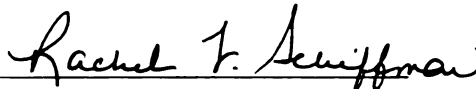This is to certify that the

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SOCIAL SUPPORT TO PERCEIVED CARDIAC REHABILITATION SUCCESS

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Kristin Lee Forester

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Rachel T. Schiffman
Major professor

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THE RELATIONSHIP OF WOMEN'S AGE AND PERCEIVED SOCIAL SUPPORT
TO PERCEIVED CARDIAC REHABILITATION SUCCESS

By

Kristin Lee Forester

A THESIS

Submitted to
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ABSTRACT

THE RELATIONSHIP OF WOMEN'S AGE AND PERCEIVED SOCIAL SUPPORT TO PERCEIVED CARDIAC REHABILITATION SUCCESS

By

Kristin Lee Forester

This study was a non-experimental, descriptive, correlational, secondary analysis of 46 women post acute myocardial infarction. Subjects were originally recruited from two community hospitals as part of the Women's Heart Study: Self-efficacy and Rehabilitation Experience Following Acute Myocardial Infarction (Budd, 1991). The goal of this study was to examine the relationship of the variables age and perceived social support on perceived cardiac rehabilitation success. Five age cohorts of women were identified. Data analysis included Pearson's product-moment correlation, analysis of variance, and multiple regression. Demographic data was utilized to describe five age cohorts of women. Perceived social support was significantly related to perceived cardiac rehabilitation success while age was not. The inverse relationship of age to perceived social support and perceived cardiac rehabilitation success was not statistically significant, but was in the direction expected. Implications for advanced nursing practice and further research were discussed, including ongoing assessment of support systems, supportive-educative

telephone program, and more studies of women's perceptions of cardiac rehabilitation.

To my husband, Robert, and our children, Jeffrey and Nancy,
for their support, patience, and understanding,
throughout this and other academic pursuits.
To my mother, Beverly A. Johnston, and in memory of my
father, Robert E. Johnston, for the values and unconditional
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Introduction

Background of the Problem

Cardiac rehabilitation is an important treatment component for men and women recovering from a coronary event, such as bypass surgery, myocardial infarction, and coronary angioplasty. Unfortunately, women tend to do more poorly than men after a coronary event. One of the reasons may be the way in which women are rehabilitated. The purpose of this study was to investigate women's perceptions of their ability to achieve the goals of cardiac rehabilitation and some of the factors that may influence positive outcomes.

Cardiac rehabilitation programs were developed to help restore normal physical, psychological, and social functioning for individuals who have experienced a coronary event. The importance of rehabilitation programs has increased as more people are surviving coronary events because of advances in life saving treatments (Fleury, 1993; Wenger, 1988). Cardiac rehabilitation programs have traditionally focused on the middle-aged male, historically considered to have the highest risk for heart disease. But current research on women's health indicates that significant numbers of women also have heart disease (American Heart Association (AHA), 1992; Barry, 1993; Coglianese, Sollano, & Bilodeau, 1992). The latest research shows that cardiovascular disease (CVD) is an equal

opportunity disease, killing almost equal numbers of men and women annually. According to the Cardiology Preeminence Roundtable (1994), recent studies examining the relationship between gender and CVD revealed some startling statistics:

(1) Heart Attack is the single largest killer of women;

(2) 478,000 women versus 448,000 men died from CVD in 1991;

(3) 1 of 7 women aged 45 to 64 has some form of CVD (p. 1).

More women die annually from heart disease than from all forms of cancer combined. Although men tend to have heart attacks at a younger age, women catch up at age 70 and surpass men after age 75. Women have lower chances of surviving a heart attack than men. Studies show that 39% of women die within the first year after a heart attack compared to only 31% of men (AHA, 1992). During the first four years following a heart attack, the rate of having a second attack is 20% for women compared with 16% for men (AHA, 1992). Clearly women have as much or more to fear from CVD as do men.

Statement of the Problem

Current statistics indicate that the typical female patient with cardiovascular disease has a different profile than the typical male patient. Women tend to be older when they develop heart disease, have more comorbid conditions that complicate their treatments and have a different psychosocial make-up. Women are described as having more anxiety, depression, sexual dysfunction, and return to work less often than men following a myocardial infarction. Loss

of spouse, lack of social support, and inadequate finances are problems more frequently found in women than men. How these factors affect cardiac rehabilitation has not been systematically evaluated (Eaker, Packard, Wenger, & Clarkson, 1988). Because of changes in national policy regarding gender bias in health related research, women are now included in research that affects their health (National Institutes of Health (NIH), 1991). To better serve the needs of women, contemporary researchers are recommending further study to specifically evaluate women's cardiac rehabilitation needs. Therefore, for this study, age and women's perceptions of social support were investigated as two factors that may influence the feelings women have about their cardiac rehabilitation experience.

Questions answered in this study were:

(1) Is there an association between women's perceived social support and perceived cardiac rehabilitation success?

(2) Is there an association between women's age and perceived cardiac rehabilitation success?

(3) Is there an association between women's age and perceived social support?

(4) To what extent and in what manner are women's age and perceived social support related to perceived cardiac rehabilitation success?

Need for Study

According to Wenger (1988) "the present trend is toward rehabilitative services appropriate for each patient's specific characteristics and needs, rather than enrollment of the patient in a structured and relatively inflexible regimen. Each coronary patient can and should have his or her specific rehabilitation needs addressed" (p. 13). In order to provide better health care for women, it is important to evaluate their treatment needs. As mentioned earlier, the purpose of this study was to investigate women's perception of their rehabilitation success. This study emphasized women's perception of the social support received from family, friends and health care professionals during recovery and how these perceptions are associated with age. Improved understanding of these relationships may result in changes in cardiac rehabilitation programs that better serve the specific needs of women. Advanced practice nurses (APN) in primary care settings have the opportunity to care for women on a continuing basis. They can be influential in evaluating women's needs, recommending and assisting in the development of cardiac rehabilitation programs for women.

Conceptual Definitions

The concepts in this study were perceived cardiac rehabilitation success, perceived social support, and age. Each concept was defined in the following section by looking at the components of each concept.

One component common to cardiac rehabilitation success and social support was "perceived". To perceive, explains the origin of the thought processes that form the conceptualization of cardiac rehabilitation success and social support. Therefore, perceive will be defined first and independently of the other components.

To perceive was defined as the ability to grasp mentally, take note of, recognize, observe and to become aware of through sight, hearing, touch, taste, or smell (Guralnik, 1976). Perception is an important concept to consider in health care. Current studies on health promotion, disease prevention, and stabilization of chronic illnesses are beginning to acknowledge the importance of knowing the person's point of view or perception of their health in order to offer more effective treatment interventions for maintenance of health.

Perceived Cardiac Rehabilitation Success

The conceptualization of perceived cardiac rehabilitation success (PCRS) involves understanding how perceive, cardiac rehabilitation, and success relate to each other. The components of this concept are discussed and then refined into a conceptual definition.

Cardiac Rehabilitation. According to Kemp (1985) rehabilitation means to "re-habilitate or make capable of living again" (p. 647). Another definition is to restore, or put back in good condition, to bring or restore an optimum state of health (Guralnik, 1976). The components of

rehabilitation include stabilization of the primary problem, prevention of secondary complications, restoration of lost functional abilities, adaptation of persons to environments, adaptations of environments to persons, promotion of family adaptation and accommodation (Brummel-Smith, 1990).

Cardiac rehabilitation is defined by many authors as the process of adjustment after a cardiac event. Cardiac rehabilitation programs incorporate specific processes to enable recovery from a cardiac event. These include assessment of the patient's functional status and application of measures designed to enhance and maintain a desirable level of physical, social, and psychological functioning. In the past cardiac rehabilitation programs were developed primarily for middle aged men who were recovering from an acute myocardial infarction or coronary artery bypass surgery. Today, however, increasing numbers of patients (men and women) diagnosed with angina pectoris, those treated with coronary angioplasty and stent placements are being referred to structured programs. Additionally, more elderly patients are being recommended for cardiac rehabilitation because research results indicate the benefits of exercise, education, and social support even in old age. The ideal rehabilitative program is incorporated into the plan of care during the acute hospitalization, and involves the patient's family and social environment as a support system, and continues in the outpatient practice

setting and community (Johnson & Morse, 1990; Squires, Gau, Miller, Allison, & Lavie, 1990; Wenger, 1994).

Structured rehabilitation programs are arbitrarily divided into four phases. The phases are progressive and represent increased activity tolerance and ability to manage life style changes related to heart disease.

Phase 1 is initiated during the acute hospitalization. Tasks during this phase include patient and family education, progressive ambulation, psychosocial and vocational assessment, and interventions as needed. Most patients with an uncomplicated MI are discharged in five to seven days and continue with their Phase 1 activities at home.

Phase 2 is the early post-hospitalization phase. It usually begins 2-3 weeks after discharge from the hospital and typically lasts for 8-12 weeks. This is considered to be the most critical stage of rehabilitation because patients are receptive to changes in life-style and are motivated by a clear recognition of the acute event. The major activity of this phase is supervised exercise conditioning. Patient and family education programs accompany the exercise training. These programs emphasize diet management, medication management, safe physical activity levels, risk factor identification and modification, and life style changes.

Phase 3 is similar to Phase 2. This stage generally continues for 9 months after completion of phase 2. The

program may be continued at the same medical site, or at a community or private fitness center, with the patient monitoring his/her own progress.

Phase 4 is the long-term maintenance program. It consists of continuing efforts to modify risk factors. Yearly evaluations including exercise testing are recommended for most patients. This phase is primarily self-motivated.

Not all patients participate in structured programs. Some will recover at home with recommendations from their cardiologist or primary care physician. Others may enroll in programs at health and fitness organizations with permission from their health care provider.

The success of the entire rehabilitation process is seen in patients who have assimilated the principles of cardiac rehabilitation and have successfully made the life style changes recommended to promote cardiovascular health. (Squires et al., 1982; Wenger, 1994; Wenger, Hellerstein, Blackburn, & Castranova, 1982).

Success. The final part of this concept is success, which is a favorable or satisfactory outcome or result (Guralnik, 1976). There is much emphasis placed on outcomes in healthcare. Currently the trend is to develop interventions and treatments that can be measured in terms of outcome success.

The definition of PCRS for this study means the individual has taken in or has grasped (perceived) the

concept of optimizing her health, specifically her cardiac
health (cardiac rehabilitation) and feels that the results
or outcomes are positive and satisfactory (success).

Perceived Social Support

The conceptualization of perceived social support
includes the definition of perceived and social support.
Of interest in this study is how the women perceive their
social support related to their age and cardiac
rehabilitation.

Social Support. This was defined as the assistance a
person receives from others. House, Umberson, & Landis,
(1988) used the term social support to refer to the
"positive, potentially health promoting or stress-buffering,
aspects of relationships" (p. 294). Wallston, Alagna,
DeVillis, & DeVillis (1983) described social support as "the
comfort, assistance, and/or information one receives through
formal or informal contact with individuals or groups" (p.
369). Cohen and Syme (1985) define social support quite
simply "as the resources provided by other persons" (p. 4).

House and Kahn (1985) explain that social support
refers to a number of different aspects of social
relationships which they call the "domain of social support"
(p. 84). Within this domain they identify three ways to
conceptualize and operationalize the term social support.
First, is the existence, quantity or category of social
relationships such as marriage, friendship, or
organizational membership. Terms such as social integration

or isolation are most often used to refer to the existence or quantity of these relationships. Second, is a person's social network, which refers to structures that exist among a set of relationships such as density, homogeneity, or range. And third, is the functional content of relationships, or types of social support contributed by others, such as affirmation, affective and emotional concern, instrumental or tangible aid, information and reciprocity. House and Kahn (1985) state, "It is necessary to consider all three aspects of social relations-quantity, structure, and function- because they are logically and empirically interrelated" (p. 85).

It is well documented in the literature that social support is an important part of recovery from a cardiac event. According to Moser (1994) "...adequate social support is positively associated with many physical and psychological indicators of successful recovery. Cardiac patients with low levels of social support are at risk for further cardiac events and decreased physical and mental well-being during convalescence" (p. 28). Because of its importance in successful rehabilitation there is much interest in finding ways to evaluate and optimize a person's support system.

Social support is a concept that has a value attached to it by the individual. In order for the APN to evaluate a person's support system, it is necessary to understand the individual's perception of the quantity, structure, and

functional content of their social support system. Once,
the individual's social support system is clarified, then
the APN can develop interventions based on the strength and
weaknesses of the individual's social support system.

For this study, perceived social support was defined as
the women's recognition and awareness (perceived) of the
quantity, structure, and functional content of her social
support system (social support) during her cardiac
rehabilitation experience.

Age

The conceptualization of age for this study took into
consideration the biological, psychological, and
sociological aspects of the aging process in women. Age is
defined by Webster's New World Dictionary as "the time that
a person or being has existed since birth or beginning" and
aging is "to grow old or show signs of growing old"
(Guralnik, 1976, p. 25).

Literature on the subject of age describes aging as a
phenomenon that has three dimensions: biological,
sociological, and psychological. "The biologist is often
concerned with 'longevity and the antecedents of death'"
(Cunningham & Brookbank, 1988, p. 2), "the sociologist tends
to focus on social roles and the relationship the aged have
with society, while the psychologist is concerned with
individual adaptability and adjustment" (Stokes, 1992, p.
2). The interesting thing about the aging process is that
no one individual ages in the same way. It has been said

that there is more variability between 65 year olds than
there is between 20 year olds. Thus, making the study of
aging individuals an interesting challenge. Clearly the
variability in adult development needs to be understood when
evaluating the older person.

Biological aging. This is defined as those changes
which are inevitable, and irreversible, and occur with the
passage of time. Biological aging is not the same for each
organism, nor do the systems of the organism age at the same
rate. "The process of biological aging not only differs
from species to species but also from one human being to
another...no two individuals will age identically. Varying
degrees of physiological changes, capacities, and
limitations will be found in one age group. The rate of
aging among different body systems within one individual may
vary, with one system showing marked decline while another
demonstrates no significant change" (Eliopoulos, 1993, p.
16).

Psychological aging. As a person can seem older or
younger than their biological age, they may also seem
younger or older acting because of their psychological age.
Stokes (1992) suggests, "Reduction in enthusiasm for life,
withdrawal from activity and lowering of morale may be less
often the effect of physical aging than an attitude to
oneself as aged and without value. Later life is not viewed
as a time for growth and achievement" (p. 19). This point

of view may describe people who are unable to adapt to change as they age.

Another way of describing adult psychological aging is Continuity Theory. Continuity Theory, an adult development theory, proposes that as people age, they strive to maintain their personality. They do so by adapting to changes that occur as they age. These changes may be physiological and/or sociological changes (usually both). The ability to achieve a sense of self, as life changes, is correlated with positive life satisfaction. Atchley (1994) states, "there is more continuity than discontinuity of self and personality with aging, and each becomes more stable with age...Most people enter later life with a stable personality and positive self-esteem... Adaptation is the core of adult development according to continuity theory" (p. 148-149).

Sociological aging. The society we live in defines age specific tasks and roles. Birren (Schroots & Birren, 1990) introduced the term 'social age', which refers to age acquired social habits and status. An individual is expected to fulfill certain social roles and expectancies based on age. The roles and expectations may vary depending on the person's culture or social group (Schroots & Birren, 1990). Neugarten and Datan (1973) proposed that certain social roles are age-graded. For example, school years, marriage, parenthood, retirement, and widowhood have socially acceptable age ranges where each role behavior is expected to be achieved. If the person is 'on-time', their

adjustment is usually not as traumatic because the events and changes are anticipated and have society's approval. However, if a person is 'off-time', their behavior is not consistent with the 'expected sequences and rhythms of life' and their adjustment may be more difficult. When behavior occurs outside the accepted span of chronological years, it is deemed inappropriate and is not sanctioned (Neugarten & Datan, 1973).

Clearly age is a multifaceted concept. For this study the concept of age was defined as representing: (1) the physical condition of each woman based on her normal biologic changes (biological), (2) her personality structure and stability (psychological), and (3) her social roles related to "on-time or off-time" of events (sociological).

Conceptual Model

The conceptual model used for this study was the "Women's Self-Definition in Adulthood Model" developed by Peck (1986). The model is based on current research on adult development specific to women. The model recognizes the impact of relationships and the timing-of-events in a social context on a women's development. "Implicit in this model is the assumption that a woman is self-reflective, capable of understanding her own behavior, and able to communicate her sense of self to another" (Peck, 1986, p. 277).

Two conceptual frameworks were influential in the development of this model. The first, is a psychological

model of adult development proposed by Bernice Neugarten (1968, 1973). The timing-of-events concept stresses the importance of social-historical context on the development of adults rather than chronological age. Neugarten found that when adult women defined their age in a social-historical context, they did so in terms of family events, whereas men defined their age by events outside the family (Neugarten, 1968; Neugarten & Datan, 1973).

The second influential concept in this model is Gilligan's (1982) study of relationships and attachments. Gilligan's findings indicate that female adult development is based on maintaining relationships and attachments, rather than individualization and separateness, which is the basis of male adult development. Gilligan's study proposed that women perceived their identity in connection with someone else, a concept that needs to be considered when evaluating normal female adult development (Gilligan, 1982).

A developmental model specific to adult women is appropriate to use when identifying needs of adult women going through a cardiac rehabilitation program. It is critical to the treatment of adult women that their development is understood. Androcentric models of development are inflexible and inappropriate for women. Even though women are assuming more roles previously held by men such as self-support, careers, and heads of households these roles become part of their self-definition as women. This model is flexible enough to handle new roles and other

changes in women's development. Models of adult female
development support women's roles, life circumstances, and
socialization.

The model has three main parts, <u>social-historical time
dimension</u>, <u>sphere of influence</u>, and <u>self-definition</u> (see
Figure 1). The social-historical time dimension relates to
the timing of events theory, the sphere of influence relates
to the relationships and attachments theory. Self-
definition refers to a woman's knowledge of herself as an
individual-in-society.

The model (see Figure 1), conceptually shaped like a
cylinder, is depicted in a cross sectional view. The outer
wall is the social-historical time dimension. The outer
wall described by Peck (1986) as flexible is represented by
a wavy line. The flexibility of the wall represents
favorable or unfavorable opportunities for women at a
particular point in time. According to Peck (1986) this
dimension can be "perceived as the social, emotional, and
political context within which a woman is allowed to define
herself at any given point in time" (p. 278).

The inner layer of the cylinder is the sphere of
influence (see Figure 1). The sphere of influence consists
of the sum of a woman's relationships. Conceptually similar
to House and Kahn's (1985) "domain of social support" it
includes all three aspects of social relationships;
quantity, structure and function, at varying levels of
closeness. It also includes the woman's work, not just the
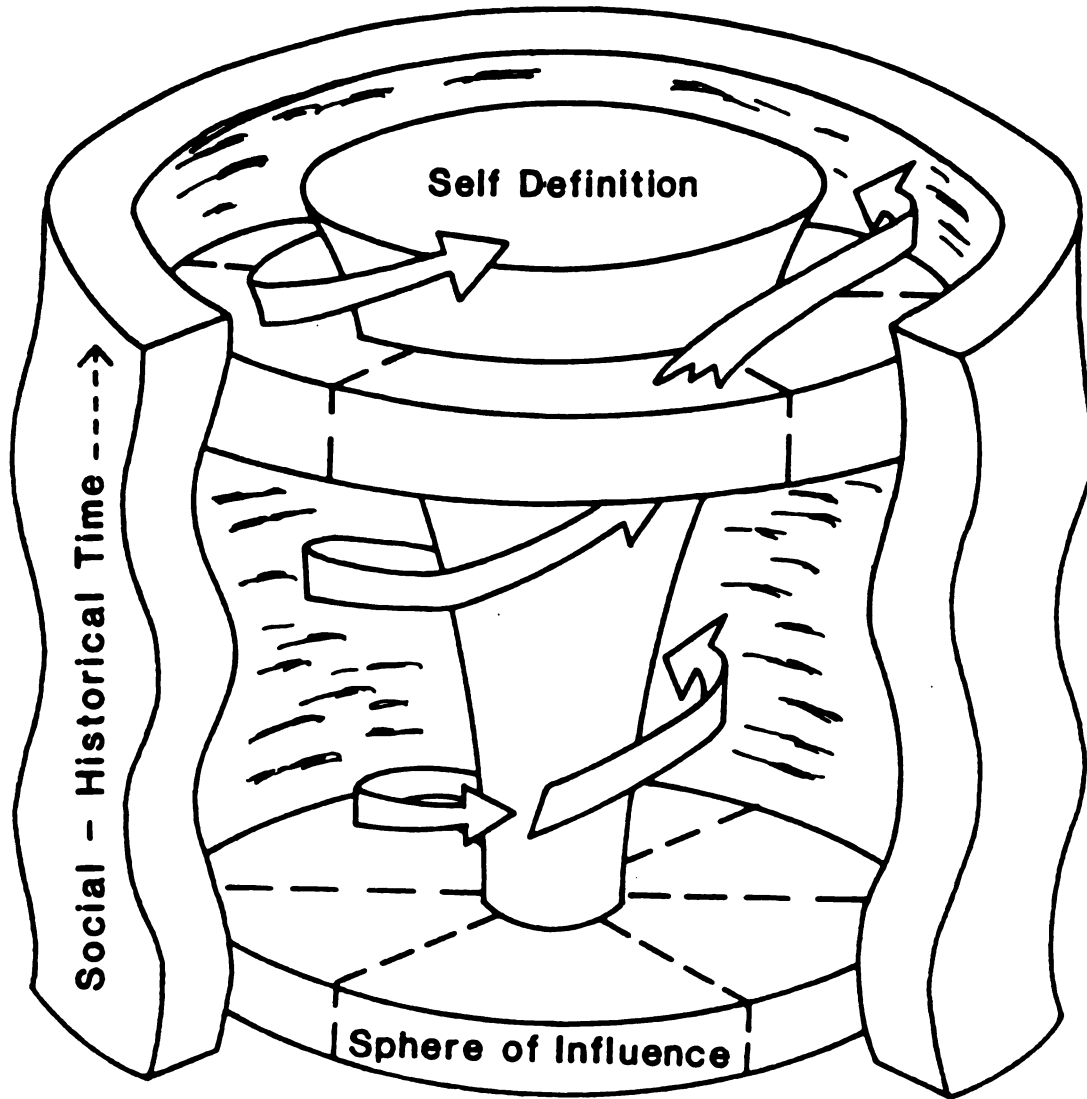
Figure 1. A model of women's self-definition in adulthood (Peck, 1986).

state of being employed but the feelings of satisfaction and sense of competence a woman receives from her productive efforts. Relationships are described as bidirectional, meaning the woman both influences and is influenced by her relationships.

There are two important characteristics of the sphere of influence, flexibility and elasticity. Flexibility is the ability of the woman to expand her sphere of influence to take on new relationships or contract her sphere of influence to prevent new relationships. Flexibility also includes a woman's ability to redistribute her emotional involvement in order to receive support and reaffirmation of the self when necessary. Elasticity "refers to the degree to which particular relationships in the sphere are responsive to the woman's changing needs, motivation, and self definition" (Peck, 1986, p. 280). Elasticity is the firsthand way that a woman can see the results of her own influence on the people around her. Therefore, she can see herself as having some control over the degree to which other's needs and expectations affect her functioning. Elasticity gives her the ability to separate other's concerns from her own.

Woman's self-definition is portrayed as a funnel-shaped force emerging through the sphere of influence (see Figure 1). With the passage of time the funnel widens, indicating increased clarity and understanding of self-definition. The process of self-definition is pictured by the spiraling

arrows. The spiraling arrows indicate the woman's constant process of monitoring her own growth and change against the possible impact upon her valued relationships. Self-definition or how a woman sees herself in society is strongly influenced by social-historical time and the elasticity and flexibility of the sphere of influence.

Modification of the original model

The original model was modified (adapted) to fit the variables in this study (see Figure 2). The cardiac event, although not a variable in this study is the precipitating event and falls within the social-historical time dimension. Events that occur in the outer wall effect women's relationships and self-definition. Additionally events that fall in the outer wall are influenced by the time in which they occur. For example because of increased awareness of women's risk for heart disease, more is being done for women now than in the past. The variable age also fits into this part of the model.

The roles of women as they age in society are affected by the time in which they live. As different cohorts of women move through this time dimension their feelings about themselves as they age are strongly influenced by what is happening culturally, economically, and politically.

The variable perceived social support fits into the sphere of influence (see Figure 2). All the relationships a woman has in her sphere of influence have the potential to influence her recovery from a cardiac event. Some she will
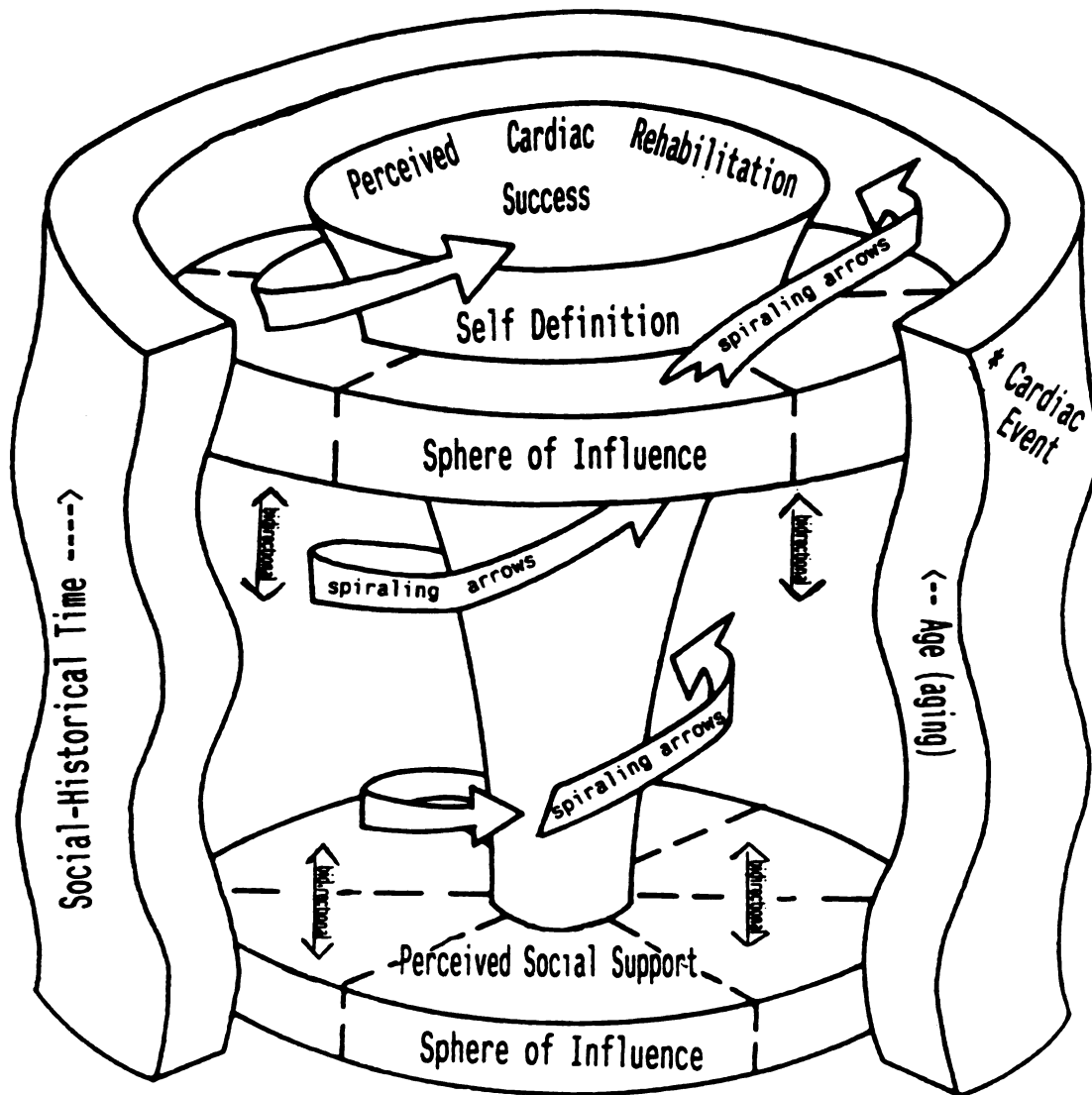
Figure 2. An adaptation of a model of women's self-definition in adulthood, using the concepts of age, perceived social support, and perceived cardiac rehabilitation success (Peck, 1986).

consider supportive and others she may feel are barriers to recovery. Bidirectional relationships are represented by small arrows within the sphere of influence. Because relationships are bidirectional the woman may have to redistribute her emotional involvement (flexibility) in order to receive the support and affirmation she needs for recovery. She may also expand her sphere of influence to include new relationships important to her recovery. These relationships may include members of her health care team and/or peers in her rehabilitation group. Additionally, as a woman proceeds through her rehabilitation she will look at which relationships are responsive to her changing needs, motivations, and change in self definition (elasticity). Elasticity of the sphere of influence allows the woman to look at what her rehabilitation needs are and differentiate her needs from the needs of those close to her. If the sphere is very elastic, then the woman can see that she has some control over the changes she needs to make in order to recover successfully. If she does not have elasticity, then she may feel anxious and depressed if her needs conflict with the needs of others in her sphere of influence. The APN in primary care can work with the woman to help identify and normalize her feelings regarding the change in her health status and the impact it has on her ability to maintain her roles. The woman may need support as she redefines roles and relationships. Additionally, the members of the woman's support system may need to be

included in counseling, especially if they are the source of
the stress.

Perceived Cardiac Rehabilitation Success is a concept
that is internalized by the woman. It becomes part of her
self-definition (see Figure 2). This variable represents a
positive health/treatment outcome. As such it is vulnerable
to what is happening to the woman in the social-historical
time dimension (age) and the sphere of influence (perceived
social support).

This model provides the APN with a framework for caring
for women with heart disease. The APN, using this model is
aware of the importance of social-historical changes in
woman's health care, can advocate for the most current
health care available, including cardiac rehabilitation
programs that fit women's needs. The model recognizes that
women's attitudes about health care may effected by their
place in time. Awareness of this effect prepares the APN to
suggest treatments that are acceptable to different age
cohorts of women. As the model implies·, women's
relationships form a basis for their self-definition. The
APN can identify relationships and associations in a woman's
life that may have an effect on her rehabilitation outcomes.
This is a theoretical model that when applied to practice
provides a framework for treatment and further research.

Review of Literature

The review of literature for this study included
research on age and social support as factors in the cardiac

rehabilitation success of women. It was found that research that investigates these variables was focused primarily on men. Of the studies that included both genders, the women were underrepresented. Studies limited to female subjects were few and generally had small sample sizes. Additionally many studies compared men and women on variables that were not equal at baseline in both groups, examples are exercise tolerance, number of comorbid conditions, age, and social support systems, resulting in the appearance of better outcomes for men than women. Studies that had only men as subjects were not included in this review. Studies that included both genders or only women and investigated the variables age and social support were included.

Social Support

Friedman (1993) tested the relationship between social support (emotional and tangible) and psychological well-being (affective and life-satisfaction) in a sample of 80 older women with heart disease. The study was based on Cantor's (1979) model that proposes that older adults compensate for loss or absence of support sources from a hierarchy of supportive relationships. The hierarchy of relationships was defined from top to bottom as: spouse, children, distant relatives, friends, neighbors, and formal organizations. The results of the study showed that emotional support received from other than family members was related to lower positive affect. Likewise, tangible

support received from nonfamily members was related to lower life satisfaction.

Primomo, Yates, and Woods (1990) explored who in a woman's social support network provides what kind of support in relation to psychosocial adjustment for women with chronic illness. The women in the study had nonmetastatic breast cancer, diabetes, and fibrocystic breast disease. None were cardiac patients, but heart disease, also a chronic illness may result in similar needs for social support. Sources of social support identified in this study included partner, family, friends, and others. Types of support included affect, affirmation, aid, illness confident, and reciprocity. The psychosocial adjustment variables were depression, family demands of illness, marital quality, and family functioning.

According to Primomo et al. (1990), when compared to other types of support the partner was found to provide significantly more (p < .001) affective support, affirmation, tangible aid, and was more likely to be confided in about the illness and to reciprocate. After the partner, the family provided a significantly greater amount of affectional support than either friends or others. Friends were found to provide more affirmation than did family and more affective support than others. Women reported confiding about their illness to others (such as health care providers, counselors, religious officials) more than family or friends. As in the Friedman (1993) study,

social support is identified as an important factor for women with chronic diseases.

Thompson and Heller's (1990) study compared measures of network embeddedness (size, composition, and frequency of visits) and perceived social support with measures of physical and mental health. Their responses came from a sample of 271 community dwelling older women. The results of this study supported the importance of network size, composition, and frequency of interaction for both mental and physical well-being in this sample of women. It also indicated that regardless of a women's perception of social support, there was a minimum amount of network embeddedness necessary for mental and physical well-being.

Fleury (1993) explored the role of social support networks in influencing wellness motivation within the context of cardiac rehabilitation. The sample consisted of 24 individuals (17 men and 7 women) who were participating in a cardiac rehabilitation program. Qualitative data were collected that resulted in a detailed description of the role of social networks in influencing wellness motivation. Social networks were described as having two interactive patterns: enabling and limiting. Behaviors viewed as enabling change were those that members of the social network performed that facilitated and sustained maintenance of risk factor modification for cardiac rehabilitation. Enabling behaviors were categorized as emotional support, appraisal support, problem solving, and instrumental

support. Limiting behaviors were perceived as those that
blocked the achievement of valued goals of life style
change. Limiting behaviors were labeled as value conflict
and maintenance of boundaries. The two categories were not
found to be mutually exclusive, illustrating the complexity
of behaviors that occur during times of change and
transition within social networks.

Budd (1991) investigated factors that influence the
recovery and rehabilitation process for women after a
myocardial infarction. Based on Bandura's (1986) Self-
efficacy Theory and Orem's (1971) Self-care Theory, three
instruments were developed to measure women's knowledge,
self-efficacy, and perceived success related to cardiac
disease and rehabilitation. Forty-six women aged 40 to 87
years of age participated in the study. The women were
interviewed in person at the hospital prior to discharge and
again by telephone ten weeks after discharge by the nurse
investigator. Results of the study showed significant
relationships between self-efficacy and rehabilitation
success and social support and rehabilitation success.
Knowledge was not significantly related to rehabilitation
success.

Friedman (1993), Primomo et al. (1990), and Thompson
and Heller (1990) evaluated social support and its influence
on the concepts of life satisfaction and well-being. All
three studies identified that there is an relationship
between the type of support, and the person who provides the

support, to positive outcomes. Because cardiac rehabilitation success is considered a positive outcome, and restoration of mental and physical well-being is a goal of cardiac rehabilitation, these studies support the need for evaluation of social support for cardiac rehabilitation.

Fleury (1993) and Budd (1991) looked more specifically at social support in the context of cardiac rehabilitation. Fleury looked at heart patients perceptions of how their support systems influenced their wellness motivation for cardiac rehabilitation. Budd (1991) correlated perceptions of social support and perceptions of rehabilitation success. Fleury (1993) found that patients were able to differentiate between two kinds of support, that which helped motivate them to change their life style and that which interfered. Budd (1991) found that patients who believed their support system was good also felt they were doing better in their rehabilitation efforts. Both studies demonstrated that patients perceptions of their support system are important in the rehabilitation experience.

Age

Ades, Polk, Waldmann, and Coflesky (1992) identified that older women are less likely to participate in cardiac rehabilitation programs than older men, and that older women who do participate in exercise based rehabilitation programs show significant differences in their pre and post exercise program variables. The sample included 226 men and women all 62 years or older who had been diagnosed with a

myocardial infarction or had bypass surgery. All patients were eligible for cardiac rehabilitation upon discharge from the hospital. After their first outpatient physician visit the subjects were interviewed by a cardiac rehabilitation nurse to evaluate the strength of physician recommendation for an exercise based outpatient rehabilitation program. Strength of physician recommendation was scored on a scale from 1 to 5. Lower scores connoted that the physician did not recommend rehabilitation and higher scores represented strong recommendation. By stepwise logistic regression analysis, the strength of the physician recommendation was the most powerful predictor of participation for the entire group (n = 226). However, physicians recommended participation more strongly to older men than to older women despite similar clinical profiles.

Of the subjects recommended for rehabilitation at discharge from the hospital (n = 226), only 57 enrolled in the cardiac rehabilitation program. Of the subjects who did participate (men = 39 and women = 18) the women were less fit at the beginning than the men, but performance improvements were as significant for the women as for the men after 12 weeks of exercise rehabilitation.

This study demonstrates the need for further evaluation of the perception of age and recovery from a cardiac event. Health care providers may be affected by negative stereotypes about aging and the efficacy of cardiac rehabilitation even in old age.

Cardiac Rehabilitation Experiences

Schuster and Waldron (1991) examined the gender differences in exercise tolerance, self-efficacy, and anxiety, and the relationships of these variables to attendance at rehabilitation sessions. Frequency distributions on the major variables showed that men attended more regularly than women, men achieved a higher activity tolerance than women, more women expressed low self-efficacy than men, and women were more anxious than men. The authors also identified that women did not enter cardiac rehabilitation programs in proportion to the expected ratio based on coronary morbidity data.

Frenn, Borgeson, Lee, and Simandl (1989) investigated the recommended life-style changes in a cardiac rehabilitation program from the client's perspective. The study was limited to changes in diet, smoking cessation, and incorporation of exercise. The subjects (n = 10), six men and four women, between the ages of 40 and 78, were interviewed while participating in an outpatient cardiac rehabilitation program. The results of the interviews indicated that patients perceived that cardiac rehabilitation programs and the support of family and friends were influential in their recovery process.

Boogard (1984) hypothesized differences in the rehabilitation experience for men and women because of sex role orientation and societal norms. Comparisons were made between men and women on (1) return to physical activity,

(2) psychosocial aspects, and (3) family interrelationships. The subjects, ($\underline{n}$ = 20, 10 males and 10 females), between the ages of 25 and 55 and had their first MI within the past 3 to 6 months were given a semi-structured interview.

On "return to physical activity", men had decreased physical activity one week after discharge from the hospital, compared to women who began light household activity one week after discharge. On "psychosocial aspects", both men and women experienced post infarction depression. But men, did not feel guilty during the rehabilitation period, whereas women felt guilt about not being able to fulfill their roles as mothers, wives, caregivers, and housekeepers. On "family interrelationships", both men and women felt that their families perceived them as ill. But women felt that their families did not "wait on me" while men felt they were often "waited on".

Boogard's (1984) insights into the differences in rehabilitation experiences of men and women are important to consider in the post MI treatment of women. Cardiac rehabilitation programs developed for women should address sex role issues, women's definition of self, and perceptions social support. More research is needed to evaluate how these variables influence recovery from a cardiac event.

Examination of the literature related to social support and its impact on recovery from a chronic illness like heart disease was challenging. Friedman (1993) looked at social

support sources and psychological well-being.   Primomo et al. (1990) looked at relationships between social support sources, types of support, and adjustment. Thompson and Heller (1990) perceptions of family support and social isolation, and Fleury explored social networks and cardiovascular risk reduction. Budd (1991) described the concept of self-efficacy and the ability to negotiate social support for cardiac rehabilitation. All the studies indicated that women's perception of social support was key to the research. Different types of social support were emphasized in each study and operationalized in a different way. Because of these differences, it is difficult to generalize findings. As more research is completed and studies are replicated perhaps more consistent tools for measuring social support in this population will be available.

It was found that age as a factor in rehabilitation is under-researched. Ades et al. (1992) was the only study that clearly identified age as an important variable for cardiac rehabilitation.

Limited literature supports the importance of social support for recovery from illness and motivation for life style changes that are recommended for cardiac rehabilitation success (Frenn et al., 1989). Similarly, limited literature indicates that age is a factor in cardiac rehabilitation participation and success for women (Ades et al., 1992). The paucity of research in the area of women,

age, social support, and cardiac rehabilitation may be
related to lack of knowledge, interest, and funding in the
past. As the cohort of women influenced by the feminist
movement demand equality for women in all aspects of life,
including research, conceivably there will be more empiric
solutions to the problems facing women.

This study attempted to add to the literature related to
the relationship of age and social support to cardiac
rehabilitation by investigating perceptions of
rehabilitation experiences by different age cohorts of
women.

Methods

Design

This study was a non-experimental, descriptive,
correlational study. It was designed to describe the
association between a woman's age, perceived social support
and perceived cardiac rehabilitation success. This study
was a secondary analysis of data collected for the Women's
Heart Study: Self-efficacy and the Rehabilitation Experience
Following Acute Myocardial Infarction (Women's Heart Study)
(Budd, 1991).

The Women's Heart Study (Budd, 1991) was a descriptive
study that explored the factors influencing the perception
of the rehabilitation process and the role of self-efficacy
in recovering post-MI women. The study was based on
Bandura's Self-efficacy Theory (1986) and Orem's (1971)
Self-Care Theory. Four instruments were developed

specifically for the study, the Patient Social-Demographic Interview (see Appendix A), Knowledge Test, Self-efficacy Scale and Rehabilitation Success Scale (see Appendix B). Women were interviewed in person prior to discharge and by telephone ten weeks after discharge by the nurse researcher.

Sample

Subjects for this study were the same as those in the Women's Heart Study (Budd, 1991). Forty-six women who were recovering from myocardial infarctions were recruited for the original study from two Lansing, Michigan area hospitals. Thirty-six subjects were from Michigan Capital Medical Center (formerly Ingham Medical Center) and 10 subjects were from E.W. Sparrow Hospital. The women in the sample were Caucasian, spoke English and were between the ages of 40 and 87 years.

Operational Definitions

Perceived Cardiac Rehabilitation Success. The concept that the woman has taken in or has grasped the concept of optimizing her health, specifically her cardiac health and feels that the results or outcomes are positive and satisfactory was measured by the Criteria for Rehabilitation Success Instrument (Budd, 1991) (See Appendix B). This telephone interview questionnaire includes 58 self-rating items and 32 open-ended questions. Only the 33 self-rating items which focused on rehabilitation success were used in this study to measure the variable Perceived Cardiac Rehabilitation Success. The questions were divided into

five subscales which measure the woman's perception of her
success in dietary management (items 1-5 and 8); management
of medication self-administration (items 10-15); management
of physical activity and exercise (items 18-28, 31 and 33);
risk factor modification (items 35-36); and life-style
readjustment (items 43, 51-54, and 56). The format for the
33 self-rating items was a five point Likert scale. The
women were asked in the telephone interview to rate their
management and experiences related to cardiac
rehabilitation. Perceived Cardiac Rehabilitation Success
ratings ranged from 0 (<u>not at all</u>) to 4 (<u>most of the
time\excellent</u>). Women could also choose a <u>not applicable</u>
response.
Mean scores were calculated for the total PCRS and each of
the five subscales. Low scores indicated a poorer
perception of cardiac rehabilitation success than higher
scores.

 <u>Perceived Social Support.</u> Twenty-one items (6, 7, 9,
16, 17, 29, 30, 32, 34, 37, 38, 39, 40, 44, 45, 46, 47, 48,
49, 50, and 55) measuring women's perceptions of social
support were incorporated into the Rehabilitation Success
Instrument (see Appendix C). The scores for these items
were added together for a total Perceived Social Support
score (PSS). This score was divided by 21 and a mean score
was obtained for each subject. The test and response format
were the same as that of the Rehabilitation Success
Instrument.

Age. The variable age was operationalized by cohorts
and chronological age. A cohort is an aggregation of people
having a common characteristic, usually the time period in
which they are born. Each cohort is unique in size, general
health, historical experiences, and role identification.
Cohorts both effect and are effected by the culture in which
they live. According to Cunningham and Brookbank (1988)
much of the aging experience for women is determined by
their cohort, for example, the current group of elderly
women were raised to be more passive and subordinate than
the current group of younger women. As the lives of members
of different cohorts are compared, the principle of cohort
differences surfaces. Because of the effects of social-
historical time on lives, members of different cohorts grow
older in different ways (Riley, 1994). Examples of cohorts
are people born during the depression and people born after
World War II, the "baby boomers."

For this study the 46 subjects were divided into five
groups. Each group represented a cohort. The women's ages
ranged from 40 to 87 years. The first cohort included women
from 40 to 49 years. The second cohort included women 50 to
59 years. The third cohort included women 60 to 69 years.
The fourth cohort included women 70 to 79 years. The fifth
cohort included women 80 to 89 years. Data collected from
the Patient Social-Demographic Interview (Budd, 1991) were
used to describe the cohorts and chronological ages (see
Appendix A). Chronological age was used to operationalize

the variable age for data analysis where the use of groups was not the most appropriate method for testing.

Instruments

Rehabilitation Success Scale. The Rehabilitation Success Scale (RSS) (Budd, 1991) (see Appendix B) is a 90 item instrument (58 self-rating items and 32 open-ended questions) administered by telephone interview. Thirty-three items were utilized to measure a total perceived cardiac rehabilitation success score and five subscale scores for this study. The open-ended questions were not used in this study. Content validity of the RSS was assessed by experts in cardiac rehabilitation; two experts were nurses, one expert was a physical therapist, and one expert was a nurse educator. The Content Validity Index (CVI) of the self-rating scale was .85. The CVI was not calculated for the open-ended questions and therefore their exclusion from this study should not affect content validity. Cronbach's alpha formula, used to estimate reliability of the total RSS, was .92 indicating internal consistency. The Cronbach's alpha for each of the subscales in the Budd (1991) were: diet management, .64; medication management, .76; physical activity, .83; risk modification, .78; and life style changes, .85. The modified Rehabilitation Success Scale used for this study did not include 21 items related to social support. The Cronbach's alpha for the modified scale used in this study was .89 and for the subscales were: diet management, .57; medication

management, .79; physical activity, .81; risk modification, .63; life style changes .70.

Negotiated Social Support subscale (NSSS). In the original study (Budd, 1991) the items relating to the variable social support were incorporated into the subscales of the Rehabilitation Success Scale and were identified in the code book for analysis, but not as a separate social support scale. The Cronbach's alpha for the NSSS was .78. For this study items chosen to operationalize PSS were those that asked the subject about enlisting help from others during recovery. These items were believed to measure the subjects feelings about the social support they received from others during their rehabilitation (see Appendix C). The Cronbach's alpha for the modified scale used in this study was .77.

Patient Social-Demographic Interview.
Social-demographic data for this study was obtained from the original study using the Patient Social-Demographic Interview (Budd, 1991). Demographics were used in this study to measure the variable age, and describe each cohort. Social-demographic data collected included age in years, racial or ethnic background, marital status, children, household make-up, education, occupational status, finances, risk factors associated with heart disease, symptoms of heart disease, hospitalizations related to heart disease, chronic health problems, availability of social support

including physical and emotional support, and use of community health care services (see Appendix A).

Data Analysis

Descriptive statistics on demographics were calculated for the group for marital status, education, finances, occupational status, chronic health problems, social support systems, use of community health services, heart disease history, and risk factors. Descriptive statistics related to social support and cardiac rehabilitation success were also calculated for each of the cohorts. These statistics were used to help describe these critical characteristics of each cohort.

The first research question, concerned with the association between perceived social support and perceived cardiac rehabilitation success, was answered by Pearson's product-moment correlations between the mean scores of the total Perceived Cardiac Rehabilitation Success and subscales and the mean scores of the Perceived Social Support scale.

The second question, relating to an association between a women's age and perceived cardiac rehabilitation success, was answered using analysis of variance to determine if there was any significant effect of age by cohort on mean score for the total and subscales of perceived cardiac rehabilitation success. The third question, relating to an association between a women's age and her perceived social support, was also answered using the analysis of variance

procedure to determine any effect of age by cohort on mean perceived social support scores.

The last research question, about the extent and manner age and perceived social support relate to a woman's perceived cardiac rehabilitation success, was answered using multiple linear regression analysis. Of interest was the weight of the predictor variables, chronological age and perceived social support, for the prediction of the criterion variable, perceived cardiac rehabilitation success.

Limitations

1. The use of previously collected data (secondary analysis) limits the interpretation of the variables in this study. Additional information on how the women felt about their age in relationship to their health and opportunities for recovery would have added more depth to the age variable.

2. The small size of the sample and the lack of ethnic diversity limits generalization of the results to the population.

3. Use of the NSSS scale to measure perceived social support implies the subject is proactive rather than the more passive concept of perception.

Assumptions

It was assumed the questionnaires were answered honestly by the subject without input from family and/or friends and data were entered correctly.

Procedures for Protection of Human Subjects

Code numbers were the only identifier of subjects for the present study and therefore anonymity of subjects was assured. The original research, Women's Heart Study: Self-efficacy and the Rehabilitation Experience Following Acute Myocardial Infarction (Budd, 1991), was granted approval by each hospital's (Michigan Capital Medical Center and Edward Sparrow Hospital) Human Subjects Review Committee and from Michigan State University's Committee on Research Involving Human Subjects. Approval was also obtained from Michigan State University's Committee on Research Involving Human Subjects for the present study (see Appendix D).

Results

In this section the results of the data analysis are described for the sample and research questions.

Sample

The 46 women in this sample were from 40 to 87 years (M = 65.5, SD = 11.2). Half of the women were married (n = 23), and a third were widowed (n = 16). Twenty-nine women lived with a spouse or other family member and 17 lived alone.

Thirty-five women were at least high school graduates and almost half of those had advanced education. Prior to their heart attack, 13 subjects worked full-time, two worked part-time and one did volunteer work. Twenty-one women were retired and 7 were unemployed. Thirty of the women considered themselves full time homemakers and 12 stated

they were part time homemakers. Two subjects hired
assistants for homemaker services, one was cared for by her
family, and one relied on community resources for her
homemaker services (see Table 1).

In order to investigate the variable age, the women
were placed in cohorts by age (see Table 2). Most of the
women were in two cohorts, 60-69 and 70-79 years of age.

The most frequently reported risk factor for heart
disease was stress (see Table 3). And the two most
frequently reported chronic health problems were
hypertension and arthritis (see Table 4). The most
frequently reported heart problem prior to the MI was
angina, but 20 women reported having had no prior heart
problems.

Table 1

Frequency and Percent of Social-Demographic Characteristics
(N = 46)

Characteristic	Frequency	Percent
Marital Status		
Married	23	50.0
Widowed	16	35.0
Divorced	5	11.0
Single	1	2.0
Separated	1	2.0
Number of Children		
none	5	10.9
one	2	4.3
two	11	23.9
three	11	23.9
four	4	8.7
five	6	13.0
>six	7	15.2

Table 1 (cont'd)

Characteristic	Frequency	Percent
Living Arrangements		
Alone	17	37.0
With spouse	22	48.0
With adult child	4	9.0
With teen child	2	4.0
With grandchild < 6	1	2.0
Homemaker Status (pre-MI)		
Full-time	30	65.0
Part-time	12	26.0
Cared for by family	1	2.0
Community assisted	1	2.0
Hired services	2	4.0
Highest Education		
Grades 7-9	4	8.7
Grades 10-11	7	15.2
High school grad	18	39.1
Jr. or Business college	12	26.1
College grad	2	4.3
Post grad	3	6.5
Work Status (pre-MI)		
Not employed	7	15.2
Full-time	13	28.3
Part-time	2	4.3
Retired	21	45.7
Disabled	2	4.3
Volunteer work	1	2.2
Main Occupation		
Professional	5	10.9
Technical	6	13.0
Clerical/supervision	18	39.1
Laborer/domestic	7	15.2
homemaker/mother	5	10.9
homemaker/wife	4	8.7
homemaker/self	1	2.2
Financial Dependents		
none	43	93.5
one	2	4.3
two	1	2.2

Table 2

Frequency and Percent of Distribution of Cohorts (N = 46)

Age (in years)	Frequency	Percent
40-49	4	8.7
50-59	9	19.6
60-69	17	37.0
70-79	10	21.7
80-89	6	13.0
	--	------
	46	100.0

Table 3

Frequency of Self Reported Risk Factors (N = 46)

Number 1	Frequency	Number 2	Frequency
Stress	24	Stress	11
Obesity	7	High Blood Pressure	6
Diabetes	5	High Cholesterol	6
Family History	3	Diabetes	6
Cigarette Smoking	3	Cigarette Smoking	5
High Blood Pressure	2	Family History	5
None	1	Obesity	3
		None	2

Table 4

Frequency of Self Reported Chronic Health Problems and Previous Heart Problems (N = 46)

Chronic health problems		Previous heart problems	
Hypertension	30	None	20
Arthritis	28	Angina	14
Diabetes	15	Previous MI	11
COPD/Asthma	4	CABG	5
Ulcers	2	CHF	4
Cancer	1	RHF	2
		Prolapse	1
		PTCA	1

The women identified spouses and daughters or daughters-in-law as the ones who were most frequently asked to provide personal care and emotional support. It was assumed that the women requested support from sources whom they knew would help (see Table 5). Previous use of community services for support was low in this sample. Sixty-seven percent of the women reported that they had never used community services. The most frequently used community service was the visiting nurse, which is usually prescribed and arranged for while still in the acute care setting (see Table 6).

Table 5

Frequency and Percent of Requests for Social Support (N = 46)

Social Support	Frequency	Percent
Personal care requests		
Daughter/in-law	19	41.3
Spouse	14	30.4
Friends	4	8.7
Sister/Brother	3	6.5
Visiting Nurse	3	6.5
No one	2	4.3
Hired help	1	2.2
Emotional support requests		
Daughter/in-law	11	23.9
Spouse	8	17.4
Friends	9	19.6
Clergy/Psychologist	7	15.2
Sister/Brother	4	8.7
No one	4	8.7
Parents	2	4.3
Visiting Nurse	1	2.2

Table 6

Frequency and Percent of Previous Use of Community Services
(N = 46)

Community service	Frequency	Percent
none used	31	67.4
Visiting Nurse	7	15.2
Meals on Wheels	2	4.3
Sr. Citizens group	1	2.2
Social Services	1	2.2
Transportation	1	2.2
Church	2	4.3
Other	1	2.2

Analysis of cohorts

In order to compare and contrast the cohorts, cross-tabulations with chi-square statistic were done on the variables marital status, living arrangements, self-reported risk factors for heart disease and chronic diseases, personal and emotional care sources, and use of community services. Statistically significant results were obtained for marital status only $\chi^2(4, \underline{N} = 46) = 28.5$, $\underline{p} < .05$. Proportionately more younger women were married, and more older women were widowed. Risk factors for heart disease came close to statistical significance. By cross-tabulation the cohort with the most stress (most frequently named risk factor) were the 70 to 79 year old group. It may be that the small sample size and number of empty cells contributed to the lack of significance for the other variables.

Results related to Research Questions

Research Question 1. Is there an association between a women's perceived social support and perceived cardiac rehabilitation success?

The first research question was analyzed by correlating mean scores on the perceived social support scale with the means of the total and subscale scores on the perceived cardiac rehabilitation success scale. Mean scores on the PCRS and PSS were between 2.6 and 2.9 respectively (see Table 7). Indicating the women's perceptions of cardiac rehabilitation success and social support were in the moderate range. The scores in the subscales, representing components of cardiac rehabilitation were also in the moderate range.

The positive correlations between PSS and PCRS total scale and subscales were significant except for medication management. The correlation coefficients ranged from a moderately low .24 for the PSS and medication management to a moderately high .53 for the PSS and PCRS. These scores are within the normal range for variables of a psychosocial nature (see Table 8).

Table 7

Means, Standard Deviations, and Ranges for Total Perceived
Social Support (PSS) Scale and Perceived Cardiac
Rehabilitation Success (PCRS) Total and Subscales (N = 46)

Scale	M	SD	Range
PSS	2.9	.53	3.7 - 1.6
PCRS	2.8	.57	3.6 - 1.6
Diet	2.9	.64	4.0 - 1.4
Med	2.9	.95	4.0 - 0.0
Phys	2.6	.74	3.7 - 0.9
Risk	2.7	.97	4.0 - 0.0
Life	2.9	.57	4.0 - 1.7

Note. Subscales represent components of cardiac
rehabilitation. Diet = diet management, Med = medication
management, Phys = physical activity, Risk = risk factor
modification, and Life = life style changes.

Table 8

Correlation Coefficients between PCRS Total and Subscales
and PSS Total (n = 46)

Correlation Coefficients

	PCRS	Diet	Med	Phys	Life	Risk
PSS	.53***	.47***	.24	.48***	.43**	.46***

*p < .05. **p < .01. ***p < .001.

Research Question 2. Is there an association between a
woman's age and perceived cardiac rehabilitation success?

The second research question was developed to
investigate the association between age and perceived
cardiac rehabilitation success (PCRS) and subscales. Five
cohorts were used to measure the variable age. The means on
the total PCRS and subscale scores were in the 2.3 to 3.1
range, indicating moderate to moderately high perceived

cardiac rehabilitation success (see Table 9). Variability within and between the groups was examined for significance (see Table 10). There were no significant differences in mean cardiac rehabilitation success scores by cohort. However, for the PCRS total and subscales, the means of each cohort generally decreased with age, which was in the expected direction. Perceptions of cardiac rehabilitation success, for this sample of women, were generally not as strong in the older as they were in the younger cohorts.

Table 9

Means, Standard Deviations, and Ranges of scores on Perceived Cardiac Rehabilitation Success Total and Subscales by Cohorts

Cohort	No.	M	SD	Range
PCRS Total				
40-49	4	3.09	0.76	1.97 - 3.64
50-59	9	2.87	0.70	1.85 - 3.64
60-69	17	2.81	0.56	1.58 - 3.52
70-79	10	2.60	0.47	1.90 - 3.39
80-89	6	2.63	0.56	1.72 - 3.21
Diet management				
40-49	4	3.40	0.16	3.20 - 3.60
50-59	9	3.11	0.72	2.00 - 4.00
60-69	17	2.87	0.69	1.40 - 4.00
70-79	10	2.78	0.58	1.80 - 3.60
80-89	6	2.87	0.70	1.80 - 3.80
Medication management				
40-49	4	3.00	1.50	0.83 - 4.00
50-59	9	2.81	0.88	1.66 - 4.00
60-69	17	3.18	0.83	1.50 - 4.00
70-79	10	2.58	1.13	0.00 - 4.00
80-89	6	2.72	0.74	1.83 - 3.83

Table 9 (cont'd)

Cohort	No.	M	SD	Range
Physical activity				
40-49	4	3.21	0.72	2.15 - 3.69
50-59	9	2.81	0.72	1.62 - 3.69
60-69	17	2.59	0.74	0.92 - 3.77
70-79	10	2.33	0.59	1.31 - 3.31
80-89	6	2.28	0.85	1.00 - 3.38
Life style changes				
40-49	4	3.96	0.63	2.17 - 3.67
50-59	9	2.80	0.83	1.67 - 3.83
60-69	17	2.91	0.60	1.67 - 4.00
70-79	10	2.92	0.36	2.17 - 3.33
80-89	6	2.92	0.43	2.50 - 3.67
Risk factor modification				
40-40	4	2.75	1.19	1.00 - 3.50
50-59	9	2.94	0.92	1.50 - 4.00
60-69	17	2.72	1.03	0.00 - 4.00
70-79	10	2.60	0.61	2.00 - 3.50
80-89	6	2.50	1.41	0.00 - 4.00

Table 10

Analysis of Variance for Perceived Cardiac Rehabilitation Success Total (PCRS) and Subscales by Cohorts

Source	df	M Square	F
Between Groups	4		
PCRS		0.23	0.70
Diet Management		0.37	0.88
Medication		0.65	0.69
Physical Activity		0.81	1.57
Life Style		0.03	0.08
Risk Factor Modification		0.22	0.22
Within Groups	41		
PCSR		0.33	
Diet Management		0.42	
Medication		0.93	
Physical Activity		0.52	
Life Style		0.36	
Risk Factor Management		1.00	

Research Question 3. Is there an association between a woman's age and perceived social support?

The third research question was developed to investigate the association between age and perceived social support. Like the second question, the variable age was measured using cohorts. The means of the PSS scores were in the 2.8 to 3.2 range indicating moderately high perceived social support in all cohorts (see Table 11). The variance within and between groups related to perceived social support was tested for significance (see Table 12).

There were no significant differences in perceived social support by age cohorts. However, similar to the second research question, the means of each group generally decreased with age, which was in the expected direction.

Table 11

Means and Standard Deviations of Scores on Perceived Social Support Scale by Cohort

PSS	Cohort	No.	$\underline{M}$	SD	Range
	40-49	4	3.17	0.36	2.81 - 3.67
	50-59	9	3.04	0.69	1.62 - 3.71
	60-69	17	2.87	0.59	1.71 - 3.71
	70-79	10	2.76	0.38	2.33 - 3.43
	80-89	6	2.79	0.38	2.14 - 3.19
Total		46	2.90	0.51	1.70 - 3.70

Table 12

Analysis of Variance for Perceived Social Support by Cohorts

Source	df	M Square	F
Between Groups	4	0.65	0.63
Within Groups	41	0.29	
Total	45		

Research Question 4. To what extent and in what manner are a woman's age and perceived social support related to perceived cardiac rehabilitation success?

The last research question was to determine the relationship between age and perceived social support to perceived cardiac rehabilitation success. Multiple linear regression was used to determine the predictor value of the independent variables, perceived social support and age, on the criterion variable perceived cardiac rehabilitation success. The results of the test indicated an R Square of .30, meaning 30% of the variability in women's perceived cardiac rehabilitation success scores can be explained by their perceived social support and their age. Regression weights by stepwise multiple regression were PSS = .55 and age = - .01. The significant regression weight of PSS indicate it was the best and only predictor of the two variables under consideration (see Table 13).

Table 13

Analysis of the Effect of perceived Social support and Age
on Perceived Cardiac Rehabilitation Success

Multiple R	0.54
R Square	0.30
Adjusted R Square	0.26
Standard Error	0.49

Analysis of Variance

	df	Sum of Squares	Mean Square
Regression	2	4.305	2.148
Residual	43	10.245	.238

F = 9.02   Significance F = 0.0005

Variables	b	SE B	95% Confdnce Intrvl	Beta
Age	-0.01	0.01	-0.02 - 0.01	-0.12
PSS	0.55	0.14	0.27 - 0.83	0.51

Discussion

In this section the results of the analysis are
discussed for the sample and research questions in relation
to the conceptual framework and literature review.

Sample

In this study, specific demographics related to social
support and self-reported risk factors for heart disease and
chronic illness were evaluated to identify differences
between cohorts. Variables that gave a picture of the
women's support system included marital status, living
arrangements, who they asked for personal help, who they
asked for emotional support, and what community resources
they used.

Friedman (1993) and Primomo et al. (1990) identified family, especially spouses as the most important providers of tangible and emotional support during recovery from chronic illness. Likewise, in this study, spouses and close family members (daughters and daughters-in-law) were reported as the people most often asked for support. Similar to other studies, more younger women were married than older, and more older women were widowed than younger and therefore lacked spousal support for recovery.

Thompson and Heller (1990) studied the importance of network embeddedness and perceptions of social support in older women. They found that physical and mental well being were significantly related to size of the network and perceptions of social support. As in the Friedman and Primomo et al. studies, family was identified as the most important provider of social support. Moser (1994) indicated that social support is positively correlated with successful recovery, also that patients with social support deficits are at risk for continuing cardiac problems and decreased physical and mental well-being. In this study, most women reported having a family member from whom they could request assistance with personal care and emotional support.

Ades et al. (1992) identified that women may not be recommended by their physicians for formal rehabilitation programs because of their age. Additionally, both women and physicians identified chronic health problems as limitations

to participation in rehabilitation. In this study, women were asked to list their chronic health problems. Although some women reported no chronic health problems; arthritis, hypertension, and diabetes mellitus were reported most frequently. These chronic health problems, especially arthritis, are similar to those reported in the Ades et al. study as one of the reasons women do not participate in rehabilitation exercise programs. Women were asked to list their first and second risk factor for heart disease. Stress was the most frequently reported risk factor in all cohorts. One woman in the study listed "my age" as a risk factor.

Investigation of differences between cohorts in this study showed that there were significant differences in marital status and a trend toward significant differences in self-reported risk factors for heart disease with increasing age. Otherwise there were no significant differences. This may be related to small sample size. Additionally, this sample of women were similar in so many ways (education, race, community, and living arrangements) that age differences except with the youngest and oldest groups may have been negated. Cohorts may not have been defined appropriately. Ten year age intervals for cohort groups may not span enough time to identify social-historical differences. Similarities in the cohort groups, may explain why there were few significant differences in this study.

The conceptual framework for this study, "Women's Self-Definition in Adulthood Model" (Peck, 1986), provided a flexible structure for investigation of an issue important to women. A flexible structure is suitable because it represents the multiple roles, responsibilities, and relationships of women's lives. For this study it provided a framework to discuss the association of the variables age, perceived social support, and perceived cardiac rehabilitation success.

Findings

Research Question 1. Is there an association between a woman's perceived social support and perceived cardiac rehabilitation success?

The significant linear relationship between perceived social support and perceived cardiac rehabilitation success is supported both in the literature and by the conceptual framework. Most literature on the subject of social support and recovery from illness, identified that a strong social support system enhances recovery, whereas lack of support increases rates of mortality and morbidity. In this study the sample had moderately high perceptions of their social support (M = 2.9, SD .53) and cardiac rehabilitation success (M = 2.8, SD .57). Possible scores on both scales ranged from a high score of "4" to a low score of "0". Higher scores in this study were given to answers of "most of the time/excellent" and "usually/pretty good", moderate scores given to "occasionally/fair" low scores to "seldom/poorly",

and "not at all". Moderately high total perceived cardiac rehabilitation success scores of the women in this study may be explained by their education level, occupational skills, financial status, and perceptions of social support. These factors may be related to good problem solving skills and motivation to make the recommended changes for rehabilitation success. Moderately high means were also obtained for the subscales, identified as components of cardiac rehabilitation; diet management, medication management, physical activity, risk modification, and life style changes. These scores may be explained by the same reasons as the cardiac rehabilitation success score; moderately high perceptions of social support, problem solving skills and motivation.

The moderately high means on perceived social support may be explained by the numbers of women who have spouses and family support, as well as their responses related to requests for social support. Also, the attention that women received as part of a study can not be negated when considering their perceptions of social support.

The linear relationships between PCRS total and subscales and PSS were statistically significant with the exception of medication management scores. This may be explained statistically by the internal consistency of the medication management scale. When compared to the other subscales, the Cronbach's alpha was lower for medication management than that of the other subscales. Another

possible explanation may be that the women did not see medication management as a task requiring social support.

The direction and magnitude of the linear relationship between perceived social support and perceived rehabilitation success may be described as a moderate positive correlation. A correlation of .53 means that 25% of the variability of the variables can be explained by knowing something about the other. For variables of a psychosocial nature a correlation of .70 is considered quite high. Correlations of .10 to .40 are more typical of psychosocial variables (Polit & Hungler, 1991). Therefore a correlation of .53 is within a range that may be considered acceptable when explaining one variable in relationship to the other.

The model explains the relationship between social support and cardiac rehabilitation success by interaction between the sphere of influence (perceived social support) and self-definition which includes the achievement of perceived cardiac rehabilitation success. With the support of her significant relationships the woman can continue to grow and feel confident in her ability to recover from a myocardial infarction.

Research Question 2. Is there a relationship between a woman's age and perceived cardiac rehabilitation success?

There were no significant differences between the five cohorts on perceived cardiac rehabilitation success for total and subscales. The means for each scale did, however,

generally decrease with increased age. The younger women having higher cardiac rehabilitation success scores than the older women.

Literature on the subject of women, age and cardiac rehabilitation is limited. Ades et al. (1992) identified that older women are not recommended for cardiac rehabilitation programs by their physicians because of their age. Older women may be subjected to ageism and therefore it seemed important to identify differences between age groups so that interventions related to cardiac rehabilitation could be age appropriate.

In this study no statistical differences were found between cohorts. This result could be related to several factors; small sample size, sampling methods, small cohorts of women with similar lifestyles grouped by ten year age spans, and lack of specific age related questions.

The flexible outer wall of the conceptual model identifies the importance of socio-historical time for women. As women move through time, the social, political, and cultural climate will have an effect on the opportunities for women in all aspects of their lives. Perhaps because the all of the women in this study were affected by heart disease at the same point in time, their individual ages may not have been as significant in their perceptions of rehabilitation as the cardiac event itself and resulting treatments.

Research Question 3. Is there an association between a woman's age and perceived social support?

There were no significant differences between age cohorts on the variable perceived social support, although the means for the PSS scale did generally decrease as age increased, meaning the younger women had higher perceived social support scores than did the older women. All the women in this study regardless of age identified some source of social support and had moderately high perceptions of their social support systems.

Thompson and Heller (1990) identified the importance of perceived social support for psychological well-being and functional health in a group of older women. The cohort groups in this study all had moderately high scores on perceived social support regardless of age and significant differences were therefore not identified. It may be that in this small homogenous group of women, with ages that spanned forty years, that there were no true differences. In a larger more randomly selected group perhaps differences would be identified.

The conceptual framework for this study identifies the importance of relationships for women. Therefore it seems important to continue investigating the association of age and social support. It may be, that as women age and their social support system dwindles, that the remaining relationships become even more important. This continuing loss of relationships and social support may affect the

women's self-definition, which is where rehabilitation
success is found. Lack or loss of support may affect
rehabilitation efforts.

Research Question 4. To what extent and in what manner are
a woman's age and perceived social support related to
perceived cardiac rehabilitation success?

For this last question, the variables social support
and age were evaluated for their predictor value for
perceived rehabilitation success. The results were
statistically significant (p < .05) indicating that 30% of
the variance in perceived cardiac rehabilitation success can
be explained by perceived social support which was the one
significant predictor that supports the zero order
investigation of relationships of earlier questions and
confirms that age in this study even when using
chronological age does not help to explain variability in
rehabilitation success. Again, the homogenous sample may
better explain this result. This study adds to the body of
research on the importance of social support systems for
positive health outcomes. Both Fleury 1993) and Budd (1991)
found that social support was a significant variable in
cardiac rehabilitation success.

Age, however, did not add to the predictor value of
perceived cardiac rehabilitation success. The concept of
age related differences in evaluating health outcomes is not
statistically supported in this research although concept of

age and health care still seems conceptually important and warrants further evaluation.

Implications

Implications for the Advanced Practice Nurse (APN) in primary care are explored in the following section.

The finding of statistical significance in this study was the positive correlation between perceived social support and perceived cardiac rehabilitation success. The findings that did not reach statistical significance, but generally had results in the direction expected, were the association of perceived cardiac rehabilitation success and perceived social support with women's age. Keeping both of these results in mind, the APN can use this information in a number of different ways to improve outcomes for women recovering from a myocardial infarction.

In clinical practice, the APN may see women who have had a myocardial infarction. The women may be at any stage in their recovery from the MI. Women may seek emergency care or be hospitalized for cardiac events without knowledge of their primary care provider, and may or may not be enrolled in a cardiac rehabilitation program. The APN in primary care has the opportunity to establish communication with patients that will facilitate access to appropriate post MI care by advising patients to notify their primary care provider of hospitalizations or emergency care within 48 to 72 hours of admission and again at discharge, and having an office protocol that flags these calls for follow-

up and possible case management. This information aids in initiating treatments such as cardiac rehabilitation if appropriate and not already ordered. Patients must be asked if they have been referred for cardiac rehabilitation. If not the APN may prescribe a rehabilitation program.

Establishing a rapport with patients encourages communication and continuity of care. Ongoing assessment of the patient's social support system is critical in predicting recovery from any health problem including heart disease. This study has identified that there is a relationship between perceived social support and perceived cardiac rehabilitation success. The perceived social support scale could be used as a way of measuring the woman's perceptions of social support specific to cardiac rehabilitation or may be modified as needed.

Some women may not have a support system that can meet their needs. In this study assistance with personal care was most frequently requested from daughters and daughters-in-law (41.3%). Spouses (30.4%) were the next source most frequently asked for assistance with personal care. Women who are widows, who have no children (especially daughters or daughters-in-law), or have children who live far away may have difficulty finding ways to get help with personal care. Women requested emotional support from several categories, most frequent being daughters and daughters-in-law, other sources of emotional support included spouses, friends, clergy, siblings, parents, and visiting nurses. In addition

to personal care and emotional needs during recovery women

may need to request assistance with transportation for

grocery shopping, driving to appointments, and other

errands. They may also need to request financial assistance

for hospital and doctor bills, food, and medications.

These personal, emotional, and tangible needs may need to be

filled by community services. Continuing assessment would

help to identify women who have social support deficits so

the APN can intervene quickly if necessary. Assessment

includes identifying women who have social support deficits

because they have difficulty asking for help because they do

not like to bother others, do not want to be obligated to

others, or because no one has offered help.

During routine patient visits the APN has the

opportunity to education women regarding their risk factors

for coronary artery disease. This study identified that

women may not be able to correctly identify their risk

factors for heart disease. The literature indicates that

many women still believe that heart disease is not a major

health problem for women. Individual counseling in the

office and group programs for women's groups in churches,

senior centers, and the workplace are strategies the APN can

use inform women about heart disease.

A supportive-educative telephone program similar to one

described by Beckie (1989) for post bypass patients is

another potential intervention to promote "positive,

potentially health promoting or stress-buffering" (House et

al., 1988, p. 294) supportive relationships. The Beckie study demonstrated that an APN with a solid foundation in the principles of teaching and learning for the adult patient, knowledge and skills in dealing with the questions, concerns and problems of patients after bypass surgery had an important impact on the knowledge and anxiety of post bypass patients. A similar program for women recovering from an MI may help increase their perceptions of support from health care providers during recovery, as well as reinforcing the principles of rehabilitation. Women who are recovering from a cardiac event may find this intervention an important source of advice and encouragement. One of the items on the PSS asks, "Have you sought answers to your questions that have come up since discharge, from health professions (i.e., doctor, nurse, rehab team etc.)?" Moderately high scores on this item ($\underline{M}$ = 3.2, $\underline{SD}$ = 1.2) indicated that women seek support from their health care providers. Adaptation of the supportive-educative telephone program is a way of providing easily accessible support from health care providers for women recovering from a cardiac event.

Part of the role of the APN is to help women understand the etiology of their MI and the rationale for making changes to reduce the risk of another MI. In this role as educator/counselor the APN becomes part of the woman's support system. The APN may work with women individually or in groups depending on the needs of the women. Because of

the importance of relationships in women's lives, many women like support groups. Important topics to be addressed in groups include, expression of fears and concerns, the normal psychological feelings of anxiety, depression, and guilt that women experience after a MI, the importance of cardiac rehabilitation regardless of age, resumption of sexual activity, role changes and how they affect spouses and families, how to negotiate and accept help from families, friends and community support systems, distinguishing between high energy housework activities and health cardiovascular actives. Additionally the APN may develop support groups for husbands, significant others, and families of women heart patients, who may need guidance in ways to support the woman through her cardiac rehabilitation. Spouses and families need to know how important their encouragement and support is for women's successful rehabilitation.

In the case manager/patient advocate role the APN may work in collaboration with other health care providers and community services to assist the woman in her recovery. Specific interventions based on this study would target enhancing social support systems. Health care providers may include the cardiologist, primary care physician, visiting nurses, nurses aides, cardiac rehabilitation staff, and discharge planners. Frequent communication with other health care professionals involved with the patient's care promotes continuity of care for the patient by reducing

replication of some activities and omission of others. The APN in collaboration with discharge planning may prescribe services in addition to the usual visiting nurses and "Meals-on-Wheels", such as senior visitors, financial counseling, legal aid, and specialty transportation. Evaluation of all cardiac rehabilitation programs in the community is essential to understanding where change is needed. Multidisciplinary groups can be developed to investigate the needs of women recovering from heart disease and then compare the results to existing programs.

Community services such as support groups, Visiting Nurses, special transportation, "Meals-on-Wheels", and church groups may be needed to supplement the woman's social support system. A working knowledge of these various community resources may increase the APN's ability to "sell" these services to women who appear unlikely at this time to use them. In this study 67.4% of the women indicated that they had never used community services as a source of support. Women who have always cared for others may have difficulty accepting assistance from others. Women may also be embarrassed because they feel guilty for having had a heart attack. Cohorts of older women may believe care should be provided only by family, regardless of families ability or willingness to do so. Helping women accept community assistance may involve leading support groups, attending and evaluating others, and volunteer work when appropriate.

Inservices for staff at hospitals, community nursing homes, extended care facilities, and visiting nurses are important for disseminating current findings on the needs of women recovering from a MI. Discussion about how to evaluate support systems and actions to take based on those evaluations is a topic appropriate in all levels of patient care. In this study, 15.2% of the sample used visiting nurse services, but only 6.5% reported asking for support in terms of personal care and 2.2% in terms of emotional support from the visiting nurse. These statistics indicate that these women did not see Visiting Nurses as someone from whom they would request personal or emotional support. Although this may be surprising to a profession who prides itself on caring, it is consistent with perceptions of family care as most contributory to feelings well being and satisfaction, but it does leave the door open to further investigate the implications for nursing.

As a guest speaker for classes of nursing and medical students, the APN can increase their awareness of the special needs of women in cardiac rehabilitation. Programs can be presented to physician groups to encourage them to recommend cardiac rehabilitation to women. As indicated by Ades et al. (1992) the strength of physician recommendation was the most powerful predictor of patient's participation in rehabilitation programs and physicians recommended participation more strongly to older men than to older women.

As a consultant the APN may review managed care systems
for evidence of appropriate treatments based on theory,
research and clinical knowledge of women's developmental
needs when recovering from an MI. Knowledge of stereotypes
related to age in the health care profession and general
public is essential to implement change in healthcare
policy. Change although necessary, is not always easy. In
the role as change agent/consultant, the APN may choose to
review charts to see if women are referred for cardiac
rehabilitation the same as men. More funding may be
requested for support services for women recovering from
myocardial infarctions to enable their ability to
participate in cardiac rehabilitation either in their homes
or in a formal program. Hopefully, the APN can help shift
the focus from rehabilitation programs developed for males,
to those that meet the needs of women too.

In this study all of the women indicated moderately
high to moderate levels of perceived social support and
cardiac rehabilitation success regardless of age. The
statistically significant correlation between social support
and cardiac rehabilitation success indicates the importance
of social support assessment and referral to cardiac
rehabilitation programs for all women. Although increased
chronologic age was not a significant factor in women's
perceptions of social support or cardiac rehabilitation
success, the results indicated that as age increased,
perceptions of social support and cardiac rehabilitation

success decreased. Therefor it seems important for the APN
to be cognizant of the potential effects of aging for women,
and their perceptions of social support and ability to
recover from illness.

<u>Implications for further research</u>

Based on this results of this study further
investigation of age, social support, and cardiac
rehabilitation related to women is recommended. Sample size
should be increased and composition (race, culture, economic
and educational level) should be more representative of all
women with heart disease.

Age, described as a biopsychosocial concept and
operationalized by chronolgic age and age cohorts did not
have a statistically significant association with social
support and cardiac rehabilitation success. The results
were however, in the expected direction, as age increased
perceptions of social support and cardiac rehabilitation
success decreased. Suggestions for future research using
this variable include a larger sample size and a greater age
range in each cohort. The age span of this sample (40 - 87
years) is a reasonable representation of the age when women
develop heart disease. Within this age span women could be
divided into cohorts by menopausal status. These three
cohorts, pre, peri, and post menopause would be symbolic
of the changes women go through biologically,
sociologically, and psychologically associated with
menopause which may generally be related to chronologic age.

Additionally the demographic data questionnaire could be expanded to include questions about how women feel about aging and its influence on their rehabilitation.

Perceived social support was significantly related to women's perceptions of cardiac rehabilitation success. Future studies should investigate the availability of formal and informal social support systems for women with heart disease. If informal (family support) is not an option for women, then ways of supplementing social support with community or formal sources needs to be investigated. The results of this study indicated that women do not frequently use community resources. Questions concerning barriers to use of these services may include psychological, financial, physical, and social components.

Cardiac rehabilitation, the third variable in this study, has been identified in other research as an important part of recovery from a coronary event. In this study women had moderate to moderately high scores on cardiac rehabilitation success subscales. Questions that describe and measure women's response to the components of rehabilitation will help increase understanding of how to best develop rehabilitation programs for women and the efficacy of rehabilitation for older women.

Generalizations of conclusions from this study is limited related to sample size and diversity. Further research is needed to focus on strategies to evaluate subjective and objective affects of aging for women, improve

evaluation of support systems, supplement deficits in social networks, and structure cardiac rehabilitation programs specific to the needs of women of all ages.

Summary

Cardiac rehabilitation is an important treatment component for the person recovering from a cardiac event. Current literature and research supports the development of more client specific programs which lead to more successful outcomes.

This study focused on women's perceptions of social support and their age as variables that affect cardiac rehabilitation success. It was found that social support had a moderate to strong correlation on women's perceptions of rehabilitation success. The effect of age on perceived social support and perceived cardiac rehabilitation success, although not significant was in the expected direction, which was as age increased perceptions of social support and rehabilitation success decreased.

APPENDICES

APPENDIX A

APPENDIX A

QUESTIONNAIRE - PART A

Before we begin, can you tell me a little about what
happened to you (your heart), starting when you first knew
something was wrong? The following questions ask general
things about you. Please answer all of the questions to the
best of your ability.

1. What is your age _____

2. What is your racial or ethnic background? (check one)
   ___ White   ___ American Indian
   ___ Black   ___ Oriental
   ___ Mexican-American   ___ Other (specify) _____

3. What is your marital status? (please check one)
   ___ Married   ___ Divorced
   ___ Single, never married   ___ Widowed
   ___ Separated

4. How many children do you have? (include number and ages)

5. Who lives in your household, besides yourself? (check
   all that apply)
   ___ No one else
   ___ Spouse/significant other
   ___ Children: number living at home _____,
       age range _____ _____
       Other relatives _____
       Non-related persons _____

6. What is the highest grade you completed in school?
   (please check one)
   ___ None or some grammar school (less than 7 grades)
   ___ Junior high school (9 grades)
   ___ Some high school (10 or 11 grades)
   ___ Graduated high school
   ___ Technical, business or trade school
   ___ Some college (less than 4 yrs.)
   ___ Graduated college
   ___ Postgraduate college or professional degree

7. Were you working at a regular job outside the home for money prior to your heart attack?
___ yes, I was working ___ full time, ___ part time.
___ no, I am ___ unemployed, ___ retired, ___ disabled, ___ housewife, ___ other (if other, please specify)
_____

8. What is/was your main occupation? Circle the one that best describes your job: Professional, Technical, Clerical Supervisory, Laborer, Full-time homemaker, other (if other, write in the type of work you do or did).
_____

9. Is anyone in your household dependent upon you for:
a. Financial support _____. If yes, who? _____ (relationship).
b. Personal assistance? _____. If yes, who? _____ (relationship).
c. Emotional support, guidance, or supervision? _____ If yes, who? _____(relationship).

10. The following risk factors have been associated with heart attacks. Please check all those risk factors that you believe you have, and indicate with a number "1" which risk you think is your biggest/worst risk factor:
___ High blood pressure   ___ Physical inactivity
___ High blood cholesterol   ___ Obesity
___ Cigarette smoking   ___ Stress
___ My age   ___ Diabetes
___ Family history of   ___ Post-menopause
    heart attacks

11. Prior to this heart attack, what type of heart problems, if any, did you have? Check all that apply. (If none at all please check and go to 13)
___ none at all   ___ chest pain
___ previous heart attack   ___ heart surgery
___ congestive heart   ___ rheumatic heart disease
        failure other
___ (please describe) _____

12. How many times have you been hospitalized in the past year for heart problems? _____

13. Do you have any other chronic health problems?
___ yes   ___ no
If yes, please check if any apply:
___ arthritis   ___ cancer
___ ulcer   ___ lung disease
___ diabetes   ___ hypertension
___ other? _____

14. Do you have any financial worries related to your health problems or your heart attack? _____ No, _____ Yes (If yes please specify) _____

15. Who would you most likely ask if you needed help with each of the following?
    a) personal care (bathing, dressing, eating, etc)
       _____
    b) cooking _____
    c) cleaning _____
    d) laundry _____
    e) grocery shopping _____
    f) driving to appointments _____
    g) other errands _____

16. Who would you turn to for emotional support and under standing, such as:
    a) reassurance _____
    b) sympathy _____
    c) encouragement _____
    d) assistance in following your prescribed plan (e.g. medications, diet, activity) _____

17. Are there any problems or hassles about asking someone to help you (e.g. perhaps you dislike having to ask others, or you hate to bother them, or you don't want to be obligated to anyone, or no one has offered)? _____
    _____
    _____

18. Have you ever used any community health services? _____
    (If yes, which one?) _____
    Were you satisfied with the service? _____

19. Please select the statement that most closely represents how your body feels physically today. Select only one response from the following four.

    ____ Ordinary physical activity does not cause me any chest pain or pressure, or shortness of breath or fatigue.
    ____ I am very comfortable at rest. If I get up and walk around the hall I soon become tired, or short of breath or feel chest pain or pressure.
    ____ I am comfortable only at rest. If I get up and walk a short distance (such as walking to the bathroom) I become very tired, or very short of breath or feel chest pain or pressure.
    ____ Even at rest I usually feel some discomfort such as chest pressure or pain, or short of breath or I feel tired all the time.

20. Regardless of what you have been told about your activity level, what activity and restrictions do <u>you</u> believe should be prescribed for you? Select only <u>one</u> response from the following:

___ There should be no limitation on my ordinary physical activity.

___ There should be only slight limitation on my ordinary physical activity.

___ There should be moderate limitation on my ordinary physical activity.

___ There should be extreme limitation on my ordinary physical activity.

APPENDIX B

APPENDIX B

CRITERIA FOR REHABILITATION SUCCESS:
Post-discharge Telephone Interview - Part D

The questions you will be asked have to do with how you have been able to manage during your rehabilitation at home and what this experience ha been like for you There are no right or wrong answers and there may be questions you prefer not to answer. If you're ready, we'll begin.

0 = not at all
1 = seldom/poorly
2 = occasionally/fair
3 = usually/pretty good
NA = not applicable

TELEPHONE INTERVIEW QUESTIONS

To what extent have you been able to manage in the following areas, now that you've been home for a few weeks?

A. Dietary Management

TO WHAT EXTENT ARE YOU ABLE TO:

1. State the guidelines for your recommended   O 1 2 3 4 NA
   diet (states low fat, low chol., low
   calorie, no added salt) diet?

2. Stay on your healthy heart diet   O 1 2 3 4 NA
   when eating at home?

3. Maintain your desired weight or   O 1 2 3 4 NA
   lose weight, if advised?

4. Select the recommended foods at   O 1 2 3 4 NA
   the grocery store?

5. Dine out and stay on your diet?   O 1 2 3 4 NA
   (i.e., at a restaurant).

6. Obtain more information on your diet   O 1 2 3 4 NA
   if needed, from community resources
   (i.e., hospital or Rehab team dietician)?

7. Get your family to help support your   O 1 2 3 4 NA
   efforts to stay on your diet?

8. Go to a party and stay on your diet?   O 1 2 3 4 NA

9. Ask your friends or host/hostess   0 1 2 3 4 NA
   to support your diet efforts?

What experience can you share about trying to stay on your healthy heart diet?

    Helpful (i.e. family support, self-determination)? _____

_____

    Non-helpful (i.e. family sabotage, cravings, taste, etc.)? _____

B. MANAGEMENT OF MEDICATION SELF-ADMINISTRATION:
    Prototype - Medication related to nitroglycerine (NTG)

    Have you had chest pain or pre-sure since you've been home? (Y/N)
    Have you taken nitroglycerine since you've been home? (Y/N)
    If yes, how many times per day __ or times per week ___?

TO WHAT EXTENT

10. Can you state the basic guidelines for   0 1 2 3 4 NA
    <u>taking</u> NTG? (identify chest pain or
    pressure, time and/or sequence, placement
    under tongue, and carrying NTG with her)

11. Can you identify the <u>action</u> of NTG?   0 1 2 3 4 NA
    (vasodilates, relaxes arteries, etc.)

12. Can you identify the <u>side effects</u> of   0 1 2 3 4 NA
    NTG? (dizziness, headaches, etc.)

13. Can you manage the side effects of   0 1 2 3 4 NA
    NTG (or state how to do so)?
    (sit down; take tylenol, etc.)

14. Can you evaluate if NTG is effective   0 1 2 3 4 NA
    (relief of chest pain, etc.)

15. Can you identify what to do if NTG is   0 1 2 3 4 NA
    <u>not</u> effective? (call Dr. or E.R.)

16. Can you count on your family or friend   0 1 2 3 4 NA
    to give you NTG if you were unable?

17. Can you count on your family or friend   0 1 2 3 4 NA
    to recognize if you should need NTG?

Have any family members or friends given you NTG? (Y/N)
    If yes, describe circumstances _____

Have you encountered any problems taking NTG? (Y/N) If
yes, please explain _____

PLEASE LIST THE HEART MEDS YOU ARE NOW TAKING AND WHAT EACH
IS FOR:

MED _____ FOR _____ ANY SIDE EFFECT __

_____   _____   _____
_____   _____   _____
_____   _____   _____
_____   _____   _____

IN YOUR EXPERIENCE WITH TAKING MEDICATIONS, WHAT HAS HELPED
YOU THE MOST? _____
WHAT HAS BEEN THE MOST DIFFICULT? _____

_____

C. MANAGEMENT OF PHYSICAL ACTIVITY AND EXERCISE

Please state what guidelines you were given for activity and
exercise at discharge (Subject's Comments) _____

_____

TO WHAT EXTENT:

18. Have you followed your prescribed   0 1 2 3 4 NA
    activity level since discharge?
    (Subject's CommentS) _____

19. Do you monitor your own activity   0 1 2 3 4 NA
    (i.e. take pulse, note s.o.b.)?

20. Can you state the symptoms that would   0 1 2 3 4 NA
    alert you to stop an activity so as
    to prevent over stressing your heart
    (Ht rate no > 20 bpm higher than
    at rest, stop and rest if short of
    breath, or feel chest pain, fatigued,
    faint, dizzy, or ht palpitations.)

21. Do you follow the guidelines for safe   0 1 2 3 4 NA
    activity (i.e. paced activity)?

22. Have you increased your activity   0 1 2 3 4 NA
    level since You've been home

PLEASE STATE WHICH OF THE FOLLOWING ACTIVITIES YOU NOW DO ON
YOUR OWN

___ Personal care (bathing, grooming, dressing)?

___ Meal preparation for self? ___ For family? ___ Kitchen
clean up?

___ Bedmaking? ___ Bed changing? ___ Dusting? ___ Laundry?

___ Ironing? ___ Scrubbing kitchen/bathroom fixtures and
appliances?

___ Vacuuming/mopping floor? ___ other? _____

___ Grocery shopping? ___ Driving car? ___ Child/grandchild
care?

___ Working on a hobby? ___ Volunteer work?

23. Do you engage in cardiac exercises   0 1 2 3 4 NA
    If not, why? _____

PLEASE INDICATE WHICH OF THE FOLLOWING EXERCISES YOU ENGAGE
IN NOW:

___ Walking inside your home? ___ Walking outside around
your home?

___ Walking less than 1 mile? ___ 1 to 2 miles? ___ more
than 2 miles?
Indicate how many times per week you usually walk _____

___ Bicycling (stationary or mobile)? How much time or
miles ___? and how many times ___ per/week?

___ Swimming? How much time ___ (hr.) and how many
times/wk ___?

___ Other exercise? (_____) Amount of time? ___
Frequency? ___

24. Do you follow the basic guidelines   0 1 2 3 4 NA
    for exercise, (warm up, cool down)?

25. Are you exercising more now then   0 1 2 3 4 NA
    prior to your hospitalization?
    (rate 0 if less, 1=1Xwk, 2=2Xwk 3=3Xwk,
    4=4Xwk plus, NA if ordered not to).

TO WHAT EXTENT:

If you WORK FOR PAY?

26. Have you returned to work, if you   0 1 2 3 4 NA
    work. (1=25%, 2=50%, 3=75%,4=100%)

27. Do you follow the guidelines for work,   0 1 2 3 4 NA
    if you work? (i.e. gradually work up
    to previous level/time. Comments) _____

If you work for pay but have not yet returned to work, what
plans do you have? ie Return to same job? _____ Change to
new job? _____ Retire? _____. Have you discussed this
with your Dr.? _____ Indicate type of job planned: _____

28. Are you able to follow the guidelines   0 1 2 3 4 NA
    for sexual activity, if sexually active? _____

29. Have you negotiated any household   0 1 2 3 4 NA
    responsibilities with family/friends?
    Explain: _____

30. Does your family/friends participate   0 1 2 3 4 NA
    in your exercise program with you? •

31. Have you considered attending a Heart   0 1 2 3 4 NA
    Rehab class or program?

32. Have you sought answers to your   0 1 2 3 4 NA
    questions that have come up since
    discharge, from Health Professional
    (i.e., Dr., Nurse, Rehab team, etc.)?
    Please explain _____

33. Are you pursuing follow-up health care?   0 1 2 3 4 NA
    (i.e., have you returned for doctor's
    appointment, checked into an exercise
    program, know when allowed to drive, etc.)

34. Have you begun to participate in   0 1 2 3 4 NA
    family or friend social functions?
    (within activity limits?) _____

What has helped you the most in carrying out recommended
activities and exercises? Please explain: _____
_____
_____

What has been your biggest activity/exercise barrier or
hassle? _____
_____

RATE YOUR CURRENT PHYSICAL Activity LEVEL
LOW =   1- -2- -3- -4 = HIGH

D. RISK FACTOR MODIFICATION

In the hospital, you were asked to identify your risk
factors that are associated with heart disease. Please list
them again.
_____

What is your priority risk factor, i.e., the one you are
willing to work on, or feel you should work on?
_____

TO WHAT EXTENT

35. Have you been working on controlling   0 1 2 3 4 NA
your risk factors (effort)?

36. Have you been successful?   0 1 2 3 4 NA

37. Have you made others aware of your   0 1 2 3 4 NA
efforts to modify your risk factors?

38. Have you sought assistance from family/   0 1 2 3 4 NA
friends to help you control your risk
factors?

39. Have others encouraged you to modify   0 1 2 3 4 NA
your risk factors?

40. Have others given you the kind of   0 1 2 3 4 NA
support you need to reduce your risks?

What has enhanced your efforts to modify your risk factors?
_____

What has been the most difficult part in modifying your risk
factors? _____

RATE YOUR PROGRESS IN CONTROLLING YOUR RISK FACTOR:

     LOW = 1- -2- -3- -4 = HIGH

E. LIFE-STYLE RE-ADJUSTMENTS

TO WHAT EXTENT:

43. Have you been able to deal with the   0 1 2 3 4 NA
changes in your life since your heart
attack? (Subject's Comments) _____

44. Have others in your family helped you in   0 1 2 3 4 NA
the process of dealing with changes? How?
(i.e., emotionally, informationlly, physically)?

45. Have you been satisfied with this   0 1 2 3 4 NA
help or support? Explain.
_____

HAS YOUR MAJOR ROLE (homemaker? ___ (spouse? ___ job? ___
child care? ___ financial manager? ___ other? ___) CHANGED?
(Ck Y/N if apply) Subject's Comments) _____

46. Have you been able to negotiate or   0 1 2 3 4 NA
ask for support when needed at home?

47. Have you been able to negotiate or   0 1 2 3 4 NA
    ask for support when at work?

DO YOU BELIEVE THAT YOU (OR YOUR MAJOR ROLES) ARE INFLUENCED
BY SOCIAL OR CULTURAL ASPECTS (i.e., Man's work vs. Woman's
work)? Y/N If so, DO YOU THINK THIS HAS INFLUENCED YOUR
EFFORTS TO DO THE THINGS YOU NEED TO DO FOR YOURSELF FOR
REHABILITATION? Subject's comments: _____

48. Do you utilize spiritual support?   0 1 2 3 4 NA

49. Has your spiritual support been   0 1 2 3 4 NA
    helpful during your rehabilitation?

50. Have you started to become socially   0 1 2 3 4 NA
    active again (attending community
    functions and/or entertaining at home)?

51. Have you been able to keep your   0 1 2 3 4 NA
    morale up?

52. Have you been able to successfully   0 1 2 3 4 NA
    deal with "STRESS"? Explain type of stress _____
    _____

53. Have you used stress management   0 1 2 3 4 NA
    techniques? If so, helpful? _____
    If not, why? _____

54. Do you believe you have enough   0 1 2 3 4 NA
    information about your therapy to
    make decisions about life-style changes? _____

55. Do you believe you have enough support 0 1 2 3 4 NA
    (family, friends, or community) to make
    the necessary changes? (Areas lacking)? _____
    _____

56. Do you believe you are motivated   0 1 2 3 4 NA
    to make life style changes?

RATE YOURSELF IN TERMS OF OVERALL SUCCESS   0 1 2 3 4 NA
IN THE REHABILITATION PROCESS

WHAT HAVE BEEN THE MAJOR BARRIERS TO REHABILITATION?
_____

WHAT HAS BEEN THE GREATEST HELP TO YOU IN THE REHABILITATION
PROCESS? _____

DO YOU THINK MEN OR WOMEN HAVE A MORE DIFFICULT TIME AFTER A
HEART ATTACK? _____ Why? _____

WHAT ADVICE WOULD YOU GIVE OTHER WOMEN WHO HAVE HAD A HEART ATTACK? _____

WHAT ADVICE WOULD YOU GIVE CARDIAC REHAB NURSES AND EDUCATORS? _____

HOW MANY HOURS DID YOU WAIT BEFORE YOU CAME TO THE HOSPITAL?

APPENDIX C

APPENDIX C

Perceived Social Support was measured using 21 items extracted from the Rehabilitation Success Scale, to create a subscale related to social support.

Items:

6. Obtain more information on your diet in needed, from community resources (i.e., hospital or Rehab team dietician)?

7. Get your family to help support your efforts to stay on your diet?

9. Ask your friends or host/hostess to support your diet efforts?

16. Can you count on your family of friend to give you NTG if you are unable?

17. Can you count on your family or friend to recognize if you should need NTG?

29. Have you negotiated any household responsibilities with family/friends?

30. Does your family/friend participate in your exercise program with you?

32. Have you sought answers to your questions that have come up since discharge, from Health Professionals (i.e., Dr., Nurse, Rehab team, etc.)?

34. Have you begun to participate in family or friend social functions?

37. Have you made others aware of your efforts to modify your risk factors?

38. Have you sought assistance from family/friends to help you control your risk factors?

39. Have others encouraged you to modify your risk factors?

40. Have others given you the kind of support you need to reduce your risks?

44. Have others in your family helped you in the process of dealing with changes?

45. Have you been satisfied with this help or support?

46. Have you been able to negotiate or ask for support when needed at home?

47. Have you been able to negotiate or ask for support when at work?

48. Do you utilize spiritual support?

49. Has your spiritual support been helpful during your rehabilitation?

50. Have you started to become socially active again (attending community functions and/or entertaining at home)?

55. Do you believe you have enough support (family, friends, or community) to make the necessary changes?

APPENDIX D

APPENDIX D

MICHIGAN STATE
U N I V E R S I T Y

October 23, 1995

TO: Kristin L. Forester
      2542 Sundance Lane
      Okemos, MI 48864-5210

RE: IRB#:   **95-536**
      TITLE: THE RELATIONSHIP OF AGE AND PERCEIVED SOCIAL
                          SUPPORT TO PERCEIVED CARDIAC REHABILITATION
                          SUCCESS OF WOMEN
      REVISION REQUESTED: N/A
      CATEGORY: 2-H
      APPROVAL DATE: 10/20/95

The University Committee on Research Involving Human Subjects'(UCRIHS)
review of this project is complete. I am pleased to advise that the
rights and welfare of the human subjects appear to be adequately
protected and methods to obtain informed consent are appropriate.
Therefore, the UCRIHS approved this project and any revision listed
above.

RENEWAL: UCRIHS approval is valid for one calendar year, beginning with
the approval date shown above. Investigators planning to
continue a project beyond one year must use the green renewal
form (enclosed with the original approval letter or when a
project is renewed) to seek updated certification. There is a
maximum of four such expedited renewals possible. Investigators
wishing to continue a project beyond that time need to submit it
again for complete review.

REVISIONS: UCRIHS must review any changes in procedures involving human
subjects, prior to initiation of the change. If this is done at
the time of renewal, please use the green renewal form. To
revise an approved protocol at any other time during the year,
send your written request to the UCRIHS Chair, requesting revised
approval and referencing the project's IRB # and title. Include
in your request a description of the change and any revised
instruments, consent forms or advertisements that are applicable.

OFFICE OF
RESEARCH
AND
GRADUATE
STUDIES

University Committee on
Research Involving
Human Subjects
(UCRIHS)

Michigan State University
232 Administration Building
East Lansing, Michigan
48824-1046

517/355-2180
FAX: 517/432-1171

PROBLEMS/
CHANGES: Should either of the following arise during the course of the
work, investigators must notify UCRIHS promptly: (1) problems
(unexpected side effects, complaints, etc.) involving human
subjects or (2) changes in the research environment or new
information indicating greater risk to the human subjects than
existed when the protocol was previously reviewed and approved.

If we can be of any future help, please do not hesitate to contact us
at (517)355-2180 or FAX (517)432-1171.

Sincerely,

David E. Wright, Ph.D
UCRIHS Chair

DEW:bed

cc: Rachel F. Schiffman

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MICHIGAN STATE UNIVERSITY

UNIVERSITY COMMITTEE ON RESEARCH INVOLVING
HUMAN SUBJECTS (UCRIHS)
206 BERKEY HALL
(517) 353-9738

EAST LANSING • MICHIGAN • 48824-1111

July 10, 1990   IRB# 89-322

Suzanne P. Budd
215 Mark Street
Mason, MI 48854

Dear Ms. Budd:

RE: "POST-MYOCARDIO INFARCTION WOMEN: FACTORS INFLUENCING
       REHABILITATION IRB# 89-322"

UCRIHS' review of the above referenced project has now been completed. I am pleased
to advise that the rights and welfare of the human subjects appear to be adequately
protected and the Committee, therefore, approved this project at its meeting on July 9,
1990.

You are reminded that UCRIHS approval is valid for one calendar year. If you plan to
continue this project beyond one year, please make provisions for obtaining appropriate
UCRIHS approval one month prior to July 9, 1991.

Any changes in procedures involving human subjects must be reviewed by the UCRIHS
prior to initiation of the change. UCRIHS must also be notified promptly of any problems
(unexpected side effects, complaints, etc.) involving human subjects during the course of
the work.

Thank you for bringing this project to our attention. If we can be of any future help,
please do not hesitate to let us know.

Sincerely,

Kenneth O. Marvin, Jr.
Acting Co-Chair, UCRIHS

KOM/sar

cc: S. Yelon

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