthen analysis of the information collected. Assessment of past CR and health behavior literature with the goal of interpreting the feelings, belief patterns, barriers, and habits of women who are making CR enrollment decisions may provide some insight as to the factors that might influence these decisions. Further, the structure of the information suggests possible behavioral models that can be used as a framework for studying the CR enrollment patterns of women.

Possible reasons for the lack of female participation in CR might be related to the disadvantages listed in non-CR studies which have suggested the negative
beliefs of attending exercise or health maintenance programs include pain, increased costs, effort, negative interaction with staff (Montano et al, 1997; Thompson et al, 1997), time issues, increased tiredness, a need for self discipline, (Sonstroem, 1982), tiredness that interferes with responsibilities, interference with daily routine (Schmelling, 1985), the potential for causing a fatal heart attack or stroke, and discomfort with others watching (Riddle 1980). In addition to the disadvantages found in the CR and non-CR literature, a range of emotions may be found related to why women do not participate in CR. Most of these feelings echo positive and negative beliefs about the related program. Feelings such as useless/useful, sick/healthy, bad/good, harmful/beneficial, objectionable/acceptable, impossible/manageable (Timko, 1987), important/unimportant, stressful/nonstressful (Montano et al, 1997), scary/reassuring, comfortable/uncomfortable, (Thompson et al., 1997), pleasant/unpleasant, exciting/boring, and convenient/inconvenient (Godin, Colantonio, Davis, Shephard, & Simard, 1986).

Further assessment of the literature suggests that previous patterns of exercise may have an impact on the willingness of women to enroll in CR, in addition to affecting their attitudes to attend; those who exercised regularly were more likely to attend CR. (Harlan, Sandler, Lee, Lam, & Mark, 1995). In addition, Kendzierski and Lamastro (1988) suggested that previous experience with weight lifting influenced attitudes toward both exercising and not exercising. Participating in CR may also be a reflection of a general habit to seek health care in past cases of illness
(Timko, 1987). Furthermore, returning to CR after a second coronary event has been associated with a past experience of cardiac rehabilitation (Burns, Camaione, Froman, Clark, 1998).

Another important factor to consider related to enrolling in a health program is the supporting environment. Environmental factors that may facilitate or constrain CR enrollment might be related to provider prescription for CR, scheduling issues, transportation and access, previous experience and comfort with CR staff, and financing issues (Friedman, Williams & Levine, 1997; Missik, 2001; Montano et al, 1997; Thompson et al, 1997). Although the health care and the primarily male subject CR literature is helpful when exploring potential influences on CR enrollment, more studies are needed to look at the female specific beliefs, emotions, habits and environmental factors associated with CR.

Most of the studies assessing the response of the post-cardiac event population toward cardiac rehabilitation are quantitative and primarily assess the demographic influences on CR enrollment patterns, providing limited information on why women choose to participate or not. This study was developed to gain a clearer understanding of the influences of attitude, affect, facilitating conditions, prior exercise habits, and prior rehabilitation/illness experiences on the CR enrollment choices of women. Because a quantitative study could not provide enough information to capture the spectrum of influences within each of these categories, a qualitative study was designed. Quantitative studies are frequently limited in the type of data collected often focusing on the influences of demographics and
physiology and how these affect behavior (Stange, Miller, Crabtree, O'Connor, & Zyzanski, 1994). Whereas, qualitative research encourages collecting a breadth of data that expands beyond demographics to explore the subject's words and opinions on the reasons for health behavior decisions (Sofaer, 1999). This paper reports the efforts to understand the factors influencing the decisions of women who have either enrolled or not enrolled in a CR program post-cardiac event.

**A Guiding Theory**

Qualitative work frequently reports findings collected from open exploration of the studied experience, often resulting in the proposal of a theory. However, it is not unusual for qualitative work to be informed by a theory or theoretical perspective throughout the literature search, exploration and analyses phases of research (Sandelowski, 1992). The benefits to working within a theoretical perspective enable researchers to acknowledge disciplinary assumptions, to establish a framework and justification for the collection and presentation of findings, and to organize, analyze and interpret findings in a meaningful manner (Sandelowski, 1992). However, researchers must resist limiting the analyses by the definitions of the theory or forcing a fit of the findings to complement the theory.

With this understanding, a culturally sensitive model was chosen to allow exploration of the multiple factors influencing the CR choices women make post-coronary. The model developed by Triandis (1977), called the Expanded Theory of Reasoned Action (Montano & Taplin, 1991) (EXTRA) offers a comprehensive
framework with variables that are relevant to investigation in any culture (Sheth, 1982; Triandis, 1980). The variables include: (a) an affect measure to assess the feelings associated with thoughts of performing the behavior which influence behavioral intention, (b) a cognitive component which is a construct of the perceived consequences and value of those consequences related to the performance of the behavior, (c) a social component which is another construct consisting of the person's perceived information sources and referents related to performance of the behavior, (d) a related habit or past behaviors factor which may influence behavior regardless of intention, and (e) facilitating/constraining conditions which may also influence behavior regardless of intention, as well as having a direct influence on intention. Additional information on this theory is referenced in the Article 1 of this paper.

Figure 2. A conceptualization of the Expanded Theory of Reasoned Action
Aim of the study

The purpose of this study is to qualitatively explore the factors associated with a woman’s decision to enroll, or not enroll, in cardiac rehabilitation from the perspectives of the patient. Although other studies have explored the demographic differences between those who participate in cardiac rehabilitation and those who do not, few studies have assessed the multi-dimensional psychosocial and environmental factors associated with the decision. The unique experience of a female who is recovering from a coronary event is poorly documented in the literature; consequently, little is understood about the effect of emotions, beliefs, social support, facilitating/constraining factors, habits, and intentions of women after this life-altering experience, thus creating the need for a gender specific research effort.

Method

Subject interviews

Twenty-five women (15 enrolled in CR and 10 not enrolled) were recruited from three Oregon hospitals in a large metropolitan area. Each of these hospitals have an attached CR program. All of the women were referred to CR by their physicians and lived within one hour’s drive of a CR program. In addition, each had been hospitalized for care related to an MI, a surgical intervention (CABG), or a combined medical (MI) diagnosis and a procedural intervention (PTCA, Stent).
The respondents were purposefully recruited by the CR nursing staff prior to discharge. The staff also asked each woman's permission to release contact information to allow the researcher (KNS) to discuss the study either prior to discharge or via telephone after discharge from the hospital. All recruited women were called approximately two to four weeks post-discharge to set a time and date to meet with the researcher. Prior to the meeting, the informed consent and a letter explaining the research was mailed to each individual highlighting the confidential nature of the data and the voluntary status of the research participant. Once the consent form was signed the women filled out a background survey and were interviewed using an semi-structured format.

**Instrument Development**

Although the interview format was guided by both the theoretical framework and the relevant literature, the interviewer followed recommendations for eliciting information with a goal to establish a dialog and obtain information. The interview incorporated two primary sections. First, a background survey was filled out by each interviewee to gather demographic data. Second, the interview process included: (a) asking the women how they felt about the idea of going to cardiac rehabilitation (Thompson et al., 1997) enabling the researcher to collect adjectives from the population that best described their thoughts about the behavior; (b) exploring perceived outcomes of enrollment or non-enrollment in CR (specifically the concepts of advantages, disadvantages, long-term and short-term benefits were
explored); (c) asking the participants about their usual medical information sources, current CR information sources, and their most trusted CR information source; (d) asking the participants if there were any groups or individuals who would approve or disapprove of their enrollment in CR; (e) asking the interviewees to describe anything that would make it easier or harder to enroll in CR using probing questions and examples to assist with identification of environmental barriers; (f) exploring facilitating/constraining conditions related to other health behaviors choices (such as diet or stress management) that might impact CR enrollment decisions; (g) exploring the influence of past cardiac illness or other experiences on the patient’s decision; (h) asking if previous lifestyle habits (such as smoking, dietary changes, and stress management) influenced their decision to participate in cardiac rehabilitation; (i) discussion of previous exercise experience using the Surgeon General’s definition for physical activity (Department of Health and Human Services, 1996); and (j) an open-ended question designed to elicit possible factors not discussed that may play a role in CR decision-making. In qualitative research, the interviewer is as much a data collection tool as the survey; therefore, rigor was established using the following methods.

**Pilot Study**

The interview guide used in the personal interview process was assessed in a pilot study (n=4 post-coronary event women) and the initial questions were assessed for applicability and understanding. Although the framework of questions
remained consistent, some adaptation was made in the language and style of questions to address the life issues of women at different ages. For example, women in the pilot study encouraged the researcher to adapt general work related questions to better represent workers versus non-workers or retirees. Additional adjustments were made to the interview guide with feedback from experienced qualitative and quantitative researchers. The final version of the interview guide included 19 primary questions with associated secondary questions after addressing the issues of credibility.

**Prolonged Observation**

Credibility was further enhanced as the interviewer remained engaged with the subject population for a prolonged period of time. The length of time allowed the interviewer to learn the culture, gain trust, and test for potential misinformation which might be introduced by personal or subject biases. Interviewing a series of subjects over a long period of time minimizes the threat from history, maturation, maturation/selection interaction, testing, and problems with instrumentation. Choosing to interview subjects at different points within a 4-12 week post-hospital discharge window enabled the researcher to gather different perspectives of the cardiac experience and to assess attitudes and beliefs throughout the CR process. To further address the issues of trust and cultural awareness, the interviewer chose to identify herself as a nurse and established familiarity with the cardiac rehabilitation programs and staff. The researcher’s background as a home health
nurse might have contributed to the openness of the interviews as clients described themselves and demonstrated behaviors (such as displaying surgical scars or remaining in reclining positions during the interview) indicating comfort with the interviewer.

**Validation of Information**

Throughout the interviews member checks were completed. This process involved validating the word choices of the subject and interviewer perception by asking clarifying questions where the meaning of the word or phrase and the speaker's tone were assessed. For example, a clarifying statement was used which had stems such as "When you said... did you mean ...?". Additional assessment of the validity of the data being collected was addressed when the researcher summarized previously interviewed subject statements on affect or other points related to the current subject. A statement similar to "Several women have described feelings of fear, or a need for reassurance when describing their feelings for cardiac rehabilitation. Have you experienced any feelings like this?" was included in the appropriate context within later interviews. This type of perceptual exploration allowed the interviewer to assess the validity of patterns and word choices collected from earlier interviews with the population of interest.

An exploration of the cardiac rehabilitation literature provided additional questions related to lifestyle influences, such as diet, weight management, and stress, as well as recommendations for interviewing women on their health related
behavior choices (Montano, & Taplin, 1999; Montano et al., 1997; Thompson et al., 1997). In a final question asking participants if they wished to address any topic not covered in the interview, most respondents related satisfaction with the thoroughness of the interview.

**Interview Process**

Each of the clients were interviewed using open-ended questions asked in a semi-structured format. The interview guide provided some structure, although each participant interview was unique and allowed for discussion of issues related to the factors influencing their decisions about cardiac rehabilitation and their cardiac experiences. Each interview averaged 45 minutes (range 30 minutes to 3 hours) and was tape recorded for accuracy of the responses. Field notes were also taken by the primary researcher. All interviews were held in the women's home environment at the request of the participants. The interviews were scheduled for the post-hospital discharge window of 4-12 weeks. Usually, women who are participating in CR will initiate their first visit within this time frame and women who choose not to enroll during this time must obtain a renewed prescription from their physician to enroll after the third month post-discharge.

**Content analysis**

Each of the interviews were coded using the primary components from the Expanded Theory of Reasoned Action. Within these primary themes, the narratives
were analyzed for similar words and phrases which were classified and prioritized as secondary themes. From this analysis a list of words or phrases, related to cardiac rehabilitation enrollment behavior, were constructed for each of the EXTRA variables and any other patterns that were found.

As response patterns were noted across and within population categories, modifications to the coding structure were made with new themes or simplified concepts coded as appropriate. Analysis of coding structures found in the enrolled and non-enrolled subject documents provided data on the factors believed to influence CR enrollment behavior. A panel of experts examined sections of coded and non-coded data to validate the coding process and themes.

Throughout the coding and analysis process, the researchers did not rely solely on the categories proposed within the EXTRA framework. The researchers examined related constructs and considered whether other categories were emerging. Theorists disagree about the value of assessing the categories of affect and beliefs separately. This research was initiated following Triandis’s recommendations, however, the categories of affect and beliefs (cognitive construct) were frequently assessed for redundancies. In the final analysis of the data, those statements that were mentioned by 20% or more of the respondents were seen as potentially representative of the more important factors influencing CR enrollment behaviors (Ajzen & Fishbein, 1980; Thompson, et al., 1997).
Results

Summary of Population Demographics

The subjects were divided by their CR enrollment status and the information is presented in Table 2. Of the 15 participants enrolled (E) in CR, the average age was 58.5 years (range 40-80) compared to the average age of the 10 women in the non-enrolled (NE) group of 68.2 years (Range 40-70). About half of the subjects in each group were married or with a partner (53% E; 50% NE) and most had no dependents currently living at home (E 87%; NE 70%). The non-enrolled group demonstrated a higher percentage of divorce (40%) and single status (25%) and the more of the enrolled group were widows (27%). Regardless of marital status, the women were asked to identify a person they trusted to discuss and receive advice on their medical decisions. Respondents identified primarily daughter or daughter-in-law (E 47%; NE 40%) and spouse or partner (E 33%; NE 40%). The majority in both groups had less than a college degree (E 93%; NE 90%) and most of the enrolled received a high school degree or less (53%). Four women refused to provide information about income, but the numbers available suggest that more enrolled compared to unenrolled women (E 73%; NE 40%) lived in the $17,500 to $50,000 level. Although Medicare was a common insurer of post-coronary event women (E 40%; NE 70%), only the enrolled population also used health maintenance organizations as an insurer (40%).
Table 2. Participant Socioeconomic Demographics

<table>
<thead>
<tr>
<th>Variable</th>
<th>E (n=15)</th>
<th>NE (n=10)</th>
<th>Total (n=25)</th>
</tr>
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<tbody>
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<td>%</td>
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<tr>
<td>Patient’s age</td>
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<tr>
<td>40’s</td>
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</tr>
<tr>
<td>50’s</td>
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<tr>
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<tr>
<td>80’s</td>
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<tr>
<td>Daughter or in-law</td>
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<td>4</td>
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<tr>
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<td>$30,000-50,000</td>
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<td>Patient’s insurance</td>
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<tr>
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<tr>
<td>Other</td>
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<td>13</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: E = Enrolled, NE = Non-enrolled, some women may have more than one response.
* Single Includes Never married, Divorced, or Widowed. ** 1 support person refused interview.

The participant’s perception of their health is presented in Table 3. The majority of subjects were post-CABG (E 60%; NE 70%). Other conditions included MI and an MI with either a stent or PTCA procedure. For most of the
women this was their first coronary event (E 87%; NE 80%), however, two enrolled women had suffered previous MIs in 1984 and 1988. Also, two NE had previous cardiac events: a PTCA in 1995 and a stent in 1997. Analysis of the narratives did not support previous cardiac histories as an influence in any CR choices.

Table 3. Participant Health Demographics

<table>
<thead>
<tr>
<th>Variable</th>
<th>E (n=15)</th>
<th>NE (n=10)</th>
<th>Total (n=25)</th>
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<tbody>
<tr>
<td></td>
<td>#</td>
<td>%</td>
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</tr>
<tr>
<td><strong>Type of cardiac event</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CABG</td>
<td>9</td>
<td>60</td>
<td>7</td>
</tr>
<tr>
<td>MI alone/other</td>
<td>6</td>
<td>40</td>
<td>3</td>
</tr>
<tr>
<td><strong>Pre-CHD history</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>13</td>
<td>87</td>
<td>7</td>
</tr>
<tr>
<td>Yes*</td>
<td>2</td>
<td>13</td>
<td>3</td>
</tr>
<tr>
<td><strong>Patient’s perception of health (1-10)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) very poor-(4)</td>
<td>2</td>
<td>13</td>
<td>2</td>
</tr>
<tr>
<td>Average</td>
<td>6</td>
<td>40</td>
<td>4</td>
</tr>
<tr>
<td>(6)-excellent health(10)</td>
<td>7</td>
<td>47</td>
<td>4</td>
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<tr>
<td><strong>Patient’s perception of health compared with 1 year ago (1-10)</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>(1) much worse-(4)</td>
<td>4</td>
<td>27</td>
<td>2</td>
</tr>
<tr>
<td>About the same</td>
<td>5</td>
<td>33</td>
<td>3</td>
</tr>
<tr>
<td>(6)-a lot better (10)</td>
<td>6</td>
<td>40</td>
<td>5</td>
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<tr>
<td><strong>Patient’s perception of how depressed they are</strong></td>
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</tr>
<tr>
<td>None</td>
<td>5</td>
<td>33</td>
<td>6</td>
</tr>
<tr>
<td>Some of the time</td>
<td>8</td>
<td>54</td>
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<tr>
<td>A lot of the time</td>
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<tr>
<td>All of the time</td>
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<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

Note: E – Enrolled, NE – Non-enrolled, some women may have more than one response. *Enrolled had two previous MI’s in 1980s, NE had 3 previous MI’s in the 1980s.

Each of the women were asked to rate their perceptions of their health at the time of the interview on a scale from 1 (very poor) to 10 (excellent). Most
respondents reported average (E 40%; NE 40%) or above average to excellent (E 47%; NE 40%) health. Women in both groups also ranked their current health as about the same (E 33%; NE 30%) or much improved over the previous year (E 40%; NE 50%).

A final component of the health demographics included depression as it relates to cardiac illness. Participants were asked how often they were depressed over a period of the two months previous to the interview. Most of the women either denied feeling depressed (E 33%; NE 60%) or claimed to feel depressed only some of the time (E 53%; NE 30%). Goodman (1997) found negative affect common in the first few weeks post-hospital discharge. As the initial sense of helplessness or surgical limitations and pain decreased, most in Goodman’s study defined affect in positive terms. In this study, two women mentioned they had a pre-coronary event diagnosis of depression and only one woman referenced CR choices in association with feeling depressed.

**Content analysis**

The analysis of the study findings may be best explored through an analysis of the components of EXTRA. These include responses on affect, advantages and disadvantages, social influences, facilitating/constraining factors, and past behaviors/habits. Only those categories where 20% or more of the total population responded are included in this report.
Affect

Affect was coded for all statements where either positive or negative feelings about CR were discussed. Overall, respondents were hesitant to say anything negative about CR and primarily reported positive feelings about CR and its perceived benefits. This comment from a woman who didn’t join CR because of a bad experience with another program provides a good example. “I think it is a wonderful program that they have for people. Maybe I have kind of a thing about programs…” Fifty-two percent of all subjects felt CR was a good or wonderful program (73% E; 20% NE). “The whole thing’s pretty good as it is. Pretty hard to improve on it.” Just under half (48%) of the women felt CR could or did “reassure” them about health, their ability to exercise, or other areas of concern (67% E; 20% NE). “I know it gives me a sense of relief to, to have somebody monitoring me and working with me while I recoup. So, I mean, I would think that’s what their goal is, to show me what I can do. The level I can do it and reassure me along the way.” The sense of confidence in the program (53% E; 30% NE) was also noteworthy. “I really felt confident to go and to learn and to do.”

Positive feelings mentioned by less than 20% of the overall population were not placed in the table. Those reported emotions with a lower percentage included a feeling of eagerness to attend CR, a feeling of hopefulness about the future (generated by the act of attending and improving physical conditioning), and a feeling of empowerment offered by the improved confidence in exercise and health.
promotion skills. Each of these feelings was mentioned by three or four enrolled females but were not mentioned by non-enrolled females.

Table 4. Affective Responses of Post-coronary Event Women Related to Enrolling in CR

<table>
<thead>
<tr>
<th>Variable</th>
<th>E (n=15)</th>
<th>NE (n=10)</th>
<th>Total (n=25)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#</td>
<td>%</td>
<td>#</td>
</tr>
<tr>
<td>Positive Affect</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good Program</td>
<td>11</td>
<td>73</td>
<td>2</td>
</tr>
<tr>
<td>Reassured</td>
<td>10</td>
<td>67</td>
<td>2</td>
</tr>
<tr>
<td>Confident</td>
<td>8</td>
<td>53</td>
<td>3</td>
</tr>
<tr>
<td>Beneficial</td>
<td>8</td>
<td>53</td>
<td>2</td>
</tr>
<tr>
<td>Necessary</td>
<td>9</td>
<td>60</td>
<td>1</td>
</tr>
<tr>
<td>Enjoyable</td>
<td>6</td>
<td>40</td>
<td>1</td>
</tr>
<tr>
<td>Feel better</td>
<td>7</td>
<td>47</td>
<td>0</td>
</tr>
<tr>
<td>Positive</td>
<td>5</td>
<td>33</td>
<td>1</td>
</tr>
<tr>
<td>Glad I'm going</td>
<td>5</td>
<td>33</td>
<td>0</td>
</tr>
<tr>
<td>Negative Affect</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxious</td>
<td>6</td>
<td>40</td>
<td>4</td>
</tr>
<tr>
<td>Unnecessary</td>
<td>1</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>Resents being scheduled</td>
<td>1</td>
<td>7</td>
<td>4</td>
</tr>
</tbody>
</table>

Note: E – Enrolled, NE – Non-enrolled, numbers reflect multiple responses from some women.

Negative affect primarily included feelings of “anxiety” related to fears of being pushed beyond individual ability or endurance “I watched those people on the treadmill and the bikes and I thought I can't go as fast as they do, I don't have the endurance that they do, I would drop out long before that …”, of physical injury “I'd hate to end up with a stroke or something like that.”, of exercise equipment “I personally don't like treadmills. Cause I fell on one once.”, or of not meeting the expectations of CR staff and other enrollees. Depression could also be a factor, but further study would be needed to determine if this were the case, as only one of the women alluded to depression in association with CR. “In the short term, I think a
lot has to do with your needs. How you feel about yourself and about life in

general, because you go through a slump after you have had this. I think most

people do. Some days aren't nice. I mean they're better now that I'm getting better.”

This woman’s statement adds support to Goodman’s (1997) findings.

Interestingly, while anxiety was a common affective response in both ECF and

NECF (40%), these negative feelings don’t appear to be associated with the
decision to enroll or not enroll in CR. The concept of CR being unnecessary is

more reflective of the non-enrolled population (7% E; 60% NE). The following

statements reflect many unenrolled respondents comments. “I just don't want to. It

would be like going to a gym or something, and I've never wanted to do that. I feel

as if there's enough exercise for me to do around here.” “I just never really thought

about it because I figured I'm out walking myself and doctor said that to walk half

an hour a day..... So I'm trying to do that.” Another negative feeling “resentful”

(7% E; 40% NE) demonstrated differences between the groups. An example is

reflected in the woman’s comment on trying to fit in CR “I've got a lot to do. I

mean a lot of friends and there's something doing practically every day. And I

resent the time a little bit.” Other categories of interest suggest that women in both

enrollment categories feel lazy about exercise or don’t like it; yet only those

women in the non-enrolled category mentioned that they didn’t want to exercise.
Cognitive Component

As with affect, clients provided many more descriptors for the positive benefits of attending CR and few disadvantages. Overall, more of the women in the enrolled population listed advantages than in the unenrolled population. The advantages listed by over half of the study participants include educational opportunities “There's classes that you can take and learn about stress and after people have had heart attacks, chest pain and there's diet, there's salt, there's cholesterol, there's all kinds of things that you can learn, and they do give you pamphlets and papers during the class to bring home and read after.” (80%), a focused and regulated program “I push myself more than I would at home to do things.” (68%), improved physical fitness/endurance “I do need to gain some upper body strength, I don't have any to speak of right now. And that would be my major focus I think that's really frustrating when you can't open a jar.” (56%), a safe program “I was always afraid to do too much here at home, that I would overexert. I've got someone watching me to know when I'm overdoing or not.” (60%), and overall improvement in health and well-being “I think I want to live and I want to be healthy! I mean, I've had enough bouts with general illness that I think like I said, having so many illnesses and the colds, so I'm hoping the whole immune system and everything will get healthy along with me and my heart.” (56%).

Although several themes in the cognitive constructs overlapped there were enough differences in the narrative statements related to each sub-category to code them separately. For example, 48% of the population noted the importance of
social interaction “Well, you would meet people, which I didn't do too much.”
Other women also noted their appreciation of the opportunity to make new friends.
The idea of social interaction appears different from the advantage of having group
support “you have other people there that are in the same boat you are. Some of
them a lot worse, some of them not quite as bad. So you feel like you fit in. Or I
did, right away.” And the 36% that listed professional support for coping with the
cardiac event appeared to need a slightly different type of interaction as noted in
the following passage. “cause you’re always thinking of the little questions, and
you're able to go in and ask these little questions, where you wouldn't want to keep
bothering the doctor with stupid little questions. So it's a resource too. And I think
I'd feel comfortable a year from now calling and asking a question.”

Additional advantages not listed in the table included the benefit of
participating in fun activities, and a sense of improvement in mental health,
memory, and alertness. The “educational” code included a variety of educational
opportunities mentioned by respondents including information gathering to enable
behavior changes as well as the possibility of enabling the individual to make
lifetime commitments to these changes.
Table 5. Advantages & Disadvantages of Cardiac Rehabilitation

<table>
<thead>
<tr>
<th>Variable</th>
<th>E (n=15)</th>
<th>NE (n=10)</th>
<th>Total (n=25)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Advantages</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational</td>
<td>14</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>A focused participatory program</td>
<td>11</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td>Safe program</td>
<td>12</td>
<td>3</td>
<td>15</td>
</tr>
<tr>
<td>Improved physical fitness and endurance</td>
<td>11</td>
<td>3</td>
<td>14</td>
</tr>
<tr>
<td>Better overall health</td>
<td>10</td>
<td>4</td>
<td>14</td>
</tr>
<tr>
<td>Opportunity for social interaction</td>
<td>8</td>
<td>4</td>
<td>12</td>
</tr>
<tr>
<td>Group support</td>
<td>10</td>
<td>2</td>
<td>12</td>
</tr>
<tr>
<td>Positive action to prevent cardiac illness</td>
<td>9</td>
<td>2</td>
<td>11</td>
</tr>
<tr>
<td>Weight loss</td>
<td>5</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>Opportunity for questions</td>
<td>8</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>Shortens improvement time</td>
<td>7</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Nice staff</td>
<td>8</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>May increase longevity</td>
<td>5</td>
<td>3</td>
<td>8</td>
</tr>
<tr>
<td>Good equipment</td>
<td>4</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td><strong>Disadvantages</strong></td>
<td>11</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td>Disrupts schedule</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
<tr>
<td>Regimented scheduling</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social issues</td>
<td>2</td>
<td>3</td>
<td>5</td>
</tr>
</tbody>
</table>

Note: E – Enrolled, NE – Non-enrolled, numbers reflect multiple responses from some women.

**Social Component**

Within the category of social influences, this research focused upon: (a) where an individual sought information, (b) where they received their information on CR in this current post-coronary experience, (c) who they would most trust or rely on for CR information, (d) the specific referents who spoke positively or negatively about CR, and (e) the referents who were perceived to support CR, but had not commented on the program.

Table 6 indicates that actual information on CR was primarily delivered by cardiologists (72%), nurses (68%), and primary physician’s (60%), yet women voiced a preference that CR information be provided by the source they trust most,
their cardiologist (72%). One woman reported her preferred CR information source as “I would think the heart specialist [cardiologist], because he's supposed to know. [laugh] I'm hoping he knows.”

Enrollment status does not appear to be associated with actual or trusted information sources, but it is interesting to note that a slightly higher percentage of unenrolled women (40%) compared to enrolled women (33%) also prefer to have CR information delivered by their primary physician. In comparison, most individuals usually seek medical information from their primary physician. Forty percent of unenrolled women, as compared to 13% of enrolled women, also seek information from the media (such as talk shows, magazines, and books). Miscellaneous sources in each category included specialty physicians, the American Heart Association and others. Although 32% of the women received information about CR from family, friend’s, and neighbor’s experiences with cardiac issues, only 12% preferred these experiences as a method for gaining information on cardiac rehabilitation.
Table 6. Information Sources for Women on Cardiac Rehabilitation

<table>
<thead>
<tr>
<th>Variable</th>
<th>E (n=15)</th>
<th>NE (n=10)</th>
<th>Total (n=25)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#</td>
<td>%</td>
<td>#</td>
</tr>
<tr>
<td>Preferred Information Sources</td>
<td>12 80</td>
<td>6 60</td>
<td>18 72</td>
</tr>
<tr>
<td>Cardiologist</td>
<td>5 33</td>
<td>4 40</td>
<td>9 36</td>
</tr>
<tr>
<td>Primary MD</td>
<td>2 13</td>
<td>5 50</td>
<td>7 28</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>3 20</td>
<td>0 0</td>
<td>3 12</td>
</tr>
<tr>
<td>Nurse</td>
<td>2 13</td>
<td>1 10</td>
<td>3 12</td>
</tr>
<tr>
<td>Usual Information Sources</td>
<td>5 33</td>
<td>3 30</td>
<td>8 32</td>
</tr>
<tr>
<td>Primary MD</td>
<td>2 13</td>
<td>4 40</td>
<td>6 24</td>
</tr>
<tr>
<td>Media</td>
<td>2 13</td>
<td>3 30</td>
<td>5 20</td>
</tr>
<tr>
<td>Cardiologist</td>
<td>0 0</td>
<td>3 30</td>
<td>3 12</td>
</tr>
<tr>
<td>Actual CR Information Sources</td>
<td>10 67</td>
<td>8 80</td>
<td>18 72</td>
</tr>
<tr>
<td>Cardiologist</td>
<td>11 73</td>
<td>6 60</td>
<td>17 68</td>
</tr>
<tr>
<td>Nurses</td>
<td>8 53</td>
<td>7 70</td>
<td>15 60</td>
</tr>
<tr>
<td>Primary MD</td>
<td>7 47</td>
<td>7 70</td>
<td>14 56</td>
</tr>
<tr>
<td>Usual information sources</td>
<td>5 33</td>
<td>4 40</td>
<td>9 36</td>
</tr>
<tr>
<td>Miscellaneous sources</td>
<td>5 33</td>
<td>3 30</td>
<td>8 32</td>
</tr>
<tr>
<td>Note. E = Enrolled, NE = Non-enrolled, numbers reflect multiple responses from some women</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Seventy-three percent of the enrolled group and 100% of the unenrolled group believed they did not have enough information on CR at the time of their interview. Within the population, passive or active methods employed by the respondents to gain information on CR was noted and coded. Passively seeking information was defined as those who did not actively seek additional information regardless of their desire to attend. This is exemplified in this statement "I don't know. The decisions came to me, I mean, the advantages came to me. I didn't go out, the advantages came to me.... I wouldn't know where to go." Although both study groups demonstrated passive information seeking patterns, almost twice as many of the unenrolled women (40% E; 70% NE) passively gathered information. In
comparison, no one from the unenrolled group demonstrated active information seeking, whereas almost half of those who enrolled in CR (47%) actively sought information on this program. One woman went to the extreme of finding a doctor who would prescribe CR for her since she was not given enough information while in the hospital: "Having found out the only way I can go is through the authorization of the primary care, and it took weeks to even make an appointment, so I knew I couldn't go any sooner 'til I could see him. I would have gone sooner to cardiac rehab if the opportunity had arisen."

Table 7. Information Seeking Patterns of Post-Cardiac Event Women

<table>
<thead>
<tr>
<th>Variable</th>
<th>E (n=15)</th>
<th>NE (n=10)</th>
<th>Total (n=25)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#  %</td>
<td>#  %</td>
<td>#  %</td>
</tr>
<tr>
<td>Information Seeking Patterns</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimal to no information</td>
<td>11  73</td>
<td>10  100</td>
<td>21  84</td>
</tr>
<tr>
<td>Passive information seeking</td>
<td>6   40</td>
<td>7   70</td>
<td>13  52</td>
</tr>
<tr>
<td>Active information seeking</td>
<td>7   47</td>
<td>0   0</td>
<td>7   28</td>
</tr>
</tbody>
</table>

Note. E – Enrolled, NE – Non-enrolled, numbers reflect multiple responses from some women.

Referents, or individuals who might or might not support CR, or who spoke in favor of CR included cardiologists, family members, nurses, those with CR experiences, husbands/partners, primary physicians, and non-family members, such as friends. Enrolled respondents reported more positive verbal support for CR than did non-enrolled women regardless of referent. However, NE respondents report a strong perception that they have support for CR even when that support has not been verbalized by a referent.
Finally, any repeated negative statements were coded as negative support for CR. Eight percent or fewer of respondents heard negative comments from their primary physician, husband/partner, or family members. Sixteen percent or fewer of respondents reported passive support of CR such as “He said I could go if I wanted to.” or received written material without explanation from physicians or nurses on the program.

Table 8. Social Referents of Post-Cardiac Event Women on CR

<table>
<thead>
<tr>
<th>Variable</th>
<th>E (n=15)</th>
<th>NE (n=10)</th>
<th>Total (n=25)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Actual Referents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiologist</td>
<td>13 87</td>
<td>1 10</td>
<td>14 56</td>
</tr>
<tr>
<td>Family</td>
<td>12 80</td>
<td>1 10</td>
<td>13 52</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>9 60</td>
<td>2 20</td>
<td>11 44</td>
</tr>
<tr>
<td>Other’s experiences</td>
<td>6 40</td>
<td>3 30</td>
<td>9 36</td>
</tr>
<tr>
<td>Nurse</td>
<td>8 53</td>
<td>1 10</td>
<td>9 36</td>
</tr>
<tr>
<td>Husband</td>
<td>7 47</td>
<td>2 20</td>
<td>9 36</td>
</tr>
<tr>
<td>Primary MD</td>
<td>8 53</td>
<td>0 0</td>
<td>8 32</td>
</tr>
<tr>
<td><strong>Perceived Positive Referents</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>5 33</td>
<td>4 40</td>
<td>9 36</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>3 20</td>
<td>4 40</td>
<td>7 28</td>
</tr>
<tr>
<td>Other MD</td>
<td>1 7</td>
<td>4 40</td>
<td>5 20</td>
</tr>
<tr>
<td>Husband</td>
<td>2 13</td>
<td>1 10</td>
<td>3 12</td>
</tr>
<tr>
<td><strong>Support for Health Behaviors</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary or specialist MD</td>
<td>6 40</td>
<td>5 50</td>
<td>11 44</td>
</tr>
<tr>
<td>Family</td>
<td>5 33</td>
<td>4 40</td>
<td>9 36</td>
</tr>
<tr>
<td>Miscellaneous</td>
<td>1 7</td>
<td>4 40</td>
<td>5 20</td>
</tr>
<tr>
<td>Husband</td>
<td>1 7</td>
<td>2 20</td>
<td>3 12</td>
</tr>
</tbody>
</table>

Note. E – Enrolled, NE – Non-enrolled, numbers reflect multiple responses from some women.

An issue that appeared separate from positive or negative referents is the concept of support for overall healthy behaviors. Up to 44% of respondents heard positive support for exercise, diet, and other cardiovascular health promotion recommendations, often in lieu of recommendations for CR from their physician.
This is especially interesting when assessing the NE population where 50% of primary physicians recommended health promotion activities yet, 0% of primary MD’s and only 10% of cardiologists recommended CR to the NE group.

**Facilitating/Constraining Factors Construct**

Over two-thirds of the women mentioned transportation (80%) and accessibility to CR (68%) as the primary facilitators and barriers to attending. The following comments exemplify the thoughts of women who saw transportation as a facilitator or as a barrier. “Well right now he's taking me. Eventually I'll be driving myself. Only takes us 5 minutes.” Or “We have a problem with driving. If you've got to go somewhere every single day, it's almost impossible for us.” Slightly fewer women (64%) felt that financial ability to pay for CR was a barrier because insurance covered most costs. Almost half of the women felt over-scheduled because of other medical appointments or personal time constraints. However, twice the number of NE respondents saw this as an issue compared to enrolled respondents (4 E; 8 NE). Other factors which may influence enrollment in CR include support by health care professionals “Well I thought someone was going to call me and set it up to tell you the truth.”, support from the work environment for the women who were employed “They are letting me out as much time as I need for rehab or recoup.”, and support of family in terms of helping with transportation or other needs. Thirty-two percent of the women indicated that having the opportunity to bring someone to CR, “It's always fun to have a
companion that you're accountable for.”, would facilitate the CR experience (40% E; 20% NE).

Table 9. Environmental Influences on CR Enrollment

<table>
<thead>
<tr>
<th>Variable</th>
<th>E (n=15)</th>
<th>NE (n=10)</th>
<th>Total (n=25)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Environmental factors</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td>12 80</td>
<td>8 80</td>
<td>20 80</td>
</tr>
<tr>
<td>Accessibility</td>
<td>12 80</td>
<td>5 50</td>
<td>17 68</td>
</tr>
<tr>
<td>Finances</td>
<td>11 73</td>
<td>5 50</td>
<td>16 64</td>
</tr>
<tr>
<td>Over-scheduled</td>
<td>4 27</td>
<td>8 80</td>
<td>12 48</td>
</tr>
<tr>
<td>Health care support</td>
<td>9 60</td>
<td>2 20</td>
<td>11 44</td>
</tr>
<tr>
<td>CR exercise partner</td>
<td>6 40</td>
<td>2 20</td>
<td>8 32</td>
</tr>
<tr>
<td>Family support</td>
<td>3 20</td>
<td>4 40</td>
<td>7 28</td>
</tr>
<tr>
<td>Work support</td>
<td>5 33</td>
<td>1 10</td>
<td>6 24</td>
</tr>
<tr>
<td>Socialization</td>
<td>1 7</td>
<td>3 30</td>
<td>4 16</td>
</tr>
</tbody>
</table>

Note. E – Enrolled, NE – Non-enrolled, numbers reflect multiple responses from some women.

Past Behavior and Habits

Table 10 refers to the issues related to habits and past behaviors. Almost half the women felt they had a past health experience which influenced their decision to enroll in CR or not. “Well yes, the fact that I had the arthritis and went to therapy for it, but certainly its because I was happy with the therapy that I had. That would have certainly influenced me to do that, just to go into a program.” Family experiences also influenced CR enrollment decisions where 53% of enrolled women referred to a family member’s experience compared to only 20% of non-enrolled women. Although some women had previous experience with cardiac events this was not brought up as a reason for going, in fact one woman with a previous PTCA shared her experience “I didn't know anything about going to those
deals. I would have liked to have gone then, but it just seemed like it was 3 times a week to drive that 25 miles, 50 miles for the round trip, to go to [CR] and exercise. And I thought I was getting enough exercise doing the yard work.” Interestingly, although she is now closer to a CR program, she reported transportation as a reason for not attending CR when referred after this cardiac event.

Other health behavior histories explored in this study included recent past exercise habits with both enrolled and non-enrolled women more often stating they had not exercised (36%) or had participated in minimal exercise (32%). These numbers may be reflective of the reported disease process which frequently included a sense of fatigue, discomfort, and feelings of not being well over a period.
of time prior to admittance to a hospital. The lifetime exercise habit indicates that enrolled women had a more variable amount of activity at different points in their lives (active exercise 6%; moderate exercise 53%; minimal exercise 13%; no exercise 27%) compared to non-enrolled women (moderate exercise 60%; minimal exercise 40%). Many non-enrolled and enrolled women described heavy amounts of gardening on large lots or farming for previous activity. Respondents demonstrated a great deal of variability in lifetime patterns making it difficult to give each woman a specific designation. Instead coding was applied to a general level of physical activity completed and the number of years reported or the more recent level of activity described over the last one to two decades.

Multi-component CR programs incorporate other health behaviors in addition to exercise. Therefore, the influence of behaviors such as diet, weight control, and stress were also examined. In this study, 32% of women stated that a desire to improve nutrition could or did influence them to enroll in CR “Well, I think it would be great to have at least something about diet, because I know absolutely nothing and I had to, I’m at kind of a quandary to try to formulate meals for myself. I don’t know where to go with them. The only thing he told me, the doctor, was that salt was my biggest foe and it was more so than greases or oils or anything...”. Sixteen percent of women identified stress management as a benefit. In both diet and stress the enrolled women reported an influence more than the non-enrolled women. Weight management and smoking cessation were mentioned by less than three women.
**Intention**

EXTRA suggests that behavioral intention to enroll or not in CR can be influenced by either past behaviors/habits or facilitating/constraining factors. The timeframe women reported making their decision provides information on factors that might influence their choices. For example, 40% of the women made their CR enrollment decision sometime after hospital discharge when a CR nurse called to set up an appointment or when they visited their physician in follow-up appointments and were reminded or told about the CR option. Thirty-two percent of the women decided about CR while in the hospital. Differences are noted in groups when the decision was made at the time of the event (E 20%; NE 0%) or remained undecided even many weeks after discharge from the hospital (E 0%; NE 30%).

**Discussion**

This qualitative study was designed to explore the factors influencing the CR enrollment decisions of women using the Expanded Theory of Reasoned Action as a framework. Twenty-five post coronary event women (15 E; 10 NE) volunteered to be interviewed after they were discharged from the hospital. Women who were enrolled tended to be younger than non-enrolled women, however 33% of the enrolled women were in their 80s. Contrary to some studies which indicate more educated women attend CR, in this sample, NE women tended to have more education than enrollees (McSweeney & Crane, 2001; Missik, 1999). The
suggestion that enrollees higher educational level might be associated with their reading printed CR material is questionable based upon this study population (McSweeney & Crane, 2001).

As noted in Table 2, positive feelings, such as CR being "necessary" and "beneficial" are reflective of the individual's general feelings regarding exercise or established programs and supports Ajzen's (1989) precept that behavior will be consistent with the affective reaction. The juxtaposition of E and NE respondent feelings about the necessity of the program suggests an area for further exploration. Another area for examination is found where positive feelings for the program appear to be developed with participation and knowledge of the program. Positive emotional statements such as "good program", "glad I'm going", "enjoyable", "feel better", and "positive attitude" might be attributable to the experience of the individual attending the program or receiving a more thorough introduction to phase II CR prior to leaving the hospital. Note that only the enrolled subjects spoke in emotional terms of "feeling better" and "glad I'm going". Several of the emotions, such as resentment because of scheduling issues or inconvenience, reported by respondents are similar to those reported in the health and exercise behavior literature (Godin et al., 1986; Montano et al., 1997; Schmelling, 1985; Thompson, 1997; Timko, 1987). However, anxiety about the program (present in both groups) does not appear to be the overriding emotion influencing behavior. This finding needs more exploration to determine if there are other factors interacting with or instead of anxiety that influences enrollment decisions.
Beliefs that appear to differentiate between enrollees and NE include the concepts of a safe program, the nice staff, improving fitness and endurance, improving overall health, group support, taking positive action toward prevention of future coronary disease, and professional support for coping with the cardiac event. Disadvantages suggest both groups have problems with CR disrupting their schedules, but the concepts of social issues such as exercising in front of others and not wanting to be regimented, may be more influential. Advantages and disadvantages reported in this study echo those of other health behavior and cardiac rehabilitation research findings (Courneya & Friedenreich, 1997; McSweeney & Crane, 2001; Montano, et al, 1997; Muench, 1987; Riddle1980; Schmelling, 1985; Sonstroem, 1982; Thompson, et al, 1997; Timko, 1987).

As indicated by Ajzen (1989) beliefs appear to increase with information on CR and are reflected in the types of beliefs reported. For example, more enrolled participants listed advantages and the type of affective responses and beliefs reported by enrollees might also reflect a better understanding of CR program components and benefits. The results in Table 4 indicate that being informed about the benefits of CR may be an important link to enrolling in it. Many of the benefits listed by women enrolled at the time of the interview suggested that knowledge of the safety, equipment, staff, group support, and the opportunity for questions increased their desire to enroll in CR. This knowledge might also decrease the concerns some women had about exercising in “skimpy exercise clothes” or that CR is “just for old people”. Programs that offer flexible times for classes need to
share this information with women referred to CR to address the concern of being required to follow a specific schedule. The concept that CR is an opportunity for education is noted by both E and NE. However, women who are attending CR have a stronger recognition of this benefit suggesting that potential enrollees would benefit from having this included in the initial discussion on the CR program.

As suggested by Table 7, women who did not enroll in CR believed they received little or no information on the program, although almost all mentioned they had received the notebooks on cardiac issues provided in the hospital. Other researchers reported 50% of their population did not remember being offered or being referred to CR (McSweeney & Crane, 2001). This study supports the recommendations to study the effects of hospitalization stress and memory altering medications on CF (McSweeney & Crane, 2001). In addition, exploration of the public understanding of inpatient Phase I CR and outpatient Phase II CR program purposes and continuity is advised. It is possible that nurses and physicians are assuming that women understand the program spectrum and are not re-issuing a direct invitation to continue the program initiated in the hospital. This comment by one NE exemplifies this idea “Well, it would be alright, but I don't know whether he [physician] felt I needed it or not. I just don't know, because nothing was said about it. I mean the only thing said to me was what they had me do there at the hospital.”

Another consideration is that a majority of the non-enrolled women were coded as passive information seekers suggesting they may not seek additional CR
information from other sources. One study found that faith in their physician’s expertise and a desire to avoid too much detail or “unsafe” information minimized information seeking behaviors in cancer patients (Leydon, Boulton, Moynihan, Jones, Mossman, Boudioni & McPherson, 2000). Further, the desire to seek more information on cancer was related to their disease management choices which included a perceived need to give the appearance of getting on with life and having a positive outlook about the disease. Because patients believed this appearance was called for by the health care team, they also believed that asking for information diminished their positive appearance in the view of the health care team (Leydon et al., 2000). Those cancer patients that do seek further information may be more stressed, and prefer greater information about and involvement in their disease, and have been less confident in their physician’s level of current knowledge (Manfredi, Czaja, Price, Buis, & Janiszewski, 1993). This concept needs further exploration specific to CR.

Cardiac rehabilitation information sources preferred by the NE women are cardiologists and primary physicians. In this study, cardiologists did talk to most of the non-enrolled women about CR, but as stated by the respondents, did not provide enough information or encouragement. “Really I can't think of anything else, because I would think that anyone would be motivated to do it if they were encouraged by their doctor that this is something that they really should do. But if the doctors are going to continue with this attitude that 'oh you can do it yourself', that is pretty discouraging about going, making up your mind 'well I'm gonna do it
anyhow'. It is also important to note that just under half of the non-enrolled women usually gain health care information from media sources such as videos, books, internet, and television. “Well, there is a great deal, you know, lots of magazines on the importance of exercise and exercising. But I haven't run into anything particular that might be helpful. I don't take that type of magazine. That would be my major source of information. I'm sure that there are probably things on the internet, but I am not as familiar with the internet as my husband is.”

Previous studies suggest that social support has some influence on most health behaviors in cardiac patients (Miller, Wikoff, McMahon, Garrett, & Ringle, 1988; McMahon, Miller, Wikoff, Garrett & Ringle, 1986). Recently, Missik (1999) found that social support was not an important predictor of CR enrollment for women as both E and NE women equally perceived support. Table 8 suggests that positive support for CR may be an important factor where the enrolled population received verbal support for enrolling in CR from their preferred information source, their cardiologist, whereas only one unenrolled woman received support from her cardiologist. While other research demonstrates that physicians do not refer women to CR (Missik 2001), it is important to note that all the women in this study were referred, but may not have received verbal support from their physician. This NE woman’s comments provide one example. “Neither doctor recommended it. They said they thought I could manage on my own.”

Family support appeared to be a moderate influence either from direct verbal support for CR or a perception of support. In the married half of the population
husband's offered stronger verbal support for those who had enrolled (100% of married) versus those not enrolled (50% of married) although the rest of the non-enrolled women perceived positive support from their husbands. Routinely, cardiac rehabilitation nurses approach patients while they are still in hospital to discuss CR, yet few women reported hearing positive comments from the nurses, even when more than half reported receiving information on CR from them. Similar to physicians, nurses must also increase their awareness of the need to provide positive comments on CR at the time information is provided.

Past experiences and habit have been determined to be important influences in attending CR. Contrary to other researchers (Godin, Valois, Jobin & Ross, 1991; Harlan, Sandler, Lee, Lam, & Mark, 1995), recent exercise was not an important factor with the women in this study. However, lifetime occasional exercise might be a factor worth further exploration using more specific parameters. Other researchers have not examined lifestyle health behavioral influences other than exercise related to CR choices. However, the findings in this study suggest that a desire to improve and learn about diet should be further examined as an important variable in the CR enrollment decision-making process.

Some studies have indicated that past experience with CR may be a reason for enrolling in the program. As suggested in Timko's study (1987), the women who enrolled in CR may have been exhibiting a habit to find health care resources when ill and those who had poor experience with health care may avoid these services because of the negative experience. A stronger influence was noted with the
women whose family members experienced rehabilitation at some time. This factor may also be reflected in the 32% of women who heard about CR from the experiences of others. Again, more assessment of this variable would be beneficial in understanding women’s CR enrollment choices.

The conditions which make it easier or harder to enroll in and attend CR have been assessed more frequently than any other factor. Study results here are consistent with other research in that transportation, accessibility, and finances are high on the list of factors that influence women’s decisions. Women who were attending found that bus lines, family members assistance, and having a personal car were facilitators. Women who chose to not attend believed that lack of transportation in any form was a primary factor. Accessibility included issues such as distance to the facility and ease of enrollment. Many women felt that although insurance covered their enrollment, they would have paid for CR themselves because of the positive benefits they perceived. Other women felt they could not attend CR unless it was covered by insurance and in some situations, lack of coverage was the reported barrier. Primarily, women in the non-enrolled group found that being scheduled for many health care appointments caused enough stress to provide a barrier to enrolling. Support in terms of health care included things like receiving calls from the CR staff to schedule CR, family support for transportation and other services, and work support with time flexibility and creative sick leave to attend CR. Although having a support person attend CR at
the same time was reported as desirable, it was not a factor that specifically enabled participation or provided a barrier to enrolling.

McSweeney and Crane (2001) suggest an effective intervention would be to have women visit an onsite CR program prior to discharge in addition to providing the patient with verbal and written information. Although women in this study also suggested in hospital CR visit, women may also be open to discussing CR enrollment many weeks after hospital discharge. Forty percent of both E and NE women did not make a decision until this time. Further information needs to be gathered to determine effective strategies and optimum timeframes for gaining CR enrollment interest.

Limitations to this study were the convenience sample, the relatively small subject size, and the lack of generalizability. Despite the limitations, this research has value to those working with post-cardiac event women and cardiac rehabilitation. Many of the findings are found in other health and exercise behavior literature and the questions raised by some of the issues discussed in this report provide areas for continued exploration and application. Improved understanding on the influences of women's CR enrollment decisions will assist health care professionals in approaching women. Future research should explore the question of anxiety, information seeking patterns of post-cardiac women, and the roles of supporters testing these findings with a larger population.
Conclusion

Heart disease is the primary cause of mortality in women and is crossing the menopausal boundary to include women in their 30s and 40s. Continued interventions to prevent coronary disease in either the primary or tertiary stages should be encouraged. Cardiac rehabilitation is documented as a beneficial program post-coronary event for reducing additional effects from heart disease. More research must be completed before the information found in this study can be fully understood. Influences that need further study include the perceived necessity of CR, the role of the cardiologist and nurses in providing support for enrollment, the timing of CR education, the inclusion of key benefits in any information on CR, and the benefits of active marketing of CR to women as many will not seek this information themselves. Further exploration of the barriers and enablers related to CR and the role of desired dietary information and the lifetime exercise habit would offer additional information. By identifying the factors that encourage women to attend this program, health care professionals can tailor their initial approaches to women to describe CR, identify and remove the barriers to female enrollment, thus enabling more women to receive this health promoting benefit.
Article 3: Perceptions Of Post-Coronary Event Women And Their Support Person On Cardiac Rehabilitation Enrollment Decisions

Abstract

Social support has been studied in relationship to health care issues, including cardiac disease. An important area to understand is the influence that supportive individuals have on the recovering female’s choices for cardiac rehabilitation (CR). This study qualitatively explored one facet of this issue by assessing the factors influencing women’s CR enrollment decisions from both the female and their support person’s perspective.

Fifteen women enrolled in CR, 9 not enrolled, and their support persons were interviewed separately to explore the emotional, appraisal, informational, and instrumental support related to CR enrollment choices of the post-coronary event female.

A primary finding in this study was the perceived lack of informational support. Of note 100% of non enrolled women and 73% of enrolled women reported they did not receive enough information on CR. Although support people felt slightly more information was provided, they reinforced the woman’s perceptions. Appraisal support found that education, a focused regulated program, a safe program, improved fitness and endurance, and improved overall health were the top five advantages listed for CR. Issues related to emotional support suggested that women and their supporters did not discuss CR affect as few supporters reported affect. Agreement was noted on the issues of CR necessity. A higher
percentage of supporters thought women were anxious about CR than was reported by the women. Additionally, Enrolled women and their supporters reported more positive verbal support from cardiologists, family, and husbands than did the non-enrolled groups. Instrumental support indicated the importance of transportation, accessibility, and financial support to both enrolled and non-enrolled groups as either enablers or barriers.

More information needs to be provided to women and possibly their supporters. Additionally, an understanding of the beliefs, emotions, enablers, and barriers has the potential for improving the type of emotional, informational and instrumental support given to post-cardiac event women and their supporters. This study has initiated an exploration of these important issues and more research is necessary to further expand on the information presented.

**Introduction**

Women are increasingly sharing the burden of cardiac illness as demonstrated by the 49.5% who accounted for the coronary heart disease (CHD) deaths in 1999 (American Heart Association [AHA], 2002). Another trend noted is the 30% increase in sudden cardiac death in women 15-34 from 1989-1996 (AHA, 2002). These numbers highlight the importance of understanding the factors associated with CHD in women. Data also indicate that women who survive their coronary event, have a worse prognosis and quality of life secondary to a poorer clinical, socioeconomic, and psychosocial profiles compared to men.
(Shumaker, Brooks, Schron, Hale, Kellen, Inkster, Wimbush, Wiklund, & Morris, 1997). The American Heart Association (2002) also reports that after an myocardial infarction (MI), women have a higher incidence of death within one year compared to men (38% vs 25%), of suffering a second MI within six years (35% vs 18%), and of being disabled with heart failure (46% vs 22%).

One valuable service that meets many of the post-cardiac event needs described is cardiac rehabilitation (CR). This service is initiated in the hospital with a series of gentle exercises and education geared to help the patient recover energy, stability, and reduce the risk of secondary complications. After the patient has been discharged from the hospital, they can enter into phase II CR which deals with social support issues as well as continuing the physical aspect of regaining strength. During phase II CR, a three month comprehensive program, participants are involved in medical evaluation, prescribed exercise, cardiac risk factor modification, education, counseling, and behavioral interventions (Pashkow, 1993). Multiple clinical studies document the effectiveness of CR (Bairey Merz, Felando & Klein, 1996; Engblom, Korpilahti, Hamalainen, Puukka & Ronnemaa, 1996; Hamalainen, Luurila, Kallio & Knuts, 1995; Klainman, Fink, Zafrir, Pinchas & Spitzer, 1997; Lavie & Milani, 1994a; Lavie & Milani, 1996a; Lavie & Milani, 1996b; Lavie & Milani, 1997a; Maines, Lavie, Milani, Cassidy, Gilliland & Murgo, 1997; Milani, Lavie & Cassidy, 1996; Wenger, Froelicher, Smith, Ades, Berra, Blumenthal, Certo, Dattilo, Davis, DeBusk, Drozda, Fletcher, Franklin, Gaston, Greenland, MCBride, McGregor, Oldridge, Piscatella, and Rogers, 1995).
Although many possible contributors to positive and negative health outcomes for CHD have been considered, key factors that have not been adequately considered relate to factors surrounding individual decision making about recovery phase issues such as CR. The belief patterns, emotions, prior experiences and habits, and possible barriers that influence cardiac recovery issues and preventive action choices have been assessed to some degree in the literature, but few studies have looked at these influences in women. Another important area for exploration is the influence that supportive individuals in the recovering female’s social network have on her choices.

The support persons to assess specific to coronary recovery and prevention are the woman’s loved ones, health care professionals, and other important individuals in her environment. Support from these individuals has been documented as an important factor in improving cardiac health and choosing beneficial health behaviors (Krumholz, Butler, Miller, Vaccarino, Williams, Mendes de Leon, Seeman, Kasl, & Berkman, 1998; Sullivan & Sullivan, 1997; Oxman & Hull, 1997). Social support is an important component in health care research, although there is not as much data on women related to cardiac illness. In a study of 232 adults older than 55 years of age, researchers found that those without social groups and religious affiliation increased their risk of dying by over 300% (Oxman, Freeman, Manheimer, 1995). Individuals aged 65 and older (n = 292) who were hospitalized with a diagnosis of heart failure who had no emotional support were at an increased risk (OR, 2.4, 95% CI, 1.1-4.9) for additional cardiovascular
problems. After adjusting for demographic factors, clinical severity, comorbidity, functional status, social ties, and instrumental support, the individual without emotional support had three times the risk (OR, 3.2, 95% CI, 1.4-7.8) of increased morbidity or mortality. The risk of illness or death for women was significantly higher (OR, 8.2, 95% CI, 2.5-27.2, \( p = .01 \)) compared to men (Krumholz et al., 1998). Although it appears that social support may have direct or indirect effect on the morbidity and mortality, the exact mechanisms remain elusive. Clearly, more information on social support for women who have suffered a cardiac event is necessary.

**A Definition of Social Support**

Social support, as a concept, has been defined in the literature in multiple disciplines. Social support characteristics describe the structure, processes, and functions of social relationships. The umbrella concept of social support incorporates the social network, the type and amount of social support, and the adequacy of that support (Oxman & Hull, 1997). This concept as it applies to relationships can be divided into four functions: emotional support, instrumental support, informational support, and appraisal support (House as cited in Heaney & Israel, 1997).

Each component is briefly described within the context of health care. Emotional support might be related to positive or negative comments on a behavioral choice from a valued support person, such as family, friends, and health
care providers. Appraisal support consists of offering self-evaluative information to the individual, such as constructive feedback and affirmative statements. This type of support may also relate to the type of information a provider can give. Further appraisal support is provided by family, friends and co-workers and may relate to the patient’s ability to perform in their chosen life roles. Instrumental support consists of services or assistance to an individual, such as transportation, a willingness to attend a program with the patient, or volunteering to pick up information regarding lifestyle changes. Tangible support offered within this construct can specifically include financial aid and other types of concrete or physical support of value to the woman. Those services that specifically remove barriers to preventive and health care action are particularly valuable. The person offering instrumental support may be a hospital or staff member, a family member, a health care professional, or the support may come in the form of program structures (van rides or scholarships). Informational support consists of sharing information and education relevant to the individual’s needs and questions. Frequently, this type of support falls to the health care professional and staff to supply information on the patient condition, service options, and financial coverage for each option.

The Social Network of the Recovering Post-Coronary Female

Although each form of support is independently important, a review of the literature suggests a need for multiple support individuals and a blend of forms of
support as well as professional and personal support services (Yates, 1995). In a qualitative analysis of ten first-time post-coronary arterial bypass graft (CABG) women and men, Goodman (1997) reports several areas for improving social support. Patients in Goodman’s study did not feel they had been adequately prepared to manage the discomferts and changes found post-cardiac event, indicating a lack of informational support. Patients also want more information on their medical condition in the form of assurance on their health status, details on their surgery, and reasons for their coronary event. Other practical information needs relate to exercise status, changes in appetite and nutrition requirements, medication, appropriate use of pressure control hose, complete wound care instructions, and driving restrictions (Goodman, 1997).

Goodman’s (1997) study group reported a connection of psychological state with the recovery process. In the initial stages of recovery clients experienced more negative affect, such as apathy, depression, mood swings, and an unwillingness to be with others, when enduring restricted activity and boredom. As functional ability increased and pain decreased, clients experienced the more positive emotions of euphoria and joy. Individuals indicated a need for appraisal support to encourage a positive attitude and personal responsibility to accept early limitations, pace activities, provide self-care and to take charge of personal health (Goodman, 1997). The frustration associated with limited activity in daily routine required emotional and instrumental support until functional ability returned. Most of Goodman’s subjects reported a desire to be linked to the hospital via literature
and phone contact as well as a need for peer support, general companionship and a strong need for spousal support in the first six weeks. One client stated “you leave here [hospital] having been nurtured and looked after and you go outside and there is nothing. There is one big cut-off” (Goodman, 1997, p1249).

Yates (1995) found that instrumental support was related to better short-term psychological recovery in men after a cardiac event. Whereas, emotional support and a satisfying relationship were associated with better short- and long-term psychological recovery outcomes. Health care professional support was more frequently associated with short- and long-term physical recovery. Social support within the context of stroke victims also indicates that while emotional, instrumental, and informational support were all related to recovery, the impact of social support did not appear until after the first month of recovery (Glass & Maddox, 1992). High levels of emotional support showed dramatic improvements in functional capacity, even when starting with low baseline functional abilities. Instrumental support was most effective when provided in moderate amounts. Even in a healthy population, appraisal and informational support are important variables for determining whether women will adhere to an exercise program (Duncan, Duncan, & McAuley, 1993).

Clearly, social support is an important factor in the experience of cardiac recovery in women. Whether this social support relates to feelings of safety or emergency assistance or whether it is related toward more direct assistance with decisions during weakened or vulnerable times remains in question. One of the
reasons for this lack of understanding is that in the research on social support in post-cardiac event individuals, many of the studies reflect on the social support needs and solutions for men. Only recently have women been enrolled in these studies creating a need for more information to better understand their needs and create solutions to better meet those needs. Yet, some information on the needs of women may be drawn from relevant sources. The primary support system for most cardiac patients are family, physicians, and if accessible, the cardiac rehabilitation staff. The following sections will address the specific issues related to primary support during the cardiac recovery experience.

**Family/Caregiver Support**

Resource support of the family is as important as support provided directly to the patient, because the family is a primary source of support for the recovering cardiac female and the cardiac illness impact on the family is significant (Ell, 1996). Cardiac patients’ primary support are their families. As caregiver burden increases, the recovering cardiac female may be further burdened by the perceived stress of her support system (Antonucci, Sherman, and Vandewater, 1997). Caregivers may perceive the level of difficulty of their support differently when comparing physical assistance efforts with emotional or appraisal support of the ill family member (Antonucci et al., 1997). The perception of caregiver burden and primary support reaction to the cardiac illness of the woman are dependent on resources available.
Adult daughters are the primary providers of the family care provided to almost 80% of chronically ill or functionally limited elders living in their homes (Beal, Pratt, & Schafer, 1993). Daughters of women 65 years of age and older provide both psychological and instrumental aid to their mothers (Walker & Pratt, 1991). In fact adult daughters attempt to prevent and care for health problems by completing many tasks within a home, provide emotional and appraisal support through nurturing activities which foster growth, and encourage independent function (Allen & Walker, 1992).

These types of support from daughters and other family members are necessary after a cardiac event. Family members may experience heightened affect post-cardiac event (Bengtson, Karlsson, Wahrborg, Hjalmarson & Herlitz, 1996; Ross & Graydon, 1997) and post-hospitalization (Fleury & Moore, 1999). The sense of stress may not be relieved by typical hospital support services (Dickerson & King, 1998; Norman, 1997). Dhooper (1983) found that about two-thirds of the families in the study reported permanent changes in the family lifestyle because of a coronary event in one member. Emotional health was the most vulnerable characteristic of the family, necessitating specific support services. Families also experienced financial burden, stress, and changes in roles. Families coped with these changes by relying on their social networks, unfortunately few of the families received any help from formal programs.

One reason may be related to family beliefs. When the individual returns home after the cardiac event the spouse, and possibly other family members, feels a
sense of sole responsibility for care, increasing their need for informational support (Dickerson & King, 1998). However, researchers found that spouses’ perception of the illness influenced their help-seeking responses (Dickerson & King, 1998). Perceptual influences included past experience with illness and the health care system. Professionals who attempt to gain spousal support for programs may be more successful if the spouse understands how their support affects the cardiac patient (Daltroy & Godin, 1989). When spouses sought informational support, they asked a variety of health care professionals, but nurses, CR staff, and observation of other cardiac patients offered more effective support. For example, spouses who attended CR with the patient increased their confidence that they could care for their spouse after witnessing the recovery of others (Dickerson & King, 1998).

Spouse and patient needs most commonly include education, prevention, and social services (Doherty & Power, 1990; Montgomery & Amos, 1991), support groups and referral to community services (Monahan, Kohman & Coleman, 1996).

**Cardiac Rehabilitation Professional and Physician Support**

Support from physicians, other medical support staff, and with peers who have suffered similar crises is an identified need of cardiac patients (Bramwell, 1990; Gerlach, Gambosi & Bowen, 1990; Goodman, 1997; Montgomery & Amos, 1991; Thoits, 1986). This type of support provides a sense of control and understanding of the recovery process and an assurance of current health after a brush with mortality.
The need for informational, instrumental, emotional and appraisal support can be assessed and addressed by cardiac support staff in the hospital and continued in Phase II CR. This type of continuous care allows for evaluation of the patient and their needs, planning for individualized interventions, and discussion of specific information for independent functioning (Fletcher, 1993). Regardless of the type of program or who delivers the message, patient learning and health outcomes improve because of the contact and the informational support provided (Baranson & Zimmerman, 1995; Mullen, Mains & Velez, 1992). For example, patients respond to information on how to survive the first six weeks at home, especially when provided in a rehabilitation intervention that meets their specific needs and interests in a supportive environment (Castelein & Kerr, 1995).

In today’s health care environment, the key to providing this type of continuing care for coronary patients is the health care provider, usually the cardiac surgeon, the cardiologist or the primary care physician (Ades, Waldman, McCann & Weaver, 1992). Unfortunately, physicians have not demonstrated strong referral and educational practices for health promotion in general or cardiac based issues in specific (Legato, Padus & Slaughter, 1997). Primary care physicians frequently assume the follow-up care of the patient, managing lifestyle changes to reduce CHD risk (Kahn, 1993). Many physicians are reluctant to support post-coronary physical activities because of their concern over the prognosis, even in the face of cardiologist recommendations (Pillote, Thomas, Dennis, Goins, Houston-Miller, Kraemer, Leong, Berger, Lew, Heller, Rompf, & DeBusk, 1992).
Physician beliefs about CR play an important role in the referral process. Those physicians who do not feel their patient has an ability or need for exercise will not refer the patient to CR. A typical response of the non-supportive MD is reflected in the comment of one cardiologist ""Cardiac rehab doesn't do anything physical that I can tell except take a poorly conditioned, middle-aged, potbellied businessman and tune him up a little. It's just an opportunity to proselytize no cigarettes and cut down on cholesterol.... Twenty minutes of exercise three times a week does not prolong life. You'll never convince me of that."" (Cardiology Preeminence Roundtable, 1994, p161).

Another study surveyed physician beliefs about their role in providing emotional, informational, and instrumental support to their clients (Weschler, Levine, Idelson, Schor, & Coakley, 1996). Less than half of the physicians felt that it was their responsibility to know about community resources or educate their patients about those resources. Sixty-three percent believed they should provide emotional support, but only 29% believed it was their responsibility to involve or motivate other family members to participate in patient's health behavior. When patients are not referred to CR, they are being denied primary resources for support of both themselves and their primary support network of family, friends, and companions.

This lack of support for the family and the female cardiac patient creates an undue burden on individuals who are already overwhelmed with the recovery process. Other influences such as affect, perceived benefits of CR, and facilitating
and constraining condition are factors that need to be explored for a better understanding of women’s CR enrollment choices. This research proposes to assess the factors influencing women’s cardiac rehabilitation enrollment decisions once they are referred to the program. The primary determinants of enrollment must be identified to enable creative interventions to increase female participation in this secondary prevention program. The potential reduction in post-coronary event mortality and morbidity in women who complete cardiac rehabilitation makes this a significant public health research concern.

**Methods**

Twenty-four women (15 enrolled in CR [ECF] and 9 not enrolled [NECF]) were recruited from three Oregon hospitals in a large metropolitan area. All of the women were referred to CR by their physicians and lived within one hour’s drive of a CR program. In addition, each had been hospitalized for care related to an MI, a surgical intervention (CABG), or a combined medical (MI) diagnosis and a procedural intervention (Peripheral Transluminal Coronary Angiography [PTCA], Stent). The respondents were purposefully recruited by the CR nursing staff prior to discharge. An in depth description of recruitment methods and instrument development is described within the second article of Chapter 4. Once women consented to participate in the study, they were asked to provide the name and contact information for the person they discuss their health care decisions with and trust most to do this. Twenty-four support persons (SP), 15 for the enrolled women
(ESP) and 9 for the unenrolled women (NESP) were interviewed separately from the cardiac female (CF) using a similar interview guide.

**Results**

This study assessed the factors associated with the decision to enroll or not enroll in CR as described by post-cardiac event women and their support persons. Each cardiac female was asked questions during a semi-structured interview on their feelings, beliefs, facilitating/constraining conditions, information sources, and social support in relation to CR. Their support person was asked to provide their understanding of how they believe their loved one would answer each of those questions in a separate interview. Each of the support categories revealed information on the factors associated with CR enrollment and were assessed for overall perceptual agreement between the CF and SP.

**Demographics**

The cardiac female respondents either had a bypass (E 60%; NE 60%) or an MI alone or with a PTCA or stent (E 40%; NE 30%). Most women had no previous history of CHD (E 87%; NE 78%). Of those who had previous CHD, two enrolled women reported MIs one in 1984 and the other in 1988. Of the two non-enrolled women who reported CHD history; one had a stent in 1995, and the other a PTCA in 1997. The women identified the person they most trusted to discuss their health decisions with were spouses (E 33%; NE 44%), daughters or daughter-
in-laws (E 47%; NE 44%), friends (E 7%; NE 11%), and mother (E 13%; NE 0%). Overall, the enrolled women had slightly more female support than the unenrolled group (E 67%; NE 56%).

Table 11 provides comparisons between the enrolled and non-enrolled women and their support persons. The mean age of enrolled women was 59 years (range 40-80) compared to 71 years (range 58-84) of the non-enrolled women. Because almost half of the support persons did not provide information on their age, it is difficult to accurately estimate the differences in the means of the enrolled support person and the non-enrolled support person.

More than half of ECF and NECF are married or living with a partner (E 56%; NE 67%). The enrolled SP show a similar pattern of marriage (73%), but the NESP are more likely to be single, divorced or widowed (44%). Just over half of enrolled women (53%) had 12 years or less of schooling compared to NE women where 67% had more than 12 years. Their support persons all demonstrated higher levels of education. Many women refused to answer the question on income, however it appears that ECF are slightly more affluent, yet SP of the non-enrolled women reported higher overall incomes. More NECF had medicare as an insurer (ECF 40%; NECF 78%), but ECF reported more variety in health maintenance (ECF 46%; NECF 0%) and private plans (ECF 20%; NECF 22%). Support persons demonstrate a variety of plans.
Table 11. Participant Socioeconomic Demographics of Post-Cardiac Event Women and Their Support Persons

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cardiac Female</th>
<th>Support</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E (n=15)</td>
<td>NE (n=9)</td>
</tr>
<tr>
<td></td>
<td>#</td>
<td>%</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>30's</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>40's</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>50's</td>
<td>5</td>
<td>33</td>
</tr>
<tr>
<td>60's</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>70's</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>80's</td>
<td>5</td>
<td>33</td>
</tr>
<tr>
<td>Missing</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Marital status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single*</td>
<td>7</td>
<td>47</td>
</tr>
<tr>
<td>Married/Live with Partner</td>
<td>8</td>
<td>53</td>
</tr>
<tr>
<td>Dependant</td>
<td>Yes</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>No</td>
<td>13</td>
</tr>
<tr>
<td>Education</td>
<td>HS/GED/or less</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Tech school/some college</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>College</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Grad/post-grad/prof</td>
<td>0</td>
</tr>
<tr>
<td>Income</td>
<td>Missing</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>$1-17,500</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>$17,500-30,000</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>$30,000-50,000</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>$50,000-85,000+</td>
<td>3</td>
</tr>
<tr>
<td>Insurance</td>
<td>None</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Medicare</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>HMO</td>
<td>6</td>
</tr>
<tr>
<td></td>
<td>Oregon Health Plan</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Private insurance</td>
<td>1</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>2</td>
</tr>
</tbody>
</table>

Note: E – Enrolled, NE – Non-enrolled, some respondents may have more than one response.
*Single Includes Never married, Divorced, or Widowed.

Table 12 discusses the health of the cardiac female. The series of questions asked women to rate their feelings of depression and their health today and as compared to one year ago. The support persons were asked to rate the same
information as they believe their loved one would rate it. The majority of SP reported perceptions of CF depression in both enrolled (60%) and non enrolled (56%) populations compared to the CF (ECF 27%; NECF 22%). Women's perception of the depressed state is very different from their SP, yet when broken out to amount of depression felt over the previous month results were roughly similar between the enrolled CF and SP in each category. Between the non enrolled CF and SP differences are only noted in the none (NECF 67%; NESP 22%) and some of the time (NECF 22%; NESP 67%) categories. Possibly the difference is a disparity in the understanding of the time frame involved or in the definition of depression. More of the women felt they had average to excellent health (ECF 87%; NECF 77%), whereas SP beliefs were somewhat different. Similarly, the women felt their health compared to a year ago was about the same or better (ECF 73%; NECF 78%) and the SP were divided in their beliefs.
Table 12. Cardiac Female and Support Person Perception of CF Health Demographics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cardiac Female</th>
<th>Support</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E (n=15)</td>
<td>NE (n=9)</td>
<td>E (n=15)</td>
</tr>
<tr>
<td>Ever Felt Depressed Every Day for Two Weeks</td>
<td>#</td>
<td>%</td>
<td>#</td>
</tr>
<tr>
<td>Yes</td>
<td>4</td>
<td>27</td>
<td>9</td>
</tr>
<tr>
<td>No</td>
<td>11</td>
<td>73</td>
<td>6</td>
</tr>
<tr>
<td>Perception of Amount of Depression in Previous Month</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>None</td>
<td>5</td>
<td>33</td>
<td>3</td>
</tr>
<tr>
<td>Some of the time</td>
<td>8</td>
<td>54</td>
<td>7</td>
</tr>
<tr>
<td>A lot of the time</td>
<td>2</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>All of the time</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Patient's perception of health (1-10)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) very poor-(4)</td>
<td>2</td>
<td>13</td>
<td>6</td>
</tr>
<tr>
<td>Average</td>
<td>6</td>
<td>40</td>
<td>5</td>
</tr>
<tr>
<td>(6)-excellent health (10)</td>
<td>7</td>
<td>47</td>
<td>4</td>
</tr>
<tr>
<td>Patient's perception of health compared with 1 year ago (1-10)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(1) much worse-(4)</td>
<td>4</td>
<td>27</td>
<td>3</td>
</tr>
<tr>
<td>About the same</td>
<td>5</td>
<td>33</td>
<td>5</td>
</tr>
<tr>
<td>(6)-a lot better (10)</td>
<td>6</td>
<td>40</td>
<td>7</td>
</tr>
</tbody>
</table>

Note: E – Enrolled, NE – Non-enrolled, some respondents may have more than one response.

**Emotional Support**

Two sources of emotional support were explored in this study. First an effort was made to determine the emotional responses surrounding CR from the perspective of the CF and the perceptions of her SP. Striking results are seen within table 13. Initially, observe that both CF and support persons' perceptions indicate women have primarily positive emotions about CR, although enrolled...
women demonstrate higher percentages of positive emotions and lower percentages of negative emotions compared to their non-enrolled counterparts.

Table 13. Cardiac Female and Support Person Perception Emotional Support Related to Affect

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cardiac Female</th>
<th>Support Person</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E (n=15)</td>
<td>NE (n=9)</td>
</tr>
<tr>
<td>Positive Affect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Good Program</td>
<td>11 73</td>
<td>2 22</td>
</tr>
<tr>
<td>Reassured</td>
<td>10 67</td>
<td>2 22</td>
</tr>
<tr>
<td>Necessary</td>
<td>10 67</td>
<td>1 11</td>
</tr>
<tr>
<td>Beneficial</td>
<td>8 53</td>
<td>2 22</td>
</tr>
<tr>
<td>Confident</td>
<td>8 53</td>
<td>2 22</td>
</tr>
<tr>
<td>Enjoyable</td>
<td>6 40</td>
<td>1 11</td>
</tr>
<tr>
<td>Feel better</td>
<td>7 47</td>
<td>0 0</td>
</tr>
<tr>
<td>Positive Attitude</td>
<td>5 33</td>
<td>1 11</td>
</tr>
<tr>
<td>Glad I'm going</td>
<td>5 33</td>
<td>0 0</td>
</tr>
<tr>
<td>Eager</td>
<td>4 27</td>
<td>0 0</td>
</tr>
<tr>
<td>Confidence builder</td>
<td>3 20</td>
<td>0 0</td>
</tr>
<tr>
<td>Negative Affect</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anxious</td>
<td>6 40</td>
<td>3 33</td>
</tr>
<tr>
<td>Unnecessary</td>
<td>1 7</td>
<td>6 67</td>
</tr>
<tr>
<td>Resents being</td>
<td>1 7</td>
<td>3 33</td>
</tr>
<tr>
<td>scheduled</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: E – Enrolled, NE – Non-enrolled, numbers reflect multiple responses from some women.

For example, the feeling that CR is beneficial is more prevalent in the enrolled population than the NE (E 53%; NE 22%) and the feeling of resentment is noted by more unenrolled women than enrolled (E 7%; NE 33%). Second, support persons overall report fewer perceived emotions than the CF and the order of the affective responses are different. For example, CF report feelings that the program is good
(54%), of being reassured (50%), and the necessity of CR (46%) as the top three feelings. Support persons report feelings of being reassured (33%), a positive attitude (33%), and confidence in CR (29%) as their perception of CFs most frequently stated feelings. What is most striking about the numbers within the table are the large number of non-enrolled women’s feelings that are not recognized by their support persons.

There is a little more agreement on the negative emotions reported. Both CF and SP frequently reported anxiety although the SP perceived this to be more important than the CF (CF 38%; SP 63%). The feelings of the program being unnecessary (E 25%; SP 29%) and the resentment associated with scheduling (CF 17%; 29%) were both recognized as important emotions by the support person, but in slightly different percentages from the CF. Of interest a similar inverse relationship is noted between CF and SP related to the feeling that CR is necessary in the enrolled group and unnecessary in the non-enrolled group. The following statements exemplify the feelings of women and support persons.

“I just don't want to. It would be like going to a gym or something, and I've never wanted to do that. I feel as if there's enough exercise for me to do around here.”

“I think if she wasn't in this place, and was like some people have to live in a little small apartment or something and just set and look out the window and not do anything, then I would say yes, it would be a different story. But she has plenty of room to be active around here, walking up and down stairs.”
"Well, um, I assume that if you've heart attack you need it."

"...she would encourage anybody. This is so necessary. If you want to regain your health, you must attend."

A second type of emotional support was measured when the women were asked who provided them with positive or negative verbal support for CR. The support person was asked who they perceived their loved one would list in the positive or negative support categories. Eight percent or fewer of the women and their SP listed anyone as giving negative support for CR and were not included in Table 14. These examples from CF suggest that negative verbal support may not be a factor in this study.

"No, she supported me doing those things, but she felt that if I didn't really feel good I shouldn't go yesterday. But she thinks that its good that I get out and do things, but she's always afraid that I'm going to overdo and try to push things too fast. Both of my girls are that way."

"Neither doctor recommended it. They said they thought I could manage on my own."

"Anyway, [my husband] would never go to something like that....But I wouldn't say he's against me going. And if I had asked him, 'well should I do this, I can't make up my mind, I don't know what to do,' he might have said, 'well, do you really need that?'"
Table 14. Cardiac Female and Support Person Perception of Emotional Support Related to Referent

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cardiac Female E (n=15)</th>
<th>NE (n=9)</th>
<th>Total (n=24)</th>
<th>Support Person E (n=15)</th>
<th>NE (n=9)</th>
<th>Total (n=24)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>#  %</td>
<td># %</td>
<td># %</td>
<td>#  %</td>
<td># %</td>
<td># %</td>
</tr>
<tr>
<td>Positive Verbal Support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiologist</td>
<td>13 87</td>
<td>1 11</td>
<td>14 58</td>
<td>9 60</td>
<td>1 11</td>
<td>10 42</td>
</tr>
<tr>
<td>Family</td>
<td>12 80</td>
<td>1 11</td>
<td>13 54</td>
<td>13 87</td>
<td>4 44</td>
<td>17 71</td>
</tr>
<tr>
<td>Husband</td>
<td>7 47</td>
<td>2 22</td>
<td>9 38</td>
<td>8 53</td>
<td>2 22</td>
<td>10 42</td>
</tr>
<tr>
<td>Nurse</td>
<td>8 53</td>
<td>1 11</td>
<td>9 38</td>
<td>7 47</td>
<td>1 11</td>
<td>8 33</td>
</tr>
<tr>
<td>Experiences of Others</td>
<td>6 40</td>
<td>3 33</td>
<td>9 38</td>
<td>1 7</td>
<td>3 33</td>
<td>4 17</td>
</tr>
<tr>
<td>Primary MD</td>
<td>8 53</td>
<td>0 0</td>
<td>8 33</td>
<td>7 47</td>
<td>1 11</td>
<td>8 33</td>
</tr>
<tr>
<td>Perceived Support</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Family</td>
<td>5 33</td>
<td>3 33</td>
<td>8 33</td>
<td>2 13</td>
<td>2 22</td>
<td>4 17</td>
</tr>
<tr>
<td>Physician</td>
<td>3 20</td>
<td>3 33</td>
<td>6 25</td>
<td>4 27</td>
<td>2 22</td>
<td>6 25</td>
</tr>
<tr>
<td>Support for Health Behaviors</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Physicians</td>
<td>6 40</td>
<td>5 56</td>
<td>11 46</td>
<td>3 20</td>
<td>6 67</td>
<td>9 38</td>
</tr>
<tr>
<td>Family</td>
<td>5 33</td>
<td>4 44</td>
<td>9 38</td>
<td>7 47</td>
<td>4 44</td>
<td>11 46</td>
</tr>
<tr>
<td>Other sources</td>
<td>1 7</td>
<td>4 44</td>
<td>5 21</td>
<td>3 20</td>
<td>3 33</td>
<td>6 25</td>
</tr>
<tr>
<td>Husband</td>
<td>1 7</td>
<td>2 22</td>
<td>3 13</td>
<td>1 7</td>
<td>2 22</td>
<td>3 13</td>
</tr>
</tbody>
</table>

Note: E = Enrolled, NE = Non-enrolled, numbers reflect multiple responses from some women.

Positive support for CR was given by cardiologists (CF 58%; SP 42%), family members (CF 54%; SP 71%), husbands (CF 33%; SP 42%), nurses (CF 38%; SP 33%), and in the shared experiences of others (CF 33%; SP 17%). Although there is some differentiation in the ranking of the referents, there appears to be overall agreement on the types of individuals who offered support for CR. Note that ECF and the ESP reported more positive support than did non enrolled groups. In addition to actual verbal support, a category of perceived support was reported within the data. This category was coded for any statement where support was
perceived as positive, but no verbal statements were made to the CF. Family members were perceived to be supportive of CR (CF 33%; SP 17%) by more CF than SP. Primary care physicians were also perceived to be supportive of CR. Slightly more NECF and NESP believed the primary care physician would support CR than those that reported actually hearing support.

A final category that provides additional data suggesting some confusion on the support for CR is the positive verbal support for healthy behaviors other than CR. Physicians provided strong support for healthy behaviors (CF 46%; SP 38%). Family’s also verbalized support for lifestyle changes (CF 38%; SP 46%). It is interesting that there is overall perceptual agreement among the NECF and NESP where a higher percentage heard support for healthy behaviors other than CR compared to the enrolled groups.

**Informational Support**

Preferences for information between women and their support persons suggests that both groups agree that CR information should be provided by the cardiologist (CF 71%; SP 46%) and the second choice for delivery of this information is the primary care physician (CF 38%; SP 46%). One interesting difference between groups is that the NESP appear to believe their loved one rates the experiences of others as a more important source than either cardiologists or primary care physicians. This pattern is not noted with the NECF as they rank other’s experience as fourth in importance. Enrolled CF and SP value nurses as
information sources some (ECF 20%; ESP 13%) and non-enrolled CF and SP did not list nurses as a source, yet nurses were acknowledged as providing a high percentage of information (CF 67%; SP 42%).

Table 15. Cardiac Female and Support Person Perception of Informational Support

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cardiac Female</th>
<th>Support Person</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E (n=15)</td>
<td>NE (n=9)</td>
</tr>
<tr>
<td><strong>Valued CR Information Source</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiologist</td>
<td>12 80</td>
<td>5 56</td>
</tr>
<tr>
<td>Primary MD</td>
<td>5 33</td>
<td>4 44</td>
</tr>
<tr>
<td>Experiences of Others</td>
<td>2 13</td>
<td>1 11</td>
</tr>
<tr>
<td>Nurses</td>
<td>3 20</td>
<td>0 0</td>
</tr>
<tr>
<td>Media</td>
<td>1 7</td>
<td>0 0</td>
</tr>
<tr>
<td><strong>Actual CR Information Source</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiologist</td>
<td>10 67</td>
<td>7 78</td>
</tr>
<tr>
<td>Nurses</td>
<td>11 73</td>
<td>5 56</td>
</tr>
<tr>
<td>Primary MD</td>
<td>8 53</td>
<td>6 67</td>
</tr>
<tr>
<td>Misc sources</td>
<td>5 33</td>
<td>4 44</td>
</tr>
<tr>
<td>Experiences of Others</td>
<td>5 33</td>
<td>3 33</td>
</tr>
<tr>
<td>Media</td>
<td>1 7</td>
<td>1 11</td>
</tr>
<tr>
<td><strong>Usual Health Information Source</strong></td>
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<td></td>
</tr>
<tr>
<td>Primary MD</td>
<td>5 33</td>
<td>2 22</td>
</tr>
<tr>
<td>Media</td>
<td>2 13</td>
<td>3 33</td>
</tr>
<tr>
<td>cardiologist</td>
<td>0 0</td>
<td>2 22</td>
</tr>
<tr>
<td><strong>Patterns of Information Seeking</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Minimal or No Information</td>
<td>11 73</td>
<td>9 100</td>
</tr>
<tr>
<td>pattern- passive</td>
<td>6 40</td>
<td>6 67</td>
</tr>
<tr>
<td>pattern- active</td>
<td>7 47</td>
<td>0 0</td>
</tr>
</tbody>
</table>

Note: E = Enrolled, NE = Non-enrolled, numbers reflect multiple responses from some women.
Both CF and SP agreed that the cardiologist was the primary provider of CR information (CF 71%; SP 67%). Although support persons perceived more information coming from the cardiologist in the enrolled group and less information in the non-enrolled group than did the cardiac females in the related groups. Primary care physicians also provided information (CF 58%; SP 67%) although the support groups perceived more informational support from the MD than did the women. Support persons also perceived that women received more information from the experiences of others than the women reported (CF 33%; SP 67%). Overall, support persons believed that cardiologists, the primary care physician and the experiences of others were the top three CR informants for their loved ones about CR somewhat contrary to the women’s reports. In contrast, cardiac females and their support person’s agree the sources for general health information are first the primary care physician (CF 29%; SP 42%), the media (CF 21%; SP 33%), and for two non-enrolled women their cardiologists (CF 8%; SP 8%).

There is also agreement between CF and SP on the inadequacy of information CF received (CF 83%; SP 63%). Both groups highlight the fact that higher percentages of non-enrolled women felt they did not receive enough information on CR. In addition, support persons agreed with the CF on the type of information seeking patterns displayed by both enrolled and non-enrolled women. It is important to note the lack of active information seeking patterns in the non-enrolled group.
**Appraisal Support**

Generally, more enrolled women and their support reported on the advantages than the disadvantages compared to the non-enrolled groups as demonstrated in Table 16. The one exception is the category of CR disrupting schedules under disadvantages. Enrolled women and their support persons reported the knowledge of the disruption (ECF 73%; ESP 60%) and the non-enrolled women reported their belief that the program would disrupt their schedule (NECF 67%; NESP 54%).

The top five advantages listed were educational opportunities (CF 83%; SP 63%), a focused regulated program (CF 71%; SP 60%), a safe program (CF 63%; SP 53%), improved fitness and endurance (CF 54%; 71%), and improved overall health (CF 54%; SP 53%).

Other than disrupting schedules, other disadvantages listed are reported as disliking the regimented schedule of CR (CF 21%; SP 29%), social issues like age or clothing (CF 17%; SP 21%), and a sense of dependence on transportation to CR (CF 17%; SP 17%). Feeling dependent on transportation from others was perceived as an important concern by non-enrolled support persons as compared to any other group, even their loved ones.
Table 16. Cardiac Female and Support Person Perception of Appraisal Support

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cardiac Female</th>
<th>Support Person</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>E (n=15)</td>
<td>NE (n=9)</td>
</tr>
<tr>
<td></td>
<td>#</td>
<td>%</td>
</tr>
<tr>
<td><strong>Advantages to CR</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Educational Opportunities</td>
<td>14</td>
<td>93</td>
</tr>
<tr>
<td>Focused Regulated Program</td>
<td>11</td>
<td>73</td>
</tr>
<tr>
<td>Safe Program</td>
<td>12</td>
<td>80</td>
</tr>
<tr>
<td>Improved Fitness/Endurance</td>
<td>11</td>
<td>73</td>
</tr>
<tr>
<td>Better Overall Health</td>
<td>10</td>
<td>67</td>
</tr>
<tr>
<td>Group support</td>
<td>10</td>
<td>67</td>
</tr>
<tr>
<td>Social Interaction</td>
<td>8</td>
<td>53</td>
</tr>
<tr>
<td>Action To Prevent CHD</td>
<td>8</td>
<td>53</td>
</tr>
<tr>
<td>Professional Support for Coping</td>
<td>8</td>
<td>53</td>
</tr>
<tr>
<td>Weight Loss</td>
<td>5</td>
<td>33</td>
</tr>
<tr>
<td>A Shorter Improvement Time</td>
<td>7</td>
<td>47</td>
</tr>
<tr>
<td>Nice Staff</td>
<td>8</td>
<td>53</td>
</tr>
<tr>
<td>Longevity</td>
<td>5</td>
<td>33</td>
</tr>
<tr>
<td>Good equipment</td>
<td>4</td>
<td>27</td>
</tr>
<tr>
<td>Improved Mental Health</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td><strong>Disadvantages to CR.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Disrupts Schedule</td>
<td>11</td>
<td>73</td>
</tr>
<tr>
<td>Dislikes Regimenitation</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>Social issues</td>
<td>2</td>
<td>13</td>
</tr>
<tr>
<td>Dependent on Transport</td>
<td>2</td>
<td>13</td>
</tr>
</tbody>
</table>

Note: E = Enrolled, NE = Non-enrolled, numbers reflect multiple responses from some women.

**Instrumental Support**

Instrumental support is described by the many enablers or barriers to attending CR and is reported in Table 17. Women and their support persons noted transportation availability or lack of as the most important factor (CF 83%; SP 79%).

“No, we have a car,... and he's perfectly willing to drive. I don't have to drive.”
“Well the reason I decided not to is because all the places that I know are quite a distance away from where I live, and I don't have a car. So I'd have to rely on some public transportation or else have my daughter take me. She has to work. She can't be interrupted all the time to haul me around. That's why I decided I couldn't participate.”

Accessibility to the facility or classes is listed as the second factor (CF 67%; SP63%). These statements from different enrolled women are examples of different preferences as well as the issues regarding class schedules at two different programs.

“But it turned out that [CR site] had one and it's nice and easy to get there, there's parking at 7:45 in the morning. And so it's, it's really a good deal....well the class time's good for me cause I'm always up by 5. And if I have to wait and go at 3:00 in the afternoon, then I'm tired by then.”

“It cuts into my work schedule. It's not offered in the late afternoon or after work, it's during work hours.”
Table 17. Cardiac Female and Support Person Perception of Instrumental Support

<table>
<thead>
<tr>
<th>Variable</th>
<th>Cardiac Female</th>
<th>Support Person</th>
</tr>
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<tbody>
<tr>
<td></td>
<td>E (n=15)</td>
<td>NE (n=9)</td>
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<tr>
<td></td>
<td>#</td>
<td>%</td>
</tr>
<tr>
<td><strong>Instrumental Support</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transportation</td>
<td>12</td>
<td>80</td>
</tr>
<tr>
<td>Accessibility</td>
<td>12</td>
<td>80</td>
</tr>
<tr>
<td>Finances</td>
<td>11</td>
<td>73</td>
</tr>
<tr>
<td>Health Care Support</td>
<td>9</td>
<td>60</td>
</tr>
<tr>
<td>Overscheduled</td>
<td>4</td>
<td>27</td>
</tr>
<tr>
<td>CR Exercise Partner</td>
<td>6</td>
<td>40</td>
</tr>
<tr>
<td>Family Support</td>
<td>3</td>
<td>20</td>
</tr>
<tr>
<td>Work Support</td>
<td>5</td>
<td>33</td>
</tr>
<tr>
<td>Socialization</td>
<td>1</td>
<td>7</td>
</tr>
</tbody>
</table>

Note: E – Enrolled, NE – Non-enrolled, numbers reflect multiple responses from some women.

Ability to pay for the CR program is also an important consideration as reported by more than half of the respondents (CF 63%; SP 58%) “Um, well knowing that cardiac rehab was close, and that I was financially able to go, kind of opened the door, made me feel free to go and make the decision that, I know this is going to be good for my health and so there are no barriers to stop me.”

Overall, there is general perceptual agreement between the women and their support persons, however non-enrolled women tend to have more concerns about the number of appointments and the sense of being overscheduled than do enrolled women (ECF 27%; NECF 78%). Enrolled women and their support persons note the importance of work supporting the CR program and the time it takes to heal from a cardiac event as compared to the non-enrolled groups. Finally, socialization
concerns are noted by the non-enrolled women and is perceived to be a concern by support persons in both enrolled and non-enrolled groups.

**Discussion**

This study assessed the factors associated with enrollment in cardiac rehabilitation in both post-cardiac event women (n = 24) and their support persons (n = 24). Each of the factors is related to specific areas of social support and the information can be used by health care professionals for tailoring their educational approaches about CR to both women and their support persons. Each cardiac female was asked questions during a semi-structured interview on their feelings, beliefs, facilitating/constraining conditions, information sources, and social support in relation to CR. Their support person was asked to provide their understanding of how they believe their loved one would answer each of those questions during a separate interview. Each of the support categories were assessed for overall perceptual agreement between the CF and SP.

Although most areas of support found perceptual overlap, the data revealed areas where limited sharing of feelings or misinterpretation of the factors related to CR decreased this agreement. In another study, agreement between the recipient and the receiver of social support ranged from 49% to 60%, where spouses agreed most frequently with patient perceptions, then other family members, and finally friends (Antonucci & Israel, 1986). Accuracy of perception of the provision of social support by both the caregiver and the receiver of the care was influenced by
the feelings of closeness, but was not related to life satisfaction, happiness, or negative affect.

Emotional support for women with cardiac illness is an important category as demonstrated in the literature (Krumholz et al., 1998). Dhooper’s (1983) assessment of emotional health after a cardiac event suggests that emotional health in the family is at risk, yet very little formal program support is available. In this study two parts of emotional health were assessed; that of the feelings associated with CR and the supportive comments women heard about CR. In table 13 there was little perceptual agreement on the feelings women associate with CR. Of concern is the decreased perceptual reports by the support person on the feelings they believe the CF would associate with CR. This lack of understanding suggests that affect regarding CR is one category that is not discussed or fully comprehended. This study can not assess the overall emotional health of the family from the areas explored, however the lack of agreement in this category is troubling, especially when compared with the level of agreement in the others.

Additional concerns surface when considering the disagreement between CF and SP on the amount of depression experienced. It is important to note that some women reported a pre-cardiac event diagnosis of depression. It is possible that the question asking whether the CF had been depressed every day for two weeks was interpreted to include this pre-event diagnosis. Possibly the more accurate representation of post-coronary depression is the question categorizing the amount of depression in the month prior to the researchers visit. There was slightly more
perceptual agreement in this set of results. It is difficult to link depression with CR enrollment behaviors in this study because the narrative data doesn’t support this idea. Regardless, knowledge of the emotional stress families experience post cardiac event (Bengston et al., 1996; Ross & Graydon, 1997) coupled with the evidence that CF and SP may not be discussing emotions, at least in relation to CR, suggests the need for more research in this area.

As suggested in the literature, physician provided CR information is highly valued by both the cardiac female and their support persons (Liebman, Meana, & Stewart, 1998; Missik, 2001). Nurses are not as valued, yet it was recognized that they provided a large amount of the information to the women in this study. Similarly, the rehabilitation experiences of others was not as valued by women, but one third of the women and over half of their support persons perceived this source as providing information on CR. Other researchers confirm the cardiac patient’s desire for support from physicians, other health care staff and peers with similar experiences (Bramwell, 1990; Gerlach et al., 1990; Goodman, 1997; Montgomery & Amos, 1991; Thoits, 1986). Overall, there appeared to be agreement on the informational support perceptions of support persons and their loved ones.

Not as many of the support persons perceived the lack of information, although it is very clear that both women and their support persons believe they received very little information on CR. In a recent study almost half of the women reported not receiving information on CR (McSweeney & Crane, 2001). Unfortunately, the literature supports the lack of physician education on CR and other resources.
(Missik, 2001; Wechsler, Levine, Idelson, Schor, & Coakley, 1996). One daughter reflects on this as she felt her mother did not get the type of support necessary to encourage her to enroll in CR: “But the fact that it is ‘hey, this is available, think about it. This is what we do’ and then they're out the door, that doesn't work with her…. Giving her a pamphlet on something is hopeless. If she does read it, she'll sit it down and say, "I don't understand it". If it has one medical word in it, she says, ‘well, that's it. I don't know what it is saying. It's all medical stuff and I don't know anything medical’. It needs to be explained to her to decrease alibis other than just giving a brief explanation and walking out.”

In addition to the real possibility that women weren’t offered information on CR is the potential that memories of events during hospitalization can be altered from stress, medications, and other priorities. For example one enrolled woman reported “I suppose they did as good a job as they could about telling me what to eat and not eat in the hospital, but they're also telling you at a time when you're really not ready to listen. They told me, not with my mom present, they told me. And it's probably a little more information than I could take in. I think maybe a week or two later….Being told while you're there, I don't know if that's the best way to handle it.” Another woman stated “I can't remember who it was, but when I was still in the hospital, somebody came with the rehab notebook, this one here, and gave it to me. But what's funny about that, I was still in the hospital, I just didn't have the energy to read it. I was just so weak I couldn't even hold up the book.” McSweeney & Crane (2001) suggest that it is important to provide
information during hospitalization as their study found that most women decided on CR at this time. The information shared by the respondents in this study suggests that information given in the hospital may not be received and up to 40% of these women made their decisions to enroll or not enroll after discharge. Therefore, other time frames should be explored for the effectiveness of informational support using telephone or mail contact.

Another striking similarity between CF and SP is the agreement in the type of information seeking patterns the cardiac female displays. As described by the daughter mentioned earlier, many patients are passive in their information seeking and need the information repeated several times. The data highlights the need for multiple sources to reinforce the idea of CR to both women and their support persons as the fact that non enrolled women did not actively seek information may be a primary influence in the CR enrollment choices. This husband speaks of the need for multiple information and strong verbal support for the program as an example. “I think that if both her cardiologist and her primary care doctor said that [name of subject], this is important, you can live another 20 years, but to do that you've got to go into this program.... they can't be wishy washy about it, or they shouldn't be wishy washy about it, and they believe in the program, I think they need to say so in very definitive and forceful terms.” Many of the studies on information seeking patterns report results from cancer populations. One such study reported women preferring and assuming a passive role in treatment decisions (Bilodeau & Degner, 1996); while another study reported more
individualistic behaviors shaped by emotional issues such as fear, depression, and negativity (Rees & Bath, 2001). Other research indicates that patients often revert to passive roles with their physicians for a variety of reasons regardless of age (Beisecker, 1988; Leydon, Boulton, Moynihan, Jones, Mossman, Boudioni, & McPherson, 2000). Because of the potential for different experiences, emotions, and desire for information in cancer patients compared to cardiac patients, more studies need to be done on information support and passive information seeking patterns in the cardiac population.

The literature suggests that appraisal and informational support are important variables for determining whether women will adhere to an exercise program (Duncan et al., 1993). In this study women and their support persons reported multiple advantages and few disadvantages to attending CR. This is the type of information health care professionals need to emphasize to women as health promotional outcomes is a potential motivator for female enrollment in CR (Lieberman et al., 1998). The perceived disadvantages need to be assessed for potential adaptations that might better meet women’s needs to attend CR. For example, discomfort with others watching has been noted to be of concern to women (Riddle, 1980), yet they may not perceive this to be a problem once they have been introduced to CR.

“Well, I thought that it might have been embarrassing to do things in front of other people, but they were doing the same things, so, and you know they had to start somewhere too.”
“Well physical ability or maybe some of them feel that they're being looked at because they can't afford to be dressed the way they think they should be or something like that. I don't know, I might be too. Maybe you have to wear a certain type of clothes when you go to these places. And if they told me to get into a cotton-pickin', oh one of those leotard type deals and stuff, I would feel stupid too.” Many spouses reflected this thinking in their responses.

Further research into the beliefs of women and their support persons would enable health professionals to adapt their teaching and marketing information to emphasize the perceived advantages and discuss or reduce the perceived disadvantages.

Lack of transportation, poor accessibility, or poor coverage for CR costs are listed frequently as barriers to CR enrollment (Lieberman et al., 1998). As reported in this study, transportation, accessibility to CR classes, and finances were considered primary barriers and supportive solutions in these areas enabled many women to attend CR. These types of instrumental support factors are important to examine and find solutions to encourage women to go to CR. McSweeney and Crane (2001) found that women who could visualize solutions to their perceived barriers or had assistance to overcome the barriers were more likely to enroll in or continue CR. Several women reported this type of support. “After [cardiologist] talked to me about it and my middle daughter's the one that's kind of take charge type person. [laughs] and she says, well I'll walk over there with you and we'll see if we can get you signed up and see what it's like and so she took me over there and
that helps to have somebody to go with you.” McSweeney and Crane also suggest that women may be open to discussing these barriers with the hospital nurses caring for them when CR is initially discussed or with the CR nurses while they are actively participating. This supportive friend supports the idea “I think she would have been more likely to contact somebody in the program with questions. I know that she's less likely to contact a doctor than a friendly nurse.”

Another type of instrumental or appraisal support many women listed was a desire for someone to go to CR with them. Although several acknowledged the difficulty of having a family member or friend work with them because of work or other barriers, they mentioned the belief that this type of support would be beneficial.

“Since my husband is retired, he would probably drive me. And one advantage of it would be that he might enter too. So it might be that he would enter too, but I don't know that for sure.”

“Ah, maybe if I had a friend to go with, but you can't really plan on that [laughing]. Can't have your heart attacks together.”

“I wish I had somebody that I could walk with. Because I am walking now, not on a regular basis, but I am attempting to walk, and it would be easier if I have somebody to walk with.”

Again, exploration of this idea is necessary. Marketing a CR program with the advantage of enrolling with a partner may be another method to reduce a perceived barrier and encourage enrollment.
Conclusions

During cardiac illness and post coronary event, the support of loved ones is invaluable. Just as important is the need for the health care system to provide information, help women and supporters understand the benefits of CR, remove barriers, and encourage emotional support. As this study demonstrates, this may not be happening. Additional research is necessary to more fully explore many of these findings, but with the information provided several recommendations can be made.

CR program staff need to adapt their information style and assess different timeframes for approaching women and their supporters with the idea of CR. Although many women do make their decisions in the hospital, other women don’t make their decisions until weeks later. Designing a telephone or mailing contact program for patients who have been discharged may increase women’s knowledge about CR and enable them to ask questions and solve the problems that may keep them from attending.

Cardiologists and primary physicians need to be better informed about the benefits of CR and the desire for health promotion education that most women reported. To increase CR enrollment these physicians need to provide positive verbal support to the CF and possibly the SP. In addition, the woman may need to hear this support several times or from several different sources. Tying physician supportive statements to CR staff contact information could be an effective method for increasing enrollment. Studies need to be conducted to find the best means of
accomplishing this idea. Possibly a supportive letter signed by the CFs personal physicians sent with information about CR and a follow up phone contact would be sufficient for women to decide to enroll in CR.

Further research needs to be conducted to replicate these findings, to further explore the context and meaning of the CF and SP reports, and to quantify these results for a more generalizable understanding on the influences related to CR enrollment. Additional research on the women’s supporters, their needs, and their abilities to be supportive would also be advised as very little research has been done on the adult daughters and male spouses of post-coronary event women. This study provides a beginning structure to understanding the social support issues of women recovering from a coronary event who are faced with the decision about cardiac rehabilitation.
CHAPTER 5

CONCLUSION AND RECOMMENDATIONS

The purpose of this study was to qualitatively explore the factors associated with a woman’s decision to enroll, or not enroll, in cardiac rehabilitation (CR) from the perspectives of the patient and her main social supporters through the cardiac experience. There were four groups: (a) enrolled post-cardiac event females (ECF), (b) non-enrolled post-cardiac event females (NECF), (c) support persons of ECF (ESP), and (d) support persons of NECF (NESP). Although other studies have explored the demographic differences between those who participate in CR and those who do not, few studies have assessed the multi-dimensional psychosocial and environmental factors associated with the decision. Consequently, little is understood about the effect of emotions, beliefs, social support, facilitating/constraining factors, habits, and intentions of women after this life-altering experience. This lack of understanding creates a need for a gender specific research effort.

Conclusions

This qualitative research study used Triandis’ (1977) Expanded Theory of Reasoned Action (EXTRA) to assess the factors influencing the CR enrollment of post-cardiac event women. This model provided a comprehensive framework that enabled creation of an inclusive interview tool and provided a basis for organizing,
coding, and analyzing the narrative data. The data, therefore, is discussed within the constructs of EXTRA.

As Triandis suggests the constructs of affect and cognitive beliefs is worthy of separate analysis. Yet, as noted by Ajzen (1989), the two concepts can be so closely aligned as to be redundant and better examined within the construct of attitude. There are several examples of this dilemma listed within this study. First, many of the descriptors listed under either affect or cognitive constructs were worthy of separate analyses. Feelings, such as confidence or reassurance gained through CR, are important emotions to explore related to enrollment choices. The advantages and disadvantages listed also provide information on the women’s understanding of CR and their beliefs about this program. However, some concepts were closely linked and suggest the possibility of defining these factors as a single construct of both affect and belief. Examples of these data include the belief that CR disrupted the schedule and was regimented in the amount of time and requirements for participation. Closely related to these beliefs is the emotional response of resentment related to the amount of time or commitment to a schedule that many women evidenced. Similarly, the concept of necessity can be defined as a belief, but in this study was coded as an emotion because of the way the term was used by the women within their discussion of CR.

As recommended by others who have used EXTRA to explore health related choices, feedback from individuals who are familiar with the population and qualitative research was gathered to validate the delineation of terms to either
affective or cognitive constructs. Future research can quantify the significance of these terms and assess the correlation of affect and beliefs within larger samples of post-cardiac event women.

Additional exploration of this model within the population of post-cardiac event women should also analyze the significance of the demographic variables which are filtered through the model. For example, depression, while not identified as a specific affect related to CR enrollment choices may indeed influence the choices made by those who identified depression in their post event lives. In the following discussion additional ideas for research and exploration of EXTRA are listed within the framework of the research questions.

The first research question explored the emotions women described and the influence those emotions might have on their CR enrollment choices. The supporter’s perception of their loved one’s affective responses was also explored. Overall women who were enrolled appeared to be more informed about CR and were able to provide more positive comments on the experience. However, both enrolled and non-enrolled women listed positive feelings about CR. The top three emotions mentioned included the sense that the program was good/wonderful (52%), the women felt the program provided reassurance (48%), and they felt confident to go to CR (44%). The negative feelings listed included a sense of anxiety about the program (40%), a question of necessity (ECF 60% vs unnecessary NECF 60%), and resentment of the time required for CR (NECF 40%). The primary difference between enrolled and non-enrolled women was the
larger percentages of enrolled women who had positive feelings for CR and correspondingly fewer negative emotions.

One of the negative emotions reported is anxiety (40%) about the concept of exercising after a coronary event or exercising on equipment, although anxiety was not reported to be an influence on whether a woman will enroll in CR or not. Instead the prevailing emotion to determine enrollment appears to be the perceived necessity of the program, since enrolled women felt a strong sense of necessity (60%) in direct opposition to the perceptions of unenrolled women who indicated that the program was not necessary (60%).

Support person’s perceptions of the CF’s feelings reflected a similar pattern between enrolled and non-enrolled women’s feelings on the necessity (ESP 33%) or lack of necessity (NESP 67%) of CR, although necessity was not as strongly perceived as a CF feeling by the supporters as it was by the enrolled women (ECF 60% vs ESP 33%). An interesting finding when comparing the women’s affective responses with the perceptions of their support persons was the lack of agreement in most of the affective perceptions. Support person’s, especially those from the non-enrolled group, had few positive affective statements compared to their loved ones. Support person’s in both groups believed their loved ones would list more negative feelings about CR than were reported by the CF. It is possible that most CF supporters would be male and that males often do not discuss emotions, but this sample of support persons consisted primarily of women (ESP 67%; NESP 56%).
The second research question focused on the beliefs about CR listed by women and the amount of agreement found in the beliefs supporters thought their loved one had about CR. On the whole, support persons were able to identify the same five advantages and three disadvantages of attending CR described by the post-cardiac event female. Patterns of emphasis on beliefs between the enrolled and non-enrolled groups were also similar. Percentages of those enrolled women and their supporters listing each advantage or disadvantage were similar as was the percentages of the non-enrolled women and their supporters. Not unexpectedly, enrolled women tend to have more positive beliefs about the program than do non-enrolled women.

Post-cardiac females in both groups indicated that they believed CR to be educational, safe, a focused participatory program, and it improves fitness/endurance levels and health. Each of the groups also agreed on disadvantages, but the only disadvantage that appears to differentiate enrolled and non-enrolled populations is the perception of a regimented schedule related to participation in CR. This concept appears to be of more concern to non-enrolled women, also reported as a CF belief by their support persons (NECF 33%; NESP 56%) when compared to the enrolled groups (ECF 13%; ESP 13%).

Of note was the fact that women and supporters voiced strong support for having more information available to aid in their CR decision-making. Many of the benefits listed by women enrolled at the time of the interview suggested that
knowledge of the safety, equipment, staff, group support, and the opportunity for questions increased their desire to enroll in CR.

As such, it is particularly noteworthy that 100% of NECF and 73% of ECF indicated that they had received little or no information on CR. Somewhat fewer of the support persons (63%) reported that they believed the women received minimal information. Although women and their supports reported receiving information from CR nurses, it is possible that when the information is not given by a physician it is not as valued. Another factor may relate to the difficulty of trying to educate women about CR prior to discharge from the hospital when other issues, such as pain control and gathering possessions, are more of a priority.

Even more interesting is the idea that while both groups demonstrate passive information gathering patterns and 100% of the non-enrolled women believed they did not get enough information, it is only the enrolled women that demonstrate active information seeking. These findings are confirmed by the reported CF perceptions of the support persons in both groups.

The exploration on information gathering is related to the initial research question of who the CF prefers to provide her information as well as the referents and social construct issues related to CR enrollment choices. Again supporters were asked to list their understanding of CF perceptions. Women and their supporters report the preference of the CF is the cardiologist. The primary care physician is the second preferred provider of CR information. Unfortunately, while cardiologists were perceived to provide most of the CR information (CF 71%; SP
67%), they reportedly provided only a moderate amount of positive verbal support on the idea of CR (CF 58%; SP 42%). Again these concepts are supported by the reported CF perceptions from the support persons in both the enrolled and non-enrolled groups. Although few individuals reported negative support for CR (<8%), more non-enrolled women reported perceptions that family (33%) and physicians (33%) would support them compared to the reported actual verbalized support (family 11%, husband 22%, physician 11%). This may suggest that many non-enrolled women were not talking with their support persons on the decision to enroll in CR.

Another differentiation between enrolled and non-enrolled women is that many NE women heard positive support for non-CR exercise and other lifestyle changes from MDs (56%) and family (44%), but a small number reported receiving verbalized positive support for CR from MDs (11%) and family (11%). A majority of enrolled women reported positive messages from cardiologists (87%) and family (80%). Although the percentages are different, SP perceptions of CF responses support the CF responses.

Questions assessing the CF constraining and facilitating factors related to CR enrollment were also assessed in this study. As reported in other studies, very high percentages of women reported the issues of transportation, accessibility to CR classes, and finances as either enablers or barriers to enrolling in CR. The SP reports of the CF responses agreed with the actual CF responses. Most of the women and their support persons agreed that if insurance did not cover the cost of
CR they would not enroll in the program, however, only one NECF reported that her insurance did not cover the program. Transportation is certainly an issue and is strongly influenced by many factors as one NECF found the four blocks to the bus stop was impossible to walk and two ECF took multiple buses from work to CR, often losing work time because of the bus schedule. Although a variety of environmental factors were identified by NECF, the raw data suggests it is the emotional resentment of being scheduled rather than a lack of class flexibility that is an influencing factor.

A final research component explored the construct of habit and past behavior. Although both recent and lifetime physical activity do not appear to influence the CR choices of the CF in this study, there is room for further exploration of this component as other researchers have found some support for exercise as an influence on CR enrollment (Godin, Valois, Jobin & Ross, 1991; Harlan, Sandler, Lee, Lam, & Mark, 1995). Results in this study reveal the need to explore the concept of dietary education as a possible factor that would encourage women to enroll in CR.

Recommendations

More research focusing on the influences of women's CR enrollment choices is necessary to explore the importance of the findings listed in this study. The information reported here can be used as a foundation to initiate further study on the importance of women's beliefs, emotions, habits/experiences, support, and
facilitating/constraining conditions on their CR enrollment behaviors. EXTRA provides a versatile and supportive model for exploring these factors. This study has laid the foundation for producing tools to quantitatively measure the significance of each of these factors. Further, EXTRA and the results of this study offer the opportunity for further exploration of the value of any of the demographic factors, such as depression, type of insurance, age, and education. Many of the recommendations from this study can be assessed for applicability in health care areas working with women during and after a cardiac event.

It is clear that more information must be provided to women about CR to increase enrollment behaviors. The raw data from this research moves beyond the recommendation to simply provide information, and suggests that descriptive information listing the advantages of CR and solutions to potential barriers delivered by the patient’s cardiologist is best received. Even when information was reportedly given by other sources, it appears the cardiologist or the primary MD are the preferred information sources for CR. Cost effective methods for providing physician supported materials and messages need to be explored to improve the current CR information delivery systems.

Other factors associated with the delivery of CR information include the timing of the message. Delivering this information when women are not able to concentrate decreases the effectiveness of the message. Key CR message information should include the emotions and benefits women identified as being important, such as the necessity of the program for improving cardiac health,
improving overall health, and for education on lifestyle changes. Anxiety might be reduced by encouraging a visit to the CR program by both CF and SP to allow observation of the exercise and equipment, the safety of the program, and the many opportunities for support. Programs that offer flexible time and days for classes need to share this information with women referred to CR to address the concerns related to the resentment of the time CR takes and the concern with feeling overscheduled with other appointments. Several women also recommended take-home videos as a method for delivering information on CR.

Social support is a valuable part of the concept of CR enrollment behavior. This study found that women who had higher levels of verbalized positive support from physicians (ECF 87% vs NECF 11%) and family (ECF 80% vs NECF 11%) were more likely to be enrolled compared to the lower percentage of verbalized support in the non-enrolled group. NECFs reported they had as much perceived support (physicians 33%; family 33%) as ECFs (physicians 20%; family 33%), but verbal support appears to be a key to some of the CR choices. Additionally, NECF may also interpret the support of physicians and family for changing their lifestyle as permission to exercise in non-CR places. Physicians and CR nurses need to clarify the differences in exercise safety and efficacy in CR and non-CR programs. The additional benefits of group support, social interaction, and staff support might encourage NECF to consider the value of CR over a home based program. One of the enabling factors mentioned was the desire to bring a support person to CR for
exercise and educational support. For programs that offer this option, the information should be discussed with both CF and SP.

Support persons should be more involved in the information dissemination process. Although there is a very real possibility that some women have poor supporter relationships, those who have strong support may need that support to influence their decisions to enroll in CR. These supporters can participate in the health care decision making as an advocate for their loved one and help them through the initial post-hospitalization period and into CR, potentially as a partner in their return to health.

Discussions with support persons and CF on the emotional aspect of CR might facilitate additional exchanges between the CF and her support. Although many affective responses were reported in this study related to CR enrollment, a feeling of necessity appears to be the most influential. Exploration of what constitutes necessary action post cardiac event could provide additional information on this response. Additional exploration on the effect of depression on CR enrollment choices must also be conducted to further assess the possible association with depression and CR enrollment.

This study provides an initial qualitative exploration of the female experience after a cardiac event. Expanded studies and further detailing of the findings in this research may be utilized to design more effective interventions for encouraging women to enroll in CR. Information from this study can also be used by health care providers to extend their current efforts for informing women and their support
persons about CR. This field of study offers many more opportunities to explore
the factors influencing women’s CR enrollment behaviors and more research must
be conducted to gain understanding in this area. There is an additional need to
explore these factors in men as much of the research on post-cardiac event males
has been limited to demographics issues and have assessed CR participants.
Exploration of the factors influencing both men and women in CR enrollment
behaviors may increase the numbers of individuals who benefit from cardiac
rehabilitation and reduce the rates of CHD related morbidity and mortality.
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APPENDICES
APPENDIX A

Background Survey
Designation:________________ (number)

Patient Background Information

(1.) Type of cardiac event most recently hospitalized with (CIRCLE ONE NUMBER):

1. Bypass surgery- (Coronary Artery Bypass Graft [CABG])
2. Heart attack
3. Angioplasty (PTCA-Percutaneous Transluminal Coronary Angioplasty)
4. Combined heart attack with PTCA or Bypass surgery

(2.) Highest level of education attained: (CIRCLE ONE NUMBER)

1. Eighth grade or less
2. Some high school
3. High school diploma or GED
4. Technical school
5. Some college
6. College degree
7. Graduate degree
8. Post graduate degree or professional degree
9. Other

(3.) What type of health insurance do you have? (PLEASE CIRCLE ALL THAT APPLY)

1. None
2. Medicare
3. Oregon Health Plan
4. Private insurance
5. Health Maintenance Organization (e.g. Kaiser)
6. Other ________________________________

(4.) Are you: (CIRCLE ONE NUMBER)

1. Single/never married
2. Married
3. With a live in partner
4. Divorced
5. Widowed
(5.) Do you currently have dependent children or other dependent individuals you are providing care for in your home? (CIRCLE ONE NUMBER)

1. No
2. Yes

(6.) What is the total household gross annual income? (CIRCLE ONE NUMBER)

1. 1-7,499
2. 7,500-17,499
3. 17,500-29,999
4. 30,000-49,999
5. 50,000-84,999
6. 85,000 or more

(7.) Which best describes your racial identity? (CIRCLE ONE NUMBER)

1. White
2. African American
3. Hispanic origin/ Latino
4. Asian American/ Pacific Islander
5. Native American/ Eskimo
6. Other (please specify)____________________

(8.) How would you rate your overall health status today on a scale of 1 to 10 (1 being very poor and 10 being excellent)? (CIRCLE ONE NUMBER)

1 2 3 4 5 6 7 8 9 10
Very poor health Average health Excellent health

(9.) Compared with 1 year ago, how would you rate your health today on a scale of 1 to 10? (1 being very poor and 10 being excellent)? (CIRCLE ONE NUMBER)

1 2 3 4 5 6 7 8 9 10
Much worse About the same A lot better
(10.) Have you ever had any of the following feelings, nearly every day for two or more weeks at a time: down, depressed, hopeless, little interest or pleasure in doing things? (CIRCLE ONE NUMBER)

1. No
2. Yes

(11.) How much of the time, during the past month, have you felt downhearted and blue? (CIRCLE ONE NUMBER)

1. None
2. Some
3. A lot
4. All
Caregiver Background Information

(1.) Highest level of education attained: (CIRCLE ONE NUMBER)

1. Eighth grade or less
2. Some high school
3. High school diploma or GED
4. Technical school
5. Some college
6. College degree
7. Graduate degree
8. Post graduate degree or professional degree
9. Other

(2.) What type of health insurance do you have? (PLEASE CIRCLE ALL THAT APPLY).

1. None
2. Medicare
3. Oregon Health Plan
4. Private insurance
5. Health Maintenance Organization (e.g. Kaiser)
6. Other ____________________________

(3.) Are you: (CIRCLE ONE NUMBER)

1. Single/never married
2. Married
3. With a live in partner
4. Divorced
5. Widowed
(4.) Do you currently have dependent children or other dependent individuals you are providing care for in your home? (CIRCLE ONE NUMBER)

1. No
2. Yes

(5.) What is the total household gross annual income? (CIRCLE ONE NUMBER)

1. 1-7,499
2. 7,500-17,499
3. 17,500-29,999
4. 30,000-49,999
5. 50,000-84,999
6. 85,000 or more

(6.) Which best describes your racial identity? (CIRCLE ONE NUMBER)

1. White
2. African American
3. Hispanic origin/ Latino
4. Asian American/ Pacific Islander
5. Native American/ Eskimo
6. Other (please specify) __________________

(7.) Today, how would you rate the current overall health status your (mother, wife, sister, friend) on a scale of 1 to 10? (1 being very poor and 10 being excellent)? (CIRCLE ONE NUMBER)

1    2    3    4    5    6    7    8    9    10
Very poor health
Average health
Excellent health
(8.) Compared with 1 year ago, how would you rate the health of your (mother, wife, sister, friend) on a scale of 1 to 10? (1 being very poor and 10 being excellent)? (CIRCLE ONE NUMBER)

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(9.) Do you believe your (mother, wife, sister, friend) has ever had any of the following feelings, nearly every day for two or more weeks at a time: down, depressed, hopeless, little interest or pleasure in doing things? (CIRCLE ONE NUMBER)

1. Yes
2. No

(10.) How much of the time, during the past month, do you believe your (mother, wife, sister, friend) has felt downhearted and blue? (CIRCLE ONE NUMBER)

1. None
2. Some
3. A lot
4. All
APPENDIX B

Interview Guides
Interview Questions

Patient

1. How would you define cardiac rehabilitation?

   A. How do you feel about enrolling in cardiac rehabilitation?

2. What do you think are the advantages of attending cardiac rehabilitation?

   A. What do you believe are the long-term benefits for attending cardiac rehabilitation?

   B. What do you believe are the short-term benefits for attending cardiac rehabilitation?

3. What do you think are the disadvantages of attending cardiac rehabilitation?

4. For anyone who chooses not to attend cardiac rehabilitation [or if you have chosen not to attend CR], what are the advantages and disadvantages of this decision?

   For those not enrolled:
   A. Why did you not enroll?

   B. What are the benefits to not enrolling?

   C. What are the risks to not attending cardiac rehabilitation?

5. What individuals, groups, organizations, or other information sources would you get information from to make your decisions about cardiac rehabilitation?

   A. Who would you trust/rely on the most for this information?

6. Which individuals or groups (anyone in particular) want you to go to cardiac rehabilitation?

   A. What have each of these people done or said to get you to CR?

7. Which individuals or groups, if any, don't want you to go to cardiac rehabilitation?

   A. What have each of these people done or said to get you to CR?
8. Can you describe anything else that would keep you from going to cardiac rehabilitation if you want to go?

9. Can you describe anyone or any situation that makes (or would make) it easier for you to get to cardiac rehabilitation?

10. Of the barriers that you have mentioned in this discussion, are there any solutions that you would propose to reduce the problems you might have in enrolling in cardiac rehabilitation?

   A. Is there anything that you believe could have been done differently?

11. What things (roles or obligations [meal preparation, caregiving of others, specific job hours]) in your household, job, or society would encourage you to attend cardiac rehabilitation?

   A. What things (roles or obligations [meal preparation, caregiving of others, specific job hours]) in your household, job, or society would discourage you from attending cardiac rehabilitation?

12. Have you engaged in physical activity regularly ([walking, exercise class, yard or housework] at least 3x/week for 30 minutes) over the past year? How does this affect your choices about cardiac rehabilitation? Are there other lifestyle habits you have that would affect your choices to enroll or not enroll in cardiac rehabilitation? For example, smoking cessation, dietary changes, stress management, or exercise.

   A. How do your exercise habits over the past year compare with your lifetime exercise patterns? (If there is a difference, ask) Why is there a difference?

13. What things have made it hard for you to do things like change your diet, exercise, manage stress, or make other health related changes?

   A. Why is it hard for you?

   B. Why haven’t you done this?

14. Are there any specific people or aids that you have found increase your chances of making a positive health change?

15. What things or actions have you done that may have made you more “at risk” for heart disease? Do you think you can do anything now to change your risk? What?
16. What type of experiences with illness have you, or someone you know, had that might influence your decision to attend cardiac rehabilitation? (Might include previous attendance of cardiac rehabilitation with a relative).

17. At what point in time, since your cardiac event, did you make the decision about cardiac rehabilitation enrollment? (For those not enrolled at 3 months post-hospital discharge) Did you ever intend to go to CR?

   A. What factors or issues do you believe influenced your enrollment decision the most?

18. Why do you think women your age are less likely to go to CR?

19. In summary, are there any other topics you think should be discussed or is there anything from our discussion that you would like to add more information to?
Interview Questions
Caregivers

1. How would you believe your (mother, wife, friend, sister) defines cardiac rehabilitation?

   A. How do you believe your (mother, wife, friend, sister) feels about enrolling in cardiac rehabilitation?

2. What do you believe your (mother, wife, friend, sister) would identify as the advantages of attending cardiac rehabilitation?

   A. What do you believe your (mother, wife, friend, sister) would define as long-term benefits for attending cardiac rehabilitation?

   B. What do you believe your (mother, wife, friend, sister) would define as short-term benefits for attending cardiac rehabilitation?

3. What do you believe your (mother, wife, friend, sister) would identify as the disadvantages of attending cardiac rehabilitation?

4. If your (mother, wife, friend, sister) chose to attend CR [or if your (mother, wife, friend, sister) chose not to attend CR] what do you believe your (mother, wife, friend, sister) would identify as the advantages and disadvantages of this decision?

   For those not enrolled:
   A. Why do you think she did not attend?

   B. What benefits do you think your (mother, wife, friend, sister) believes there are to not attending?

   C. What risks are there to attending?

5. What individuals, groups, organizations, or other information sources, if any, do you believe your (mother, wife, friend, sister) would get her information from to make her decisions about cardiac rehabilitation?

   A. Who do you believe your (mother, wife, friend, sister) would trust/rely on the most for this information?
6. Which individuals or groups (anyone in particular) want your (mother, wife, friend, sister) to go to cardiac rehabilitation?

   A. What have each of these people done or said that you believe affected your (mother’s, wife’s, friend’s, sister’s) decision regarding CR?

7. Which individuals or groups do you believe would not want your (mother, wife, friend, sister) to go to cardiac rehabilitation?

   A. What have each of these people done or said that you believe affected your (mother’s, wife’s, friend’s, sister’s) decision regarding CR?

8. Can you describe anything else that would keep your (mother, wife, friend, sister) from going to cardiac rehabilitation if she wanted to go?

9. Can you describe anyone or any situation that you believe makes (or would make) it easier for your (mother, wife, friend, sister) to get to cardiac rehabilitation?

10. Of the barriers that you have mentioned in this discussion, are there any solutions that you would propose to reduce the problems your (mother, wife, friend, sister) might have in enrolling in cardiac rehabilitation?

   A. Is there anything that you believe could have been done differently

11. What things (roles or obligations [meal preparation, caregiving of others, specific job hours]) in your (mother’s, wife’s, friend’s, sister’s) household, job, or society would encourage her to attend cardiac rehabilitation?

   A. What things (roles or obligations [meal preparation, caregiving of others, specific job hours]) in your (mother’s, wife’s, friend’s, sister’s) household, job, or society would discourage her from attending cardiac rehabilitation?

12. Has your (mother, wife, friend, sister) engaged in physical activity regularly ([walking, exercise class, yard or housework] at least 3x/week for 30 minutes) over the past year? How do you believe this affected her decision regarding cardiac rehabilitation? Are there other lifestyle habits you believe your (mother, wife, friend, sister) has that would affect her choices to enroll or not enroll in CR? For example, smoking cessation, dietary changes, stress management, or exercise.

   A. How does your (mother’s, wife’s, friend’s, sister’s) exercise habit over the past year compare with her lifetime exercise patterns? (If there is a difference, ask) Why is there a difference?
13. What things do you think have made it hard for your (mother, wife, friend, sister) to do things like change her diet, exercise, manage stress, or make other health related changes?

   A. Why do you believe it is hard for your (mother, wife, friend, sister)?

   B. Why do you believe your (mother, wife, friend, sister) hasn't done this?

14. Do you believe there are any specific people or aids that you believe your (mother, wife, friend, sister) has found to increase her chances of making a positive health change in her life?

15. What things or actions do you believe your (mother, wife, friend, sister) has done that may have put her more “at risk” for heart disease? Do you believe your (mother, wife, friend, sister) can do anything now to change that risk? What?

16. What type of experiences do you believe your (mother, wife, friend, sister) might have had with illness in herself, or someone she knows, that might influence her decision to attend cardiac rehabilitation?

17. At what point of time since your (mother’s, wife’s, friend’s, sister’s) cardiac event did your (mother, wife, friend, sister) make the decision about cardiac rehabilitation enrollment? (For those not enrolled at 3 months post-hospital discharge) Do you believe your (mother, wife, friend, sister) ever intended to go to CR?

   A. What factors or issues do you believe influenced your (mother’s, wife’s, friend’s, sister’s) enrollment decision the most?

18. Why do you think women of your (mother’s, wife’s, friend’s, sister’s) age are less likely to go to CR?

19. In summary, are there any other topics you think should be discussed or is there anything from our discussion that you would like to add more information to?