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The Relationship Between Attributions and Adjustment Following Myocardial Infarction

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THE RELATIONSHIP BETWEEN ATTRIBUTIONS AND
ADJUSTMENT FOLLOWING MYOCARDIAL INFARCTION

By

Margaret Elizabeth Bowles

A THESIS

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ABSTRACT

THE RELATIONSHIP BETWEEN ATTRIBUTIONS AND ADJUSTMENT FOLLOWING MYOCARDIAL INFARCTION

By

Margaret E. Bowles

The purpose of this study was to identify if spontaneous attributional search was part of the reaction to a myocardial infarction (MI) and if there were relationships among attributional search, perception of control over attributions, gender and adjustment following MI. Attribution theory provided the framework for this study. A descriptive correlational design was utilized. The convenience sample included twenty male and twenty female subjects hospitalized with a MI. The Multiple Affect Adjective Check List and an attribution questionnaire constructed specifically for this study were administered prior to discharge from the hospital. It was hypothesized that of those subjects that have made a causal search, subjects who attributed their MI to causes over which they perceived a higher level of control would have better levels of adjustment than those who attributed it to causes over which they perceived lower levels of control. Analysis of the hypothesis with the Pearson's r correlation coefficient indicated that the hypothesis was not supported, however, significant relationships were found among the study variables.

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CHAPTER ONE

INTRODUCTION

Cardiovascular disease is the leading cause of death in the United States. According to the American Heart Association (1991) approximately 1,500,000 Americans will have a myocardial infarction (MI) this year. The mortality rate is approximately 511,050, which leaves about 1,000,000 heart attack survivors each year. Those who survive must begin the process of adapting to a new life-style, and often to a new view of themselves as a person with a chronic disease. These individuals frequently deal with feelings of loss; they may grieve for a life-style that is no longer possible. Frequently cited behavioral responses include anxiety, denial, guilt, anger, fear and depression (Burke, 1981; Nyamathi, 1987). Any of these responses may prevent the individual from recovering to the full potential.

Heart disease has been considered to be primarily a "man's disease" until quite recently. The "typical" heart attack victim is still perceived by the general public as a hard-driving man who doesn't take much time out from work to care for himself physically. This is a false perception. Approximately 247,000 of the more than 520,000 heart attack deaths each year are women. One in nine women aged 45 to 64

has some form of cardiovascular disease. This ratio climbs to one in three at age 65 and beyond (American Heart Association, 1990). While there has been an abundance of nursing research focusing on the individual with coronary artery disease, there has been a failure to include women as subjects in much of the research (Parchert & Creason, 1989). Myocardial infarction is the number one killer of American women today. Cardiovascular disease is epidemic in women as well as in men. These facts support the necessity of including gender as a variable in cardiovascular research.

Individuals who survive a myocardial infarction are usually referred to cardiac rehabilitation programs during hospitalization. Cardiac rehabilitation is defined as "the process of actively assisting the known cardiac patient to achieve and maintain his optimal state of health" (Jillings, 1988, p. 3). Cardiac rehabilitation assists the individual to return to a relatively normal life-style which usually includes increased activity and gainful employment. One important component of the cardiac rehabilitation program is the counseling and support aimed at improving the psychosocial factors influencing the development of and recovery from heart disease. Nurses play an important role in this component of rehabilitation.

It is not unusual for an individual faced with a sudden life threatening illness such as a myocardial infarction to ask "Why did this happen?". The individual is searching for

a cause, hoping to better understand the event. Causal search has been studied through the application of attribution theory to illness situations. There has been a considerable amount of research throughout the last decade focused on the relationship between causal attributions and recovery from a major illness (Affleck, Tennen, Croog & Levine, 1987; Bar-On & Cristal, 1987; Lauver, Barsevick & Rubin, 1990; Lowery, Jacobsen & Murphy, 1983; Lowery, Jacobsen & McCauley, 1987). The studies have produced conflicting results.

The purpose of this study is to contribute to an understanding of the emotional adjustment process following myocardial infarction. The research will address the issue of spontaneous attributional search as part of the reaction to a myocardial infarction. An understanding of the relationship between attributions and adjustment would provide nurses with important information upon which to plan interventions.

CHAPTER TWO
CONCEPTUAL FRAMEWORK AND
REVIEW OF PREVIOUS LITERATURE

Conceptual Framework

There has been considerable research in social psychology conducted over the past two decades which has been labeled attribution theory (Kelley, 1972; Wong & Weiner, 1981). Attribution theory deals with how an individual ascribes a cause to an effect; it is concerned with the analysis of causal relationships. According to the theory, the ultimate goal in the search for cause and effect is to find an answer to why, and thus to increase control over either the self or the environment (Lowery, Jacobsen and Murphy, 1983). The framework theorizes that people are more likely to begin a causal search when experiencing a negative event (Wong & Weiner, 1981). According to Kelley's (1972) model, an individual looks backward following a negative event and identifies a cause. Identifying a cause is the first step in preventing the event from happening again. This process gives the individual a greater feeling of control; that is, a greater sense of being in charge of one's own destiny.

Weiner (1979) suggested that those causes which are

usually given in achievement situations fall along three dimensions: (1) locus, i.e., whether the cause is internal or external to the person; (2) stability, i.e., whether or not the cause is changeable; and (3) control, i.e., whether the cause is under the individual's control or not. Each causal dimension is conceptualized as a continuum with opposite poles. For example, the locus dimension may be oriented toward the internal or the external pole, the stability dimension may be oriented toward the stable or the unstable pole, and the control dimension may be oriented toward the controllable or the uncontrollable pole. When an individual asks "Is it because of me?", there is a search for internal causes. When the question is "Will this happen again?", there is a search for stability, and when the question is "Could I have prevented it from happening?", there is a focus on controllable causes (Wong & Weiner, 1981). Recent research applying attribution theory to illness situations (Bar-On & Cristal, 1987; Brubaker, 1988; DuCette & Keane, 1984; Lowery, Jacobsen & Murphy, 1983) suggests that success or failure in coping with illness may be related to these causal dimensions.

The individual who has had a recent myocardial infarction is undergoing a stressful event. In applying attribution theory to these situations, it is anticipated that individuals will begin a backward search with the question, "Why did this happen to me?". Certain individuals

will identify a causal attribution, others will not. Further, the theory would predict that those individuals who construct a cause for the MI over which they perceive they have control will experience a more positive adjustment than those who do not form attributions and those who make attributions over which they have no control.

Three assumptions intrinsic to this conceptual framework are that individuals make a causal search in crisis situations, that causal search facilitates adjustment, and that perceptions of control over causal attributions affect adjustment. Figure 1 represents a diagram of the relationships.

Hypothesized Relationship Between Concepts

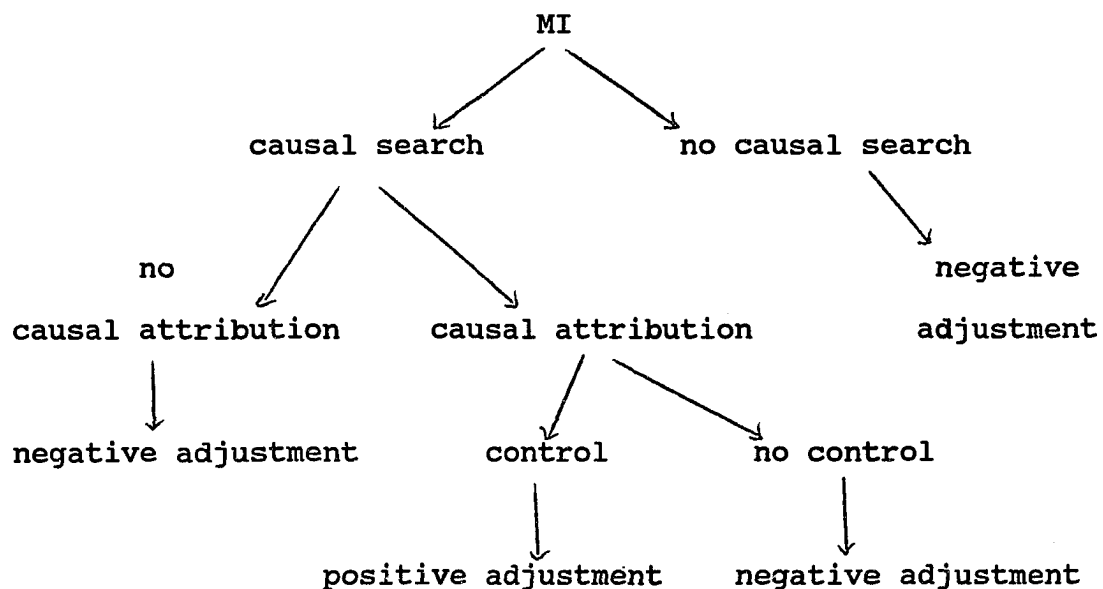


Figure 1. Diagram of the relationships.

Literature Review

Throughout the decade of the 1980s a number of researchers applied attribution theory in studies outside the educational setting. The studies focused on the relationship between the search for the meaning of major events in life and psychological adaptation to illness. Three notable questions were addressed: (a) do individuals search for a cause when a life-threatening illness occurs, (b) is there a relationship between searching or not searching and adaptation to illness, and (c) is there a relationship between the type of causal attribution one makes and adaptation to illness? The literature presents mixed findings on all three questions.

Causal Search

There have been very few studies with a primary purpose of identifying whether or not a causal search has taken place during illness situations. Much of the available information focusing on the incidence of causal search has resulted from incidental findings of studies whose primary purpose is the investigation of the relationship between types of attributions and recovery from illness.

In a study examining the reasons given by 50 patients and their spouses for a myocardial infarction, Rudy (1980) asked an open-ended question to elicit a causal attribution. The interview was conducted during the acute phase, when the subjects were hospitalized, and repeated one month after

discharge. Those subjects who made attributions generally included multiple causative factors. Rudy found that 23% of the subjects in the acute phase and 14% in the convalescent phase had not constructed causes. She believed that the inability or unwillingness of these patients to find a cause was "a way of avoiding or denying the reality of a heart attack" (p. 355).

In examining beliefs about heart disease, DuCette and Keane (1984) asked two questions of 90 subjects recovering from heart surgery: (a) "Why do you think you got the disease which required this surgery?", and (b) "What reasons can you identify to explain your situation since surgery?" (p. 259). While 71 of the subjects were able to identify causes, 19 responded with no answer. The differences between those who had and those who had not identified a cause were not examined.

In a study examining the attributional thinking of 34 mothers of children with insulin-dependent diabetes, Affleck, Allen, Tennen, McGrade, and Ratzan (1985) asked the mothers: "Many parents of children who are ill ask themselves 'Why me?'. Have you ever asked yourself this question?...Do you have an answer?" (p. 370). Fourteen percent of mothers had never asked "Why me?". Twenty-nine had asked but had not come up with an answer.

Lowery, Jacobsen and McCauley (1987) point out that in much of the research focusing on attributional search and

illness situations, "the frequency of causal thinking and affect associated with it is confounded with a "Don't know" response to the causal question" (p. 89). In a study (Lowery, Jacobsen & McCauley, 1987) designed to examine the prevalence of causal search in two samples, one of 296 chronically ill patients and one of 83 acutely ill patients, the researchers found that only about half of the patients in both groups searched for a cause of illness. This lack of causal searching is in sharp contrast to all of the previously mentioned studies where the majority of subjects did make a causal search.

A similar lack of causal searching was found in a study by Lauver, Barsevick and Rubin (1990) in which 118 women with abnormal Pap tests were asked for their reactions to the abnormal result. Only 34% of the participants spontaneously asked causal questions. One possible explanation for the low levels of causal searching reported in this study is that the subjects were not asked directly whether or not they searched for the cause of the results.

The research as a whole then, shows that while most people do engage in a causal search after the onset of a serious illness, a substantial proportion do not do so.

Relationship Between Search and Recovery

Few studies have examined the relationship between the process of making a causal search and recovery from or adaptation to illness. While all of the previously

mentioned studies attempted to determine whether or not a causal search took place, only two of the studies analyzed the data for a relationship between the process of searching for a cause and adaptation. Lowery, Jacobsen and McCauley, in the study designed to examine the prevalence of causal search cited earlier (1987), reported that affect and expectancies for the future were better for those subjects who had not engaged in a causal search. No differences in affect were found between those who had identified a cause and those who had not. It was the process of the search itself that was associated with affective and expectancy differences. In contrast to this are the results of the study by Lauver, Barsevick and Rubin (1990). No relationship was identified between causal searching and expectations, emotions or future clinic attendance. In summary, there is insufficient research to know whether the process of searching versus not searching affects adjustment.

Relationship Between Type of Attributions and Illness

In several recent studies researchers identified correlations between type of causal attributions and recovery from illness (Affleck, Tennen, Croog & Levine, 1987; Bar-On & Cristal, 1987; Lowery, Jacobsen & Murphy, 1983; Tayler, Lichtman & Wood, 1984). Bulman and Wortman (1977) in a study of 29 male and female accident victims, all patients at a rehabilitation hospital, examined the

relationship between the type of causal attributions given by the subjects and their ability to cope with paralysis. The subjects were interviewed either one or twelve months after the accident. Coping was assessed by a nurse and a social worker familiar with each subject. All 29 subjects responded affirmatively when asked if they had thought about "why me?" and only one subject was unable to come up with an answer to his own question. The type of answer did affect well-being in that subjects who blamed themselves but said that they could not have avoided the accident coped well. Subjects who blamed the accident on others coped poorly.

Bar-On and Cristal (1987) conducted interviews with 89 men admitted to an ICU with a diagnosis of myocardial infarction. Each subject was asked "Why did the MI happen?" and "What will help you to cope with it?". The subjects selected from 20 possible answers using a Q-Sort. Patients were also rated on the Holland Sgroi Anxiety Depression Scale (Froese, Vasquez, Cassem & Hackett, 1974) and the Hackett-Cassem Denial Scale (Froese, Vasquez, Cassem & Hackett, 1974). A self-rating was completed by the subjects evaluating physical, sexual and work-load functioning. Subjects also rated their ability to return to work. This evaluation included self-ratings of physical, sexual, and work-load functioning compared with pre-MI functioning. Bar-On and Cristal reported that patients who attributed their myocardial infarction to external, uncontrollable

causes returned to work and to regular physical and sexual functioning at a significantly lower rate than did patients who cited primarily internal causes. An example of an external cause is stress from a job, an example of an internal cause is the decision to keep smoking. This supports the Bulman and Wortman (1977) finding that victims who blamed themselves for the accident (internal cause) were able to cope better than those who blamed others (external cause).

Affleck, Tennen, Croog and Levine (1987) conducted an eight year longitudinal study of 287 men following myocardial infarction. At interviews seven weeks and eight years after the MI, subjects were presented with a list of thirteen causes of heart attacks as identified in the lay and professional literature. Subjects rated each cause, using a three point scale, for its importance as a factor in the heart attack. Attributions were then labeled by the researchers as personal behavior, stress responses, other people, bad luck, and heredity. The results showed that blaming the myocardial infarction on other people was associated with a significantly higher incidence of reinfarction than blaming it on oneself. These findings are partially supported by the research of Taylor, Lichtman and Wood (1984) in a study of 78 women diagnosed with breast cancer. An interview focusing on causal attributions and perceptions of adjustment was conducted in the subjects'

homes. While the authors were unable to identify any particular attribution that was tied to positive psychological functioning, they did find that subjects who blamed another person for the disease made poor adjustments.

The correlation between internal cause and positive outcome is further supported by Lowery, Jacobsen and Murphy's (1983) work with rheumatoid arthritics. Using a convenience sample of 55 clinic patients, the researchers had the subjects identify causal attributions and complete the Multiple Affect Adjective Checklist (Zuckerman & Lubin, 1965), which measures anxiety, depression, and hostility. Subjects who blamed their arthritis on their personal habits scored lowest in depression, anxiety and hostility. Those who blamed heredity or fate, or gave no cause scored higher, indicating higher levels of anxiety, depression, and hostility.

The results of the studies reviewed are very diverse, however, two patterns emerge. In most instances, individuals who do not search for a causal attribution and those who search for a cause but are unable to find one, cope poorly. Individuals who identify an internal cause for the illness are better able to adapt to life with a chronic disease. Individuals who place the blame externally cope more poorly than those who blame themselves.

Gender Differences and Attributions

In a review of the nursing literature regarding women with cardiac disease, Parchert and Creason (1989) found that women's health care issues were not researched prior to the 1970s. Research and funding have been controlled by men, using men and their life expectations as a basis for study. Recent research has focused on risk factors for heart disease in women, and how they differ from risk factors in men (AHA, 1991), as well as the recovery process experienced by women, and how that differs from the male experience (Boogaard, 1984; Hellerstein and Friedman, 1970; McBride, 1987). Nothing could be found in the nursing literature about the relationship between attributions and well-being in women, or about differences between attributional thinking in women and men in health crisis situations. The majority of the attribution studies cited earlier used male subjects only. When women were included as subjects, their responses were not analyzed separately from the responses of the male subjects. In not one of the studies was gender analyzed as a significant variable in making a causal search.

Attributional differences between male and female subjects have been addressed in the education and psychology literature. In most studies attributions for success have been examined. One pattern that stands out is a learned helpless pattern of attributions in female subjects. This

pattern is characterized by "an ascription of success to unstable factors such as effort and/or luck and failure to stable factors such as ability or task difficulty" (Ryckman & Peckman, 1987). Male subjects take credit for their success, female subjects take credit for their failures. This pattern has been identified in many studies (Gannon, Heiser, & Knight, 1985; McMahon, 1982; Erkut, 1983). There is ample support for the assumption that women and men have different patterns in making attributions for success. If a myocardial infarction is viewed as a failure, it could be predicted that women would have a high level of internal attributions for the heart attack, while men would have a higher level of external attributions. Research is needed to validate whether or not men and women have different patterns in making causal attributions about personal illnesses as well as the affect of the type of attribution on recovery for each gender.

Purpose

The purpose of this study was to investigate whether the presence or absence of causal thinking following a MI is associated with adjustment. The study was designed to investigate relationships between perceptions of cause, which were categorized as controllable or uncontrollable, and levels of depression, anxiety and hostility. The responses of the male and female subjects were compared to identify gender based differences in types of causal

attributions and/or the relationship between causal attribution and levels of depression, anxiety, and hostility. The following questions were addressed.

1. What is the percentage of subjects who make a causal search versus those who do not make a causal search?
2. Are there gender differences in the percentage of subjects who do versus do not make a causal search?
3. What is the percentage of subjects who make an attributional search and find no answer versus those who do find an answer?
4. Are there gender differences in the percentage of subjects who make an attributional search and find no answer versus those who do find an answer?
5. Is there a difference in the level of perception of control of men versus women?
6. Is there a difference in level of adjustment of subjects who do versus do not make a causal search?
7. Are there gender differences in the relationship between causal search and level of adjustment?

Hypothesis

Of those subjects who do make a successful search, subjects who attribute their MI to causes over which they perceive a higher level of control will have better levels of adjustment than those who attribute it to causes over which they perceive lower levels of control.

Theoretical Definitions

- a. myocardial infarction (MI) - death of a portion of the myocardial (muscle) tissue of the heart.
- b. causal attribution - the cause that an individual assigns to an event. For the purposes of this study the event is a myocardial infarction.
- c. causal search - the process of searching for a causal attribution.
- d. control - the sense of being in charge of oneself and one's destiny.
- e. adjustment - a reflection of an individual's emotional state. The emotions (affects) to be measured in this study are anger, hostility and depression.
- f. anxiety - a state of excessive uneasiness.
- g. depression - a condition of general emotional dejection and withdrawal.
- h. hostility - a strong feeling of opposition, animosity, enmity, and/or antagonism.
- i. recovery - a return to an optimal state of health and well-being.

Chapter Three

Methodology

Design

A descriptive correlational design was used in the study. Equal numbers of male and female subjects were interviewed following MI, prior to discharge from hospital. Data focusing on causal attributions and adjustment levels were measured. Since adjustment is a reflection of an individual's emotional state, levels of depression, anxiety and hostility were used to assess the subjects' adjustment. These data were collected by interview and self report questionnaire. The data were analyzed for gender based differences and for relationships between variables.

Sample

The sample selection was one of convenience. The subjects were selected from patients who were referred to the Phase I cardiac rehabilitation programs at two major hospitals in a medium sized midwest city. The subjects were able to understand, read, and speak English. They were alert and oriented to time, place and person. Their medical condition was stable enough for them to have been discharged from the critical care unit. The sample size was 40, twenty

in each gender based group. All subjects meeting criteria and giving informed consent were included until the sample size was reached.

Setting

Data collection took place at the patient's bedside on the intermediate care or medical/surgical units of the two hospitals. The hospitals are of similar size, and serve populations from the same socio-economic stratum. The standards for both hospitals' cardiac rehabilitation programs meet the American Heart Association guidelines (American Heart Association, 1982).

Instruments

Data were collected during an interview at the patient's bedside using three instruments, the Demographic Data Questionnaire, the Multiple Affect Adjective Checklist and the Patient Interview.

Demographic Data Questionnaire

Subjects were asked to provide demographic data through the completion of a demographic data questionnaire which addressed the following: level of education, occupation, sex, marital status, age and length of time in the hospital (see Appendix A for demographic data questionnaire). Subjects completed this form independently.

Multiple Affect Adjective Check List (MAACL)

The Multiple Affect Adjective Check List (MAACL) (Zuckerman & Lubin, 1965) was used to measure levels of

depression, anxiety and hostility (see Appendix B for MAACL). It was designed to reflect current mood states. It consists of 21 anxiety-related adjectives, 40 depression-related adjectives, and 28 hostility-related adjectives. The checklist is self-administered and can be completed in five to ten minutes. The checklist was purposely made as simple as possible for the respondent. The subject either makes a check, or makes no check, in the box next to each adjective indicating whether or not that adjective is descriptive of his current mood state. All words are at or below an eighth grade reading level. To obtain the Anxiety score, the number of checked adjectives that indicate positive anxiety, and the number of unchecked adjectives that indicate negative anxiety, are totaled (see Appendix C for keyed adjectives for MAACL). The scoring for the Depression and Hostility scales are completed in the same manner, and scored separately.

The MAACL was developed using multiple methods of testing in order to assure a high degree of criterion-related validity. In many of the studies cited in the Manual for the Multiple Affect Adjective Check List (Zuckerman & Lubin, 1965) researchers administered the MAACL to subjects in situations where anxiety is typically experienced. In one study (Zuckerman, 1960), a class of 32 students was given the MAACL anxiety scale on consecutive class meetings a week apart. In each case the anxiety score

showed a significant increase, relative to the baseline, on days when it was given just prior to an examination. Researchers have also compared scores on the MAACL to clinical observations. One study (Hankoff, Rudorfer, & Paley, 1962) reported a relationship between baseline anxiety ratings in 50 psychiatric patients using the Target Symptom Rating Scale and the MAACL Anxiety scale. Specific reports of a multitude of studies addressing the validity of the MAACL can be obtained in the Manual for the Multiple Affect Adjective Check List (Zuckerman & Lubin, 1965). A high degree of validity was reported for the tool.

Stability, as measured by test-retest reliability coefficients for the state measures, are reported as low, which is to be expected since moods vary from day to day. The test re-test correlations for college students were .15-.31. For nursing students they were .30-.49. The internal reliability coefficient (alpha) for 46 college students was .85-.92, $p < .01$ (Zuckerman and Lubin, 1965).

For this study internal reliability (alpha) was measured for the sub-scales of anxiety, hostility and depression. The results were .82 for the hostility scale, .86 for the depression scale and .86 for the anxiety scale.

Patient Interview

The patient interview, an instrument for measuring attributions, was developed for this study from the attribution literature (see Appendix D for the patient

interview). Items were developed to identify the main variables of causal search, causal attribution, and control. The questions identifying whether or not a causal search took place and specific causal attributions were adapted from the interview instrument used by Lowery, Jacobsen and McCauley (1987). The question focusing on control identifies the subject's perception of control in accordance with the attribution theory assumption that perceptions are what matter. It was adapted from the interview instruments developed by Taylor, Lichtman and Wood (1984).

Scoring for the first question, "With respect to your heart attack, have you ever thought about what caused it?" was a simple system of one point assigned for an affirmative answer, zero for a negative answer. One point is given for responses of those subjects who continue on to identify attributions, zero for those who do not. Perception of control was measured with the question, "To what extent do you think you could have done something to prevent your heart attack?" The subjects respond by identifying a point on a visual analogue 10 centimeters in length. It is scored from 0-100 depending on the point the subject identifies. A high score is indicative of a strong perception of control, a low score a perception of no control.

Procedure

Prior to recruiting subjects, the research proposal was approved by the research committees of the two hospitals

where data were collected and the human research review committee of Grand Valley State University. The researcher met with the cardiac rehabilitation nurses who have daily contact with patients meeting criteria for inclusion in the study. The goal in meeting with the nurses was to inform them about the study and to solicit their help in the identification of subjects.

Each day the cardiac rehabilitation nurses identified subjects meeting the selection criteria. The researcher reviewed the subjects' records to ensure that they had a medical diagnosis of MI, were in stable condition, oriented to time, place and person, and could understand, read and speak English. Once potential subjects were identified, the researcher spoke to the nurse caring for them to determine if it was an appropriate time to approach them about participation in the study.

Initial contact by the researcher with the subjects was in their hospital rooms following transfer from the critical care unit, prior to discharge from the hospital. A brief explanation was given of the purpose and importance of the study, methodology, the individual's rights as far as confidentiality, risks, potential benefits, and voluntary participation (see Appendix E for verbal script). The patient was then asked to sign the informed consent form (see Appendix F for consent form).

The investigator gave the subject the MAACL to

complete. The subjects completed the checklist with the investigator present in the room. If the subject struggled with understanding what the adjectives meant, the investigator noted this, and the subject was dropped from the study. Next, the investigator conducted the interview, following the interview schedule exactly. Following the interview, the demographic data were obtained. Finally, appreciation was expressed for willingness to participate in the study.

CHAPTER FOUR

RESULTS

Characteristics of Subjects

Data were collected over a two month period. During this period, there were 22 men and 21 women who met the criteria and were approached regarding study participation. Two men refused to participate in the study. One man was hostile, and was refusing contact with many of the health care workers who approached him. The other man was very tired, and asked that the researcher return at a later date. He had been discharged home when the return visit was made. One woman who agreed to participate was excluded due to an inability to understand many of the adjectives on the MAACL. Forty subjects gave consent to participate and completed the study. The analysis was computed using the Statistical Package for the Social Sciences (SPSS/PC).

The sample population was 50% male (n=20) and 50% (n=20) female. Age of the participants ranged from 44 to 88 years of age. Thirty of the subjects (75%) were married. One (2.5%) was single, three (7.5%) were divorced and six (15%) were widowed. Although educational background varied, the majority of subjects were well educated. Sixteen reported completion of high school, while an additional

eight reported partial completion of high school. A total of 16 participants reported at least some college. Table 1 shows educational levels of the participants.

Table 1

Sample distribution by educational level

Education	Frequency	Percentage
Partial High School	8	20%
High School	16	40%
Partial College	10	25%
College	1	2.5%
Graduate Degree	5	12.5%

Occupational data indicated that the majority of the respondents were retired. The next largest occupation category was homemaker followed by construction worker. Table 2 reports the occupations of the participants.

Table 2

Sample distribution by occupation

Occupation	Frequency	Percentage
Retired	25	62.5%
Homemaker	5	12.5%

(table continues)

Occupation	Frequency	Percentage
Nurse	1	2.5%
Electrician	1	2.5%
Secretary	1	2.5%
Mechanic	1	2.5%
Construction Worker	3	7.5%
Manager	1	2.5%
Factory Worker	1	2.5%
Teacher	1	2.5%

Length of hospital stay at the time of data collection ranged from 2 to 22 days. The mean length of stay was 5.73 days, and the mode was three days. Since admission was at the time of the MI, the mean for data collection was 5.73 days following myocardial infarction.

Two gender related groups were formed for the purpose of identifying similarities and differences in the responses of male and female subjects. Age and length of hospital stay of each group were compared with t-tests. No significant differences were found in relation to these characteristics. The results are reviewed in Table 3.

Table 3

Age and length of hospital stay by gender

	Gender Groupings				t
	Male (n=20)		Female (n=20)		
	X	SD	X	SD	
Age	62.4	11.74	65.50	8.75	0.96*
length of hosp.	5.5	2.24	5.95	4.88	0.37*

*p > .05

Level of education of the two groups was compared. Subjects were divided into two groups, one consisting of those with a twelfth grade education or less and the other consisting of subjects with some college education. Interestingly, the groups proved identical, with twelve male and twelve female subjects reporting that they never attended college, while eight male and eight female subjects had attended college. The gender groups were found to be equal in terms of education, age, and length of hospital stay.

Causal Search

Data related to causal search were collected using a tool designed specifically for this study. Subjects were asked "With respect to your heart attack, have you ever thought about what caused it?... If so, have you identified a cause?". Thirty subjects (75%) reported that they made a causal search, ten subjects (25%) reported that they did not

search. Of those 30 subjects who did search, 26 (86.7%) identified at least one cause of the myocardial infarction (see Appendix G for summary of causes). Four subjects (13.3%) were unable to identify a cause.

Search and Gender

Searching behaviors were evaluated in relationship to gender. It was found that males reported making a search more than females. Nineteen of the males (95%) and eleven of the females (55%) made a causal search. A Chi-square analysis of the relationship between gender and causal search suggested that males were more apt to search than females. A significant relationship was found ($\chi^2(1) = 8.533, p < .05$). Of those 19 males who reported making a search, 16 (84.2%) identified a cause. Of the 11 women who reported making a search, 10 (90.9%) identified a cause. A Chi-square analysis evaluating the relationship between gender and the identification of a cause showed no significant difference ($\chi^2(1) = .27052, p > .05$). The results are presented in Table 4.

Table 4

Comparison of causal search by gender

	Gender Groupings	
	Male (n=20)	Female (n=20)
searched	95% (n=19)	55% (n=11)
identified cause	84.2% (n=16)	90.9% (n=10)

Perception of Control and Gender

Levels of perception of control over MI attributions were examined for gender differences. Subjects were asked "To what extent do you think you could have done something to prevent your heart attack?". Subjects were given a ten centimeter scale, and asked to identify the appropriate point, with a score of zero indicating there was nothing they could do, and a score of ten indicating there was much they could do. Results were recorded in millimeters. The mean for the entire study population for perception of control was 49.5 millimeters. A t-test was used to evaluate whether there was a difference in the level of perception of control of the male versus the female subjects. The mean score for the male group was 56 millimeters; for the female group, 43. No significant difference was found. The results are reviewed in Table 5.

Table 5

Level of perception of control by gender

	Gender Groupings				
	X	Male (n=20) SD	X	Female (n=20) SD	t
Perception of Control	56	33.93	43	42.19	1.07*

*p > .05

Level of Adjustment and Causal Search

Level of adjustment was measured with the Multiple Affect Adjective Checklist (MAACL), which measures current levels of anxiety, hostility and depression. The greater the score, the greater the level of anxiety, hostility or depression. High MAACL scores indicate low levels of adjustment. The two groups being compared were those who made a causal search and those who did not. Mean scores for both groups were obtained and compared to normative data obtained by Zuckerman and Lubin in populations with no current illness (Zuckerman & Lubin, 1965, p.5). Levels of anxiety, depression and hostility were higher in the searching group than in the "normal" sample of two hundred job applicants cited by Zuckerman and Lubin. For the non-searching group, they were similar to the "normal" sample. Means and standard deviations are presented in Table 6.

Table 6

Comparison of means of normal sample and study sample

Samples	MAACL Scores					
	Anxiety		Depression		Hostility	
	X	SD	X	SD	X	SD
Job Applicants male n=100	5.8	3.3	10.0	5.3	6.3	3.3
Job Applicants female n=100	6.7	3.8	11.1	5.4	6.7	3.3
Total study sample n=40	8.1	4.9	13.6	5.9	6.7	3.6
Search n=30	8.8	4.9	14.4	5.9	7.3	3.69
No search n=10	5.8	4.4	11.2	5.2	5.0	2.9

The relationship of level of adjustment to causal searching was evaluated using a multivariate analysis of variance (MANOVA). Level of adjustment was measured with the Multiple Affect Adjective Checklist (MAACL), which measures current levels of anxiety, hostility and depression. The two groups being compared were those who made a causal search and those who did not. No significant relationship was found between the making of a causal search and levels of composite scores of anxiety, depression and hostility (F value [3] = .19984, $p > .05$). This indicates that there was no difference in the level of adjustment of subjects who did versus did not make a causal search.

The data were examined further to identify whether gender was related to level of adjustment for those subjects who made a search. Individuals who did make a search were placed into groups according to gender, and the relationship between gender and level of adjustment was examined with a MANOVA. Results indicated that of those subjects who did make a causal search, there was no significant relationship between gender and level of adjustment ($F [3] = .01657, p > .05$).

Analysis of Research Hypothesis

The research hypothesis: Of those subjects who do make a successful search, subjects who attribute their MI to causes over which they perceive a higher level of control will have better levels of adjustment than those who attribute it to causes over which they perceive lower levels of control, was evaluated with Pearson's correlation coefficient. When the scores of the separate components of the MAACL and levels of perception of control were analyzed, low positive correlations were found, as shown in Table 7.

Table 7

Analysis of correlation between perception of control and levels of anxiety, hostility and depression

	anxiety		hostility		depression	
	r	p	r	p	r	p
control	.1036	.01	.1291	.01	.1445	.01

The hypothesis was not supported. Higher levels of perception of control were weakly and positively related to higher levels of anxiety, depression and hostility, indicating lower levels of adjustment.

CHAPTER FIVE

DISCUSSION

Summary of Results

This research study examined relationships among attributional search, perception of control over attributions, gender and adjustment following MI. A significant relationship was found to exist between gender and the making of a causal search, with men searching more than women. There was also a significant, but weak, relationship between perception of control and level of adjustment, with those subjects who identified higher levels of control over attributions experiencing lower levels of adjustment.

Causal Search

Attribution theory provided the conceptual framework for this study. One of the basic assumptions of attribution theory is that individuals experiencing a negative event attempt to explain it by making a causal search. The results of this study challenged that assumption, with only 75% of the subjects responding that a causal search had been made. This finding is consistent with previous health care research suggesting that only certain people engage in causal searching when confronted with negative health

related situations (Lowery & Jacobsen, 1985; Lowery et al., 1983, 1987; Rudy, 1980, Lauver et al., 1990).

Some factors that may have contributed to the discrepancy between theory and observed levels of searching include the timing of data collection, denial of subjects concerning the seriousness of the illness, the effects of a previous history of coronary artery disease and the influence of the cardiac rehabilitation program. Data collection was completed while subjects were hospitalized following MI. Individuals experiencing a sudden acute illness may not yet have had the time to stop and think about "Why me?". Their energy may be spent in coping with the many events and decisions involved when an acute illness causes hospitalization. If subjects were asked these questions at a later date the results may have been different.

Denial may also have contributed to the lack of searching. Denying the significance or the reality of the illness may have been necessary to maintain a sense of control. If the reality of the seriousness of the illness is denied, there is no need to search for a cause. It is possible that individuals use two separate defense mechanisms to maintain control following MI. Some individuals deny the importance of the illness, while those who recognize the severity of the situation search for a cause.

The studies reviewed earlier used a variety of questions to elicit information about a causal search. Approaches ranged from not asking any question, but noting if a subject spontaneously asked a causal question (Lauver et. al, 1990) to asking "Have you ever thought 'Why me'?" (Lowery et. al, 1987). A more direct question was used in this study. Although only 75% of the subjects reported making a search, that is still more than was reported in the majority of health related studies reviewed.

Gender and Search

When the responses of male and female subjects were examined separately a significant relationship was found to exist between the gender of the subject and whether or not a search was made. Ninety-five percent of the male subjects responded affirmatively to making a causal search, compared to only 55% of the females. None of the factors discussed above explain this difference. No studies were found in the attribution literature reviewed earlier that examined gender as a variable in illness situations. The findings of Lowery, Jacobsen and McCauley (1987) suggest that causal search may not always be an early step in illness situations. Less than half their subjects reported making a causal search. However, the researchers didn't include gender as a separate variable in the analysis. One study limited to female subjects (Lauver, Barsevick & Rubin, 1990) reported that only 34% of the subjects asked questions

reflecting spontaneous causal searching. These subjects were not asked specifically whether they had searched for a cause, however, and may not have wished to verbalize such a thought. Attributional research related to achievement suggests that there may be differences in how males and females handle negative events (Ryckman & Peckham, 1987). Females have been found to exhibit a more helpless pattern than males when faced with academic failure. They are more likely to blame their failure on their own lack of ability, while males are more likely to ascribe it to outside forces. If one were to consider a MI to be a failure, then it is possible that women accept it with a helpless pattern of behavior, with no need to search for a cause, while men strive to regain control of the situation through causal search. This warrants further research.

Search and Adjustment

No significant relationship was found between making a causal search and overall level of adjustment. This finding is in contrast to a prior study with a similar population, (Lowery et. al., 1987) which suggested that individuals who do not search for a cause have higher levels of adjustment than those who do search. Attribution theory, on the other hand, maintains that individuals seek explanations for events to help them feel in control of their lives. It is through the identification of the cause that individuals respond with a positive affect. The search itself is not

the most important factor. There is no baseline data identifying the affect of the subjects prior to the data collection process, which makes it impossible to determine whether the affective state prompted a search, or the search prompted the affective state. The relatively small sample size may have limited the identification of these relationships in this study.

A large majority of the subjects who made an attributional search did identify a cause. According to attribution theory, the causes people assign for events are not important in and of themselves. More important are the dimensions of the causes which are thought to influence subsequent expectation and affective states (Weiner, 1985). One dimension is perception of control. The theory predicts that those individuals with a strong perception of control over the event will have positive affective states. This prediction was not supported by this study. In fact, a significant but weak inverse relationship was found between these variables. Of those subjects who searched for a cause, subjects with perceptions of lower levels of control reported more positive affects than those with perceptions of greater levels of control.

Depression and anxiety are commonly reported responses to a MI. They may prove to be a normal initial response to a MI regardless of whether or not attributional searching took place and regardless of perception of control. Data

collection was completed between two and seven days following MI, when these emotions are commonly experienced. Initially the individual who feels a high level of control over the causal attributions may feel depressed and discouraged in the realization that this illness may be partly a result of his own lifestyle choices. The realization that control over lifestyle choices allows the possibility to make changes, and so prevent a future occurrence, may not be reached for some time. It is anticipated that an upward slope in affect will result for those with higher perceptions of control as time passes.

It is also possible that the assumptions inherent in attribution theory do not apply to situations involving acute illness. The consequences facing an individual following failure in an educational situation may differ in both significance and severity from the consequences following "failure" in a health related crisis. While a sense of control over the events that led to failure in an examination may provide one with an understanding of how to be more successful in the future, a perception of control over the events that led to a myocardial infarction may add to feelings of responsibility and guilt.

Limitations

Sample size, characteristics of subjects and instrumentation may have been limiting factors in this study. Sample size was moderate, with 40 subjects. When

gender was considered as a variable, there were 20 subjects in each gender group, which is a small sample. A larger sample size may have changed the outcomes.

The subjects were quite homogeneous as a group with the majority being married, retired and well-educated. A larger more diverse group may have produced different results. Some of the most acutely ill subjects, and subjects with complications soon after the MI, were prevented from participating due to study inclusion criteria. The results may have been different had they been included. Previous history of MI or cardiovascular disease may have influenced the responses of participants. They may have given thought to the cause of the cardiovascular disease at an earlier time, and so have no need to search for a cause with this new event. Attributional searching may also have been triggered during this hospital stay as a result of participating in cardiac rehabilitation. One of the components of cardiac rehabilitation is the identification of the individual's risk factors for cardiovascular disease. A discussion of individual risk factors could certainly have resulted in some subjects beginning a causal search. Cardiac rehabilitation was started with all subjects as soon as possible following diagnosis in both hospitals, so the resultant influence this may have had on the study is unknown.

The MAACL was found to be confusing by some of the respondents. A few subjects raised questions about the intent of certain adjectives; for example, does "cold" refer to an emotional response or body temperature. Some subjects stated that they had experienced so many emotional responses in the previous few days, that it was difficult to focus only on how they were feeling "at this moment".

The questionnaire designed for this study to address causal search and perception of control has not been tested for validity. The question related to causal search was purposely very direct, in an effort to identify if any causal searching had taken place. The question itself could have stimulated participants to make an immediate search. A more open question, however, may have resulted in instances where a causal search had taken place, but was not identified by the subject. How this question is asked most certainly impacts the response of the subjects.

Implications for Nursing Practice

It is important for nurses to know and understand the significance of the attributions of people recovering from myocardial infarction. A clear understanding of an individual's beliefs about the importance of and control over attributions is necessary in supporting the individual towards recovery. This becomes particularly important when cardiac rehabilitation teaching is initiated. Individuals who perceive themselves to have control over attributions

which relate to known heart disease risk factors should more easily recognize the significance and importance of changing those risk factors. The study results indicated that individuals with higher perceptions of control have a more negative affect initially. They may be feeling a sense of failure or self-blame for having caused the illness. It is important for the nurse to be perceptive and aware of these responses. Emotional support, in the form of listening and encouragement, may initially be of more importance than didactic education. Factual information should be provided when requested, but the major concerns are the consequences of the MI on the previous "normal" lifestyle.

The overall responses of subjects completing the MAACL indicated that feelings of anxiety and depression are common following a myocardial infarction. Mean scores of anxiety and depression were higher than has been reported in a population who is not ill (Zuckerman & Lubin, 1965). A supportive, caring attitude is most important. Nurses should assist the recuperating individual in understanding that these feelings are normal, and to be expected. Family members should be made aware of the normal emotional responses, so that they can be supportive following discharge. Individuals and family members should be referred to support groups for individuals recovering from heart disease, where they can share their feelings and have access to further professional help if needed.

Attribution theory would predict that individuals with a high perception of control over attributions would have a more positive affect at some point following MI, as they come to realize that they have the ability to change some of the risk factors that put them at a higher risk level. They will be ready for a comprehensive education program at this point, which will most likely not be reached until after discharge. For this reason, it is important that nurses promote out-patient cardiac rehabilitation programs, designed to provide education and support to individuals with cardiovascular disease following discharge from hospital. Cardiac rehabilitation promotes the belief that individuals have control over their own health. It provides specific information related to risk factors, and assists the individual in identifying a personal plan for the modification of these risk factors.

While only 75% of subjects searched for causal attributions, 95% of male subjects searched. Nurses must understand that causal searching is a normal response for many people following sudden illness. While the data from this study do not support it, the search itself may be a method of problem-solving and coping for some individuals. Nurses should also be open to the idea that men and women may respond and cope differently when confronted with sudden illness.

Recommendations for Future Research

Some assumptions of attribution theory are based on research conducted primarily in academic settings. Future research is needed to identify differences between academic and illness situations in which (a) causal searching is and is not frequent and (b) is and is not associated with adjustment. Research identifying and comparing the dimensions of attributions in academic and illness situations would also be enlightening. A better understanding of the two types of situations may explain the many contradictions and discrepancies in past research. Research is also needed to identify the unique characteristics of different illness situations that could limit the generalizability of the relationships between causal searching or attributions with adjustment.

This study should be replicated with a larger sample size. Different measures of adjustment should be used, as affect is only one element in the adjustment process. Return to previous life-style, or return to work may be other useful measurements of adjustment. The present study could also be repeated with additional measurements of attributional search and adjustment further along in the recovery process. It would be interesting to evaluate individual differences in the timing of attributional searching following MI.

Further research is needed to identify specific problems of women with heart disease. The assumption that the preponderance of male based research can be generalized to include women has not proven valid. Recent studies indicate that the recovery process for women with heart disease differs from that of men (Boogaard, 1984; McBride, 1987). Further research focusing on the adjustment process of women following myocardial infarction and the relationship between perception of control and adjustment in women would be particularly interesting.

Conclusion

Individuals diagnosed with an acute myocardial infarction are suddenly faced with the prospect of life with a chronic disease. An understanding of the factors that influence adjustment following this major life event is essential for nursing. The relationships among attributional search, perception of control over attributions, gender and adjustment were evaluated. It was found that the majority of the sample made an attributional search, although not as high a proportion as attributional theory would predict. Men were found to search significantly more than women. No relationship was found to exist between the process of searching and adjustment. A significant relationship was found to exist between perception of control and adjustment. Subjects with perceptions of higher levels of control had lower levels of

adjustment. Recognizing the major impact a myocardial infarction has on one's life, nurses must continue to explore these relationships.

APPENDICES

Appendix A

Demographic Data Questionnaire

Age _____

Sex _____

Marital Status _____

Occupation _____

What is the highest level of education that you have completed? (Circle letter)

- a. No formal education
- b. Some grade school
- c. Completed grade school
- d. Some high school
- e. Completed high school
- f. Some college
- g. Completed college (specify major) _____
- h. Some graduate work
- i. A graduate degree
(specify degree and major) _____

How long have you been in the hospital? _____ (days)

Appendix B

- | | | |
|---------------------------------------|---------------------------------------|---|
| 1 <input type="radio"/> active | 45 <input type="radio"/> fit | 89 <input type="radio"/> peaceful |
| 2 <input type="radio"/> adventurous | 46 <input type="radio"/> forlorn | 90 <input type="radio"/> pleased |
| 3 <input type="radio"/> affectionate | 47 <input type="radio"/> frank | 91 <input type="radio"/> pleasant |
| 4 <input type="radio"/> afraid | 48 <input type="radio"/> free | 92 <input type="radio"/> polite |
| 5 <input type="radio"/> agitated | 49 <input type="radio"/> friendly | 93 <input type="radio"/> powerful |
| 6 <input type="radio"/> agreeable | 50 <input type="radio"/> frightened | 94 <input type="radio"/> quiet |
| 7 <input type="radio"/> aggressive | 51 <input type="radio"/> furious | 95 <input type="radio"/> reckless |
| 8 <input type="radio"/> alive | 52 <input type="radio"/> lively | 96 <input type="radio"/> rejected |
| 9 <input type="radio"/> alone | 53 <input type="radio"/> gentle | 97 <input type="radio"/> rough |
| 10 <input type="radio"/> amiable | 54 <input type="radio"/> glad | 98 <input type="radio"/> sad |
| 11 <input type="radio"/> amused | 55 <input type="radio"/> gloomy | 99 <input type="radio"/> safe |
| 12 <input type="radio"/> angry | 56 <input type="radio"/> good | 100 <input type="radio"/> satisfied |
| 13 <input type="radio"/> annoyed | 57 <input type="radio"/> good-natured | 101 <input type="radio"/> secure |
| 14 <input type="radio"/> awful | 58 <input type="radio"/> grim | 102 <input type="radio"/> shaky |
| 15 <input type="radio"/> bashful | 59 <input type="radio"/> happy | 103 <input type="radio"/> shy |
| 16 <input type="radio"/> bitter | 60 <input type="radio"/> healthy | 104 <input type="radio"/> soothed |
| 17 <input type="radio"/> blue | 61 <input type="radio"/> hopeless | 105 <input type="radio"/> steady |
| 18 <input type="radio"/> bored | 62 <input type="radio"/> hostile | 106 <input type="radio"/> stubborn |
| 19 <input type="radio"/> calm | 63 <input type="radio"/> impatient | 107 <input type="radio"/> stormy |
| 20 <input type="radio"/> cautious | 64 <input type="radio"/> incensed | 108 <input type="radio"/> strong |
| 21 <input type="radio"/> cheerful | 65 <input type="radio"/> indignant | 109 <input type="radio"/> suffering |
| 22 <input type="radio"/> clean | 66 <input type="radio"/> inspired | 110 <input type="radio"/> sullen |
| 23 <input type="radio"/> complaining | 67 <input type="radio"/> interested | 111 <input type="radio"/> sunk |
| 24 <input type="radio"/> contented | 68 <input type="radio"/> irritated | 112 <input type="radio"/> sympathetic |
| 25 <input type="radio"/> contrary | 69 <input type="radio"/> jealous | 113 <input type="radio"/> tame |
| 26 <input type="radio"/> cool | 70 <input type="radio"/> joyful | 114 <input type="radio"/> tender |
| 27 <input type="radio"/> cooperative | 71 <input type="radio"/> kindly | 115 <input type="radio"/> tense |
| 28 <input type="radio"/> critical | 72 <input type="radio"/> lonely | 116 <input type="radio"/> terrible |
| 29 <input type="radio"/> cross | 73 <input type="radio"/> lost | 117 <input type="radio"/> terrified |
| 30 <input type="radio"/> cruel | 74 <input type="radio"/> loving | 118 <input type="radio"/> thoughtful |
| 31 <input type="radio"/> daring | 75 <input type="radio"/> low | 119 <input type="radio"/> timid |
| 32 <input type="radio"/> desperate | 76 <input type="radio"/> lucky | 120 <input type="radio"/> tormented |
| 33 <input type="radio"/> destroyed | 77 <input type="radio"/> mad | 121 <input type="radio"/> understanding |
| 34 <input type="radio"/> devoted | 78 <input type="radio"/> mean | 122 <input type="radio"/> unhappy |
| 35 <input type="radio"/> disagreeable | 79 <input type="radio"/> meek | 123 <input type="radio"/> unsociable |
| 36 <input type="radio"/> discontented | 80 <input type="radio"/> merry | 124 <input type="radio"/> upset |
| 37 <input type="radio"/> discouraged | 81 <input type="radio"/> mild | 125 <input type="radio"/> vexed |
| 38 <input type="radio"/> disgusted | 82 <input type="radio"/> miserable | 126 <input type="radio"/> warm |
| 39 <input type="radio"/> displeased | 83 <input type="radio"/> nervous | 127 <input type="radio"/> whole |
| 40 <input type="radio"/> energetic | 84 <input type="radio"/> obliging | 128 <input type="radio"/> wild |
| 41 <input type="radio"/> enraged | 85 <input type="radio"/> offended | 129 <input type="radio"/> willful |
| 42 <input type="radio"/> enthusiastic | 86 <input type="radio"/> outraged | 130 <input type="radio"/> wilted |
| 43 <input type="radio"/> fearful | 87 <input type="radio"/> panicky | 131 <input type="radio"/> worrying |
| 44 <input type="radio"/> fine | 88 <input type="radio"/> patient | 132 <input type="radio"/> young |

Appendix C

Keyed Adjectives for MAACL

Anxiety

Plus

afraid
desperate
fearful
frightened
nervous
panicky
shaky
tense
terrified
upset
worrying

Minus

calm
cheerful
contented
happy
joyful
loving
pleasant
secure
steady
thoughtful

Depression

alone
awful
blue
destroyed
discouraged
forlorn
gloomy
hopeless
lonely
lost
low
miserable
rejected
sad
suffering
sunk
terrible
tormented
unhappy
wilted

active
alive
clean
enthusiastic
fine
fit
free
gay
glad
good
healthy
inspired
interested
lucky
merry
peaceful
safe
strong
whole
young

Hostility

angry
bitter
cruel
disagreeable
discontented
disgusted

Plus

enraged
furious
irritated
mad
mean
offended
outraged
stormy
unsociable
vexed

agreeable
amiable
cooperative
friendly
good-natured
kindly

Minus

polite
sympathetic
tame
tender
understanding
willful

Appendix D

Patient Interview

"This section includes some questions that I would like you to answer."

1. With respect to your heart attack, have you ever thought about what caused it?

yes

no

2. If so, what cause or causes have you identified?

a. _____

b. _____

c. _____

"I would like you to point to the spot on this scale that indicates your response to the following question."

3. People frequently search the past to see if there was some way they could have prevented their heart attack. To what extent do you think you could have done something to prevent your heart attack?

0 1 2 3 4 5 6 7 8 9 10

"A score of 0 means there was nothing you could do, while a score of 10 means there was much you could do."

Appendix E

Verbal Script

Hello Mr./Mrs./Ms._____. My name is Margaret Bowles and I am a nursing instructor at the Junior College. I am also working on my Masters degree in Nursing at Grand Valley State University.

I have worked with people who have had heart attacks for many years and have always been interested in the different ways they respond to this sudden illness. This can be a difficult time for many people.

I am conducting a study which examines the relationship between causal attributions and adjustment following a heart attack. Attributions are the factors which people identify as causing their heart attack. I am asking patients who have had a heart attack to participate. Your participation would involve completing a short questionnaire, which takes approximately ten minutes to complete. The questionnaire asks you how you feel at that particular moment. After completing the questionnaire, I have a few questions which I would like to ask about possible causes of your heart attack. This should take no longer than ten minutes.

There are no risks involved for you in participating in this study. Completing the questionnaire may increase your awareness of how you feel. You will also be contributing to a greater understanding of what helps others who may have a heart attack in the future.

Your participation is strictly voluntary. If you should decide to participate, you may withdraw from the study at any time. Your decision to participate or not to participate will have no influence on the care you receive.

Should you decide to participate, your answers will be kept confidential. The results of all the participants will be compiled but there will be no identification of specific answers with specific participants. Do you have any questions about the study? (Allow adequate time). Would you be interested in participating?

If yes, obtain written informed consent, give MAACL questionnaire, and administer interview questionnaire. Conclude by collecting demographic data and thanking them for their participation.

If no, thank them for their time.

Appendix F

The Relationship between attributions and adjustment following myocardial infarction: Consent form

I understand that the purpose of this study is to contribute to an understanding of the thought processes and emotions people experience after a heart attack. The knowledge gained is expected to help nurses to provide health care in a manner which will be responsive to the needs of individuals who have experienced a heart attack.

I also understand that:

1. I will be asked to respond to questions which address my beliefs about the cause of my heart attack. The interview will be conducted by Margaret Bowles, and will take place during my hospitalization. It will require about ten minutes of my time.
2. I will be asked to respond to questions about my emotions and feelings, as I am experiencing them right now. This will be done by choosing appropriate answers on a written questionnaire. It will take about fifteen minutes to complete.
3. it is not anticipated that this study will lead to any physical or emotional risks and it may prove helpful to have someone to talk to about my heart attack.
4. the information I provide will be kept strictly confidential and the data will be coded so that identification of individual participants will not be possible.
5. a summary of the results will be made available to me upon my request.

I acknowledge that:

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

"In giving my consent, I understand that my participation in this study is voluntary and that I may withdraw at any time without affecting the care I receive from my physician or the staff at Butterworth Hospital or Blodgett Memorial Medical Center."

"The investigator, Margaret Bowles, has my permission to review my medical record."

"I have been given Margaret Bowles' phone number so that I may contact her at any time if I have questions."

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

Witness

(Participant Signature)

Date

(Date)

_____ I am interested in receiving a summary of the study results.

Appendix G

Summary of Causes

<u>Cause</u>	<u>Number of subjects</u>
High fat diet	13
Stress	7
Heredity	6
Smoking	6
Lack of exercise	3
Working too hard	3
Hypertension	3
Blood clot	1
Loneliness	1
Diabetes	1

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