Emotional Recovery
In Male Patients and Their Wives
12 Months After Myocardial Infarction

by

Corinne Billinkoff

A Thesis
Submitted to the Faculty of Graduate Studies
in Partial Fulfilment of the Requirements
for the Degree of

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EMOTIONAL RECOVERY IN MALE PATIENTS AND THEIR WIVES 12 MONTHS AFTER MYOCARDIAL INFARCTION

BY

CORINNE BILLINKOFF

A Thesis submitted to the Faculty of Graduate Studies of the University of Manitoba in partial fulfillment of the requirements of the degree of

MASTER OF NURSING

"Assault on the heart is symbolically an assault on life and the core of being. A heart attack can threaten the person's identity and whole life situation."

(Wiklund, Sanne, Vedin, & Wilhelmsson, 1985).

ABSTRACT

Both the patient who has experienced a myocardial infarction (MI) and his family must learn to live with a new lifestyle incorporating many physical and emotional adjustments. The fear of sudden death plays a major role in the newfound uncertainty of living life with a chronic illness. This thesis addresses the emotional aspects and consequences of MI as they relate to both patients and their wives, in an attempt to emphasize their importance in the psychological and functional recovery of patients 12 months post-MI.

A descriptive correlational survey design was used. Data was gathered at the initial hospitalization from medical records and again 12 months later from semi-structured interviews and self-report questionnaires. The convenience sample consisted of 47 white male patients and their wives. The patients aged 28 to 70 years (M = 54.5, SD = 9.1 years) were admitted to the intensive care units of four Winnipeg hospitals as a result of a first documented MI. At 12 months post-MI, 78% of the patients were classified into functional classes 1 or 2 according to the Specific Activity Scale. Six questionnaires were utilized: Influential Relationships Questionnaire; Family APGAR; Self-efficacy Scale; Zung Depression and Anxiety Scales; and Psychosocial Adaptation to Illness Scale (measures of perceived overprotectiveness, criticism, and caring; satisfaction with family functioning; estimation of cardiac functional abilities; depression and anxiety; and quality of life respectively).

At 12 months post-MI, patients and wives were significantly anxious and depressed. Patients who perceived a higher degree of overprotectiveness from their wives reported higher levels of anxiety and depression, more perceived criticism and less caring from their wives, less satisfaction with family functioning, and poorer quality of life. Wives' anxiety related to neither patients' perceived overprotectiveness nor quality of life. While patients' and wives' lower estimation of functioning correlated significantly with cardiac functional capacity and quality of life, it did not correlate with perceived overprotectiveness.

Based upon these findings, implications for nursing practice and suggestions for future research are presented.

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I dedicate this thesis to my husband David, my children Fern and Lee, and my parents Betty and Harry Greenfeld and Anne and Joe Billinkoff who have always guided my life and been my inspiration.

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DEFINITION OF TERMS

Anxiety: A diffuse apprehension, vague in nature and associated with feelings of uncertainty and helplessness . . . . is subjectively experienced by the individual . . . . and occurs as a result of a threat/perceived threat to the person's being, self-esteem, or identity (Stuart & Sundeen, 1995, p. 983).

State Anxiety: Anxiety felt at a moment in time due to a particular situation (Campbell, 1981, p.42).

Trait Anxiety: Anxiety that is habitual/enduring and in part genetically determined (Campbell, 1981, p.42).

Cardiac Invalidism: A multi-faceted psychosocial outcome characterized by low self-esteem, emotional distress, negative health perceptions, and increased interpersonal dependency following an MI. Failure to return to work is often used as a primary indicator of cardiac invalidism (Riegel & Dracup, 1992).

Coronary Artery Disease (CAD): Luminal obstruction or narrowing of the coronary arteries, caused by the development of arteriosclerotic plaques, that results in an inadequate blood supply to the heart muscle (Baxendale, 1992). The terms CAD, arteriosclerotic heart disease (ASHD), and ischemic heart disease (IHD), are used interchangeably. CAD is the most frequently fatal type of heart disease when it results in a myocardial infarction (Williams & Wallace, 1983).

Depression: A mental state of depressed mood characterized by feelings of sadness, despair, and discouragement. Depression ranges from normal feelings of the "blues" through dysthymia to major depression . . . there are often feelings of low self-esteem, guilt and self-reproach, withdrawal from interpersonal contact, and somatic symptoms such as eating and sleep disturbances (Dorland's Illustrated Medical Dictionary, 1988, p. 449).

Myocardial Infarction (MI): Death of the myocardial muscle as a result of prolonged ischemia or deprivation of oxygen demonstrated by changes in the electrocardiogram (EKG), specifically displaced QT segments and ST elevation, and above normal serial cardiac enzyme values, specifically the creatine phosphokinase (CPK) and the CPK isoenzymes (Brunner & Suddarth, 1992). The left ventricular function is determined by echocardiography, a noninvasive ultrasound test, and/or radionuclide angiography (Muga Scan), a noninvasive nuclear medicine procedure. Both tests examine the size, shape, and motion of cardiac structures and are used to calculate the left ventricular ejection fraction. The degree of coronary artery occlusion is determined by angiography, an invasive radiologic procedure that outlines the coronary arteries and reveals areas of blockage or narrowing (Brunner & Suddarth, 1992).

Overprotectiveness (OP): A perceived sense by the patient of being given more support than desired. For the purpose of this study, patient's perception of the wife's behavior being more supportive than desired (Clarke, 1994).

Quality of Life (QOL): A perceived sense of satisfaction with one's current life. QOL incorporates three basic components: physical functioning, mental and emotional status, and social functioning (Aaronson, 1989; Clarke, 1994; Kazis, 1991; Levine & Croog, 1984; Spitzer, 1987; Trzcieniecka-Green & Steptoe, 1994; Ware, 1984; Wenger, Mattson, Furberg, & Elinson, 1984).

Self-efficacy: A perceived sense of control over aspects in one's life and the confidence to execute courses of action to deal with prospective situations (Bandura, 1982).

Social Support: An exchange of resources between at least two individuals perceived by the provider or the recipient to be intended to enhance the well-being of the recipient (Shumaker & Brownell, 1984, p. 13).

CHAPTER I: INTRODUCTION

Coronary Artery Disease (CAD)

The incidence of CAD in industrialized countries exceeds that of any other life threatening disease. CAD continues to be the leading cause of death in North America, with half of these deaths directly attributable to acute myocardial infarction (MI) (Lewis, 1987). In fact, while mortality rates in Canada have declined in recent years, cardiovascular disease remains the major cause of death, disability, and illness in this country and accounts for 21% ($16.8 billion) of the total Canadian direct and indirect health care costs (Heart & Stroke Foundation of Canada, 1993).

CAD is widely accepted as having a multifactorial etiology. Large scale epidemiologic studies, such as the Framingham Study and the Western Collaborative Group Study (Brand, Rosenman, Scholtz, & Friedman, 1976), have identified both physiological and psychological risk factors (some of which operate independently and others of which do not), which are associated with the development of CAD and its progression to MI. The more risk factors a person has, the greater is the likelihood of developing CAD. Certain risk factors such as age, sex, race, and family history of cardiac disease are non-modifiable, while others, such as smoking, obesity, glucose intolerance, elevated blood pressure, and elevated serum lipid levels are modifiable.

Psychological risk factors, though few in number, are all modifiable. Variables such as life changes and stress may affect incidence of CAD, even when conventional risk factors are controlled (Krantz, Baum, & Singer, 1983; Orth-Gomer & Ahlbom, 1980; Rosengren, Tibblin, & Wilhelmsen, 1991; Syme, 1975). Appels and Mulder (1984) suggest that an imminent MI can be predicted based on an individual's reaction to stressful situations. The Type A behavior pattern (TABP) has emerged from the aforementioned epidemiologic studies as a behavior pattern that is associated with a higher risk of CAD (Brand et al., 1976). Several authors have recently argued that the anger-hostility element is probably the most significant pathogenetic component of TABP (Dembroski, MacDougal, Williams, Haney, & Blumenthal, 1985; Julkunen, Idanpaan-Heikkila, & Saarinen, 1993; Matthews, 1988; Matthews & Haynes, 1986; Spicer, Jackson, & Scragg, 1993). Powell (1984) suggests that the expression of anger and hostility may be motivated by low self-esteem and need for control. Indeed, in one study, TABP individuals whose wives were active, highly educated, and dominant, exhibited a higher incidence of CAD (Carmelli, Swan, & Rosenman, 1985).

Other research in this area has explored the trait of neuroticism. Eysenck (1987) (cited in Clarke, 1989) defined coronary-prone behavior as a reaction to "stress and fustrative non-reward by chronic irritation and anger. . . and (failure) to establish emotional reactions". He found coronary-prone individuals highly anxious and found that they scored high on his measure of neuroticism (Eysenck, 1981). Studies measuring neuroticism using the Cornell Medical Index showed that patients' complaints of chest pain, shortness of breath, palpitations, and vertigo correlated more strongly with their neuroticism scores than with actual arterial damage seen on angiography (Costa et al., 1985; Engel, Baile, Costa, Brimlow, & Brinker, 1985). These results led to the proposal that many diagnoses of CAD are based on patients' neurotic complaints rather than on objective evidence of CAD.

Evidence is mounting that depression is another significant independent risk factor for CAD, as well as a potentiator of other cardiac risk factors, such as elevated serum cholesterol, elevated blood pressure, and cigarette smoking (Anda et al., 1993; Kaplan et al., 1992).

Evidence for the importance of the role of social isolation or lack of social support in the etiology of heart disease has resulted in the American Heart Association (AHA) adding this to its roster of psychosocial risk factors. In an examination of this type of risk factor present in heart disease, Cooper, Faragher, Bray, and Ramsdale (1985) found an inverse correlation between social support scores and reports of MI, postive EKG evidence of MI, and hypertensive history. These three factors were also shown to be most predictive of CAD in a regression analysis. Seeman and Syme (1987) found that both the lack of instrumental aid (assistance with rides, minor household tasks, and finances) and emotional support correlated strongly with the incidence of CAD in both females and males. Syme (1987) theorized that the inverse relationship between CAD and social support may also be due to the fact that Type A individuals may not commit the required amount of time and energy in social relationships.

Myocardial Infarction (MI)

Acute MI, or a heart attack, in which prolonged ischemia leads to impairment of the heart muscle function and eventually produces muscle necrosis, is one of the outcomes of CAD. For many individuals, the episode of MI may be the first evidence of CAD. For others, the presence of heart disease may have been prefaced by symptoms of transient ischemia (angina pectoris) (Williams & Wallace, 1983).

An MI is diagnosed by: clinical history of chest pain not relieved by nitroglycerin; evidence of abnormalities in electrical conductivity seen on an electrocardiogram (EKG); and elevated serum enzyme levels resulting from damage to the heart muscle. Echocardiography and radionuclide angiography estimate the left ventricular function, and radiologic angiography estimates the degree of coronary artery occlusion.

Seventy-five to eighty percent of people survive an acute MI (Karliner & Gregoratis, 1983). Survival depends upon the degree of the obstruction, the number of recurring infarcts within a short space of time, the degree of collateral vascularization, and the myocardial oxygen demand at the time of obstruction (Pepine, 1989). The Peel Index is a prognostic index for (a) grading the seriousness of infarction in terms of variables such as sex, age, previous history, degree and severity of shock, presence and severity of heart failure, and nature and extent of electrocardiographic signs and cardiac rhythm, and (b) estimating the probability of mortality sequeling the MI (Peel, Semple, Wang, Lancaster, & Dall, 1962). The higher the score, the less likely the patient's survival 28 days following an infarct.

Of those who survive an initial MI, the risk of recurrent MI, or at worst, sudden death, is high. This is a fact with which MI survivors must live constantly. These survivors face changes in their lifestyles, self-concept, confidence, work situations, and family dynamics, all of which may contribute in varying degrees to personal and psychological hardship. Psychological hardship may influence the patient's physical recovery, as it exacerbates the fact that his self-image is profoundly affected by the MI.

While an increasing portion of the money allotted to health care is indeed being spent on patient care in acute care settings, relatively little is being spent to determine the welfare of MI survivors following discharge from the hospital. Increasing complexities of the illness tend to direct attention towards stabilizing the physical well being of the patient. The psychosocial status, especially from the patient's perspective, is often overlooked, and when there has been attention paid, it has generally focused on specific aspects of MI patient recovery, such as return to work.

Physical Recovery

CAD is irreversible and is therefore deemed a chronic illness. Medical treatment involves pharmacologic therapy, including the use of vasodilators, beta-adrenergic blockers, calcium-channel blockers, and anticoagulants (Arensberg, 1981; Bennett, 1982; Brunner & Suddarth, 1992; Wagner & Robinson, 1981). While contemporary medical treatment stresses the significance of physical activity (Wenger, 1981), its advantage in terms of morbidity and mortality has not been demonstrated (Bengsston, 1983; Blumenthal & Levenson, 1987; Kavanaugh, Shepherd, Chisholm, Querski, & Kennedy, 1979; Rechnitzel, Pickard, Paivio, Yuhas, & Cunningham, 1972). If symptoms are not sufficiently managed by medical intervention, surgical intervention, such as coronary artery bypass grafting (CABG), may be required (Hindle & Wallace, 1983; Stewart, 1992b).

The concept of recovery refers not to cure, but to successful adjustment. Physical recovery is measured by physiologic recovery and functional recovery, both of which include subjective and objective measurements of differing validity and reliability.

Physiologic Measures of Recovery

There are many physiological indicators to determine recovery from MI. First, EKG monitoring displays changes in the electrical conductivity of the heart resulting from injury, ischemia, and/or infarction of the myocardium. Continuous EKG monitoring is especially useful in the cardiac care unit to determine recovery from dysrythmias and myocardial ischemia (Brunner & Suddarth, 1992). Second, recovery of myocardial contractility can be determined by echocardiography through measurement of left ventricular ejection fraction (LVEF), which is the amount of blood pumped out of the left ventricle with each heart beat (Bigger, Fleiss, Kleiger, Miller, & Rolnitzky, 1984). Diminished LVEF is the strongest physiological predictor of decreased survival following MI (Hammerstein, Timothy, & Dodge, 1979; Pfeffer & Braunwald, 1990).

A third measure of recovery is patient accounts of angina and frequency of use of antianginal medications, indicators of myocardial ischemia. These subjective reports, however, have not always provided an accurate assessment of ischemia. In one study, reports of chest pain correlated more strongly with patients' neuroticism scores than with objective evidence of CAD (Costa et al., 1985). Chest pain identical to angina has also been reported in patients with panic disorder who have no indication of CAD (Beck, Berisford, Taegtmeyer, & Bennett, 1990). Reports of chest pain made in the physician's office are usually overestimated unless a behavioral analysis of antecedents and consequences of chest pain are conscientiously performed (Engel et. al., 1985). Patients who exhibit denial following MI, report less angina during hospitalization than those who use less denial as a coping mechanism (Levenson, Mishra, Hamer, & Hastillo, 1989; Levine, Warrenberg, Kerns, & Schwartz, 1987). Ultimately, because potentially grave ischemia has been found to be asymptomatic or "silent" (Freeman, Nixon, Sallabank, & Reavely, 1987), the absence of angina should not be used solely as an accurate indicator of recovery.

Functional Measures of Recovery

Metabolic Equivalencies (METS)

METS are an index of oxygen uptake and generally measure cardiovascular tolerance and physical work capability (Naughton & Haider, 1973). One MET equals the body's oxygen consumption at rest (Cowan, 1990). Function is usually measured by an individual's performance on either a bicycle ergometer or a graded treadmill test, where multiples of METS are used to estimate energy expenditure (Sivarajan et al., 1981; Teo & Kappagoda, 1984; Wagner & Williams, 1983). An individual with an uncomplicated MI should have a performance capacity of five to eight METS post-MI which, with favorable recovery and regular exercise, should rise to nine or ten METS within one year (Naughton, 1973).

There are several motives, other than cardiac, which cause patients to cease tests. Symptoms, such as shortness of breath, leg cramps, and fear of angina and reinfarction, may result in early cessation of tests, while a sense of competitiveness (characteristic of Type A individuals) may lead to intolerable or unsafe prolongment of tests (AHA, 1972). Therefore, while serial treadmill tests will suggest improvement in individual functional capacity, MET levels, influenced by above variables, may not be a reliable measure of recovery post-MI.

Return to Work

Return to work, a psychosocial measure, is frequently used in research as an objective functional indicator of recovery (Degre-Coustry & Grevise, 1982; Jenkins, Stanton, Savageau, Denlinger, & Klein, 1983; Nagle, Gangola, & Picton-Robinson, 1971; Smith & O'Rourke, 1988; Trelawny-Ross & Russell, 1987; Winefield & Cormack, 1986; Wishnie, Hackett, & Cassem, 1971). The decision to return to work is influenced not only by cardiac damage and persisting physical disabilities such as unstable angina or serious arrhythmias (Smith & O'Rourke, 1988), but also by psychological and social factors (Stewart & Gregor, 1984; Wishnie et al., 1971). Nagle et al. (1971) surveyed 115 male MI patients and found that only 49.5% had returned to work. They reported that cardiac damage and non-cardiac psychological and social factors, such as anxiety and depression, were almost equally common as causes of invalidism post-MI. Wishnie et al. (1971) interviewed 24 patients convalescing from MI and found that nine of the 11 who did not resume work did so for mainly psychological reasons, such as anxiety, depression, and boredom. Cay, Vetter, Philip, and Duggard (1973) concluded that cardiac patients who were emotionally distraught were more likely to consider any physical symptoms as sufficiently severe to stop them from working. Level of education (Bar-On & Cristal, 1987; Maelund & Havik, 1987; Smith & O'Rourke, 1988), a sense of control over fate (Garrity, 1973b), and type of work performed (Naughton, 1978) also influence the rate of return to work. It has been reported that as many as 70% to 80% of cardiac patients fail to return to work when physiologically capable (Brown & Munford, 1983-1984; Cay, Vetter, Philip, & Duggard, 1972; Razin, 1982).

Further, the resumption of work itself indicates nothing about how the patient perceives or copes with that return to work (Levine & Croog, 1984). It is not so much a benchmark of physical recovery as it is a benchmark of psychosocial adjustment. Shanfield (1990) found that psychiatric disorders, especially affective ones, are better predictors of return to work than physical symptoms.

The utilization of return to work as an index of recovery is problematic for two reasons. First, it represents a goal that may not necessarily be consistent with the patient's philosophy and thereby ignores his satisfaction with his quality of life. Second, it fails to recognize the fact that many individuals who experience an MI are not employed outside the home.

Functional Classification Scales

Functional classification scales have evolved that establish a criterion of recovery on the patient's capability to perform activities of daily living and whether or not that varies between evaluations. Because they gauge the impact of illness on the patient, they compare to quality of life scales and establish the transition between purely physical and psychological recovery.

An example of such a scale is the Specific Activity Scale (SAS) used to evaluate cardiovascular functional class (Goldman, Hashimoto, Cook, & Loscalzo, 1981) by determining the metabolic equivalency requirements of activities generally included in routine assessments of cardiac patients.

Significance of Problem

Because of the way in which patient recovery following MI is generally addressed, there does not really exist a clear picture of the patient's process of adjustment. Patient recovery is often addressed in terms of physical recovery. It is crucial to recognize that emotional recovery of the patient goes far beyond those parameters and must therefore be considered in broader terms than simply physical recovery of the cardiovascular system.

Although significant research regarding patient needs and recovery has been and is being done, it is clear that not all patient needs are being met. This may be largely due to the fact that the perceptions of needs which must be met to ensure recovery are generally those of health care workers as opposed to those of patients themselves. In turn, rehabilitation programs do not often take patient perspectives into account. Consequently, it is questionable whether they are optimally effective.

It is therefore important when conducting research aimed at improving cardiac rehabilitation programs, to conduct studies not only from the vantage point of health care professionals, but from that of patients as well. Perceptions of patients with regard to numerous aspects of their condition and/or recovery may differ from the perceptions of caregivers, spouses, or health care professionals. To date, patient perceptions have not been adequately considered.

In addition, it should be recognized that not only the patient but also his spouse face a period of recovery and of adaptation to living life with a chronic illness. In order for effective innovative rehabilitation programs to be developed and implemented by nurses and other health care workers, the process of adjustment of both the patient and the spouse following MI must be well researched.

Purpose of Study

This descriptive correlational study was conducted to examine and analyze the issue of emotional recovery for both male patients and their female spouses 12 months post-MI. Emphasis was placed on the relationship between overprotectiveness and long term recovery within the context of the patient's actual functional abilities, perception of being overprotected, and degree of psychological distress. Consideration was given to the spouse's degree of emotional distress within the context of overall family functioning.

The rationale behind the choice of 12 months as a time frame for testing stems from the fact that the data for this study were initially collected by Diana Clarke for a similar study. Dr. Clarke examined many of the notions presented in this study, at the time of the MI and three months following it. This study will increase nursing knowledge of the emotional needs of post-MI patients and their spouses one year after the event.

Hypotheses

Overprotectiveness (OP)

1. Patients whose wives relate more anxiety will report higher levels of perceived OP.

2. Patients whose wives describe lower estimation of their husbands' functioning will perceive themselves as being overprotected.

3. Patients who perceive themselves to be overprotected will report higher levels of depression and anxiety.

4. Patients who perceive themselves to be overprotected will report lower estimation of function.

5. Patients who perceive themselves to be overprotected will experience a lower level of family functioning as reported by themselves and their wives.

6. Patients who perceive themselves to be overprotected will report a poorer quality of life.

7. Patients who perceive themselves to be overprotected will demonstrate a poorer cardiac functional capacity.

Quality of Life (QOL)

1. Patients whose wives relate high anxiety will report a poorer QOL.

2. Patients whose wives describe lower estimation of their husbands' functioning will report a poorer QOL.

3. Patients who report a poorer QOL will relate higher levels of depression and anxiety.

4. Patients who report a poorer QOL will describe lower estimation of function.

5. Patients who report a poorer QOL will experience a lower level of family functioning as related by themselves and their wives.

6. Patients who report a poorer QOL will demonstrate a poorer cardiac functional capacity.

Cardiac Functional Capacity (CF)

1. Patients who demonstrate a poorer CF will describe lower estimation of function.

2. Patients whose wives describe lower estimation of their husbands' functioning will demonstrate a poorer CF.

CHAPTER II: REVIEW OF THE LITERATURE

Emotional Recovery

The Patient

Many illnesses are accompanied by psychological responses that can be as detrimental to recovery as the physical aspects of the event. MI is one event that is frequently accompanied by a marked psychological reaction (Blumenthal & Mau, 1983; Blumenthal & Wei, 1993; Byrne, 1982; Cassem & Hackett, 1973, 1977; Cassem, Nelson, & Rich, 1979; Cay et al., 1972; Doehrman, 1977; Havik & Maeland, 1990; Johnston, 1985; Tessar & Hackett, 1985; Wishnie et al., 1971). Garbin (1981) (cited in Wales, 1987) attributes this psychological reaction of MI patients to the symbolism associated with the heart. According to Garbin, the heart is viewed as central to life, emotion, and personality. Any damage or weakness of the heart, therefore, is seen as a threat to life and the person's self-image. In addition to the symbolism of the heart, persons who experience an MI usually are aware that heart disease is the foremost cause of mortality in North America. MI patients may feel threatened and experience profound psychological reactions to their illness. This psychological reaction, in turn, affects the patients' recovery post-MI.

Successful emotional adjustment is a major goal after MI. However, estimates of the frequency and severity of emotional problems after an MI vary considerably depending on characteristics of patient samples, time of assessment, and instruments used in measuring emotional status (Conn, Taylor, & Abele, 1991; Croog, 1983; Doehrman, 1977; Garrity, 1981; Havik & Maeland, 1990; Wrzesniewski, Debska, & Tyminska-Sedek, 1994).

Several investigators have examined the factors that can contribute to psychological distress post-MI. Gentry and Haney (1975) found that older MI patients are less optimistic about their future than younger patients and that concerns about the possibility of death are related to the patient's perceived degree of illness and subjective anxiety. Conn et al. (1991) found that older MI patients are at greater risk for a poorer quality of life and depression one to two years post-MI. It has also been suggested that individuals of low social-economic status and of certain cultural backgrounds experience higher morbidity and mortality rates post-MI (Ell & Haywood, 1985; Kottke, Young, & McCall, 1980). Following MI, women are reported to experience a higher incidence of anxiety and depression (Byrne, 1979; Carney, Freedland, Smith, Lustman, & Jaffe, 1991; Cay et al., 1972; Guiry, Conroy, Hickey, & Mulcahy, 1987; Mayou, 1979; Stern, Pascale, & Ackerman, 1977; Stern, Pascale, & McLoone, 1976), more difficulties adapting (Granger, 1974), more social isolation and feeling of guilt (Boogard, 1984), and higher morbidity and mortality rates than men (Adair, 1993; Byrne, Whyte, & Butler, 1981; Carney et al., 1991; Verbrugge, 1986; Young & Kahana, 1993). Social factors related to employment, family or marriage, and finances also influence psychological distress post-MI. Cay et al. (1972) reported that at discharge

42% of MI patients anticipated social problems when they returned home, with one third of the problems expected to be of a serious nature.

Anxiety, anger, denial, and depression have been frequently cited as typical responses to the event of MI (Nagle et al., 1971; Runions, 1985; Scalzi, 1973). Although considered "normal" adaptive mechanisms on a short term basis, these responses are considered maladaptive if prolonged or accentuated. Several investigators have concluded that anxious and depressed patients tend to have prolonged and complicated illness (Croog, Levine, & Lurie, 1968; Garrity & Klein, 1975; Gentry & Williams, 1979; Hertanu, Davis, Focseneanu, & Lahman, 1986).

There is a well-described pattern of psychological adjustment in patients admitted with MI (Blumenthal & Mau, 1983; Cassem & Hackett, 1973; Doehrman, 1977; Havik & Maeland, 1990; Johnston, 1985; Tessar & Hackett, 1985). While still in intensive care, the patient experiences acute anxiety related to the life-threatening situation. This reaction is understandable and realistic, as most deaths post-MI occur within the first 24 hours. This anxiety is initially dampened by denial, a purposeful narrowing of consciousness. Denial is a coping strategy that may act as a shock absorber during the early phase of the illness (Havik & Maeland, 1988), reducing the impact of the trauma and granting time for a more gradual acceptance of the illness situation. The clinical picture portrays a patient whose pain has subsided, who expresses that he is feeling better, and who intimates that the doctor's diagnosis is wrong.

Denial has received special attention as a commonly used coping mechanism in patients with MI. Some investigators have claimed that denial is ubiquitous among acute MI patients (Hackett, Cassem, & Wishnie, 1968; Pruneti, L'Abbate, & Steptoe, 1993). However, empirical evidence for the claim that denial is, in fact, beneficial for the MI patient is conflicting (Havik & Maeland, 1988; Thomas et al., 1983) and remains inconclusive and controversial after 20 years of research (Cronin, 1990; Croog, Shapiro, & Levine, 1971; Lowery, 1991; Marsden & Dracup, 1991; Robinson, 1990). The inter-study discrepancies seem largely due to inconsistent and ambiguous definitions of denial.

Denial can be beneficial, as it has been shown that deniers have an earlier return to work, are more likely to be employed after one year, resume sexual activity with less difficulty, and report fewer physical and psychological symptoms (Havik & Maeland, 1988; Stern et al., 1977; Stern et al., 1976). Stern et al. (1977) followed 60 patients for one year post-MI and found that most MI patients could be categorized into two groups: depressives and deniers. These investigators reported that 70% of patients who were depressed post-MI remained so throughout the first year following their MI. Depressives reportedly failed to remain at work and/or to function sexually, and experienced higher hospital readmission rates, whereas the deniers generally functioned well in these areas. In one study (Havik & Maeland,

1990) of long-term emotional readjustment following MI, patients with lower levels of denial regarding the impact of MI and high hopelessness levels while in the hospital were more likely to fail in achieving emotional re-adjustment, even after five years.

Denial can be beneficial in the short term but detrimental in the long term. It can impede information processing and behavior change (Bar-On, 1985; Shaw, Cohen, Doyle, & Palesky, 1985) and can be a precursor to noncompliance with subsequent treatment regimens (Tessar & Hackett, 1985). Bartle and Bishop (1974) and Soloff (1978) both found that chronic post-acute deniers experienced higher morbidity and mortality rates. Levine et al. (1987) found that compared to low deniers, high deniers spent fewer days in intensive care and experienced fewer dysrythmias, but were hospitalized more days in the year following MI. They claimed that denial of illness was an adaptive mechanism when used during hospital recovery, but was maladaptive when utilized on a long term basis.

As denial recedes, anxiety is unmasked again and usually causes no long-term problems. Researchers have documented the continuation of anxiety into the post-hospital phase but differ widely in the frequency of its occurrence. Estimates of the presence of severe anxiety in this patient population range from three to 17%; moderate anxiety from 21% to 46%; and an unspecified degree of anxiety form 20% to 76% (Doehrman, 1977; Mayou, Foster, & Williamson, 1978a; Stern et al., 1977; Sykes et al., 1989).

Anxiety can be a persistent problem for some patients. Kutz, Garb, and David (1988) found that 15% of post-MI patients manifested chronic symptoms of post traumatic stress disorder (PTSD) one year post-MI while a further five to ten percent of patients suffered from an acute form of PTSD which abated within the first year. Doerfler, Pbert, and De Cosimo (1994) showed that most subjects (n = 46) following MI or coronary artery bypass grafting experienced little distress six to 12 months later, but four subjects met criteria for PTSD, with reported anxiety, anger, and depression. The salient characteristic of this later phase of anxiety is depression.

The majority of post-MI patients experience degrees of depression which may last from weeks to years (Doehrman, 1977; Hackett & Cassem, 1973; Wells, Rogers, Burnam, & Camp, 1993). Wide ranges of frequency have been reported: two to three percent of patients manifest severe, clinical depression; ten to 15% moderate to severe depression; and four to 76%, an unspecified degree of depression (Doehrman, 1977; Stern et al., 1977; Taylor et al., 1986).

Depression is usually an indicator that the patient is beginning to deal realistically with the situation. The depression may in fact be secondary to other psychosocial issues such as injury to self-esteem or "ego infarct"; feeling of powerlessness, hopelessness, and/or helplessness; reaction to real or anticipated loss such as independence, financial integrity and control, as well as threats to life and changes in life-style and roles; family overprotectiveness; and conflicts with spouse/family about post-discharge instructions (Boeing & Mongera, 1989; Clark, 1990; Hackett & Cassem, 1973; O'Malley & Menke, 1988; Roberts, 1989). Hackett and Cassem (1973) describe a "home-coming" depression possibly precipitated by unexpected physical weakness, fear of reoccurrences, or family discord. Thus, the type of depression associated with MI is primarily exogenous or reactive (Hackett & Cassem, 1973) resulting from a specific event.

In some ways, the early depression resembles a grief reaction to the loss of health (Havik & Maeland, 1990; Hackett & Cassem, 1973) and is consistent with the Diagnostic and Statistical Manual-III Revised (DSM-III-R) diagnosis of uncomplicated bereavement (American Psychiatric Association [APA], 1987). As with the diagnosis of bereavement, however, morbid preoccupation with worthlessness and marked functional impairment of a prolonged duration can lead to a diagnosis of a major depressive episode (APA, 1987). Lloyd and Cawley (1978) suggest that a significant number of patients who display depressive symptoms (especially those who become depressed early after the MI) may have had a pre-morbid depression and accompanying psychopathology (Clarke, 1994).

The presence of psychological distress in the post-MI patient is of clinical concern because mounting evidence suggests a strong relationship between distress and poor outcome. Silverstone (1987) demonstrated that patients who had a "poor" outcome post-MI (i.e. those who died, had a cardiac arrest, or a further infarction) were more likely to have been diagnosed as significantly depressed within 48 hours post-MI. Frasure-Smith (1991) found that patients reporting high levels of psychological stress (measured in hospital by a self-report questionnaire [General Health Questionnaire]) and receiving routine post-MI care experienced a threefold increase in MI recurrence and mortality over five years, compared to patients reporting low levels of psychological stress and receiving routine post-MI care. The highly stressed patients did not differ in severity of cardiac disease from the less stressed patients. More recently, Frasure-Smith, Lesperance, and Talajic (1993) demonstrated that depression significantly increases the six-month mortality rate in post-MI patients. Fontana, Kerns, Rosenberg, and Colonese (1989) showed that patients experiencing depression reported more cardiac symptoms three months post-MI, and Coombs, Roberts, Crist, and Miller (1989) revealed comparable results 12 months post-MI.

Ladwig, Röll, Breithardt, Buddle, and Borggrefe (1994) conducted a six-month follow-up investigation of 377 male MI patients (aged 29 to 65 years, $\underline{M} = 53$) who were originally divided into groups with low, moderate, or severe degrees of depression. They found that post-infarction depression was associated with approximately twice the occurrence of angina pectoris in moderate depression and three times in severe depression. This finding is significant because follow-up anginal status defines an increased risk of recurrent infarction (Gilpin et al., 1989) and negatively influences quality of life of the patient (Young, Barboriak, & Anderson, 1988). Nelson, Ferreirco, Cleary, Gustafson, and Wasson (1994) found that poor psychosocial functioning and cardiac symptoms were significantly associated with the likelihood of being re-hospitalized during the six months after an acute MI.

There is evidence that depression is associated with poor adherence to cardiac rehabilitation and risk factor modification (Blumenthal, Williams, Wallace, Williams, & Needles, 1982; Guiry et al., 1987). Indeed, Friedman (1976) considers depression developed during the course of recovery after infarction to be the greatest barrier to rehabilitation.

The patient's premorbid personality traits and coping styles have been found to be the best predictors of whether or not the patient will have psychosocial problems in adjusting to the chronic nature of cardiovascular disease (Mayou, 1984; Wiklund, Sanne, Vedin, & Wilhelmsson, 1984). In a study of 229 male MI survivors, Mayou (1984) found that premorbid psychosocial functioning best predicted psychological and social outcome (e.g., rates of depression, return to work, sex, etc.). Lloyd and Cawley (1983) claimed that only those post-MI patients who reported previous psychiatric and social problems suffered persistent emotional distress. Havik and Maeland (1990) supported this claim.

It is further suggested that emotional state during hospitalization or early convalescence is generally a good predictor of long-term emotional outcome in MI patients (Blumenthal, 1985; Clarke, 1994; Garcia, Valdes, Jodar, Riesco, & de Flores, 1994; Havik & Maeland, 1990; Lloyd & Cawley, 1983; Mayou, 1984; Philip, Cay, Stuckey, & Vetter, 1981; Stern et al. 1977). Clarke (1994) studied 52 male patients who had suffered a first MI and found that higher distress levels at the time of the MI predicted anxiety and depression scores three months later. Stern et al. (1977) indicated that patients who were depressed early in recovery were more prone to remain depressed one year later and were shown to have poor psychosocial adjustment. Garcia et al. (1994) found that the severity of psychiatric morbidity after MI among 97 male MI patients was directly related to early depressive reaction in the coronary care unit. Havik and Maeland (1990), who measured patients' self-reported psychological states the day before hospital discharge and at one to two weeks, six weeks, six months, and three to five years following discharge, identified two groups of patients "at risk" for long-term emotional difficulties. One group sustained a high degree of anxiety throughout hospitalization, and a second group experienced a sudden, sharp increase in distress directly after discharge.

The effect of uncertainty on coping and emotional distress following an MI has been examined in the literature. Christman et al. (1988) studied 60 MI patients during the transition from hospital to home and found uncertainty and emotional distress to be positively and significantly related before hospital discharge, one week after hospital discharge, and four weeks after hospital discharge. This finding was corroborated by Havik and Maeland (1990). Webster and Christman (1988) examined the relationships between perceived uncertainty, use of affective or emotion-oriented and problem-oriented coping methods, and emotional distress in 20 patients recovering from an MI. Although uncertainty was not significantly related to either type of coping method, increased levels of uncertainty were significantly related to both anxiety and depression. "Perception of one's illness as vague or unclear, exposure to varied cues about one's illness and its treatment, and the perception of insufficient information about one's diagnosis were associated with greater emotional distress" (p.389). These researchers suggest that providing information about a patient's illness and its treatment might reduce uncertainty and thereby decrease the associated emotional distress.

Yet, another factor that may contribute to depression post-MI is pharmacotherapy the patient may be receiving. Some drugs frequently utilized in the control of hypertension and angina, such as the beta-adrenergic blockers, have a side-effect of biochemically-induced depression (Brunner & Suddarth, 1992) and should be taken into account in a psychiatric assessment.

Quality of Life (QOL)

Because the therapeutic goals of CAD treatment concentrate on control rather than cure of the disease process, there is an increasing emphasis in the literature on the significance of measuring "quality of life" when studying variables of treatment efficacy and recovery post-MI (Clarke, 1994; Fletcher, Hunt, & Bulpitt, 1987; Gorkin et al., 1994; Kaplan, 1988; Kazis, 1991; Spitzer, 1987; Trzcieniecka-Green & Steptoe, 1994; Wenger, 1990). QOL is a multidimensional variable which includes all life experiences and the impact of illness and treatment thereon. There is general agreement that the concept of QOL includes three basic domains: physiologic state or physical functioning, mental or emotional state, and social functioning (Aaronson, 1989; Kazis, 1991; Levine & Croog, 1984; Spitzer, 1987; Trzcieniecka-Green & Steptoe, 1994). It is a complex concept that changes over time for an individual. For this reason, coupled with its diverse conceptual and operational definitions (Cohen, 1982), there are often disparate results when QOL is examined in the context of the MI population.

Concern with efforts to improve the QOL among MI survivors becomes more important as mortality from MI declines. Clarke (1994) found that quality of life at three months post-MI could be predicted by patients' and wives' predictions of three month functional ability and patients' distress, both measured while the patients were still in hospital. She also found that three month post-MI quality of life correlated significantly with patients' depression scores, anxiety scores, and self-efficacy scores in addition to wives' anxiety scores and wives' estimates of patients' functioning. Patients who reported poorer quality of life were less satisfied with their family functioning.

When examining the effects of an illness on QOL, the focus becomes the degree to which that illness influences "normal" or satisfactory functioning (Kaplan, 1988). Of utmost importance is that the evaluation of this functioning should be from the patient's perspective (Wenger, 1990) or "relevant reality" (Huber, Henrich, & Herschbach, 1988). The patient's perceptions and expectations may frequently differ from the objective observations of the clinician and may be even better predictors of mortality risk, especially in elderly patients (Wenger, 1990). The question for clinicians, then, is not how much the patient can do. Rather, it should be an issue of whether a satisfactory level for a particular patient has been attained.

Measurement of quality of life.

The conceptualization and measurement of QOL is a complex and highly debatable issue fraught with a myriad of issues and opinions. There is general agreement that separate scales for healthy persons and ill persons are necessary (Aaronson, 1989; Huber et al., 1988; Spitzer, 1987). Factors contributing to QOL at opposite ends of the health-illness continuum are dissimilar and must be measured using different criteria (Spitzer, 1987). Scales measuring QOL in healthy individuals study factors such as altruistic behavior, personal growth, and material well-being (Evans & Cope, 1989). However, while some of these factors maintain their significance for individuals with chronic illness, the type of disease process, severity of symptoms, and the patient's perception of the future all detract from the pleasure of living and should be evaluated when assessing overall QOL (Taylor, 1987).

Another question surrounding QOL research is whether QOL measures can be "generic" or whether they must be "disease - specific". Can one well-designed, general QOL measure sufficiently capture a wide variety of dysfunctions associated with almost any disease or is it necessary to administer separate measures for specific diseases? Advocates of disease-specific scales argue that each health problem presents its own specific outcomes or concerns (Stewart, 1992a). Pain for an MI patient may signal the fear of a recurrence and impending death, whereas pain for an arthritic patient may signal the fear of progressing disability. Aaronson (1989) supports the notion of supplementing a generic QOL measure with a disease-specific instrument.

There is considerable debate about whether outcome measures must represent the multidimensional nature of QOL. There exist two major approaches to QOL assessment: a "psychometric" approach and a "decision theory" approach. The psychometric approach provides separate measures for the many dimensions of QOL (Kaplan, 1988). The significance of variables is measured by their relative frequency as opposed to their relative desirability (Bush, 1984). Opponents of the psychometric tradition argue that it neglects to consider that all health problems are not of equal concern:"One-hundred runny noses are not the same as 100 severe abdominal bleeds" (Bush, 1984; Kaplan, 1988, p. 383). Despite arguments against the psychometric approach, the best-known and most widely used QOL measures fall into this category (e.g., Sickness Impact Profile [SIP], Index of Activities of Daily Living, Rand General Health Perceptions Scale, and Psychological Adaptation to Illness Scale [PAIS]).

The decision theory approach to QOL assessment weighs the dimensions of health to provide a single unitary expression of health status, an overall desirability aggregate (Kaplan, 1988). This approach examines the following factors: the actual occurrence of an event/attribute, the relative desirability of that event/attribute, the probability of that event/attribute occurring, and the expected relevance of the event/attribute given its probability (Bush, 1984).

Another consideration involves the relative usefulness of the two approaches. The multidimensional approach provides more clinical diagnostic information about areas in which there are deficits. The unidimensional approach is better suited for policy analysis and comparisons of different alternatives in health care. Even though the decision theory approach may give an overall indication of whether or not a therapy or treatment will make a significant difference, it gives no indication of where intervention may be needed.

Investigators face a choice between questionnaire and interview measurement of psychosocial response to stressful situations. There is conflicting evidence regarding the relative reliability of self-report or interviewer-administered tests of QOL. Bergner, Bobbit, Carter, and Gilson (1981) found higher reliability for the SIP when administered by an interviewer than when mail-delivered and self-administered. This result was attributed partly to a higher response rate for the interviewer-administered method. In their search for "clinically useful information", Guiry et al. (1987) suggest that the ability of an interviewer to cross-examine patients to clarify responses provides a more sensitive assessment. Being interviewed by a health professional rather than filling in a questionnaire gives patients the sense of being in effective and immediate communication with those responsible for their health and rehabilitation. Bush (1984) maintains that self-administered questionnaires run the risk of under-reporting because many reports of dysfunction may be missed. Other researchers, however, consider self-administered questionnaires more reliable than those which are interviewer-administered (Storstein, 1987). Inconsistencies in research findings may result from differences in interpersonal skills, interviewing styles, and training procedures for interviewers (Polit & Hungler, 1991). In general, a review of the literature with regard to the measurement of QOL recommends that self-administered questionnaires are more advantageous than interviewer-administered questionnaires due to the practical issues of ease of administration, cost, and potential for multiple testing periods within the course of a study (Aaronson, 1989; Wenger et al., 1984).

Self-efficacy

Self-efficacy is the notion that one has some control over aspects in one's life and that one has the confidence to perform required activities and tasks successfully (Bandura, 1982). Bandura (1982) believes that when post-MI patients lack self-efficacy in their physical capabilities to resume their usual pre-morbid activities it may be due to limitations levied on them early in their course of illness, In fact, a positive correlation has been demonstrated between a measure of self-efficacy for cardiac patients and measures of functional capacity (Clarke, 1989, 1994; Ewart et al., 1986; Ewart, Stewart, Gillilan, & Kelemen, 1986; Ewart, Taylor, Reese, & DeBusk, 1983; Taylor, Bandura, Ewart, Miller, & Debusk, 1985). An inverse relationship has been found between patients' self-efficacy or a similar concept of "mastery" and psychological distress post-MI (Ben-Zira & Eliezer, 1990; Clarke, 1994).

Self-efficacy can be shaped (Carroll, 1995) and enhanced (O'Leary, 1985). Ewart et al. (1983) studied patients' confidence in their physical abilities before and after performance on a symptom-limited treadmill test. Patients with negative tests (i.e., those whose reasons for stopping were not related to myocardial ischemia) exhibited an increase in confidence after the test for activities similar to treadmill walking, and counselling regarding the treadmill results helped the patients to generalize that confidence to dissimilar activities. Patients whose tests were limited by symptoms of angina had lower self-efficacy scores after the test. Taylor et al. (1985) found that self-efficacy perceptions proved to be significant predictors of subsequent treadmill performances (with the more confident patients performing better) in the absence of intervention, whereas Clarke (1989) showed that self-efficacy estimates increased proportionately with functional capacity with regular participation in a cardiac rehabilitation program.

Bandura (1982) maintains that MI recovery is a social matter and that the spouse's perception of the patient's efficacy can help or hinder the recovery process. Taylor et al. (1985) involved wives in treadmill testing to investigate this contention. One group of wives observed their husbands on the treadmill, another group walked on the treadmill, and a third group did not engage in the treadmill phase. The wives also completed efficacy ratings on their husbands' abilities before and after the test. The findings suggested that the wives who walked on the treadmill themselves increased their ratings of their husbands' abilities to a level equivalent to that of their husbands' ratings, whereas the other two groups indicated no such increase. Clarke concurred that wives' estimates of patients' abilities correlated strongly with patients' self-efficacy and functional capacity early in recovery (1989) and correlated significantly with patients' self-efficacy, functional capacity, and psychological distress three months post-MI (1994).

Coyne and Smith (1994) examined perceived self-efficacy in men six months post-MI and found that efficacy was positively correlated with the degree of their dependence on their wives. Patient efficacy was related to the men actively engaging their wives without gaining a feeling of great protective buffering from them. The asymmetry in patient and spouse contributions to patient efficacy is noteworthy, given findings that wives' protective buffering is associated with greater distress.

Psychosocial Intervention

The focus of present cardiac rehabilitation programs on the physical aspect of cardiac disease may be misdirected. Researchers have identified many areas of concern in patients' psychosocial recovery post-MI, resulting in interventions aimed at relieving psychological distress in the post-MI patient. However, the psychosocial intervention studies of post-MI patients have been limited and ambiguous.

In examining the effectiveness of group counselling some researchers have found no significant differences on psychological measures between patients receiving psychotherapy and those receiving standard cardiac care (Adsett & Bruhn, 1968; Ibrahim et. al., 1974), whereas others have found a decrease in depressive symptomatology for patients receiving psychotherapy or exercise therapy compared to those receiving no intervention

(Stern, Gorman, & Kaslow, 1983). Group psychotherapy and exercise therapy are of value in improving survival prognosis post-MI (Ibrahim et al., 1974; Rahe, Ward, & Hayes, 1979; Stern et al., 1983).

Of interest is the observation that post-MI patients are not psychiatric patients and do not want to be treated as such during group therapy or counselling (Adsett & Bruhn, 1968; Blanchard & Miller, 1977; Blumenthal, 1985; Ibrahim et al., 1974). Blanchard and Miller (1977) suggest that, for this reason, group therapy in post-MI patients must be educative and support-based rather than psychotherapeutically oriented. Discrepancies in the focus and content of group therapy, as well as discrepancies in the styles of individual group facilitators and dissimilarities in patients' perceptions of and reactions to the therapy, may justify differences in empirical findings and may make replications of these studies difficult.

An examination of the effectiveness of individual counselling by Gruen (1975) revealed that 70 MI patients who received individual supportive psychotherapy showed significant improvements in regards to days spent in intensive care, length of hospitalization, occurrence of congestive heart failure, physician's report of depression, self-reported presence of extreme anxiety and fears, and return to normal activity at four month follow-up. Langosch et. al. (1982) found that in-hospital relaxation training and stress management aided MI patients to perform better on measures of vocational and psychological functioning at six months post discharge. Oldenburg, Perkins, and Andrews (1985) reported that MI patients who received in-hospital educational and counselling interventions had improved measures of psychological well-being and fewer CHD symptoms at 12 month follow-up, whereas patients who received routine medical care remained unchanged. Comparable results were found by Thompson and Meddis (1990a) who combined in-hospital counselling with education and reported that patients engaged in this program had significantly less anxiety and depression for up to six months post-MI than patients who received routine care alone.

In a study by Frasure-Smith and Prince (1985), known as the Ischemic Heart Disease Life Stress Monitoring Program, 461 male MI patients were randomly assigned to receive either an experimental treatment condition or routine medical care. Patients who received the one year follow-up stress counselling had better general health and a lower risk of mortality one to five years post-MI than patients who received no counselling. Further, Ott et al.(1983) studied 258 MI patients and reported that patients who received a teaching-counselling program plus a three month exercise program performed statistically better on a psychosocial dimension which included categories such as social interaction, alertness behavior, communication, and emotional behavior than patients who received only the exercise program or conventional medical and nursing treatment.

Contradictory evidence was provided by Mayou, Sleight, MacMahon, and Florencio (1981) who found no differences on psychological measures between patients who received a counselling/education program and patients who received an exercise program. Also, Miller, Wikoff, Garrett, McMahon, and Smith (1990) found that two years after a structured in-hospital educational program, MI patients who received instruction were less likely to be compliant with treatment regimen than patients who received no formal instruction.

Although it seems that some intervention is better than no intervention at all, the literature examining whether education, counselling, exercise, or any combinations of the three are more effective in terms of recovery is still equivocal. A variable that is difficult to control in experimental or quasiexperimental research is the amount of education the patient receives from health professionals while in hospital that is described as "routine" or "standard" care. In fact, what Thompson and Meddis (1990a) depicted as their "experimental treatment" is deemed routine and minimum criteria for acceptable nursing practice (Canadian Council of Cardiovascular Nurses, 1983), questioning the ethics of having an untreated control group (Clarke, 1994).

Despite the utilization of a vast number of resources, health care professionals continue to be faced with the dilemma that existing rehabilitation programs offer questionable benefits for the MI patient possibly because the perspective from which these programs are designed takes neither patient need in hospital nor those post discharge into account. (Burgess et al., 1987; Sivarajan, Newton, & Almes, 1983; Steele & Ruzicki, 1987).

Prior to the development of sound interventions for this population, an understanding of the patient's perspective of his health, cause of illness, experience of MI, and learning needs must be acquired (De Adder, 1990; Fielding, 1987; Murray, 1989; Rudy, 1980; Koslowsky, Croog, & Lavoie, 1978; Webber, 1985).

The Family

"Illness is a family affair" (Murdaugh, 1987, p. 82). This is particularly so for MI because its chronic, life-threatening nature influences the quality of the patient's and his family's lives significantly. The demands of illness have the potential to produce a crisis that may modify family functioning in general and that may lead to disorganization or in extreme cases disintegration of the family system (McCubbin & McCubbin, 1987; Wright & Leahey, 1987). While the chronic, life-threatening illness has a profound impact on the family, its response has a profound effect on the well-being of the person with the illness and on the course of the disease (Patterson & Garwick, 1994; Wright & Leahey, 1987). The meaning the family members attribute to the illness, the degree to which they adjust to changed expectations of one another, the amount of control they feel they may have over the outcome of the illness, and how they see themselves in relationship to the rest of the world can all influence how the family and the patient will cope (Patterson & Garwick, 1994; Woods, Yates, & Primomo, 1989; Wright & Leahey, 1987).

Hilgenberg and Crowley (1987) investigated the effect of an MI on a patient's family. They interviewed 25 patients and their families at two to three months and again at five to six months after the patients' discharge from hospital. Their study focused on changes in family and social activities, communication and decision-making, diet and exercise, protectiveness, as well as financial and emotional changes. Changes were noted by both patients and family members in all areas investigated. The researchers reported "a general decline in social activities, together with changes in role expectations and disruption of familiar routines" (p. 32). These changes were also associated with distress, because many of them had not been anticipated by the patient or the family.

The spouse and family of the MI patient are confronted not only with their own feelings of shock, loss, grief, guilt, depression, and anxiety (Adsett & Bruhn, 1968; Skelton & Dominian, 1973), but also with the societal or normative expectation that they be the primary providers of support to the patient (Daltroy & Godin, 1989a & b; Revenson, 1994; Sirlies & Selleck, 1989). This challenge may be difficult for the spouse and family to face.

Given the closeness of a married couple, and the fact that the MI is experienced as a crisis, one may expect that a patient's negative emotional state may elicit a similar state in the spouse. Several qualitative studies report that wives feel helpless, powerless, useless, uncertain of capabilities, "fragile as a piece of bone china" (Bramwell, 1986, p.581) and have high levels of anxiety and depression (Thompson & Cordle, 1988). Some studies indicate that spouses of ill persons experience even greater distress than their partners (Coyne, Ellard, & Smith, 1990). Mayou, Foster, and Williamson (1978b), using semi-structured interviews, described female spouses as more psychologically distressed than their husbands. In a retrospective study, Michela (1987) claimed that in most cases, wives reported higher levels of anxiety than those reported by patients themselves.

Waltz (1986), using the Bradburn Affect Balance Scale, a standardized measurement of affect, found a correlation of .35 ($p < .0001$) for negative affect in a sample of 521 male patients and female spouses at one year post infarction. Hilbert (1993) used the same scale and found a correlation of .33 ($p < .01$) for negative affect in a sample of 35 MI male patients and female spouses at the time of hospitalization.

While the patient is still in hospital, immediately post-MI, the spouse's focus of coping is primarily illness-related or problem-focused (Dhooper, 1983; Nyamathi, 1987; Yeh, Gift, & Soeken, 1994). Grief and anxiety tend to be her primary emotions (Langeluddecke, Tennant, Fulcher, Barid, & Hughes, 1989; Michela, 1987; Nyamathi, 1987; Skelton & Dominian, 1973). According to Bedsworth and Molen (1982), the most frequently reported emotion associated with coping for wives of cardiac patients at the time of hospitalization is anxiety (51%). The highest levels of anxiety are found in wives who perceive their husbands as sicker (Waltz, Badura, Pfaff, & Schott, 1988). Younger spouses report more emotional distress than older spouses (Nyamathi, Jacoby, Constancia, & Ruvevich, 1992). Wives with more limited coping with adverse experiences report greater percentages of emotional distress (Surtees & Miller, 1994). Further, emotional distress is significantly related to "emotion-focused" coping (denial, withdrawal, and drug or alcohol abuse) (Nyamathi et al., 1992).

Although patients' anxiety has been reported to wane and be supplanted by depression, the literature suggests that although wives' anxiety peaks while the patient is in the hospital, it persists over time. According to Dhooper (1983), most wives continue to report mild to moderate anxiety up to three months post discharge. Stern and Pascale (1979), using standardized instruments to measure anxiety and depression in wives of MI patients, reported that 26% (n = 10) were anxious or depressed initially, with four continuing to be symptomatic at six months. Clarke (1994), using the Zung inventories for anxiety and depression in wives of 52 first-time MI patients, reported that wives' anxiety and depression scores at the time of the MI were predictive of their anxiety and depression scores three months later. Skelton and Dominian (1973) interviewed 65 wives of MI patients who described feelings of loss, anxiety, and depression; of these, 51 reported experiencing sleep disturbances and 17 complained of psychosomatic symptoms. While these anxieties and tensions diminished over time, at one year post-MI eight wives, whose husbands had made a good physical recovery, still showed significant psychological distress. In some cases, the continued anxiety increases in intensity (Michela, 1987; Skelton & Dominian, 1973).

Two proposed reasons for this increase in anxiety have been investigated. The first is the fear and uncertainty associated with the diagnosis. Several studies found a strong positive relationship between the degree of uncertainty regarding the future and the reported emotional distress experienced by the spouse at multiple testing periods up to one year post-MI (Bramwell & Whall, 1986; Christman et al., 1988; Croog, 1983; Langeluddecke et al., 1989; Skelton & Dominian, 1973).

The second possibility for the wives' anxiety is the reported sense of responsibility they feel for their husbands' survival and well-being and the intense strain that this produces (Adsett & Bruhn, 1968; Bramwell & Whall, 1986; Gilliss, 1984; Nyamathi, 1987). Some of this sense of responsibility may stem from a feeling of guilt at having contributed to the disease (Adsett & Bruhn, 1968; Gulledge, 1979; Skelton & Dominian, 1973), while some may arise from a perceived need to protect the patient from "trying to do too much too soon" (Bramwell & Whall, 1986, p. 285), thereby risking recurrence of the MI (Croog & Levine, 1977; Gilliss, 1984; Rankin & Gilliss, 1987; Wiklund et al., 1984). Wishnie et al. (1971) found guilt and overprotectiveness in a study of 18 wives of CHD patients interviewed at three and nine months following their husbands' MI. Solicitousness was of a punitive nature, thought to represent an indirect expression of suppressed anger. There is scant evidence (likely due to the lower number of female MI patients) to imply that when the MI patient is the wife, the husband may be even more inclined towards overprotectiveness (Stern et al., 1977).

Spouses of MI patients often waver between being supportive and protective of their partners, while trying not to be too controlling or solicitous. As a result of minimizing or hiding their own fears and concerns from their partners, they frequently deny themselves support and reassurance (Coyne & Smith, 1991; Stern & Pascale, 1979).

As with the patient's psychological recovery, the family's ability to cope in a crisis often depends on its premorbid level of functioning and previous history of coping with crises. Positive family characteristics consistent across developmental stages embrace open communication, role satisfaction, personal compatibility, a shared sense of family values and activities, and opportunities for social exchange outside the family (McCubbin & McCubbin, 1987; Wood et al., 1989).

Families who do not function in an adaptive way, whether on a daily basis or in times of crisis, have been examined widely in the literature and have been described as "dysfunctional" by Minuchin, Rosman, and Baker (1978). These families have three main attributes: enmeshment and blurring of individual boundaries, overprotectiveness of the family unit and of individual members, and rigidity in crisis management.

Enmeshment is depicted as an extreme form of proximity and over-involvement amongst family members (Minuchin et al., 1978). In such a dysfunctional system, ego boundaries are poorly determined and easily traversed, and the individual gets "lost in the system" (Minuchin et al., 1978, p. 30; Wood et al., 1989).

Overprotective families have an exaggerated degree of concern for both the individual members' welfare as well as for the welfare of the family as a whole (Minuchin et al., 1978). This high degree of concern is considered dysfunctional, because it can delay development of autonomy and competence and discourage interests or activities "outside the safety of the family" (Minuchin et al., 1978, p. 31). In situations where there is an illness in the family, the overprotectiveness is not inevitably confined to the illness nor is it inevitably aimed towards the patient. Often, the patient may feel a need to protect the family, especially if there is a family-related psychosomatic factor or element to the illness (Minuchin et al., 1978).

Overprotectiveness in families of patients with CHD has been widely reported and repeatedly linked to cardiac invalidism or poor psychosocial outcome independent of disease severity (Clarke, 1994; Garrity, 1973a & b; Hyman, 1971; Mayou et al., 1978b; Skelton & Dominian, 1973; Stern et al., 1979; Waltz, 1986; Wiklund et al., 1984; Wynn 1967). Clarke (1994) used the Influential Relationships Questionnaire and found that first-time MI male patients who perceived a high degree of overprotectiveness from their wives three months post-MI reported higher anxiety and depression, more perceived criticism and less perceived caring from their wives, a lower level of family functioning, and a poorer quality of life. Garrity (1973b) found that high levels of family concern gave messages to patients that they were indeed cardiac invalids and unable to return to work. Wynn (1967) reported that invalidism, manifested as anxiety, depression, and fear in his sample of 400 men after acute MI was made worse by overprotective wives. Wicklund et al. (1984) found that overprotection was correlated with emotional instability and preoccupation with health, leading to a prolonging of the sick role post-MI. Skelton and Dominian (1973) and Stern et al. (1979) have shown that overprotectiveness usurps the activities and responsibilities that can and should be performed by the recovering patient and in the long run hinders the adjustive and rehabilitative potential of the ill partner.

In a study of 82 wives of men experiencing their first MI, Mayou et al. (1978b) found through interviews that wives continued to influence the rate and extent of convalescence a year after the acute event. One third of the wives were openly protective of their spouses. About one third of the patients accepted the concern reluctantly, while 15% rejected it outright. Gulledge (1979) commented on the dilemma wives experience: "If they show concern, they are accused of being punitive and overprotective, but if they limit their concern and attempt to avoid unnecessary helplessness in their husbands, they are considered unsympathetic" (p. 117).

Hyman (1971) addressed the topic of the appropriate family response to illness in a study of 116 patients in the early stages of chronic illness. He maintained that social processes shape the patients' responses to an ailment, noting "the receipt of preferential treatment by a patient on the brink of the sick role raises the odds that he will plunge into it" (p. 329). He implied that protective and solicitous treatment, defined as attention, consideration, kindliness, and concern, led to changes in self-concept and may mediate the relationship between preferential treatment and disability.

The clinical literature abounds with anecdotal evidence of overprotective, dominating, and oversolicitous wives creating psychological distress for MI patients (Adsett & Bruhn, 1968; Bilodeau & Hackett, 1971; Ford, 1989; Gulledge, 1979; Kaufman, Pasacreta, Cheney, & Arcuni, 1985-86; Webber, 1985; Wishnie et al., 1971). In describing feelings experienced as a result of their wives' interference, MI patients have cited things such as degradation, lack of self-worth, inability to think independently, fragility, invalidism, lack of validity, and shame. Still, other studies have found conflicting results. Shanfield (1990) found that lower levels of family concern prolong convalescence after acute MI. Waltz (1986) found that a marital relationship that was inadequate in quality or characterized by conflict and inadequate support hindered adjustment and increased the risk of psychological and social invalidism after acute MI.

Mayou (1979) found that spousal protectiveness was positively correlated with patient coping following an acute MI (r = .35) and suggested that in some situations protectiveness was perceived by patients as nurturing and therefore desired. Riegel and Dracup (1992) found that overprotected patients (n = 81) experienced less anxiety, depression, anger, and confusion, more vigour, and higher self-esteem than inadequately supported patients (n = 28) one month after an acute MI ($p <$ .05). Inadequately supported patients were more dependent four months after the event. Their return to work data indicated that early social support with later withdrawal of support predicted return to work. The ideal timing of support after acute MI appears to be more complex than previously suspected. Riegel and Dracup (1992) also found that neuroticism, measured by moodiness, difficulty concentrating, and feeling sluggish was the primary predictor of cardiac invalidism, although only 27.9% of the subjects were even borderline neurotic, a lower percentage than the 46% found by Lloyd and Cawley (1982). It may be that the clinical lore perpetuated in cardiology that overprotectiveness causes cardiac invalidism emerged because of detrimental effects of overprotecting individuals with neurotic tendencies.

Riegel and Dracup (1992) suggest that the difference between their results and those of most previous investigators who claimed that overprotection causes cardiac invalidism may be clarified by the way in which overprotectiveness was identified. In their study, overprotectiveness was defined as the patient's report of more support than desired, regardless of the interpretation given to the support.

The ratio of social support desired to social support received was examined in one other study. Johnson and Morse (1990) reported that patients were more likely to retain the sick role inappropriately and become cardiac invalids when they identified themselves as having several needs, in spite of the availability of significant social support. Thus, cardiac invalidism seems to evolve when the patients' needs exceed available supplies of social support.

According to Johnson and Morse (1990), patients who feel overprotected may cope with the situation by either affirming their independence (i.e., rejecting assistance) or by considering the support as displaying family members' needs to alleviate their own anxieties and guilt. In the latter interpretation, the unnecessary support is not construed by the patient as symbolic of physical disability, but is rather interpreted as a sign of understanding and reciprocal support. Further comprehension of overprotectiveness would acknowledge the difference between helpful and non-helpful elements of the phenomenon.

To date, the mainly qualitative and descriptive studies of overprotectiveness do not attempt to provide intervention for the spouses' concerns. When intervention has been provided, the outcome measures have been concerned mainly with the effect on the MI patient as opposed to the effect on the spouse (Adsett & Bruhn, 1968). In their study, Thompson and Meddis (1990b) included spouses in patient teaching and support post-MI. They showed that, compared to wives who had not been included in the process, wives who had been included in the process reported significantly less anxiety regarding several aspects of the patients' lives (e.g., possible re-infarction and future expectations and relationships) for a period of up to six months. Although this study provided empirical evidence that intervention with wives is beneficial, more studies concerning the emotional functioning of spouses following MI are required.

Research has also considered the impact of an MI on the marital relationship. Some patients and spouses report that the illness brought them closer together; others say it made no difference; yet others feel it had a detrimental effect on their marriage (Michela, 1987). It has been concluded that strong marriages become stronger and weak marriages deteriorate (Badger, 1990; Croog & Levine, 1977; Michela, 1987). Michela (1987) found that as a result of re-evaluation of the meaning of the marital relationship in the face of possible loss, couples with a satisfying marriage pre-MI related more intimacy (not necessarily sexual) and heightened appreciation of each other post-MI.

Potential for marital conflict to occur may arise during the recovery period post-MI, when couples are provided with extensive information about restrictions on physical exertion, diet, and sex, a routine procedure at many hospitals (Michela, 1987).

Flexibility and collaboration in terms of role reallocation, family decision-making, and mutual communication are considered significant elements for successful marital adjustment to chronic illness (Ben-Zira & Eliezer, 1990; Bramwell, 1990). Ben-Zira and Eliezer (1990) described spousal support as a "primary environmental resource" for the patient and envisioned the spouse's role as facilitating and enhancing access to support rather than as mainly a provider. Bramwell (1990) noted that collaborating couples were able to accept the illness, its limitations, and consequent changes in lifestyle. They were willing to commit to the relationship and strive for its success as well as accept a periodic reprieve from illness-related toil. Such couples preserved open communication, supported each other, and "saw themselves as facing the chronic illness together" (p. 8).

Issues of roles and responsibilities within the family may be the focus of marital conflict post-MI. Formerly held roles and responsibilities may no longer be viable, partly due to the MI patient's experienced disability, resulting in problems of control. As discussed earlier, the MI patient with an anxious, overprotective wife may experience a loss of control over his health (Nyamathi, 1987). He may perceive that he is hindered from performing autonomously and may become physically unable to perform autonomously, creating a "vicious circle" of lowered self-esteem and self-efficacy (Bandura, 1982). This theory was supported by Clarke (1989) who found that patients whose wives accompanied them to rehabilitation classes reported lower self-efficacy. However, it was inconclusive whether the wives accompanied their husbands because they had low self-efficacy or whether the wives' attention resulted in lowered self-efficacy.

Conversely, the patient may try to reassert himself in an effort to acquire or regain control. This theory was supported by Dracup et al. (1984) who reported that patients who attended educational sessions for treatment compliance without their wives actually became more compliant with treatment regimens than those who attended with their wives.

CHAPTER III: METHODOLOGY

Introduction

The purpose of this study was to examine the emotional recovery which men and their spouses experience 12 months following an MI. A quantitative, non-experimental, descriptive correlational survey design aimed at describing the relationship among variables was used in this study.

Population and Sample

The population for this study consisted of white male patients who had suffered a first documented MI and their wives. Male patients exclusively were considered because: (a) males experience MI more frequently and at an earlier age than do females; (b) the interpersonal dynamics between male MI patients and their spouses is potentially different than those between female patients and their spouses; (c) the pathophysiology of MI may be different in males and females (Cochrane, 1992); and (d) recruitment of a sufficient number of female patients and their spouses is difficult. Subjects included patients admitted to the intensive care units at St. Boniface General Hospital, Grace General Hospital, Victoria General Hospital, or Health Sciences Centre from January 1992 to July 1993. Selection criteria for male patients in the study were that they had suffered a first MI, were married or living in a common-law relationship, were fluent in English, were 70 years of age or younger, and had no other major illness that would make participation difficult.

Patients who had coronary artery bypass surgery within the year post-MI were eliminated from the potential candidate pool. All subjects who met the criteria were invited to participate, and all who agreed to participate gave informed consent (Appendices A, B, & C). Thirteen potential subjects who were approached regarding participation refused outright. A common reason for refusal was feelings of being "overwhelmed" and unable to cope. No significant differences in age, Peel Index, and distress were found between the study subjects and the individuals who refused to participate in the study.

Procedure

Following ethical approval from the University of Manitoba Faculty of Medicine and Department of Psychology and agency approval from four hospitals (St. Boniface General Hospital, Grace General Hospital, Victoria General Hospital, and Health Sciences Centre), a nurse researcher approached potential participants while in hospital. She explained the purpose of the study, invited them to participate, and from those who agreed to participate obtained an informed consent.

While still in hospital, recruited patients' medical records were accessed to obtain demographic data and Peel scores (extent of cardiac damage) (Appendix D).

Twelve months after discharge from hospital (January 1993 to July 1994), when the MI has become a reality, and patients and spouses have basically adjusted to a life with a chronic illness and have resumed activities of normal daily living (Wiklund et al., 1984), subjects were telephoned at home and interviewed. Life-style issues, such as changes in exercise patterns and diet and success with smoking cessation, were discussed, and the Specific Activity Scale was administered. Subsequently, follow-up questionnaire packages, which included a cover letter (Appendix E), the Influential Relationships Questionnaire (IRQ), the family APGAR, the Self-efficacy Scale, the Zung anxiety and depression inventories, and the Psychological Adaptation to Illness Scale (PAIS) were mailed to patients and their wives. Patients were asked to complete all the questionnaires and wives were asked to complete the APGAR, the Self-efficacy Scale, and the Zung inventories. Upon completion, the questionnaires were personally picked up to ensure a high return rate. Participants were thanked for their time and attention and were offered a copy of the research findings upon completion of the study. (Previously, at three months post-MI the same procedure was performed but the data collected were analyzed elsewhere [see Clarke, 1994].)

Data Collection

The data were collected using the self-report method, combining both semi-structured interviews and structured self-administered questionnaires.

Data Collection Instruments

Specific Activity Scale (SAS)

The SAS (Goldman et al., 1981) was developed to assess the degree of functional cardiovascular disability within and across patients. It consists of five main categories of questions based upon activities of daily living and their corresponding metabolic equivalency (MET) levels (Appendix F). The patient responds yes or no to each question and is placed in classes 1-4 depending on the number of yes answers in each category. A difference of 1 is deemed to have clinical significance (Goldman et al., 1981).

Compared to more traditional functional classification systems, such as the Canadian Cardiovascular Society Scale (Campeau, 1975) and the New York Heart Association Scale [NYHA] (NYHA, 1979), the SAS demonstrates superior reliability and validity. Goldman et al. (1981) found that SAS had a reproducibility of 73% compared to NYHA's 56% ($p < .05$). In validity testing, NYHA estimates agreed with exercise testing results only 51% of the time, whereas the SAS was in agreement 68% of the time ($p < .01$). The SAS had a higher correlation with the duration of treadmill exercise in seconds ($r = -.66$) than did the NYHA estimates. It is equally valid whether administered by a trained cardiologist or by an individual untrained in patient interviewing techniques (Goldman et al., 1981).

Influential Relationships Questionnaire (IRQ)

The IRQ (Baker, Helmes, & Kazarian, 1984), a 34-item scale was designed to measure perceived interpersonal characteristics of overprotection, criticism, and caring in families of schizophrenics. It consists of three subscales: an 11-item overprotectiveness scale, a 12-item criticism scale, and an 11-item scale measuring the amount of caring in the relationship (Appendix G). For each item, respondents indicate, on a four point scale, whether the item describes an attribute or activity that is very like to very unlike their experience in relation to the most influential person in their lives, which in this study, was the wife.

The IRQ has been used with clinical and nonclinical populations (Baker et al., 1984; Kazarian & Baker, 1987; Baker, Kazarian, Helmes, Ruckman, & Tower, 1987) and has demonstrated reliability and validity. The IRQ seems to have moderate to high test-retest reliability and internal consistency.

Internal consistency of the scale ranges from .77 on the criticism subscale to .87 on the overprotectiveness subscale (Kazarian, Baker, & Helmes, 1987). A study by Baker et al. (1984) found moderate test-retest reliability ranging from .53 on the overprotectiveness subscale to .78 on the criticism subscale. Norms have been established for schizophrenic and depressed psychiatric populations, as well as for nonclinical Canadian and Australian populations (Baker et al., 1984; Kazarian & Baker, 1987; Parker, Tupling, & Brown, 1979). A score of 12 was used as an indication of clinical significance, as 12 was just outside the upper range, one standard deviation from the mean, and there was a natural cutoff at 12 in the bimodal distribution of the responses for this subject population.

Family APGAR

The family APGAR (McCubbin & McCubbin, 1987; Smilkstein, 1978) was designed as a screening test to provide a rapid overview of family functioning in primary care settings. It is a brief clinical questionnaire that samples five major dimensions of family functioning (adaptability, partnership, growth, affection and resolve) and that consists of five closed-ended questions to which the respondent answers either almost always, sometimes, or hardly ever (Appendix H). A score of seven to ten suggests a highly functional family, four to six suggests a moderately dysfunctional family, and zero to three suggests a severely dysfunctional family (Smilkstein, 1978).

Concurrent validity has been demonstrated between the family APGAR and other psychometric measures of family functioning as well as with clinical evaluations of family functioning by therapists in both clinical and nonclinical populations (Good, Smilkstein, Good, Shaffer, & Arons, 1979). Interspouse correlation was found to be .67 in the Good et al. (1979) study.

Self-efficacy Scale (Estimation of Function)

The Self-efficacy Scale devised for cardiac patients (Bandura, 1982; Taylor et al., 1985) was used in this study to measure estimation of patients' cardiac functional capacity and ability. It consists of 12 subscales, each of which describes different levels of abilities to perform common activities that may stress the heart. The subscales include seven measures of physical ability (lifting weights, walking, jogging, climbing stairs, pushing/moving objects, engaging in sexual activity, and driving), four measures of ability to withstand emotional stressors (bodily tension, anger arousal, social stress, and family discord), and a rating of overall cardiac capability (heart rate) (Appendix I). For each activity, the participant rates, on a 100 point scale, how likely he feels he is to perform that activity - from quite uncertain (10) to completely certain (100). The wives were asked to rate how likely they felt their husbands were to perform each activity. The subscales are scored by averaging the summed confidence levels of each task. Self-efficacy estimates have not been found to change with repeated testing in the absence of interventions (Ewart et al., 1983; Taylor et al., 1985).

Zung Depression Scale

The Zung Self-rating Depression Scale (Zung, 1965), a Likert-type scale, was originally designed to provide a simple and specific assessment of psychiatrically defined depression. Twenty symptoms commonly seen in a diagnosis of depression were matched with self-statements that the respondent rates on a four point scale (one to four) as being present <u>None or a little of the time</u> to <u>All or most of the time</u> (Appendix J). The higher the score, the more likely is a diagnosis of depression (Zung, 1965). The Zung depression scale classifies non-depressed subjects as those achieving an index of less than .50, subjects with low to moderate levels of depression as those achieving an index of .50 to .59, subjects with moderate levels of depression as those achieving an index of .60 to .69 and subjects with severe depression as those achieving an index above .70 (Gabrys & Peters, 1985).

The Zung SDS has had extensive reliability and validity testing (Zung, 1965). Split-half reliability has been reported to range from .73 to .89 (Hamilton, 1988; Harrington, 1988, 1989). Goodstein (1972) reports concurrent validity with the Minnesota Multiphasic Personality Inventory that ranges from .59 to .75 and with global ratings that range from .43 to .65. Biggs, Wylie, and Ziegler (1978) specifically tested the Zung SDS for validity and found correlations with the Hamilton rating scale (<u>r</u> = .80) and global ratings (<u>r</u> = .69). The scale also correlates well with DSM-III-R diagnosis of depression (Griffin & Kogut, 1988), with Beck Depression Inventory scores (Kerner & Jacobs, 1983; Shaefer, 1985), and with clinician ratings (Schaefer, 1985). The scale has been found to be useful in identifying depression in a variety of age groups and in a variety of cultures (Gabrys & Peters, 1985; Hickie & Snowdon, 1987; Kozeny, 1987; Zung & Zung, 1986).

Zung Anxiety Scale

The Zung Self-rating Anxiety Scale (Zung, 1971) was designed to help differentiate between subjects diagnosed as having an anxiety disorder and nonclinical subjects. The 20-item Likert-type scale rates subjects on five affective and 15 somatic symptoms of anxiety and uses a four-point system (one to four) (Appendix K). The range of scores which indicate mild to moderate to severe levels of anxiety are identical with those in the Zung depression inventory (Zung, 1971). This scale correlates well with other commonly used measures of anxiety such as the Taylor Manifest Anxiety Scale (Zung, 1971).

Psychosocial Adaptation to Illness Scale (PAIS)

The PAIS Self-Report (Derogatis & Derogatis, 1990) is a "relative frequency" measure of quality of life for individuals personally affected by illness (Kaplan, 1988). The intent of the PAIS is to help identify ". . . patients who might benefit from increased attention to the psychosocial elements of their illnesses" (Derogatis & Derogatis, 1990, p. 33). It is a 46-item scale that examines psychosocial adjustment to illness in seven primary domains of illness functioning: Health Care Orientation, Vocational Environment, Domestic Environment, Sexual Relationships, Extended Family Relationships, Social Environment, and

Psychological Distress. A four-point scale of distress (zero to three) is used for each item, with scale direction alternated on even numbered items to reduce position response biases (Derogatis & Derogatis, 1990) (Appendix L). The higher the score, the more likely a problem with adaptation. Norms have been established for each subscale of the PAIS for subjects with a variety of illnesses including cardiac.

Reliability coefficients of the various subscales of the PAIS range from a low of .62 on the Extended Family Relationships subscale to a high of .85 for the Psychological Distress subscale using cardiac patients (Derogatis & Derogatis, 1990). The scale correlates well with other instruments that measure quality of life in illness, such as the Global Adjustment to Illness Scale and the SCL-90-R and with independent clinical ratings of patients' functioning. The Sexual Relationships subscale correlates well with both the Zung depression scale and the CES-D in predicting depression post-cardiac surgery (Folks et al., 1988).

For the purposes of this study, only six domains were examined because Health Care Orientation shows poor test-retest reliability for cardiac patients, is wordy and difficult to understand, and was of no relevance. Although the authors of the PAIS have recommended that a sum score of 62 or above is positive for clinical levels of psychosocial maladjustment (Derogatis & Derogatis, 1990), a cut-off score of 50 was used in this study after examining the distribution of the scores of this group of subjects.

Data Analysis

All data were coded and the SAS, Version 5 (SAS Institute, 1985) and Version 6 (SAS Institute, 1992) were used to calculate results. In this study, statistical methods utilized were primarily descriptive in nature and were employed to examine correlations between variables and combinations of variables. Univariate analyses of variables for normality and homogeneity of variance were performed to evaluate appropriateness of tests. Where both variables were normally distributed, the parametric Pearson's product-moment correlation ($\underline{r}$) was used to examine the relationships between variables. Where either one or both variables were non-normally distributed, as in the case of APGAR which was skewed to the high end of the satisfaction scale and cardiac functional capacity which was skewed to the high end of functional capacity, the non-parametric Kendall's tau ($\underline{\tau}$) was used. All tests of significance for correlations were set at an alpha level of .05. Bivariate scatterplots were constructed and inspected to validate the presence of a truly linear relationship between significantly correlated variables.

Stepwise multiple regression was used to determine which variables or combination of variables provided the most predictive power. Where two variables were highly correlated, only the one with the most theoretical significance was tested in the regression equation. The significance level for entry of variables into the regression equation was set at the automatic SAS default of .15. Residual scatterplots were constructed and inspected to check for errors of prediction for models which were found to explain a significant amount of variance.

Ethical Considerations

Several strategies were utilized to maintain the ethical standard of this investigation. First, ethical clearance was obtained from the ethical review committees of the Faculty of Medicine and Department of Psychology, University of Manitoba. Second, written informed consent was obtained from each of the informants. All of the participants were informed about the nature of the study. It was stressed that participation in the study was voluntary, that participants could withdraw from the study at anytime with no effect on their treatment, and that there were no foreseeable personal risks or immediate benefits. Third, confidentiality was maintained at all times. Only the researcher and research assistants had access to the raw data that were stored according to ethical review committees' requirements. Only group data were reported and no individual responses were identifiable. Finally, participants were invited to obtain copies of the summary of the research findings.

CHAPTER IV: RESULTS

Sample

The non-random convenience sample at 12 months post-MI consisted of 47 white, married couples, five less than the original 52 couples recuited at the time of initial hospitalization. (Reasons for exclusion from follow-up were: bypass surgery - three and loss of contact - two.) Although the response rate for the remaining 47 couples was 100%, incomplete questionnaires were received from some subjects.

The 47 patients, at the time of hospitalization post-MI, ranged in age from 28 to 70 years with the mean age of 54.5 years ± 9.1 years and had Peel indices (see pages 4 and 5) ranging from one to 13 with a mean of 5.6 ± 3.3 (Table 1). The Peel Index controls for age, and older patients received significantly higher Peel scores ($\underline{r} = .38$, $\underline{p} < .05$). For 43 patients, the MI was the first documented cardiac event, while the remaining four patients had previously experienced angina or other non-specific cardiac symptoms.

At 12 months post-MI, the majority of patients were middle class or working class, with 29 employed, two unemployed, 12 retired, and four on disability. Of those employed, most indicated that they were working the same amount of time as before their MI, three were working less than before their MI, one started a new business with a partner, and one planned to take early retirement. Of those unemployed, one died after the study was completed.

At 12 months post-MI, 26 patients were nonsmokers, nine patients were smokers, and 12 patients were former smokers. Most patients had returned to an increased or full activity regimen, and 12 (26%) were active members of the Kinsmen ReH-Fit Centre. Biking, walking, and golfing were the activities of choice. Thirteen patients (28%) changed their dietary habits, as advised by dieticians.

Emotional Recovery

Anxiety and Depression

Patients

Twelve months post-MI, patients' anxiety levels ranged from a low of .28 to a high of .54 with a mean of .40 and a standard deviation of .07. Three of the 31 men (10%) had anxiety scores which exceeded the .50 level of clinically significant anxiety as determined by Zung (1975), and two were on the borderline with scores of .48. At the same time, patients' depression levels ranged from a low of .30 to a high of .69 with a mean of .44 and a standard deviation of .10. Seven of the 32 men (22%) had depression scores which exceeded .50 with a further five on the borderline. The mean of depression scores at .44 ± .10 was significantly outside the range of the mean for the non-clinical population as defined by Zung (1965) (Table 1).

Anxiety scores and depression scores in patients were significantly correlated ($r = .56$, $p < .0001$). Anxiety scores were significantly correlated with quality of life ($r = .43$,

Table 1

Descriptive Statistics of Patients and Wives at 12 Months Post-MI

PATIENTS	**Mean**	**Standard Deviation**	**Range**
Age*	54.2	9.4	28-70
Peel Index* (cardiac damage)	5.5	3.2	1-13
APGAR (family functioning)	8.2	2.1	3-10
Self-efficacy (estimation of function)	67.2	16.8	11-80
Anxiety (Zung scale)	.40	.07	.28- .54
Depression (Zung scale)	.44	.10	.30- .69
Overprotectiveness	6.8	6.1	0-22
Criticism	7.4	6.1	0-18
Caring	26.0	6.4	11-33
Quality of Life	41.7	8.1	23-62
Cardiac Functional Capacity	1.7	1.0	1-4
WIVES			
APGAR	7.8	2.6	0-10
Anxiety	.41	.07	.28- .56
Depression	.43	.11	.30- .70
Estimation of husbands' functioning	64.9+ 64.5	14.3+ 15.3	35-90+ 34-90

* At time of initial hospitalization post-MI

\+ 3 outliers removed

$p < .05$) and perceived overprotectiveness ($r = .44$, $p < .01$). Depression scores were significantly correlated with quality of life ($r = .66$, $p < .0001$), perceived overprotectiveness ($r = .51$. $p < .01$), perceived criticism ($r = .35$, $p < .01$), patients' self-efficacy ($r = -.52$, $p < .01$), and patients' APGAR ($r = -.30$, $p < .05$) (Table 2).

Wives

Twelve months post-MI, wives' anxiety levels ranged from a low of .28 to a high of .56 with a mean of .41 and a standard deviation of .07. Six of the 34 wives (18%) scored above .50, and one was on the borderline. At the same time, wives' depression levels ranged from a low of .30 to a high of .70 with a mean of .43 and a standard deviation of .11. Ten of the 34 wives (29%) scored above .50, and two were on the borderline (Table 1).

Anxiety scores and depression scores in wives were highly correlated ($r = .67$, $p < .0001$). Anxiety scores of wives were not significantly correlated with anxiety scores of patients ($r = .14$, $p = .47$), but were significantly correlated with patients' self-efficacy ($r = -.38$, $p < .05$), patients' APGAR ($r = -.30$, $p < .05$), and perceived criticism by patients ($r = .39$, $p < .05$). Depression scores of wives were not significantly correlated with depression scores of patients ($r = .05$, $p = .78$), but were significantly correlated with patients' quality of life ($r = .36$, $p < .05$) (Table 2).

Table 2

Correlation Matrix for Patients' and Wives' Self-Report Variables

	OPP	CRP	CP	ANXP	DEPP	ANXW	DEPW	SEP	SEW	APP	APW	QOLP	CFP
OPP	1.0	****.80	****-.76	**.44	**.51	.20	.29	-.23	-.27	**-.39	-.06	**.56	.07
CRP		1.0	****-.75	.25	**.35	*.39	.30	-.21	-.22	**-.42	-.27	*.51	.05
CP			1.0	-.19	-.27	-.17	-.20	.05	.33	**.42	.19	*-.34	-.06
ANXP				1.0	****.56	.14	.02	.06	-.02	-.01	.07	*.43	.07
DEPP					1.0	.26	.05	**-.52	-.28	*-.30	-.09	****.66	.20
ANXW						1.0	****.67	*-.38	-.12	*-.30	-.29	.30	.07
DEPW							1.0	-.31	-.22	-.20	-.15	*.36	.28
SEP								1.0	**.49	.23	.11	**-.47	*-.34
SEW									1.0	*.30	.13	**-.46+ -.05	*-.32
APP										1.0	.23	-.19	-.20
APW											1.0	*-.29	-.23
QOLP												1.0	*.30
CFP													1.0

Legend. W = wives; P = patients; OP = overprotectiveness; CR = criticism; C = caring; ANX = anxiety; DEP = depression; SE = self-efficacy; AP = APGAR; QOL = quality of life; CF = cardiac functional capacity; + = 3 outliers removed.

Note. Nonparametric correlations (Kendall's τ) were used with APP, APW, and CFP due to their skewed distributions. All others are Pearson's r correlations.

*$p < .05$. **$p < .01$. ***$p < .001$. ****$p < .0001$.

Overprotectiveness (OP)

A correlation matrix for patients' perceived OP with several variables can be seen in Table 2. Patients' anxiety, depression, perceived criticism, perceived caring, quality of life, and satisfaction with family functioning had significant correlations with perceived OP.

A multiple stepwise regression to predict perceived OP used the predictor variables of patients' depression and perceived criticism, wives' anxiety, and patients' and wives' estimation of function. Neither patients' anxiety nor wives' depression scores were examined in the equation because patients' depression scores were strongly correlated with patients' anxiety scores (r = .56, p < .0001), and wives' anxiety scores were strongly correlated with wives' depression scores (r = .67, p < .0001). Patients' perceived criticism and patients' depression were the only variables to contribute significantly to the regression equation, accounting for 65% of the variance (61% and 4% respectively) (Table 3). When wives' and patients' APGAR scores were included, wives' APGAR accounted for 3.9% of the variance, patients' perceived criticism decreased to 57%, and patients' depression remained at about 4%, totalling once again approximately 65% (Table 3).

Another regression to predict perceived OP used the predictor variables of patients' perceived criticism, depression, and perceived caring. All three variables contributed significantly to the equation accounting for 72% of the variance

Table 3

Stepwise Regression for Dependent Variable Perceived Overprotectiveness (P)

Variable:	df	Partial R^2	Model R^2	Prob > F
CRP	1,28	.6077	.6077	.0001
DEPP	2,27	.0431	.6508	.0790

No other variables met the significance level of .1500 for entry into the equation (i.e., ANXW, SEP, SEW).

When APP and APW were included in above equation results were:

Variable:	df	Partial R^2	Model R^2	Prob > F
CRP	1,27	.5710	.5710	.0001
DEPP	2,26	.0358	.6068	.1362
APW	3,25	.0393	.6461	.1079

See Legend Table 2

(59.7%, 6.4%, and 6% respectively) (Table 4). Residuals verified the result of 72% variance.

A verification plot of perceived OP and the Peel Index displayed three identifiable subgroups related to the Peel scores: high Peel score, low OP score; medium Peel score, low and high OP scores; and low Peel score, high OP score (Figure 1).

Hypotheses Testing

The first hypothesis, that patients whose wives relate more anxiety will report higher levels of perceived OP was not supported.

The second hypothesis, that patients whose wives describe lower estimation of their husbands' functioning will perceive themselves as being overprotected was not supported.

The third hypothesis, that patients who perceive themselves to be overprotected will report higher levels of depression and anxiety was supported. Perceived OP was significantly correlated with patients' depression ($r = .51$, $p < .01$) and with patients' anxiety ($r = .44$, $p < .01$). It also was highly correlated with perceived criticism ($r = .80$, $p < .0001$) and inversely correlated with perceived caring ($r = -.76$, $p < .0001$). The regression equation adds strength to this finding.

The fourth hypothesis, that patients who perceive themselves to be overprotected will report lower estimation of function was not supported.

The fifth hypothesis, that patients who perceive themselves to be overprotected will experience a lower level of family

Table 4

Stepwise Regression for Dependent Variable Perceived Overprotectiveness (P)

Variable:	df	Partial R^2	Model R^2	Prob > F
CRP	1,30	.5972	.5972	.0001
DEPP	2,29	.0635	.6608	.0269
CP	3,28	.0600	.7208	.0207

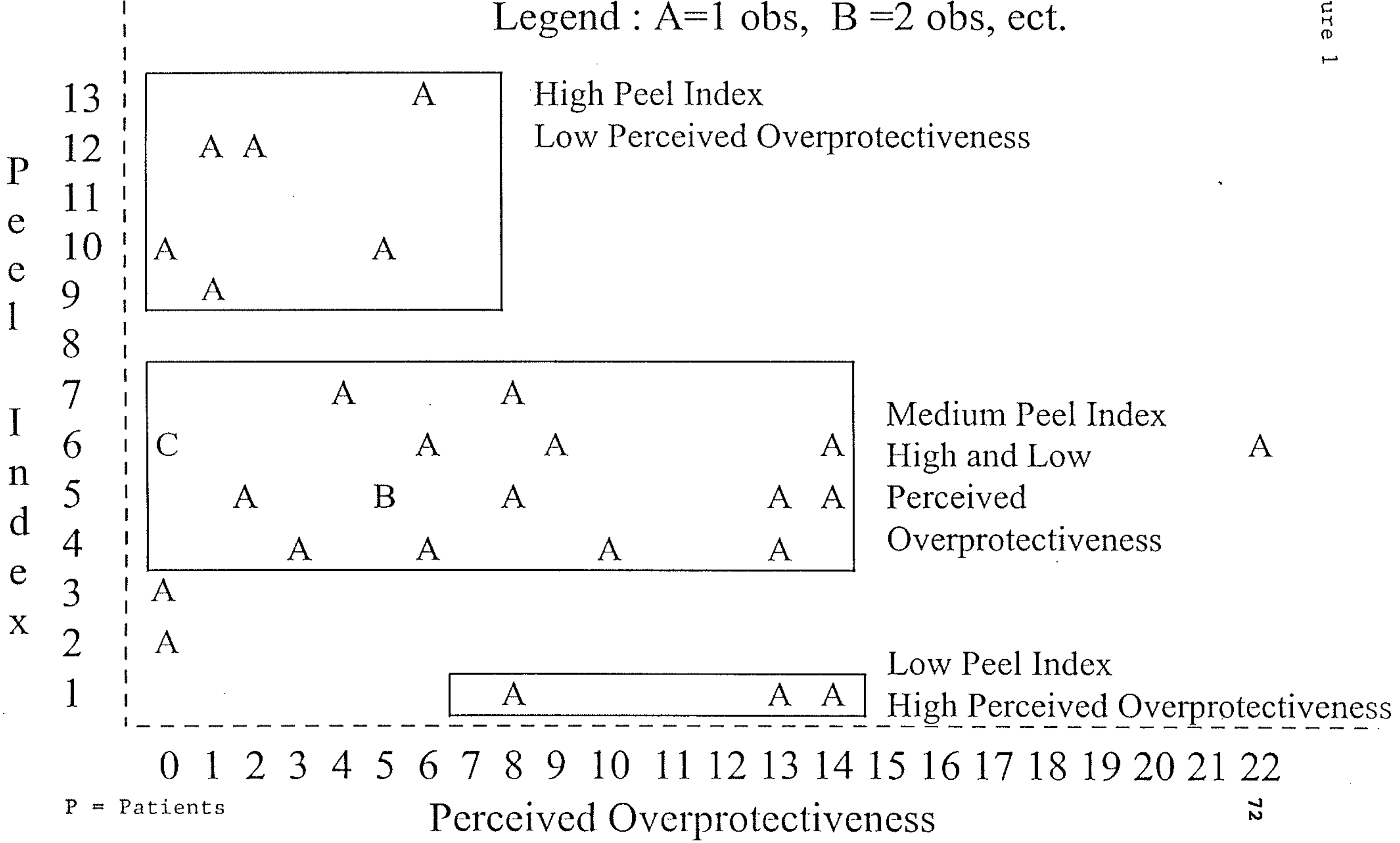
All the variables met the significance level of .1500 for entry into the equation.

See Legend Table 2

Figure 1

Plot of Peel Index and Perceived Overprotectiveness (P)

Legend : A=1 obs, B =2 obs, ect.



P = Patients

functioning as reported by themselves and their wives was partly supported. Patients with higher APGAR scores reported lower perceived OP scores ($\underline{r} = -.39$, $\underline{p} < .01$). However, there was no relationship between wives' APGAR scores and husbands' report of perceived OP.

The sixth hypothesis, that patients who perceive themselves to be overprotected will report a poorer quality of life was supported. Perceived OP scores and quality of life scores were significantly correlated ($\underline{r} = .56$, $\underline{p} < .01$).

The seventh hypothesis, that patients who perceive themselves to be overprotected will demonstrate a poorer cardiac functional capacity was not supported.

Quality of Life (QOL)

Correlations for patients' QOL with several variables can be seen in Table 2. Patients' anxiety, cardiac functional capacity, perceived OP, perceived criticism, and perceived caring, as well as patients' and wives' depression, estimation of function, and satisfaction with family functioning had significant correlations with QOL.

A multiple stepwise regression to predict problems with psychosocial adaptation (QOL) used the predictor variables of patients' and wives' depression, estimation of function, and satisfaction with family functioning. As before, patients' and wives' anxiety scores were not included due to their high correlation with patients' and wives' depression scores.

Patients' depression was the only significant contributor, accounting for 36% of the variance (Table 5).

Hypotheses Testing

The first hypothesis, that patients whose wives relate high anxiety will report a poorer QOL was not supported.

The second hypothesis, that patients whose wives describe lower estimation of their husbands' functioning will report a poorer QOL was supported. Wives' estimation of husbands' functioning, when outliers were removed, was inversely correlated with QOL (r = −.46, p < .01). Outliers were removed because one wife provided suspect data, and two wives' husbands were severely distressed for reasons other than the MI.

The third hypothesis, that patients who report a poorer QOL will relate higher levels of depression and anxiety was supported. QOL was significantly correlated with patients' depression (r = .66. p < .0001) and patients' anxiety (r = .43, p < .05). It also was correlated with perceived OP (r = .56, p < .01), perceived criticism (r = .51, p < .05), and perceived caring (r = −.34, p < .05). The regression equation adds strength to this finding.

The fourth hypothesis, that patients who report a poorer QOL will describe lower estimation of function was supported. Patients' self-efficacy was inversely correlated with QOL (r = −.47, p < .01).

Table 5

Stepwise Regression for Dependent Variable Quality of Life (P)

Variable:	df	Partial R^2	Model R^2	Prob > F
DEPP	1,27	.3562	.3562	.006

No other variables met the significance level of .1500 for entry into the equation (i.e., DEPW, SEP, SEW, APP, APW)

See Legend Table 2

The fifth hypothesis, that patients who report a poorer QOL will experience a lower level of family functioning as related by themselves and their wives was partly supported. QOL scores and wives' APGAR scores were inversely correlated ($\underline{r} = -.29$, $\underline{p} < .05$). However, there was no relationship between QOL and patients' APGAR.

The sixth hypothesis, that patients who report a poorer QOL will demonstrate a poorer cardiac functional capacity was supported. QOL scores and cardiac functional capacity scores were significantly correlated ($\underline{r} = .30$, $\underline{p} < .05$)

Cardiac Functional Capacity

Twenty-seven subjects (60%) were experiencing no limitation of their usual activities and thus were placed in the cardiac functional class 1. A further eight (18%) were experiencing minimal limitations and were placed in class 2. Ten subjects (22%) were experiencing moderate to severe limitations of functioning and were placed in class 3 or 4. One of these subjects died after the 12 month interview.

Correlations for cardiac functional capacity with several variables can be seen in Table 2. Patients' and wives' estimation of functioning and patients' quality of life had significant correlations with cardiac functional capacity.

Hypotheses Testing

The hypotheses that poorer cardiac functional capacity will be demonstrated by lower estimation of functioning by both patients and wives was supported. Cardiac functional capacity scores were inversely correlated with patients' self-efficacy scores ($r = -.34$, $p < .05$) and wives' estimation of functioning scores ($r = -.32$, $p < .05$).

CHAPTER V: DISCUSSION

Introduction

This study has examined the emotional impact of an MI on both male patients and their spouses 12 months post-MI, as well as quality of life and cardiac functional capacity at that time. The perception of overprotectiveness was explored, and findings presented some empirical evidence for the conjecture that that feeling is a negative one for the patient. The results at 12 months post-MI resembled Clarke's (1994) at three months post-MI.

Emotional Impact of the MI

At 12 months post-MI, the incidence of clinically significant anxiety for the patients was 10%. This is consistent with the three to 17% of severe anxiety in post-hospital MI patients found in other studies (Clarke, 1994; Doehrman, 1977; Doerfler et al., 1994; Kutz et al., 1988; Mayou et al., 1978a; Stern et al., 1977; Sykes et al., 1989). The persistence of patient anxiety at 12 months post-MI raises the question of coping styles, especially in light of the finding that patients' anxiety scores did not correlate with variables such as confidence regarding recovery and functional ability. Whether the patient's anxious state is related to coping styles rather than situational variables needs to be examined in more depth. This finding also suggests that perhaps one is dealing not only with state anxiety but also with trait anxiety due to its persistence over one year. This is consistent with the results obtained in a study conducted by Kessler et al. (1994) of the general population in the United States (U.S.). They suggest that anxiety disorders are chronic and found that 25% of a national probability sample in the U.S. report a lifetime history of at least one anxiety disorder, and 17% report an anxiety disorder in the past 12 months. As Rose, Conn, and Rodeman (1994) suggest, mental health interventions should emphasize teaching post-MI patients to manage their own individual anxiety, instead of directly intervening to reduce current levels of anxiety.

The incidence of clinically significant depression was 22%. This is consistent with the 20 to 30% of depression in post-MI patients of up to one year in other studies (Carney et al., 1988; Clarke, 1994; Doehrman, 1977; Griego, 1993; Stern et al., 1977; Wells et al., 1993). This indicates that depression in patients post-MI is a significant problem, in that the population norm for depression at any time is three to seven percent (Schleifer et al., 1989). According to Kessler et al.'s 1994 study, 17% of the U.S. population report a history of a major depressive episode in their lifetime, and 10% report a major depressive episode in the past 12 months. There is mounting evidence that depression in the post-MI population is associated with poor adherence to cardiac rehabilitation and risk factor modification (Blumenthal et al., 1982; Guiry et al., 1987) and increased risk of reinfarction and mortality (Carney, Freedland, Rich, & Jaffe, 1995; Frasure- Smith et al., 1993; Garrity & Klein, 1975; Ladwig et al., 1991; Silverstone, 1987; Stern et al., 1977). Therefore, post-MI patients with clinical depression require treatment for the depression to improve both psychosocial and medical outcomes.

The significant inverse correlation found between patients' self-efficacy and depression suggests that the less confident the patient is in successfully performing customary premorbid activities, the more depressed he is. Clarke (1989, 1994) demonstrated a similar finding and concurs with this suggestion. Whether low estimation of function is a self-fulfilling prophecy or an accurate assessment of patients' abilities remains to be seen. Because it is related to depression, self-confidence should be addressed when treating depression. Lack of self-confidence can be viewed as a "red flag" for further assessment and treatment.

Anxiety and depression in spouses post-MI is also a significant problem. At 12 months post-MI, the incidence of clinically significant anxiety for wives was 18% and the incidence of clinically significant depression for wives was 29%. These findings are consistent with those of others who investigated spousal anxiety and depression post-MI (Bramwell & Whall, 1986; Clarke, 1994; Christman et al., 1988; Croog, 1983; Langeluddecke et al., 1989). The finding that higher levels of anxiety and depression were reported by the wives than were reported by the patients concurs with Clarke (1994) and Michela (1987). This further concurs with Kessler et al. (1994) who found that U.S. women have higher lifetime and 12-month prevalences of anxiety and affective disorders than men. It is possible that the sense of responsibility the spouses feel for their husbands' survival and well-being accounts for the higher levels of anxiety and depression and should therefore be addressed when treating wives' anxiety and depression post-MI.

The significant inverse correlation between wives' anxiety and patients' self-efficacy suggests that there may be a tempering of patients' confidence by wives' anxiety, and that if this anxiety is treated effectively, one of the barriers to patients' resumption of customary premorbid activities may be removed. In Cooley's (1922) concept of the "looking-glass self" one determines one's view of oneself from interpreting other people's reaction to oneself. The wife provides the effect of the "looking-glass self" because her husband sees her concern and anxiety whenever he looks at her. This image may then reinforce the patient's own fears and doubts he has about himself. The interpretation the wife places on the situation and how she thinks her husband's recovery should be carried out, will influence her husband's response (Skelton & Dominian, 1973). If she holds divergent views then there will be difficulties when her husband begins his recovery. Gentry, Doyle, and Williams (1975) and Hentinen (1983) suggest that by providing the wife with accurate information there will be a positive effect on the patient.

For both patients and wives, anxiety and depression scores were highly correlated. This suggests that health care workers should treat both variables in order to make an impact on patients' and wives' emotional recovery. It has been suggested (Clarke, 1994) that a self-report paper and pencil questionnaire may not differentiate between clinical anxiety and depression per se, but may instead measure a more global state of distress. A clinical evaluation would be beneficial in either differentiating between the two conditions or in verifying the presence of both. The concept of mixed anxiety-depression, a disorder in which the patient does not fulfill all the criteria for either anxiety or depression, but has sufficient symptoms of each to be significantly distressed, would be another area for future inquiry (Clark & Watson, 1991).

Unlike Clarke's (1994) findings at three months post-MI, at 12 months post-MI, wives' anxiety and depression scores were not related to patients' anxiety and depression scores. Clarke (1994) suggests that patient and wife may be experiencing similar emotions and, therefore, intervention should be directed at the couple. However, by 12 months post-MI patient and wife may be becoming more independent people who are not influencing each other's emotions as they were at three months post-MI. Therefore, intervention with the couple may need to be modified, illustrating the notion that the time the patient and wife are seen will play a role in the choice of approach to treatment following an MI.

Overprotectiveness

Patients who perceived themselves to be overprotected by their wives reported higher levels of anxiety and depression, a poorer quality of life, a lower level of family functioning, more perceived criticism, and less of a sense of caring from their wives at 12 months post-MI, just as they did at three months post-MI (Clarke, 1994).

Anecdotal reports of wives attempting to shield their husbands from further cardiac damage illustrate the wives' attempt to regain some control in a milieu of anxiety and powerlessness (Levin, 1987). While it was hypothesized that patients' perception of being overprotected would be positively correlated with the wives' anxiety and inversely correlated with the wives' estimate of their husbands' functioning, this was not supported by the data at three months post-MI (Clarke, 1994) and at 12 months post-MI. Neither wives' anxiety nor confidence in their husbands' recovery were operative in the overprotective behavior perceived by their husbands.

A possible explanation for these findings may be the correlations between a perception of overprotectiveness and high levels of patients' anxiety and depression. Clinically, it is recognized that patients who are emotionally distressed may be more susceptible to and more readily aggravated by stimuli in the environment (Clarke, 1994). The instrument used both in this study and in Clarke's (1994) study did not measure the wife's overprotective behavior; it examined the patient's perception or misperception of that behavior. Consequently, it may not be the wife's behavior intrinsically, but rather the patient's perception of it that is functioning here.

The finding that overprotectiveness was related to patients' perception of greater criticism and less caring from wives and was inversely related to satisfaction with family relationships, further strengthens the concept that if the patient is displeased about features of the relationship, his perceptions may be colored. In the same vein, Baker, Kazarian, and Marquez-Julio (1994) noted that hypertensive patients with psychiatric complaints perceived their social environment differently and perceived more overprotectiveness than did hypertensive patients without psychiatric complaints.

An analysis of the correlation verification plot between Peel scores and overprotectiveness scores suggests that patients with the most cardiac damage may perceive their wives as justly concerned and therefore do not perceive their behavior as overprotective. Patients with the least cardiac damage on the other hand, may perceive their wives' behavior as overprotective and interfering with their autonomy and competence.

Initially, patients who have experienced an MI are faced with a loss of control. They are uncertain about the future and are unable to function independently. In order to regain a sense of control, they require the assistance of others. However, they are often overwhelmed with the assistance offered by others once they return home. In order to preserve a sense of self-worth they must attempt to balance their needs with available supports. An integral part of this balancing of needs and supports is the skill of requesting and refusing assistance.

In order to devise interventions for overprotectiveness, it would be beneficial to determine whether the wife's behavior, the patient's perception of the wife's behavior, or a merging of both is the operative factor (Clarke, 1994). The question of whether treatment should be directed at changing the wife's behavior or the patient's perception of his environment should be addressed.

Quality of Life

At 12 months post-MI, estimations of functioning made by both patients and wives were significantly correlated with quality of life, as they were at three months post-MI (Clarke, 1994). It must be considered that as self-efficacy increases, so too does quality of life. The more confident one is, the better one's quality of life becomes. Self-efficacy is amenable to being shaped during the transition of recovery and is influenced by direct performance of an activity (mastery), observation of others performing an activity (vicarious experience), verbal persuasion by a credible authority, and by the individual's physiologic state (Bandura, 1977). Nurses can be instrumental in facilitating the development of self-efficacy, thereby improving patients' quality of life. Through coaching in self-care/ recovery behaviors, assisting in setting realistic activity goals, providing accurate anticipatory guidance (sharing vicarious experiences), and challenging any illogical beliefs about behavior and activity levels, nurses can positively influence post-MI patients' self-efficacy throughout the recovery trajectory (Carroll, 1995).

Clarke (1994) suggests that the relationship between self-efficacy and quality of life could be due to the fact that there are several likenesses in item-categories between the quality of life and self-efficacy questionnaires. Both scales measure performance in social and sexual situations. In fact, the self-efficacy scale measures confidence in all the components that Spitzer (1987) claims should be assessed in an effective quality of life measure: physical functioning, mental and emotional status, and social functioning.

The finding that quality of life was related to satisfaction with family relationships, as perceived by patients at three months post-MI (Clarke, 1994) and by wives at 12 months post-MI, could also be due to the fact that both measurements examine performance in social situations, particularly spousal relationships.

Unlike Clarke's (1994) finding at three months post-MI that patients' quality of life was related to wives' anxiety, at 12 months post-MI patients' quality of life was not related to wives' anxiety. This reinforces the notion that patients' and wives' emotional states are closely related at three months post-MI, but not at 12 months post-MI. However, the significant correlation between overprotectiveness and quality of life at both three months post-MI (Clarke, 1994) and at 12 months post-MI infers that wives' coping may be related to the patients' all-around adaptation.

Quality of life was also found to be related to patients' anxiety and depression scores at 12 months post-MI, as it was at three months post-MI (Clarke, 1994). The quality of life scale used in this study included a measure of psychological adaptation, as called for in the literature. However, the items related to psychological distress comprised only one of the six subscales. Because the PAIS is a relative frequency measure of quality of life, total scores on the scale provide an intimation of how the illness impedes activities of daily living and routine functioning, but does not provide an intimation of whether or not that is sufficient for the patient (Clarke, 1994). The significant correlation between quality of life and cardiac functional capacity at 12 months post-MI, consistent at three months post-MI (Clarke, 1994) and at six months post-MI on another population (O'Brien, Buxton, & Patterson, 1993), suggests that the more the illness interferes with activities of daily living and usual functioning, the poorer the quality of life. The question remains whether or not the quality of life is satisfactory for the patient.

Cardiac Functional Capacity

The cardiac recovery scores showed a group of patients at 12 months post-MI that was generally recovering well, and that was experiencing little or no functional limitation as a result of the MI. Consequently, results should be interpreted carefully, and further research with a larger group of subjects with more severe functional limitation is recommended (Clarke, 1994).

Patients' self-efficacy and wives' estimation of their husbands' functioning at 12 months post-MI were found to be related to cardiac functional capacity, as they were at three months post-MI (Clarke, 1994). This finding suggests either that patients are influenced by a reflected sense of confidence that comes from their spouses and by an inwardly generated self-confidence or that patients and wives have a realistic sense of the patients' abilities. A study by Clarke (1989) found that self-efficacy estimates drawn by patients correlated significantly with real exercise tolerance on a treadmill test. This suggests that self-efficacy is a valid estimation of a patient's abilities. Whether this relationship between estimation of function and actual cardiac functional abilities is a self-fulfilling prophecy related to optimism and confidence or a realistic assessment of capacity for recovery requires further investigation.

Limitations

There are several limitations which must be addressed in this study. One was the small sample size and, therefore, the small number of patients and wives who were having adaptation and/or cardiac problems. Statistical analyses regarding the cardiac functional classifications lacked power due to the narrow range of scores.

This was a convenience sample recruited from a white, male, middle class or working class, and primarily urban population of MI patients admitted to four different teaching and community hospitals. Participation in the study was voluntary and, therefore, further self-selected. For these reasons, generalization of the results must be limited to similar populations.

Extraneous variables such as premorbid personality (neuroticism, TABP), premorbid mental health, marital quality prior to MI, perceptions of illness, coping styles, developmental tasks, use of cardiac medications, typical psychosocial stressors, and use of rehabilitation and self-help interventions were not controlled for. Some couples experienced psychosocial traumas, such as loss of employment or parents, that made control of emotional variables difficult and that reinforced the need for individualized assessment and treatment planning. Some couples participated in activities, such as self-help reading, private counselling, cardiac rehabilitation exercise programs (ReH-Fit), and couple-focused (Heartmates) psychoeducational sessions, that could not be controlled ethically and statistically due to their diverse benefits.

This study used a self-report survey. One disadvantage to such a survey is that subjects may either inadvertently or intentionally bias their answers (responder bias). As survey information is somewhat superficial, it only can be used in extensive and not intensive analysis. One may establish correlational relationships using survey data, but one cannot infer cause-and-effect relationships.

Implications for Nursing Practice

Prior to the development of theories about the implications for nursing practice which arise from the research in this thesis, it must be stressed that the event of MI changes not only the patient's life, but also the lives of those closely associated with him, forever. It therefore follows that the process of coping is one which is indefinite. Nothing in that patient's life will ever be the same. The threat of subsequent adverse events, such as angina, recurrent MI or even death, is something which will forever bear on the course of his life and which will undoubtedly influence his decision making and behavior. It is crucial that nurses keep this in mind, in their attempt to be of optimal assistance to both patients and their families. Equally important is that nurses do not generalize patients' behaviors, but treat each new patient as a new situation and recognize that each new patient is unique. Therefore, ongoing individual assessment and evaluation are paramount to the successful treatment of patients. The sheer complexity of psychological responses to MI makes it entirely possible to experience completely different phenomena from patient to patient.

There are several factors of which nurses must be aware if their assistance and treatment of MI patients is to have any measured success. As a significant number of MI patients and spouses exhibit signs of anxiety and depression well after the actual MI, nurses must be alert to this so that they may follow appropriate courses of action. They must endeavor to maintain open lines of communication, not only between themselves and their patients, but also between themselves and the families of their patients, as well as between patients and their families.

As one of the goals of rehabilitation following MI is the resumption of as satisfactory and productive a life under the circumstances, a goal of nurses must be the elimination of as many physical, psychological impediments to that end. They must therefore attempt to understand the real-life situation of each patient, in order to help him minimize risks for further physical problems, and in order to help him normalize his life experience. To do that, nurses should assist patients in anticipating and accepting feelings such as weakness, fatigue, and depression, rather than allowing those feelings to overcome them and cause further depression.

Family and significant others can also facilitate the patient's transition from feeling lost to feeling more in control, and nurses must educate these important "peripheral" patients in how to do so. They can help alleviate fear and anxiety and work to assist the patient to take or regain control of his life. Nurses must also work with families to reinforce the positive aspects of a patient's life. Together, they should attempt to reinforce patient self-esteem and help the patient follow the road to as fulfilling and normal a life as possible.

Finally, nurses must refer patients and families to the appropriate therapy and/or support groups where necessary. This should be possible if nurses are well in tune with their patients.

All of the implications for nursing practice should ultimately contribute to the amelioration of conditions and care for MI patients. Nurses, who play an integral role in the rehabilitation process of these patients, must recognize their own vital importance and work hard to keep the process going smoothly. Nurses should consider themselves guides helping cardiac patients and their families through the twists and turns of the recovery journey. Recovery is an uncertain trip over treacherous terrain. The journey may be difficult, but with nurses' help cardiac patients and their families can find their way to renewed vitality, joy, and love (Levin, 1993).

Recommendations for Future Research

Further study is indicated with a larger sample to support or refute these findings. More specifically, the following studies are recommended:

1. Replication of this study with a larger sample size, using random sampling to allow for greater generalization of the findings.

2. Replication of this study using both female and male patients to determine gender differences for patient and spousal role in relation to variables measured.

Unfortunately, both of these recommendations may be difficult to implement, given the nature of the clinical population involved. Female patients with MI tend to be fewer in number and older. They are more likely to be widowed. Older patients may have limitations, such as difficulty reading or writing, which would disqualify them for the study. In addition, informed consent and the necessity of having both members of the couple consent to participate mean that random selection or consecutive selection may be difficult.

3. Replication of this study with a larger group of patients with more severe functional limitation.

4. Replication of this study using a comparison group of matched age couples to control for the extraneous variables of developmental tasks and typical psychosocial stressors.

5. A longitudinal survey study comparing the results obtained at initial hospitalization, three months and 12 months post-MI to evaluate the course of this sample of myocardial patients and their wives in respect of the variables that represent recovery after infarction.

6. Studies to examine the benefits that treating depression might have on cardiac invalidism, cardiac morbidity, or on survival rates for post-MI patients. Of critical importance in the design of future intervention studies, the improvement of

cardiac care, and the study of possible mediating mechanisms is clarification of the question of whether it is only major depression that affects the course and outcome of coronary disease, or whether minor or subclinical depression, grief reactions, or even transient demoralization do as well. Perhaps future studies need to stratify heterogeneous samples by depression severity or subtype. Researchers must be cautious when stratifying depression severity or subtype, because cardiac patients characteristically downplay the depressive symptomatology, and therefore, the full clinical picture of major depression is not often found (Zung, George, Woodruff, & Mahorney, 1984).

7. Studies to examine the concept of mixed anxiety-depression or a secondary analysis of the anxiety and depression data from this study with recoding as mixed anxiety-depression.

8. Studies on overprotectiveness, which concentrate on an absolute measure or depiction of the wives' behaviors, an interpretation of why these are prevalent, and how patients and wives are perceiving those behaviors.

For these studies, consideration must be given to the particular time frames, because the ideal timing of support after an MI appears to be more complex than previously suspected. While some patients may respond well at a given time post-MI to support, others may not, and may require more or less time to adjust to external control. Still, other patients may never desire external control and may be anxious to regain and retain personal control.

The neurotic tendencies of the patients must also be considered because overprotectiveness could be seen to cause cardiac invalidism due to the detrimental effects of overprotecting individuals with neurotic tendencies.

9. Studies in which the couple in question is gay male or lesbian, which concentrate on aspects of overprotectiveness.

10. Studies to examine whether quality of life is satisfactory for the patient. Following the MI, patients' quality of life often evolves for the good or bad. Researchers should conduct studies which examine how patients actually feel about these changes, bearing in mind patients' philosophical beliefs.

11. Studies to examine the changes in the quality of life of families of MI patients, and the levels of satisfaction with these changes which family members experience, keeping philosophical beliefs in mind.

12. Studies to examine whether the relationship between estimations of function and actual cardiac functional abilities is a self-fulfilling prophecy or a realistic assessment of capacity for recovery.

Conclusion

The purpose of this study was to investigate the emotional recovery of patients and their spouses 12 months post-MI. The emphasis was on correlations between variables including anxiety, depression, quality of life, perceived overprotectiveness, perceived criticism and caring, self-efficacy, satisfaction with family functioning, cardiac functional capacity, and Peel Index.

The results obtained from the data in this thesis indicate that nurses and other health care professionals must consider not only physical but also emotional progress if MI patients are to have a favorable recovery.

It is evident that not only the patient, but also his spouse and family must be taken into consideration in the rehabilitation process, and that programs set up with the goal of rehabilitation from MI must take into account a whole host of factors other than physical ones. It is also apparent that a key factor in determining the most successful cardiac rehabilitation programs is the perceptions, not only of the health care workers involved, but of the patient himself. Adding the human and emotional touch may mean the difference between successful or simply adequate recovery from MI for both patients and their spouses.

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APPENDIX A

INFORMATION FOR PARTICIPANTS

AN INVESTIGATION OF THE EMOTIONAL FACTORS IN RECOVERY FROM HEART ATTACK

There is a mounting body of research suggesting that psychological and social factors can influence recovery from a variety of medical conditions, including heart attack. This study is designed to examine the emotional impact of a heart attack for patients and their wives and to study the process of recovery. This information is important in helping to develop support and rehabilitation programs for patients and their families.

Organization of the Study:

1. While in hospital, you will be approached by a Research Nurse who will explain the study and provide a written description of it to you and to your spouse. Since the study involves questionnaires and interviews with both yourself and your spouse, each of you will be asked to sign a "Consent Form" if you are interested in participating in the study.

2. If you decide to participate in the study, you will be interviewed briefly while still in hospital by the Research Nurse and asked to fill out two short questionnaires concerning family relationships and predictions about future rehabilitation. Your spouse will be asked to complete the same questionnaires, plus two additional short questionnaires concerning her emotional reactions to your illness.

3. Three months after your discharge from the hospital, you will be contacted by a Research Assistant who will arrange to deliver a set of questionnaires to you and to your spouse. These questionnaires will focus on expectations for recovery, factors which are helpful in coping with illness, and the emotional impact of the illness on you and your family. The entire package of questionnaires will take approximately one hour to complete.

4. At the same time, the Research Assistant will arrange for a separate interview with you and with your spouse. Each interview, which will take approximately one hour, will be conducted in your home with a trained interviewer from the University of Manitoba. The interview is designed to collect information about emotional responses (including anxiety and depression) following a heart attack. Approximately one fourth of the people interviewed will be interviewed again by a different interviewer one week later. This is not a test of your memory or your accuracy, but rather is a check on the accuracy of the interviewer.

5. The same process (questionnaires and interviews with yourself and your spouse) will be repeated twelve months after your heart attack.

Research Staff:

This study is a joint project between the Departments of Cardiology and Psychology at the University of Manitoba. The principal investigators of the study are (1) Ms Diana Clarke, R.N., M.A., a Clinical Nurse Specialist at St. Boniface General Hospital and a Doctoral (Ph.D.) Candidate in the Department of Psychology, University of Manitoba, and (2) Dr. John Walker, Clinical Psychologist, Coordinator of the Anxiety Disorders Clinic at St. Boniface General Hospital. If you have any questions about the study at any time, please call Ms Clarke at 237-2817 or Dr. Walker, at 237-2606.

Post-MI Rehabilitation:

During the time you are involved in this study, you are asked to continue with your normal course of rehabilitation and treatment as prescribed by your physician.

Access to Medical Information:

You will be asked to give written permission for the primary researcher (Ms Diana Clarke) to have access to your medical records in the hospital and to contact your physician for information regarding your physical recovery. Your attending physician will be informed about your participation in this study.

Confidentiality:

All information you provide will be treated with the strictest confidence. Your identity will not be revealed and your privacy will be maintained. Although your doctor will give medical permission for your participation in this study, she or he will not receive any information about you from the study. The information which you provide will be pooled with that from other participants for statistical purposes and any details which may reveal your identity will be excluded from research reports.

If you decide not to participate in the study:

Participation in this study is entirely voluntary and you are free to refuse to participate or to withdraw from the study at any time for any reason. Withdrawing from the study will not in any way affect your usual treatment.

(Clarke, 1994)

APPENDIX B

CONSENT FORM - PATIENT

I have read and understand the above information about the study of post-MI recovery. I understand the study procedure, including interview and questionnaires while in the hospital and questionnaires at three and twelve months post-MI. I also understand the home interview procedure at three and twelve months post-MI.

I understand and agree that my spouse will be approached for her consent to participate in the study.

I agree that the primary researcher, Ms Diana Clarke, will inform my attending physician of my participation in the study. I also agree that Ms Clarke may have access to my medical records while in the hospital and that she may contact my physician for information concerning my recovery.

I understand that my participation is voluntary and that I may withdraw from the study at any time, for any reason, with no penalty. Withdrawal from the study will not in any way affect my usual treatment. I also understand that I my refuse to answer any questions if I so wish.

I understand that all information collected in the course of the study is confidential and may only be shared with the staff involved directly with the study. The information gathered during the study will be used for research purposes; however, any details that may reveal my identity will be excluded from research reports.

I, ______________________________, have read the above information sheet and have been informed about the nature of the study by ______________________ and consent to participate in it. A copy of this agreement has been provided to me.

______________________________ ______________________________

SIGNATURE DATE

____

WITNESS

(Clarke, 1994)

APPENDIX C

CONSENT FORM - SPOUSE

I have read and understand the above information about the study of post-MI recovery. I understand the study procedure, including questionnaires while my spouse is still in the hospital and questionnaires at three and twelve months post-MI. I also understand the home interview procedure at three and twelve months post-MI.

I understand that my participation is voluntary and that I may withdraw from the study at any time, for any reason, with no penalty. I may also refuse to answer any questions should I wish to do so. Withdrawal from the study will not in any way affect my spouse's usual treatment.

I understand that all information collected in the course of the study is confidential and may only be shared with the staff involved directly with the study. The information gathered during the study will be used for research purposes; however, any details that may reveal my identity will be excluded from research reports.

I, ______________________ , have read the above information sheet and have been informed about the nature of the study by ___________________ and consent to participate in it. A copy of this agreement has been provided to me.

________________________________ ________________________________

SIGNATURE DATE

____

WITNESS

(Clarke, 1994)

APPENDIX D

PEEL PROGNOSTIC INDEX

	Score		Score
Sex and Age:			
Men: 54 or under	0	Women: 64 or under	2
55–59	1	65 or over	3
60–64	2		
65 or over	3		
Previous history:			
Previous cardiac infarct			6
Other cardiovascular diseases or history of exertional dyspnea			3
Angina only			1
No cardiovascular disease			0
Shock:			
Absent			0
Mild – transient at onset			1
Moderate – present on admission but subsiding with rest and sedation			5
Severe – persisting despite rest and sedation			7
Failure:			
Absent			0
Few basal rales only			1
Any one or more of the following: breathlessness, acute pulmonary oedema, orthopnea or dyspnea, gallop rhythm, liver enlargement, jugular vein distention			4
Electrocardiogram:			
Normal QRS. Changes confined to R–T segment or T wave			1
QR complexes			3
QS complexes of bundle-branch block			4
Rhythm:			
Sinus			0
Any one or more of the following: A.F., paroxy.tachycardia, persisting simple tachycardia, frequent E.S., nodal rhythm, or heart block			4

Total patient score = Prognostic index

(Clarke, 1994)

APPENDIX E

COVER LETTER FOR QUESTIONNAIRE PACKAGE

Dear

Thank you for your continued participation in this research study. Enclosed are the questionnaires for the 12 month follow-up. All of the questionnaires are the same as for the 3 month follow-up so they will all be familiar to you.

As before, the total package should take about 45 minutes to an hour to complete. You don't have to complete all the questionnaires in one sitting, but they should be completed within 24 hours of each other.

As before, unless you've indicated otherwise, Donna Chubaty will be phoning you for an interview. In most instances, this interview should be shorter than the last one. Donna will also pick up the questionnaires when she visits.

I'd like to take this opportunity to thank you both for your participation in the study. When the research is completed, I will be sending you a synopsis of the results and findings. In the meantime, if you have any questions or concerns about the study, don't hesitate to call me at or or Dr. John Walker at 237-2606. Donna can also be reached at .

Thank you again and best wishes.

Diana E. Clarke, R.N., M.A.
Clinical Nurse Specialist, St. Boniface Hospital
Ph.D. Candidate, University of Manitoba

(Clarke, 1994)

APPENDIX F

SPECIFIC ACTIVITY SCALE

Please circle the most appropriate response and then follow the instructions after your chosen response.

1. Can you walk down a flight of steps without stopping?
    - a) Yes --> Go to #2
    - b) No --> Go to #4

2. Can you carry anything up a flight of 8 steps <u>without stopping</u>?
    - a) Yes --> Go to #3
    - b) No --> Can you:
    - i) Have sexual intercourse without stopping:
        - a) Yes --> Go to #3
        - b) No --> Can you:
    - ii) Garden, rake, or weed?
        - a) Yes --> Go to #3
        - b) No --> Can you:
    - iii) Roller skate, dance foxtrot?
        - a) Yes --> Go to #3
        - b) No --> Can you:
    - iv) Walk at 4 miles per hour on level ground?
        - a) Yes --> Go to #3
        - b) No --> Go to #4

3. Can you carry at least 24 pounds up 8 steps?
    - a) Yes --> Thank you. You've finished!
    - b) No --> Can you:
    - i) Carry object that are at least 80 pounds?
        - a) Yes --> Thank you. You've finished!
        - b) No --> Can you:
    - ii) Do outdoor work: Shovel snow, spade soil?
        - a) Yes --> Thank you. You've finished!
        - b) No --> Can you:

iii) Do recreational activities such as skiing, basketball, squash?
  - a) Yes --> Thank you. You've finished!
  - b) No --> Can you:

iv) Jog/walk 5 mile per hour?
  - a) Yes --> Thank you. You've finished!
  - b) No --> Go to #4

4. Can you shower without stopping?
  - a) Yes --> Thank you. You've finished!
  - b) No --> Can you:

i) Strip and make a bed?
  - a) Yes --> Thank you. You've finished!
  - b) No --> Can you:

ii) Walk 2.5 miles per hour?
  - a) Yes --> Thank you. You've finished!
  - b) No --> Can you:

iii) Bowl?
  - a) Yes --> Thank you. You've finished!
  - b) No --> Can you:

iv) Play golf (walk and carry clubs)?
  - a) Yes --> Thank you. You've finished!
  - b) No --> Can you:

v) Push power lawn mower?
  - a) Yes --> Thank you. You've finished!

5. Can you dress without stopping because of symptoms?
  - a) Yes
  - b) No

Thank you. You've finished! Thank you for your help!

(Clarke, 1994)

APPENDIX G

INFLUENTIONAL RELATIONSHIPS QUESTIONNAIRE

With reference to your wife, please answer the following questions by checking the appropriate brackets, indicating whether the statement is very like her actions and attitudes towards you, moderately like her, moderately unlike her, or very unlike her.

		very like	moderately like	moderately unlike	very unlike
1.	Speaks to me with a warm and friendly voice.	( )	( )	( )	( )
2.	Does not help me as much as I need.	( )	( )	( )	( )
3.	Often criticizes me.	( )	( )	( )	( )
4.	Lets me do those things I like doing.	( )	( )	( )	( )
5.	Seems emotionally cold to me.	( )	( )	( )	( )
6.	Appears to understand my problems and worries.	( )	( )	( )	( )
7.	Does not want me to "grow up".	( )	( )	( )	( )
8.	Likes me to make my own decisions.	( )	( )	( )	( )
9.	Is affectionate to me.	( )	( )	( )	( )
10.	Seldom disapproves of my behaviour.	( )	( )	( )	( )
11.	Gets angry at me for no reason.	( )	( )	( )	( )
12.	Does not resent me.	( )	( )	( )	( )
13.	Tries to control everything I do.	( )	( )	( )	( )

14.	Invades my privacy.	( )	( )	( )	( )
15.	Enjoys talking things over with me.	( )	( )	( )	( )
16.	Makes me feel rejected.	( )	( )	( )	( )
17.	Frequently smiles at me.	( )	( )	( )	( )
18.	Points out my weakness rather than praising me.	( )	( )	( )	( )
19.	Does not seem to understand what I Want or need.	( )	( )	( )	( )
20.	I seldom feel s/he dislikes me.	( )	( )	( )	( )
21.	Lets me decide things for myself.	( )	( )	( )	( )
22.	Makes me feel I am not wanted.	( )	( )	( )	( )
23.	Talks about my illness in a way that upsets me.	( )	( )	( )	( )
24.	Can make me feel better when I am upset.	( )	( )	( )	( )
25.	Does not talk with me very much.	( )	( )	( )	( )
26.	Puts me down.	( )	( )	( )	( )
27.	Tries to make me dependent on him/her.	( )	( )	( )	( )
28.	Feels I cannot look after myself unless s/he is around.	( )	( )	( )	( )
29.	Does not make me nervous.	( )	( )	( )	( )
30.	Gives me as much freedom as I want.	( )	( )	( )	( )

31.	Does not pick on me when I am ill.	( )	( )	( )	( )
32.	Lets me go out as often as I want.	( )	( )	( )	( )
33.	Is overprotective of me.	( )	( )	( )	( )
34.	Tends to "baby" me.	( )	( )	( )	( )

(Clarke, 1994)

APPENDIX H

FAMILY APGAR

Please check the appropriate space after each statement.

	Almost always	Some of the time	Hardly ever
I am satisfied with the help I receive from my family when something is troubling me	___	___	___
I am satisfied with the way my family discusses items of common interests and shares problem-solving with me	___	___	___
I find that my family accepts my wishes to take on new activities or make changes in my life-style	___	___	___
I am satisfied with the way my family expresses affection and responds to my feelings such as anger, sorrow, and love	___	___	___
I am satisfied with the amount of time my family and I spend together	___	___	___

(Clarke, 1994)

APPENDIX I

SELF-EFFICACY SCALE

The attached form describes various activities and tasks. Under the column marked "can do", check the tasks or activities you expect you can do NOW.

For the tasks you check under "can do", indicate in the column marked "confidence" how confident you are that you can do the task NOW. Rate your degree of confidence using a number from 10 to 100 on the scale below:

10	20	30	40	50	60	70	80	90	100
quite uncertain				moderately certain					certain

Remember, rate what you expect you could do and your confidence you can do it NOW. Even if some of the activities or situations do not seem to apply to you, try to imagine them and answer as if they were applicable.

LIFTING OBJECTS	Can do	Confidence
Lift a 10 pound object	_____	_____
Lift a 20 pound object	_____	_____
Lift a 30 pound object	_____	_____
Lift a 40 pound object	_____	_____
Lift a 50 pound object	_____	_____
Lift a 60 pound object	_____	_____
Lift a 70 pound object	_____	_____
Lift a 80 pound object	_____	_____
Lift a 90 pound object	_____	_____
Lift a 100 pound object	_____	_____
Lift a 150 pound object	_____	_____
Lift a 175 pound object	_____	_____
GENERAL EXERTION		
Capable of very light exertion	_____	_____
Capable of light exertion	_____	_____
Capable of moderate exertion	_____	_____
Capable of hard exertion	_____	_____
Capable of very hard exertion	_____	_____
Capable of extreme exertion	_____	_____

HEART RATE: The following are the usual beats per minute (BPM) for levels of activity.
Resting: 70 BPM
Moderate activity: 115 BPM
Strenuous activity: 160 BPM

	Can do	Confidence
Tolerate a HR of 90-110 BPM for:		
5 minutes	_____	_____
10 minutes	_____	_____
15 minutes	_____	_____
20 minutes	_____	_____
Tolerate a HR of 110-120 BPM for:		
5 minutes	_____	_____
10 minutes	_____	_____
15 minutes	_____	_____
20 minutes	_____	_____
Tolerate a HR of 121-130 BPM for:		
5 minutes	_____	_____
10 minutes	_____	_____
15 minutes	_____	_____
20 minutes	_____	_____

	Can do	Confidence
Tolerate a HR of 131 + BPM for:		
5 minutes	______	______
10 minutes	______	______
15 minutes	______	______
20 minutes	______	______
WALKING		
Walk 1 block (approx. 5 minutes)	______	______
Walk 2 blocks (10 minutes)	______	______
Walk 3 blocks (15 minutes)	______	______
Walk 4 blocks (20 minutes)	______	______
Walk 5 blocks (25 minutes)	______	______
Walk 1 mile (30 minutes)	______	______
Walk 2 miles (60 minutes)	______	______
Walk 3 miles (90 minutes)	______	______
JOGGING		
Jog 1 block (approx. 2 minutes)	______	______
Jog 2 blocks (4 minutes)	______	______
Jog 3 blocks (6 minutes)	______	______
Jog 4 blocks (8 minutes)	______	______
Jog 5 blocks (10 minutes)	______	______
Jog 1 mile (12 minutes)	______	______
Jog 1.5 miles(18 minutes)	______	______
Jog 2 miles (24 minutes)	______	______
Jog 3 miles (36 minutes)	______	______
CLIMBING		
Walk up several steps	______	______
Walk up 1 flight of steps	______	______
Walk up 2 flights of steps	______	______
Walk up 3 flights of steps	______	______
Walk up 4 flights of steps	______	______
PUSHING/MOVING THINGS		
Move a light object (kitchen chair)	______	______
Move a medium weight object (coffee table)	______	______
Move a fairly heavy object (arm chair)	______	______
Move a heavy object (sofa, bed)	______	______

SEX*	Can do	Confidence
1-5 minutes	_____	______
6-10 minutes	_____	______
11-15 minutes	_____	______
16-20 minutes	_____	______
More than 20 minutes	_____	______

* This item does not mean that any given length of intercourse is desirable from a psychological or physical standpoint. The time spans mentioned do not take account of the quality of a sexual experience and are not meant as prescriptions.

DRIVING		
Drive a few blocks in neighborhood	_____	______
Drive around in residential areas	_____	______
Drive on a downtown business street	_____	______
Drive on a main arterial road	_____	______
Drive on a freeway	_____	______
Drive on narrow mountain roads	_____	______

TOLERANCE OF EMOTIONAL TENSION AND STRESS		
Can tolerate mild tension	_____	______
Can tolerate some tension	_____	______
Can tolerate moderate tension	_____	______
Can tolerate substantial tension	_____	______
Can tolerate much tension	_____	______

TOLERANCE OF ANGER AROUSAL		
Can tolerate mild anger	_____	______
Can tolerate some anger	_____	______
Can tolerate moderate anger	_____	______
Can tolerate substantial anger	_____	______
Can tolerate a great deal of anger	_____	______

EMOTIONAL STRAIN

Listed below are situations that can arouse anxiety, annoyance, and anger. Imagine the feelings you might have in each situation, such as your heart beats faster and your muscles tense. Indicate whether you could tolerate now the emotional strain caused by each of the situations.

	Can do	Confidence
Attend a social gathering at which there is no one you know	____	_____
At a social gathering, approach a group of strangers, introduce yourself, and join in the conversation	____	_____
Be served by a salesperson, receptionist, waiter whose behaviour you find irritating	____	_____
In a public place, ask a stranger to stop doing something that annoys you, such as cutting in line, smoking	____	_____
In a meeting at work, respond to a colleague who tries to make you look bad	____	_____
When very angry let yourself "fly off the handle"	____	_____

FAMILY DISAGREEMENTS

Disagreement with one's spouse can produce emotional strain. Indicate whether you can tolerate the stress caused by a clash of views in each of the areas listed.

Friends	____	_____
Work	____	_____
Family finances	____	_____
Child care and parenting	____	_____
Sex relations	____	_____
Diet	____	_____

(Clarke, 1994)

APPENDIX J

ZUNG DEPRESSION SCALE

Instructions: Put a check-mark in the space next to each item to show how often you have had this feeling during the last week.

	Your feelings	None of the time	Some of the time	Good part of the time	All of the time
1.	I feel downhearted, blue and sad.	___	___	___	___
2.	Morning is when I feel the best.	___	___	___	___
3.	I have crying spells or feel like it.	___	___	___	___
4.	I have trouble sleeping through the night.	___	___	___	___
5.	I eat as much as I used to.	___	___	___	___
6.	I enjoy looking at, talking to, and being with attractive men/women.	___	___	___	___
7.	I notice that I am losing weight.	___	___	___	___
8.	I have trouble with constipation.	___	___	___	___
9.	My heart beats faster than usual.	___	___	___	___
10.	I get tired for no reason.	___	___	___	___
11.	My mind is as clear as it used to be.	___	___	___	___
12.	I find it easy to do the things I used to.	___	___	___	___
13.	I am restless and can't sleep.	___	___	___	___
14.	I feel hopeful about the future.	___	___	___	___
15.	I am more irritable than usual.	___	___	___	___
16.	I find it easy to make decisions.	___	___	___	___
17.	I find that I am useful and needed.	___	___	___	___
18.	My life is pretty full.	___	___	___	___
19.	I feel that others would be better off if I were dead.	___	___	___	___
20.	I still enjoy the things I used to.	___	___	___	___

(Clarke, 1994)

APPENDIX K

ZUNG ANXIETY SCALE

Instructions: Put a check-mark in the space next to each item to show how often you have had this feeling during the last week.

	Your feelings	None of the time	Some of the time	Good part of the time	All of the time
1.	I feel more nervous and anxious than usual.	____	____	____	____
2.	I feel afraid for no reason at all.	____	____	____	____
3.	I get upset easily or feel panicky.	____	____	____	____
4.	I feel like I'm falling apart and going to pieces.	____	____	____	____
5.	I feel that everything is all right and nothing bad will happen.	____	____	____	____
6.	My arms and legs shake and tremble.	____	____	____	____
7.	I am bothered by headaches, neck and back pains.	____	____	____	____
8.	I feel weak and get tired easily.	____	____	____	____
9.	I feel calm and can sit still easily.	____	____	____	____
10.	I can feel my heart beating fast.	____	____	____	____
11.	I am bothered by dizzy spells.	____	____	____	____
12.	I have fainting spells or feel like it.	____	____	____	____
13.	I can breathe in and out easily.	____	____	____	____
14.	I get feelings of numbness and tingling in my fingers, toes.	____	____	____	____
15.	I am bothered by stomach aches or indigestion.	____	____	____	____
16.	I have to empty my bladder often.	____	____	____	____
17.	My hands are usually dry and warm.	____	____	____	____
18.	My face gets hot and blushes.	____	____	____	____
19.	I fall asleep easily and get a good night's sleep.	____	____	____	____
20.	I have nightmares.	____	____	____	____

(Clarke, 1994)

APPENDIX L

PSYCHOSOCIAL ADAPTATION TO ILLNESS SCALE

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(Clarke, 1994)