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Locus of Control and Coping Strategies of Clients Following an Acute Myocardial Infarction

Kathryn J. Niemeyer

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LOCUS OF CONTROL AND COPING STRATEGIES
OF CLIENTS FOLLOWING AN
ACUTE MYOCARDIAL INFARCTION

By

Kathryn J. Niemeyer

A THESIS

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ABSTRACT

LOCUS OF CONTROL AND COPING STRATEGIES OF CLIENTS FOLLOWING AN ACUTE MYOCARDIAL INFARCTION

By

Kathryn Niemeyer

Fifty eight clients admitted to two critical and intermediate units with the diagnosis of myocardial infarction (MI) completed a Heart Disease Locus of Control (LOC) Scale and the Jalowiec Coping Scale. A descriptive correlational design was used to examine the relationship between persons' beliefs about control and the types of coping strategies used after the onset of an acute MI. It was hypothesized that clients with an internal LOC would use problem-oriented more extensively than affective-oriented coping behaviors and that clients with an external LOC would use affective-oriented more extensively than problem-oriented coping behaviors. Imogene King's conceptual framework for nursing provided the theoretical framework for this study.

It was found that persons, regardless of LOC, in the event of an acute MI, reported more extensive use of problem-oriented coping behaviors. The knowledge that MI clients reported a high usage of problem-oriented behaviors to cope with the event is of value to the nurse in planning and implementing individualized nursing care and teaching with MI patients.

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Chapter 1

Introduction

In 1984, 700,000 persons were discharged from hospitals in the United States with the diagnosis of acute myocardial infarction. It is estimated that six million Americans have been clinically diagnosed with coronary heart disease (American Heart Association, 1986).

When hospitalized for acute myocardial infarctions, clients are advised to modify their life styles. They are encouraged to control the modifiable risk factors associated with the illness. These are cigarette smoking, hypertension, diabetes, and high blood cholesterol levels. Other contributors to coronary artery disease are obesity, stress, and lack of exercise. It is in these areas that the person with a myocardial infarction is encouraged to change attitude and behavior (American Heart Association, 1986).

Nurses work with clients in the acute stages and through the recovery phases following myocardial infarctions. They assist clients in understanding control and in coping with stressors associated with the chest pain and with the expected changes that follow (Reunions, 1985). The nurse interacts with the client to promote coping. Nursing interventions may be more effective if individualized to the coping strategies of the client. The coping strategies employed to facilitate control of the stressful event of a myocardial infarction are in part determined by beliefs the client holds about his/her control.

Miller (1983) reports that power and control are synonymous.

Powerlessness is "the perception that one's own actions will not affect an outcome" (Miller, 1983, p. 3). Conversely, control is the belief that one's actions will affect an outcome. Knowledge about a client's beliefs about control is central to the nurse in interacting with the client recovering from a myocardial infarction.

Coping, as described by Lazarus and Folkman (1984), consists of strategies used to deal with a threat. Coping strategies are specific techniques used by a stressed person to deal with the stress and its consequences. The result of successful coping is resolution of the stress or mastery over the stressors (Miller, 1983).

Clients with myocardial infarctions are taught, counseled, and cared for by nurses. The assessment of the client's beliefs about control and coping strategies that are functional can assist in the individualization of teaching, counseling, and caring. The literature confirms that both control and coping are important considerations in interacting with persons experiencing stressful events. Limited information is available on evaluating the relationship between an individual's beliefs about control and coping strategies utilized. Furthermore, the literature does not focus on beliefs about control and coping strategies following a myocardial infarction.

The implications of this study are directed at the nurse. It is more effective for the nurse to individualize interventions used in interacting with the client who has had a myocardial infarction. Miller (1983) believes identification of coping strategies and beliefs about control are "imperative for a holistic nursing approach" (Miller, 1983, p. 31). It is not important to judge the value of the strategy or belief, but rather to clarify it and utilize it in deciding when and what to teach a patient and whom to include in the teaching and counseling plan. The knowledge of a person's beliefs about

control is important in setting goals which facilitate coping in times of stress. This knowledge fosters consistency in the nursing interactions with the stressed client. The assessment of a client's beliefs about control and coping behaviors facilitates mutual goal setting which in turn facilitates adjustment to the life style modifications associated with the stress of the myocardial infarction.

The purpose of this investigation was to examine the relationship between beliefs about control and coping strategies utilized following an acute myocardial infarction.

Chapter 2

Literature Review and Theoretical Framework

Literature Review

The literature review focused on the research related to the concepts of control and coping in the context of acute and chronic illness.

Control. Early research on control was done in the social sciences. Numerous researchers have studied the relationship of control to stress or threatening experiences. Control was conceptualized as behavioral, being direct action on the environment; cognitive, the interpretation of events; and decisional, as having a choice among alternatives (Averill, 1973, Gatchel, 1980). Laboratory experiments which explored the effect of perceived control on the reduction of stress in a threatening situation supported the idea that control has stress reducing effects (Corah & Boff, 1970, Geer, Davison & Gatchel, 1970, Pervin, 1963).

Locus of control is a personality trait that is relatively stable over time. It describes an individual's orientation of control or beliefs about one's control or lack of control over events in life. An individual's locus of control is internal when events are perceived as being the result of his/her actions. It is external when a person views events as being beyond his/her control. Events beyond the control of the individual are perceived as dependent on chance or a powerful other, such as God or a physician (Wallston & Associates, 1983).

Several studies have examined locus of control and its relationship to anxiety and behaviors associated with a stressful event. Phares, Ritchie,

and Davis (1986) concluded that internal and external orientations of control lead one to cope with threatening situations in different ways. Lefcourt and Associates (1981) found internally controlled persons to have less mood disturbances when confronted with negative life events than externally controlled persons. Houston's (1972) research resulted in the finding that without an internal orientation of control, persons experienced more anxiety. Watson (1967) and Donovan and Associates (1975) confirmed this finding when they discovered an increase in anxiety levels in externally controlled persons. Watson and Baumal's (1967) research indicated that the anxiety reducing property of locus of control is dependent on the meaning of the control response. Control can decrease the anxiety associated with an event if the situational demands for control are congruent with the person's preference for control.

Studies have continued to evolve in addressing the role of control in acute illness states. Dennis (1978), in a sample of 70 medical-surgical patients, identified activities that provide a sense of control while hospitalized. Using Q methodology and a descriptive design, the research demonstrated that clients did want control over events impacting quality of life while in the hospital. Patients attached importance to having cognitive control or informational appraisal over diagnostic tests, surgical interventions, and treatments. They expressed the value of understanding life style changes. Decisional control, the control one has when executing a choice, was the least important dimension of control for the patients studied. Dennis found that the function of control was related to the meaning control has for that individual. Although it is important to foster involvement for clients, based on the desire for control, it is equally important to refrain from requiring a type of involvement that the client

does not want or with which he/she is unable to cope.

Padilla and Associates (1981) studied the distress reducing effects of four types of information. They hypothesized that perceived control can be enhanced by providing an explanation of the procedure. With a decrease in the threatening aspects of a procedure, an individual's feeling of control is restored and enhanced. A patient's distress is decreased when information received corresponds with the actual experience of a procedure. Stress is also reduced when there is congruency between the types of control offered and the patient's own choice of control. Fifty patients undergoing nasogastric intubation were studied using self rating scales to measure pain, anxiety, and discomfort associated with the unpleasant procedure. The subjects were tested for preference of control or no control over the nasogastric tube insertion procedure. Once the control preference was determined, subjects were randomly assigned to one of four information conditions. The information conditions included (1) information about the procedure, (2) information about common distressful sensations that occur during and after the procedure, (3) information about behaviors to increase comfort during and after the procedure, and (4) the procedure information along with distressful sensations and coping behaviors to increase comfort during and after the procedure. Providing procedural information along with sensory information and coping behavior information decreased anxiety, pain, and discomfort for both control and no control preference groups. Information was most effective in the reduction of anxiety, pain, and discomfort with those preferring no control.

Wallston, Wallston, Kaplan, and Maides (1974), in the development of a Health Locus of Control Scale, demonstrated the functional utility of the scales in two studies. The first study was of 88 participants in a

hypertension clinic. The study demonstrated that persons with an internal health locus of control who placed higher value on health sought more information than externally controlled persons. The second study was conducted with 34 overweight women seeking to lose weight in a clinic. The results indicated that weight reduction programs consistent with the participant's general expectancies for control would be more successful and satisfying than programs which are inconsistent with the participant's locus of control. The researchers advocate utilization of a specific locus of control scale as a more reliable predictor of behaviors.

Wallston and Associates (1983) used the Multidimensional Health Locus of Control Scale and the Krantz Health Opinion Survey to examine the relationship between an individual's expectancies for control of health and preference for control of health care. They postulated that people who think their own behavior is responsible for their health want as much information as possible about their health status. Subjects from four separate studies were used as the sample for this research. The researchers found that persons who believe their health is controlled by powerful others are less likely to agree with items advocating self treatment or active involvement in medical care. A mediating factor between a person's health locus of control and information seeking behavior is the value placed on health. A person's expectations for control over health are related to preference for control.

In a study conducted by Lowery, Jacobsen, and Keane (1975), 91 pre-surgical patients were administered Rotter's I-I Scale and a state-trait anxiety scale. The purpose of the study was to examine whether differences in locus of control were associated with preoperative feelings of anxiety. Persons with external locus of control were found to be

significantly more anxious than internally controlled persons in preoperative situations.

The research conducted on beliefs about control is complex and covers a broad range of instrumentation, methods, and conclusions. The literature indicates that a client's behavior in the event of acute illness or a threatening situation is related to the orientation of control. Interventions specific to a client's desire for control have been found to reduce distress. It is evident that the full utility of the construct of control and relationships to behavior is an area needing more research.

Coping. Coping, according to Pearlin and Schooler (1978), is behavior that protects people from being psychologically harmed. It has the protective functions of modifying conditions, perceptually controlling the meaning of experiences, and keeping emotional consequences within manageable boundaries. Coping is related to a person's social and psychological resources. Based on a survey of the literature, Jalowiec and Powers (1981) concluded that coping strategies are either problem oriented behaviors or affective-oriented behaviors. Problem-oriented behaviors attempt to deal with the problem or the stressful situation itself. Affective-oriented coping strategies attempt to deal with the emotions evoked by the situation. Some coping strategies can be viewed as having both components although they consist primarily of a predominant problem-oriented or affective-oriented mode of coping.

Jalowiec and Powers (1980) conducted a correlational study in which stressful life events and coping behaviors were compared in 25 emergency room patients with non-serious acute illnesses and 24 newly diagnosed hypertensive patients. The subjects were interviewed and asked to assess their level of stress and their overall state of health. Each subject

completed a stressful life event questionnaire and the Jalowiec Coping Scale. The results indicated that hypertensive patients used more problem oriented coping methods, such as information seeking and actively trying to change the situation. They relied more on exercise and physical activity in coping. The subjects with acute illnesses used more day dreaming and past experiences in coping. Both groups were found to place greater emphasis on solving the problem or handling the situation than on using affective strategies to relieve the distress accompanying a stressful situation.

Powers and Jalowiec (1987) studied the coping ability of the hypertensive patient. They randomly selected 450 hypertensive clients from various outpatient clinics. Subjects were judged as having currently controlled severe, moderate, or mild hypertension based on physician assessment at the time of interview. The purpose of the study was to identify discriminant predictors of blood pressure control and adjustment to chronic illness. Through the utilization of structured interviews, formal instruments, and chart reviews, predictors of the outcome variables were measured. The following eight variables were identified as significant predictors of hypertension control: better health adjustment scores, more illness-related job problems, greater satisfaction with health care, fewer illness-related sexual problems, better medication knowledge, longer time on hypertensive medications, lower diastolic blood pressure at the time of interview and lower mean arterial pressure for the previous six months. Nineteen variables were identified as significant predictors of adjustment to chronic illness. Included in these variables were internal health locus of control and greater use of problem-oriented coping. The results demonstrate relationship between adjustment to the chronic illness of hypertension and an internal locus of control and the utilization of problem oriented coping

behaviors. A large number of the predictors of adjustment to chronic illness involved stress and coping. The findings support the conclusion that various types of coping behaviors, especially the utilization of problem solving behaviors, figure importantly in adapting to chronic illness.

A correlational design with repeated measures was utilized to study coping concerns and emotional responses during the preoperative period, postoperative, and three week postoperative recovery period (King, 1985). The sample consisted of 50 subjects who experienced a first, non-emergency coronary artery bypass surgery. The instruments developed for the study were scales measuring four coping strategies, concerns related to the subjects' health, and a moods scale. Subjects were interviewed the day before surgery, the day before discharge from the hospital, and three weeks after discharge. Four categories of coping strategies were identified and questions were developed to measure subjects' information seeking, direct action taking, turning to others, and intrapsychic modes of coping such as avoidance, imagery, and positive thinking. Results indicated that coping changed over time and information seeking was used most frequently. Information seeking was stable over time although it may have served different functions of coping at different times. Prior to surgery, information was sought about the surgical experience. After surgery, subjects sought information to compare themselves to others with similar experiences. Social support was used to cope after surgery more than presurgically and the use of direct action to cope increased over time. The conclusions suggest that coping strategies that change over time may be more open to influence by specific environmental demands. The consistent use of one coping strategy coupled with the use of a variety of others suggests that the coping process is influenced by personality and situational

factors.

In a study by Webster (1984), twenty patients with myocardial infarctions, one week after discharge, completed the Profile of Moods States Tool, Mishel's Uncertainty in Illness Scale, and the Jalowiec Coping Scale. The results indicated that problem oriented coping mechanisms were used more frequently than affective coping mechanisms.

Ferrington (1986) utilized a convenience sample of 104 hospitalized spinal cord injured males to study the relationship between personal control and coping effectiveness. Control included preference for generalized expectation for control and perception of options. Depression was used as an indicator of coping effectiveness or ineffectiveness. Five instruments were used, the Beck Depression Inventory, Rotter's Internal-External Scale, Trait Anxiety Test, Fundamental Interpersonal Relations Orientation Behavior Scale and the Situational Control of Daily Activities Scale. The results indicated that preferred control and perceived options were negatively correlated with depression. Decreased perceived control was associated with increased depression. The study concluded that control orientation is associated with effective coping. High levels of perceived control were positively associated with coping effectiveness.

Johnson, Christman, and Stitt (1985) studied the short and long term effects of interventions providing different means of exerting personal control over postoperative experiences. The sample consisted of 121 black women and 47 white women who underwent hysterectomies. Subjective reports of pain, discomfort, and moods along with records of activity, narcotic usage, and usual coping methods were obtained by personal interview. The hypothesis that concrete sensory information preoperatively would enhance the person's ability to deal with the postoperative experience

was supported. A second hypothesis that instruction in a cognitive coping technique would reduce negative mood states was supported for white participants. The third hypothesis that instruction in a behavioral coping technique would increase ambulation and decrease pain was partially supported. Black subjects overall showed no significant difference in coping. White subjects evidenced less anxiety with behavioral coping instruction.

The literature identifies coping strategies as problem-oriented behaviors and affective-oriented behaviors. A relationship between a client's orientation of control and the coping strategies utilized is indicated in the literature. Both the concepts of control and coping are addressed in the context of the stress of illness. The importance of facilitation of coping for the client experiencing a stressful event is documented. However, no literature on the relationship of a person's locus of control and coping strategies used in the event of an acute myocardial infarction was identified. The need for research in this area is evident.

Theoretical Framework

Imogene King's conceptual framework for nursing provided the theoretical framework for this study. In King's conceptual framework for nursing, human beings are open systems interacting with environments. The focus of the framework is on individuals interacting with other persons in a variety of social systems (King, 1981).

Individuals are personal systems. Concepts relevant to the understanding of personal systems are the concepts of perception and self. King believes that in order for nurses to assist persons in staying healthy and to cope with interferences in their health, knowledge of perception is important. "Perception is each human being's representation of reality" (King, 1981, p. 20). One's perception is based on past experiences, concepts

of the self, biological inheritance, educational background, and socioeconomic groups. Perception is influenced by current interests, needs, and future goals. It affects behavior and gives meaning to experience. Perception is an important element in any nurse-client interaction. The concept of self defines the individual as dynamic, open, and goal oriented. Values and beliefs assist the individual to maintain balance in living. King believes that self preservation is an innate characteristic of the self. Control and power for decision making are rooted in the concept of self.

Two or more individuals interacting in concrete situations are interpersonal systems. Concepts inherent in interpersonal systems are interaction, stress, and transaction. Interactions involve perceptions, judgments, and actions of human beings. Actions are a sequence of behaviors of interacting persons. Action includes: (1) the process of mental action or recognition of conditions; (2) physical action or the initiation of operations related to the condition; and (3) mental action to exert control over events and physical action to move to achieve the goals. The purpose of interaction between the nurse and the client "is to assist the patient in coping with a health problem or concerns about health" (King, 1981, p. 85).

King discusses the concept of stress as being a biological, cognitive, and social process. It is the whole person interacting with the environment.

Stress is a dynamic state whereby a human being interacts with the environment to maintain balance for growth, development, and performance which involves an exchange of energy and information between the person and the environment for regulation and control of stressors (King, 1981, p. 98).

King views the control a person has in the hospital situation as an effective reducer of stress. The nurse functions to assist the client in coping with

the stressors of hospitalization and the alterations in health and well being. This is done through the process of transaction. Transaction occurs when individuals interact and exchange meaning or value. Transactions are a process of interaction in which human beings communicate to achieve goals that are valued.

Based on the above theory and review of the literature, it is probable that an internally controlled person utilizes problem-oriented coping behaviors to a greater extent than affective-oriented coping behaviors. If this relationship exists, the nurse, after assessing a client's locus of control as internal, can promote coping and reduce the stressfulness of the situation. This can be done by meeting and assisting the client to meet individualized coping needs. To cope with the stress of the myocardial infarction, the internally controlled person would need to engage in behaviors such as problem solving, acquiring information, consideration of alternatives, discussion of the problem or event, goal setting and the seeking of meaning. The nurse can intervene to promote these coping behaviors. If the converse is true, that an externally controlled client utilizes affective-oriented coping behaviors, then following the nurse's assessment of the client's locus of control, effective coping can be facilitated. The nurse can intervene and promote the coping strategies such as hope, humor, allowing others to solve the problem, and diversion. The nurse can also plan care for the client based on the understanding of the client's needs for an emotional response to the event, such as anger, pessimism, or hopelessness. To cope, the client may need to withdraw or to blame others or may need more social support.

This study deals with personal systems that are stressed. King's conceptual framework for nursing provided the conceptual framework for the

study. Control and coping were investigated in the context of the concepts of perception, self, interaction, and stress. By knowing that a relationship exists between a client's locus of control and coping behaviors, nursing care and interventions can be planned that promote effective coping by the client. With the assessment of a client's locus of control, specific measures can be initiated to foster the behaviors necessary for the client to reduce stress and promote adjustment to the myocardial infarction.

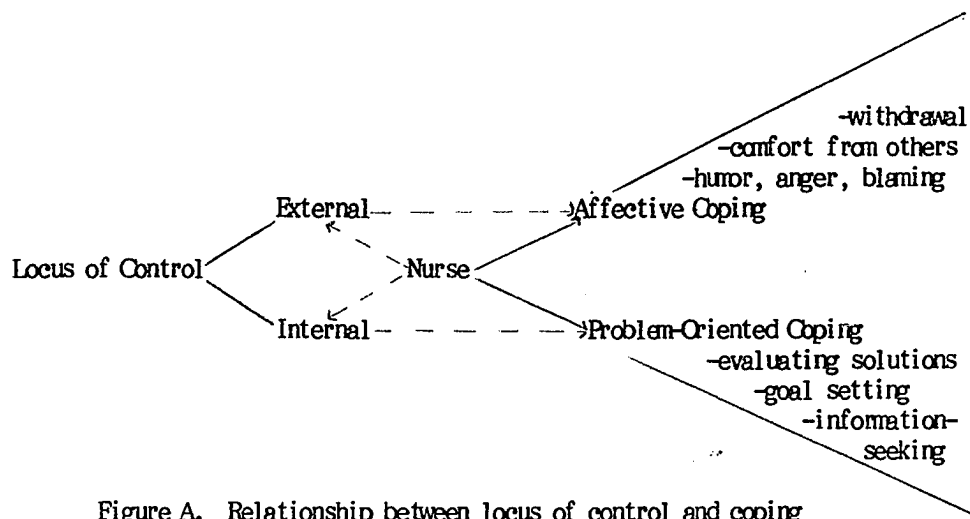


Figure A. Relationship between locus of control and coping strategies and the relevance of this relationship in nursing.

The purpose of this study was to investigate the relationship between an individual's beliefs about control over heart disease and the types of coping strategies utilized in the event of an acute myocardial infarction.

Research Hypotheses

It was specifically hypothesized that:

- 1) the client with an external locus of control will utilize affective oriented coping behaviors to a greater extent than problem-oriented coping behaviors and;

- 2) conversely, the client with an internal locus of control will utilize problem-oriented coping behaviors to a greater extent than affective-oriented coping behaviors.

Definitions

Locus of Control/Orientation of Control - beliefs an individual holds about control or lack of control over health/illness events in life, as measured by the Heart Disease Locus of Control Scale (see Appendix A).

- (a) Internal control - a type of control in which a person perceives health or illness events as being the result of his/her actions.
- (b) External control - a type of control in which a person perceives health or illness events as being beyond his/her control or unrelated to his/her actions. This person views his/her health or illness to be under the control of a powerful other such as God or a physician or a matter of chance, luck, or fate.

Coping Strategies - actions by individuals to deal with problems or the stress associated with health/illness events, as measured by the Jalowiec Coping Scale (see Appendix B).

- (a) Problem-oriented coping strategies - behaviors to deal with problems or stressful events.
- (b) Affective-oriented coping strategies - behaviors utilized to deal with the emotions evoked by the situation.

Acute Myocardial Infarction - necrosis of myocardial tissue due to the lack of blood supply to the myocardium. Medical diagnosis is made based on 12-lead EKG changes and/or elevation of cardiac enzyme, being creatine phosphokinase or creatine kinase.

Chapter 3

Methodology

Design

A descriptive correlational study was used to examine relationships and differences among variables. The subjects completed two Likert-type scales. One scale measured beliefs about control and the second measured coping strategies. The sample was a non-probability convenience sample of persons with myocardial infarctions who were hospitalized.

The variables studied in this research were the individual's beliefs about locus of control and coping strategies utilized. Extraneous or intervening variables identified for the purposes of this study included age, obesity, level of education, employment environment, presence of chronic disease, perception of disease severity, smoking history, social support systems, and past experience with heart disease. Information on extraneous variables was obtained on a demographic data sheet. This information was gathered for analysis to assist further understanding of the variables and the context from which individual client responses were made.

Site

Data were collected on the medical critical care units and intermediate care units of two Midwest acute care institutions. Data collection was initiated after approval by the appropriate Human Subject Review Boards of Grand Valley State University and the two acute care institutions. Each facility used in the study services persons in the same geographical area and follows similar protocols for management of acute myocardial infarctions.

Four units were used in the study: two critical care units consisting of 6 and 15 beds each and two intermediate care units consisting of 24 beds each. The critical care rooms were private while the intermediate care unit rooms were semi-private. Each unit was equipped with electrocardiography monitoring capabilities and was staffed with registered nurses providing the majority of patient care. Participants experienced nearly similar progression through the hospitalization period. The hospital stay was generally 7 to 10 days with progression from intensive care to intermediate care after an average of three days. Cardiac rehabilitation was initiated on an individual basis as soon after admission to the hospital as the client's physical condition allowed.

Sample

Information was gathered from 58 subjects who met the following criteria:

1. Medically diagnosed with an acute myocardial infarction.
2. Aware of diagnosis.
3. Able to read, write, and speak English.
4. Voluntary participation as evidenced by the signed consent.

Subjects were excluded from participation in the study for any of the following:

1. Presence of cerebral vascular disease.
2. Alterations in level of consciousness or delusional complications.
3. History of psychosis.

Instruments

Orientation of control was measured using the Heart Disease Locus of Control Scale (O'Connell and Price, 1985). The researchers based the instrument on the premise that health directed behavior can be predicted

from personal beliefs about whether a person feels he/she can control his/her own health. This instrument was developed using the same format as the Multidimensional Health Locus of Control Scale (Wallston, Wallston, and DeVillis, 1978). It is a six point ordinal type scale consisting of 20 items. The instrument was developed specifically for the study of heart disease and is comprised of a set of three subscales. The subscales are Internal (7 items), Chance (7 items), and Powerful Other (6 items). It was administered to a group of 50 health fair attenders and 33 general education college students. Cronbach alpha coefficients for subscales Internal, Powerful Other, and Chance were 0.83, 0.76, and 0.86, respectively. Test-retest scores showed a correlation coefficient of 0.83 as a measure of stability. Content validity was established by having authorities make judgments on the adequacy of the instrument items to measure the variable being examined. Construct validity of the separate Heart Disease subscales was estimated by factor analysis. The results of the development of a Heart Disease Locus of Control Scale suggest that this scale is a reliable and valid measure of heart disease locus of control.

The Scale, while specific for the measure of locus of control for heart disease, was not designed specifically for the inpatient sample of this study. With the consent of the authors, modifications of the instrument were made for applicability to the client experiencing a myocardial infarction (O'Connell & Price, 1985). The modifications consisted of changing the verbs on the questionnaire items from present tense to past tense and changing the word "develop" to "had". A final modification changed the words "heart disease" to "heart attack". An example of a modified item is: "I feel that I had a great deal of control over whether or not I had a heart attack". This item was modified from the original item: "I feel that I have

a great deal of control over whether or not I develop heart disease". A reliability index for internal consistency was determined from this study using Cronbach's alpha for the three subscales of the modified Heart Disease Locus of Control instrument. The Internal Locus of Control subscale yielded a reliability coefficient of 0.89. The External Powerful Other Locus of Control subscale yielded a reliability coefficient of 0.41. The External Chance Locus of Control subscale yielded a reliability coefficient of 0.80. This instrument was selected for this study because of its specificity to the measurement of heart disease locus of control. The literature examining locus of control instruments repeatedly recommends using locus of control scales specific to the populations studied (Ferraro, Price, Desmond, & Roberts, 1987; O'Connell & Price, 1985; Wallston, Wallston, & DeVillis, 1978; and Wallston, Wallston, Kaplan, & Maides, 1974).

The Heart Disease Locus of Control Scale solicited information on Internal Locus of Control, External Locus of Control-Powerful Other, and External Locus of Control-Chance (see Appendix A). A mean score was calculated for each subject for each subscale on the Locus of Control Scale based on the sum of responses and the total number of items in each subscale. This allowed for the assignment of participants to either the Internal or External groups. The locus of control subscale the participant scored highest in determined locus of control group assignment.

Coping strategies were measured using the Jalowiec Coping Scale (Jalowiec, Murphy, & Powers, 1984). The Jalowiec Coping Scale was developed following an extensive review of the literature on coping and adaptation. It solicits information regarding affective and problem-oriented coping behaviors (see Appendix B). The scale is a 40 item, five point Likert-type scale. Scores are derived for two subscales: Problem-oriented

and Affective-oriented coping behaviors, 15 and 25 items respectively. The response scale is 1 to 5 where a response of 1 indicates the participant never uses the questioned coping behavior while a response of 5 indicates the behavior is always used to cope. The maximum number of points possible for affective and problem coping is 125 and 75, the lowest possible number of points is 25 and 15. A mean score was computed for each subject for each coping behavior subscale being measured.

Based on the utilization of the Jalowiec Coping Scale in a study of 450 hypertensive persons, Cronbach alpha coefficients were 0.85 for the Problem subscale and 0.75 for the Affective subscale. Cronbach alpha coefficients from previous studies utilizing the Jalowiec Coping Scale range from 0.82 to 0.86 and test-retest reliabilities have ranged from 0.78 to 0.91. Content validity was supported from the critical and extensive review of works by authorities in the field of coping and adaptation (Jalowiec and Powers, 1980). Experts in the areas of behavioral research on stress and illness classified each of the 40 coping methods on the scale as a problem-oriented or an affective-oriented method of coping with a stressful event. Overall agreement with the classification of the 25 affective-oriented strategies and 15 problem-oriented strategies as 85 percent.

A reliability index for internal consistency was determined from this study using Cronbach's alpha for the two subscales of the Jalowiec Coping instrument. The Cronbach alpha for the Problem-Oriented coping subscale was determined to be 0.65 and 0.83 for the Affective-Oriented coping subscale.

Pilot Study

A pilot study consisting of five subjects was conducted prior to the larger study. Criteria for participation in the pilot study were the same as

for the larger sample. The purpose of the small scale study was to evaluate the effectiveness of the data collection plan and to test the use of the instruments. This was necessary to provide information on the revised instrument and areas of data collection needing revision.

Based on the findings of the pilot study, careful verbal explanation was necessary to provide a clear understanding of the purpose and intent of the study and tools used. The coping scale seemed to elicit questions regarding how it should be used. This was resolved by placing a statement of instruction, in simple terminology, at the beginning of the scale. Participants were encouraged to take their time. The actual time needed to complete the questionnaire was 50 to 60 minutes rather than the anticipated 20 to 40 minutes.

The pilot study was also utilized to obtain information related to participant reactions to and impressions of the study. Three of the five subjects made verbal responses about the nature of the questions. Two of the subjects said they didn't know if the answers were "right". Another subject said the questions were difficult and he was not sure if he understood them all. Based on this, further explanation was given at the time the study was introduced to assure the client that there were no right or wrong answers. The data collector also would check to ascertain if the participant had questions after the initiation of the questionnaire. All pilot study subjects gave positive regard for the nature of the research. It was also found during the pilot study, that candidates for whom the study was defined using the word "research" rather than the word "study" refused to participate. Three clients refused. The pilot study had been explained to these three persons using the term research. Those that consented did so after the explanation was given using the word study.

Procedure

Clients meeting the selection criteria were approached by a data collector after admission to the critical care or intermediate care unit. The data collector approached the client in the client's room. The meeting included data collector, client, and a significant other at the request of the client. The data collector was a Registered Nurse. The process and purpose of the study were explained to each potential participant. A voluntary consent form signed by the client indicated the client's willingness to participate (Appendix C). The signature was witnessed by the data collector and a copy was given to the participant. The participant then filled out the Heart Disease Locus of Control Scale, the Jalowiec Coping Scale, and the demographic data form. The time involved in the process was 50 to 60 minutes.

If at any time during the introduction or completion of the questionnaire the client indicated, verbally or behaviorally, any distress, involvement in the study was terminated. On such occasions, the needs of the client were brought to the attention of the nurse responsible for care of the client. The data collector offered to return at a later time to complete the study.

This study involved no known costs to the participant. A potential risk was increased stress to the client from participation. No drugs or devices were used. Any questions were answered by the data collector or referred to a person able to provide the requested information. Anonymity was protected through the utilization of coded questionnaires and demographic data sheets. The signed consent forms were kept separate from the completed questionnaires.

Chapter 4

Results

Characteristics of Subjects

Data were collected over a six month period. Sixty clients met the criteria for the study and agreed to participate. Two of the subjects failed to complete the coping and demographic questionnaires so there was a total of 58 subjects participating in the study. An additional 11 clients were asked to participate but refused for various reasons. Of the 58 subjects completing the locus of control, coping, and demographic questionnaires, 17 reported a positive history of either a myocardial infarction or cardiac surgery. Thirty eight denied a positive history of a myocardial infarction or cardiac surgery. Three subjects failed to respond to this question.

The sample population was 60.3% male (N=35) and 39.7% female (N=23). Age distribution spanned from the 30 to 39 age range to the 80 to 89 age range. Table 1 illustrates the age range for the total sample population.

Table 1

Distribution of Sample Population by Age

Age	Frequency	Percentage
30-39 years	2	3.4%
40-49 years	5	8.6%
50-59 years	18	31.0%
60-69 years	18	31.0%
70-79 years	14	24.1%
80-89 years	1	1.7%
over 89 years	0	0

Ethnic background was predominantly Caucasian. Forty eight of the subjects were Caucasian (82.8%). One subject was Spanish American (1.7%) and two subjects were Black (3.4%). Seven subjects reported to be Native American (12.1%). The percentage of Native Americans is high for the geographical area in which the data were collected, raising the possibility that some participants may have misunderstood the term "Native American" to mean "born in America" and therefore made an incorrect indication of ethnic background.

Educational background was varied. A majority of the subjects (N=28) reported completion of high school, while an additional 12 reported partial completion of high school. Table 2 shows educational levels of the participants.

Table 2

Distribution of Sample Population by Educational Level

Education	Frequency	Percentage
Grades 1-6	1	1.7%
Grades 7-9	6	10.3%
Partial High School	12	20.7%
High School	28	48.3%
Partial College	9	15.5%
College	1	1.7%
Beyond 4 years College	1	1.7%

Occupational data indicated the majority of the respondents were unskilled laborers or retired persons. The next largest group by occupation was that of semi-skilled workers and machine operators. This group included those who indicated their occupations to be that of truck driver or construction worker. No participant listed occupation to be that of the major professions (law or medicine). No one reported to be an executive

or large business proprietor. One respondent reported to be a minister. Three subjects did not respond to this question. Table 3 reports the occupational levels of the participants.

Table 3

Distribution of Sample Population by Occupational Categories

Occupational Category	Frequency	Percentage
Farm labors/menial service	2	3.4%
Unskilled labor/housewife	16	27.5%
retired	18	31.0%
Semiskilled/machine operator	6	10.3%
Skilled manual/craftsmen	4	6.9%
Clerical/sales	3	5.2%
Minor professional/manager/ small business owners	5	8.6%
Administrators/medium business proprietors	1	1.7%
Missing data	3	5.2%

The majority of the subjects reported to be living with a spouse or a spouse and children as illustrated in Table 4.

Table 4

Distribution of Sample Population by Living Arrangements

Living Arrangement	Frequency	Percentage
With spouse	37	63.8%
With spouse and children	8	13.8%
With children	1	1.7%
Alone	9	15.5%
Other	1	1.7%
Missing data	2	3.4%

Data were collected relating to pre-hospitalization health maintenance practices. Health maintenance behaviors included data on weight control, smoking and exercise. Thirty three subjects (56.9%) reported that they

considered themselves to be overweight. Twenty four subjects (41.4%) denied being overweight. One subject did not respond to this question. Twenty one reported to be cigarette smokers at the time of the study. Out of these, 16 reported to be smoking more than a pack of cigarettes a day, 2 said they smoked less than a pack a day, and 3 did not report how much they smoked. Fifteen of those who were smokers at the time of the study said they had been smoking longer than 10 years. Two subjects had been smoking between one to five years and 4 did not report how long they had been smoking. Thirty seven subjects (63.8%) reported they were not cigarette smokers. When asked if participants exercised regularly, 19 or 33% reported they they did exercise regularly. Thirty nine or 67% replied that they did not exercise regularly.

The presence or absence of chronic disease was self reported by the subjects. Twenty six subjects reported that they lived with chronic disease. Thirty subjects denied the presence of any ongoing diseases. Two subjects did not respond. Chronic diseases subjects reported to be living with are shown on Table 5.

Table 5

Distribution of Sample Population by Chronic Diseases

Chronic Disease	Frequency	Percentage
Angina	5	8.6%
Hypertension	10	17.2%
Diabetes	6	10.3%
Hypertension and angina	1	1.7%
Hypertension, angina and diabetes	3	5.2%
Other	1	1.7%

*The "Other" was reported as multiple sclerosis.

Subjects were asked to rate their perception of the severity of their present health condition using the value labels, poor, critical, stable, and good. These results are stated in Table 6.

Table 6

Distribution of Sample Population by Perception of Present Condition

Value	Frequency	Percentage
Poor	1	1.7%
Critical	9	15.5%
Stable	33	56.9%
Good	12	20.7%
Missing data	3	5.2%

Analysis of Research Hypotheses

The research hypotheses were evaluated with paired t tests using a computerized SPSSX statistical package. Two subjects were assigned to the Powerful Other Locus of Control group due to high mean scores on the Powerful Other subscale. The next highest mean score for these subjects was on the Internal Locus of Control subscale. One subject rated a mean score of 4.17 on the Powerful Other Locus of Control subscale and a 4.14 on the Internal Locus of Control subscale. This same subject had a 2.0 mean score on the Chance subscale. The other subject had a mean score of 3.5 on the Powerful Other Locus of Control subscale and a score of 3.0 on the Internal Locus of Control subscale. This subject scored 1.86 on the Chance subscale. As reported previously, the Cronbach's alpha for the Powerful Other Locus of Control subscale yielded a reliability coefficient of 0.41. This low reliability coefficient and the fact that only two subjects grouped in this category led to the conclusion that the Powerful Other Locus of Control subscale should not be used in the evaluation of the

research hypotheses. Instead, the two subjects were placed in the Internal Locus of Control group.

Therefore, the two study groups consisted of 39 subjects in the Internal Locus of Control group and 19 subjects in the External Locus of Control group. The locus of control groups were examined in relationship to gender, age, educational background and presence of a positive or negative history of cardiac disease. Twenty four males (69%) and 15 females (65%) scored high on the Internal Locus of Control subscale. Eleven males (31%) and eight females (35%) scored high on the External Locus of Control subscale. A Chi square analysis was done to evaluate the significance of the relationship between genders and locus of control groups. No significant relationship was found ($X^2 = .2254$, $df = 1$, $p > .05$). There was also no significant relationship between age and locus of control when Chi square analysis was applied ($X^2 = 3.2607$, $df = 3$, $p > .05$). Eight (73%) of those subjects with an educational background greater than high school scored high on the Internal Locus of Control subscale while 31 (66%) of those subjects with an educational background of high school completion or less scored high on the Internal subscale. Fifty three percent of those subjects with a positive cardiac history were internal while 47% were external.

To test the hypotheses, the mean scores for each subject's coping subscales, Problem Oriented and Affective Oriented, were calculated. Paired t tests were applied to examine the difference between means of coping strategies for each of the locus of control groups. Table 7 illustrates the findings.

The research hypotheses state that subjects with an internal locus of control will use problem-oriented coping behaviors to a greater extent than

affective-oriented coping behaviors and that subjects with an external locus of control will use affective-oriented coping behaviors to a greater extent than problem-oriented coping behaviors. The results of the one-tailed paired t tests showed that the first hypothesis was supported. Subjects with an internal locus of control used problem-oriented coping behaviors to a significantly greater extent than affective-oriented coping behaviors. However, the second hypothesis was not supported. Subjects with an external locus of control also used problem-oriented coping behaviors more extensively than affective-oriented coping behaviors. Both study groups demonstrated the utilization of problem-oriented coping behaviors to a greater extent than affective behaviors. This suggests that coping behaviors are related to an internal locus of control within this sample, as the hypothesis suggests. Subjects believing that health or illness events to be the result of personal actions did report the use of coping behaviors that deal with the problem rather than coping behaviors that deal with the emotions evoked by the situation.

Table 7

Results of Paired t Tests for Locus of Control Groups

Coping Behaviors	Internal Locus of Control n=39 df=38				External Locus of Control n=19 df=18			
	M	SD	t	p	M	SD	t	p
Affective Oriented	2.382	.423	10.98	<.001	2.749	.809	2.77	<.01
Problem Oriented	3.547	.480			3.308	.458		

Additional Analysis

The coping variable was examined for the frequency of use of specific coping behaviors. The most frequently and least frequently used coping

behaviors are ranked in order of use in Tables 8 and 9. Eight of the 11 of the most frequently used coping behaviors were problem-oriented coping behaviors. Three of the 11 were affective coping behaviors. Twelve of the 13 least used coping behaviors were affective-oriented behaviors.

Frequency of coping behaviors was evaluated in relationship to gender. It was found that in this study males reported the use of affective coping strategies more than females. Eight (23%) of the males reportedly used affective-oriented coping behaviors more extensively than problem-oriented behaviors. Two (9%) of the females reported the use of affective-oriented behaviors to a greater extent than problem-oriented behaviors. The incidence of problem coping strategies was high with both males and females. Twenty seven (77%) of the males and 21 (91%) of the females reported the use of problem-oriented behaviors to a greater extent than affective-oriented behaviors. A Chi square analysis was done to evaluate the significance of the relationship between the genders in how they cope. No significant relationship was found ($X^2 = 1.957$, $df = 1$, $p > .05$).

Differences in coping score means were evaluated with subjects assigned to two groups determined by the subjects' report of a positive or negative history of cardiac surgery or myocardial infarction. One tailed paired t tests demonstrated a significant difference between the use of problem-oriented coping strategies and affective-oriented strategies for subjects with a positive cardiac history, $t = 4.89$, $df = 16$, $p = < .0005$, and subjects with a negative cardiac history, $t = 7.49$, $df = 37$, $p = < .0005$. Both groups used significantly more problem-oriented coping behaviors than affective-oriented coping behaviors.

Table 8

Most Frequently used Coping Behaviors

Coping Behavior	Type of Behavior	Number of Subjects Reporting Use	Percentage
Hope things will get better	Affective	47	81%
Find out more about situation	Problem	46	79%
Think through different ways to handle it	Problem	45	78%
Pray, trust in God	Affective	45	78%
Maintain control over situation	Problem	44	76%
Talk problem over with someone who has been in same type of situation	Problem	41	72%
Look at problem objectively	Problem	37	64%
Seek comfort or help from family or friends	Affective	37	64%
Try to find meaning in situation	Problem	36	64%
Draw on past experiences to help you handle the situation	Problem	36	63%
Set specific goals to help solve the problem	Problem	35	61%

*The number of subjects reporting the use as frequently to always or rating the behavior as a 4 or 5 on the 5 point Likert scale.

Table 9

Least Frequently used Coping Behaviors

Coping Behavior	Type of Behavior	Number of Subjects Reporting Use	Percentage
Take drugs	Affective	54	93%
Cry, get depressed	Affective	45	79%
Daydream, fantasize	Affective	43	77%
Laugh it off, figure things could be worse	Affective	43	74%
Withdraw from the situation	Affective	42	75%
Drink alcoholic beverages	Affective	42	72%
Meditation, yoga, biofeedback	Affective	41	77%
Do nothing in the hope that the problem will take care of itself	Affective	40	69%
Resign yourself to the situation because it looks hopeless	Affective	39	67%
Let someone else solve the problem	Problem	38	68%
Blame someone else for the problem	Affective	37	64%
Eat, smoke, chew gum	Affective	35	60%
Get mad, curse, swear	Affective	35	60%

*The number of subjects reporting the use as never to seldom or as rating the behavior as a 1 or 2 on the 5 point Likert type scale.

Chapter 5

Discussion

Summary of Results

A significant relationship existed between internal locus of control and problem-oriented coping behaviors in subjects experiencing acute myocardial infarctions. Subjects with an internal locus of control used a greater number of problem oriented coping strategies than affective-oriented coping strategies. In both loci of control groups, subjects used problem-oriented coping to a greater extent than affective-oriented coping.

Discussion

In light of the common assumption that clients following a myocardial infarction experience behavioral and emotional responses to the event, the findings of this study are unexpected. Several issues may explain the high use of problem-oriented coping behaviors and the infrequent use of affective-oriented coping behaviors. The nature of the coping scale, the effects of exposure to cardiac events, specific demographic characteristics, and the overall difficulty of the scales have been evaluated in relationship to the findings.

The nature of the coping scale was reassessed in light of the subjects' responses. Several factors may explain the results of the study. One possible explanation for the high use of problem-oriented behaviors may be that subjects self-reported from a perception of an ideal self. Subjects may have responded out of perceptions of how they should be coping rather than how they actually coped. If this is an area subjects had not thought about

or been aware of in the past, a misrepresentation of coping may have occurred. Another explanation is that the least frequently used affective coping behaviors are the least desirable or least attractive items on the scale. The least used behaviors included the items: "take drugs", "cry, get depressed", "daydream, fantasize", "get mad, curse, swear", "withdraw", and "do nothing". These affective items may have been perceived as less desirable or behaviors with which subjects do not want to be associated. This may have occurred with this sample because of the religious beliefs held by the subjects. Most of the data were collected at a hospital with a religious affiliation. Although no data were collected on the religious affiliation of the subjects, it is possible the religious beliefs impacted perceptions of the affective coping items. The items may have been seen as less desirable or bad. The affective-oriented items may also have been perceived as too personal. Therefore, subjects may not have responded honestly to these items. In addition, one of the emotional responses clients experience following a myocardial infarction is denial. Clients may deny the myocardial infarction or the consequential impact it may have on their lives. The responses on the coping scale may have been a product of the emotional state of denial. Subjects experiencing denial may consider the items on the affective coping scale to be less useful.

In the continued evaluation of the coping scale in relationship to the findings of the study, it can be seen that the least used coping behaviors may have been misunderstood by the subjects. The item "take drugs" may have been understood to mean only illicit drugs. This item scored low. The item "meditation, yoga, biofeedback" also scored low. This item had five no responses and an additional seven subjects indicated they were not sure to

what the item was referring. Misunderstanding may have caused low ratings.

The Jalowiec Coping Scale measured present use of coping behaviors. It did not measure coping characteristic of the subjects. It was not a report of how the subjects cope in stressful events in general. Some of the items may have been perceived as non-applicable to the hospitalized situation. The items that might be viewed as not applicable would be the items on the least frequently used list (Table 9). The hospital environment may have been seen as prohibitive for the use of these coping behaviors and so they would be rated as least used.

The stability of locus of control as a personality construct is unknown. Several variables may impact locus of control. One variable is especially relevant to this study. The impact of previous exposure to a cardiac event or exposure through an educational program is unknown. If subjects had been exposed through a friend, family member, or through personal experience to coronary angioplasty, cardiac surgery, or a myocardial infarction, locus of control may be affected. Likewise, if information leads to behavioral change and awareness, it is possible that, following exposure to an educational program such as cardiac rehabilitation, beliefs about control over life events may be subject to change. Coping behaviors may also be a product of or affected by an educational program. Since cardiac rehabilitation was started on all subjects as soon as possible following diagnosis in both hospitals, the resultant influence this may have had on the study is unknown. The question is posed: Does a person's locus of control change with a rational educational intervention or is locus of control subject to change following exposure to a life threatening event? Both the exposure to cardiac rehabilitation and a life threatening event may impact

locus of control. These two factors may also have had an influence on the reports of the use of problem-oriented coping strategies in this study.

Demographic characteristics of the subjects may have influenced the outcome of this study. Most of the subjects lived with spouses or spouses and children. Assuming that this is indicative of social support, it may have affected the reports of coping. Sixty seven percent had a high school education or higher. The knowledge of how to obtain health related information may be a factor in locus of control or problem coping. This may be a factor due to the fact that health care promotes problem coping and internal beliefs about control. The subjects' age and/or religious affiliation may relate to beliefs about control. Age may be positively correlated with an external locus of control or an internal locus of control. That is, as a person ages beliefs may become more external or more internal about control. Likewise, the more religious a person is may mean the person is also more externally controlled. Both age and religious beliefs may condition the person to an external-powerful other locus of control. Lastly, the high use of problem-oriented coping behaviors may have been a product of the degree of perceived severity of the client's physical condition. It is possible that the more critical the client perceives his/her condition the more affective coping behaviors would be used. The study inclusion criteria elicited responses from asymptomatic and, perhaps, less ill clients. Eliminating the most ill clients may have biased the sample to lesser representation of subjects with an external locus of control or subjects who would have used more affective coping.

The final explanation for the outcome of the study has to do with the instruments. Several subjects verbalized concerns that items on the questionnaire were difficult or they did not know how to respond to them.

Two candidates refused to complete the questionnaire. They said the questions were too hard to answer so soon after a heart attack. The questionnaire may have elicited an emotional response from some or all of the subjects. This may have influenced how the questions were answered.

Implications for Nursing Practice

Imogene King's conceptual framework for nursing provided the theoretical framework for this study. The concept of perception is essential for nurses to understand personal systems. To assist clients to cope with health concerns knowledge of perception is important. By knowing perceived behaviors coping can be facilitated. A goal of nursing is to provide individual care to the client. Knowledge of coping behaviors and variables related to coping enables the nurse to plan care specific to the client. With knowledge of perceived coping behaviors the nurse can work closely with the client in the hospitalized environment to attain goals of recovery in a mutually satisfying process.

In the acute stages following a myocardial infarction, it was found that subjects perceived that they used more problem oriented coping behaviors. Subjects responded to the actual problem and stress of the event more than dealing with the resultant emotions. By acknowledging the use of problem-oriented behaviors, the nurse is able to facilitate active coping with the myocardial infarction. This might be done by providing information on the myocardial infarction or by providing explanation for nursing activities. Nursing staff can be of assistance to the client in the setting of realistically attainable goals. The nurse may be the catalyst the client needs to view the event objectively and so maximize the available resources. Nurses need to evaluate and verify which nursing activities can promote effective coping.

When problem solving control is no longer a belief that influences behavior, it is a coping behavior. Following a myocardial infarction, subjects frequently reported the use of "control over the situation" as a way to cope with the event. When hospitalized, little control is left up to the client. Nurses may be able to reduce stress by promoting and encouraging the client to take as much control over the situation as possible. King views the control a person has in the hospital situation as an effective reducer of stress.

In promoting problem-oriented coping, it may be of benefit to assure that clients start cardiac rehabilitation as soon as possible. Cardiac rehabilitation promotes the belief that clients have control over their own health. Cardiac rehabilitation also encourages the cardiac client to take active steps toward resolution of the stress and problems that resulted from the cardiac event. The role of cardiac rehabilitation in relation to assisting clients to cope needs further research but should not be underestimated.

When the most frequently used coping behaviors are evaluated, it can be seen that the item "hope things will get better" is the most commonly used behavior. This along with "praying and trusting in God" and "seeking comfort and help from family and friends" are affective-oriented behaviors. Planning and intervening done by nurses should reflect consideration for these coping needs. It may be that involvement of family members or the presence of a clergy are specific needs of clients in order for them to deal with the stress of the myocardial infarction. When the nurse communicates with the client, it may be helpful to convey a sense of hope to assist the client in coping with the myocardial infarction. Nurses need to be aware of how they do this and the importance of hope in coping. Further evaluation of nursing activities needs to be done in order to identify those nursing

behaviors that clients perceive as communicating hope.

The hospitalized client is faced with stress from many sources; a foreign environment, a loss of control, fear of death, and fear of the unknown are only a few. A goal of nursing is to provide quality individual care. While acknowledging the relationship between stress and illness, the nurse functions to care for the client experiencing stressors and illnesses. The interaction between nurse and client becomes purposeful when both are active participants in the process of care and recovery. Problem-oriented coping behaviors, when facilitated by the nurse for the acute myocardial infarction client, provide the context for individualized nursing care. Knowledge of coping is an additional step towards quality individual nursing care.

How clients cope with a myocardial infarction in the acute stage is of interest to nurses. Ideally, nurses would collect this information from each individual client. Tools need to be developed to make this data collection possible in time productive ways. To assist the nurse in obtaining knowledge of coping, information must be available on the factors and characteristics that relate to or impact coping. Nurses then need to evaluate what nursing behaviors can promote coping or are perceived as being helpful to the client.

Limitations of the Study

Sample size, characteristics of the subjects, and characteristics of the instruments may have been limiting factors in this study. Considerations of these limitations should be taken into account prior to the generalization of the findings of this study. The sample size was moderate and the sample groups small. This may have influenced the findings of this study. The small sample size also contributed to the inability to use the Powerful

Other Locus of Control scale. A larger sample size may have changed these outcomes.

Certain characteristics of the subjects may have been limiting to this study. The sample was relatively homogeneous. Participants were white, working, educated (greater than 50% of the subjects were educated at the high school level or higher), and had a strong social support base. Data were collected primarily in a small, private, church-affiliated hospital. Different results may have been obtained from a more diverse group. Religious beliefs may have affected the outcome of this study. Data were not collected on religious affiliation. Some of the most ill clients were prevented from participating due to study inclusion criteria. Their participation may have contributed to different study outcomes. Medical histories and previous exposure to cardiac events or treatments may have influenced the responses of the participants. Both coping and/or locus of control outcomes may have been a product of past exposure to cardiac disease or present participation in cardiac rehabilitation.

The coping scale and the effects of participation on the subjects are limiting considerations. The coping scale may have had response bias for this sample. Several of the affective-oriented coping behaviors may have been perceived as less desirable or less attractive due to religious beliefs, misunderstanding the items, or denial. The scale may not have been as effective as it could have been for measuring coping behaviors. The scale may not have been completely appropriate for an inpatient sample. The three questionnaires were long. Several subjects were given longer to complete it due to fatigue. It was difficult to find a block of time in which subjects would be free of interruptions long enough to complete the questions. The outcome of the study may have been different with a more

appropriate tool for this sample and a larger sample size.

Recommendations for Future Research

The locus of control construct needs more research and evaluation to clarify its usefulness in health care. The relationship of locus of control to variables affecting nursing care needs research. Factors that impact and perhaps change a person's locus of control could provide useful information.

Coping of clients in times of illness and stress is an important area for nursing research. Information is needed on coping behaviors, the efficacy of nursing behaviors in assisting and facilitating coping, kinds of information that promote effective coping, and nursing behaviors clients perceive as helpful to coping. Factors that affect coping need further study. Future research that evaluates coping behaviors typically used by clients and the perceived usefulness of these behaviors would be helpful. It would also be of interest to study the value clients ascribe to coping behaviors.

This study should be repeated using a more inclusive coping scale and larger sample size. Subject characteristics and perceptions should be correlated with coping behaviors. The perception of severity of illness is a factor that should be studied in its relationship to coping. Coping scales that are individualized to specific patient populations and which include the efficacy of the coping strategy need to be developed. Nurses' perceptions of coping behaviors is an area worthy of study. Exploration of different methods of data collection may prove beneficial. Coping in relation to different cardiac situations and treatment regimes would be of interest to practicing nurses as well as study in the area of coping as a function of chronic disease states.

Study in client education or cardiac rehabilitation and its effects on

locus of control and/or coping could provide useful information for nurses involved in all phases of cardiac care. The cardiac care nurse could benefit from knowledge of how and how rapidly the client is affected by cardiac teaching. Is the resultant change in awareness manifested in a durable change in behaviors? More simply, does cardiac rehabilitation change a person's beliefs about control and does this lead to changes in coping behaviors and do these changes last? Health care promotes an internal locus of control and problem-oriented coping. The relationship between health promotion and coping behaviors needs further evaluation.

Lastly, "control over the situation" was reported to be a frequently used coping behavior. Control as a coping measure needs investigation. Information on what behaviors are seen as giving mastery over the stressful event would be helpful. Nursing practice could be influenced by additional study in the area of client control as a means to cope with the stress of acute or chronic illness.

Conclusion

Clients experiencing hospitalization for the treatment of a myocardial infarction are experiencing stress. How clients cope with the stress of this experience was evaluated in relationship to the beliefs about control over life events held by the client. It was found that the sample as a whole reported using problem-oriented coping strategies to a greater extent than affective-oriented coping strategies in the event of a myocardial infarction. The hypothesis that persons with an external locus of control would cope with affective-oriented coping behaviors to a greater extent than problem-oriented coping behaviors was not supported. It was found that all subjects, regardless of locus of control, coped to a greater extent with problem-oriented behaviors than affective-oriented coping behaviors.

This study on coping showed that individuals used problem-oriented coping to a greater extent than affective-oriented behaviors. Behaviors such as viewing the problem objectively or goal setting were frequently used problem-oriented coping behaviors. However, the most frequently used coping behavior in the event of an acute myocardial infarction was to hope that things get better, an affective coping behavior. Other affective behaviors reported were to pray and use family and friends for comfort. The use of these coping strategies has potential value for the nurse providing care to the client experiencing a myocardial infarction. With knowledge of how clients cope, care and teaching can be specific to the client and planning can take place that will promote effective coping.

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Appendix C

Consent Form

I would appreciate your help in conducting a study about how people cope in the event of a heart attack. My goal is to improve care to patients experiencing heart attacks.

Your participation involves filling out a short questionnaire. The questions relate to beliefs you hold about control of your health and coping behaviors which you engage in. This questionnaire will take approximately 45 minutes of your time. If you participate, it will not cost you anything and there are no expected risks as a result of this study.

Participation in this study is voluntary and refusal to participate will not affect your care. You are free to withdraw from the study at any time. There will be no penalties. Confidentiality and anonymity will be maintained by the coding of all information. This study has been approved by the Human Subjects Review Board of Grand Valley State University.

Your signature below signifies that this study has been explained to you and that you freely consent to participate.

Signature _____

Date _____

Witness _____

Researcher: Kathryn Niemeyer, R.N.
(616) 843-3197

Appendix D

Demographic Data Sheet

1. Gender:

- a. Male
- b. Female

2. Age:

- a. 20-29
- b. 30-39
- c. 40-49
- d. 50-59
- e. 60-69
- f. 70-79
- g. 80-89
- h. over 89

3. Ethnic Background:

- a. Caucasian
- b. Spanish American
- c. Black
- d. Native American
- e. Other _____

4. Level of schooling completed:

- a. Fewer than seven years of school (grades 1-6)
- b. Junior High School (grades 7-9)
- c. Partial High School (grades 10-11)
- d. High School (12th grade)
- e. Partial College (3 years or less)
- f. College education (4 years)
- g. Beyond 4 years of college

5. Do you consider yourself overweight?

Yes _____ No _____

6. Do you smoke?

Yes _____ No _____

If yes, how much do you smoke? _____
And, for how long have you smoked? _____

7. Do you exercise regularly?

Yes _____ No _____

8. Occupation _____
9. Do you live:
- a. alone
 - b. with spouse
 - c. with children
 - d. in a nursing facility
 - e. other _____
10. Do you have any ongoing diseases like diabetes, high blood pressure, or angina?
- Yes _____ No _____
- It is: _____
11. You consider your condition right now as:
- a. poor
 - b. critical
 - c. stable
 - d. good
12. Have you had a heart attack or heart surgery in the past?
- Yes _____ No _____