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Evaluation of Differences in Depression, Defensiveness, Social Support, and Coping between Acute and Chronic CHD Patients Hospitalized for Myocardial Infarction or Unstable Angina

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Evaluation of Differences in Depression, Defensiveness, Social Support, and Coping between Acute and Chronic CHD Patients Hospitalized for Myocardial Infarction or Unstable Angina

by

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TABLE OF CONTENTS

LIST OF TABLES

Evaluation of Differences in Depression, Defensiveness, Social Support, and Coping between Acute and Chronic CHD Patients Hospitalized for Myocardial Infarction or Unstable Angina

Ashley Ellen Owen

ABSTRACT

The goal of this study was to examine differences in the psychological characteristics of patients admitted to the hospital for acute or chronic Myocardial Infarction (MI) or Unstable Angina (UA). Depression, anger, anxiety, curiosity, defensiveness, social support, and coping were evaluated for 165 patients (86 MI and 79 UA), who were tested on the Cardiology Stepdown Ward of Tampa General Hospital. The following psychological measures were administered to these patients: the Beck Depression Inventory (BDI), the State-Trait Anger Expression Inventory (STAXI-2), the Rationality/Emotional Defensiveness (R/ED) Scale, the Adult Form of the Coping Responses Inventory (CRI-Adult), the Interpersonal Support Evaluation List (ISEL), the Illness Perception Questionnaire (IPQ), the State-Trait Personality Inventory (STPI), and the Structured Clinical Interview (SCID-I) for the DSM - IV.

Significantly more chronic patients than acute patients met criteria for depression as measured by the SCID following admission to the hospital, and more UA than MI patients also met these criteria. However, no differences were found between the acute

and chronic MI and UA patients two weeks prior to admission. Results of this study also indicated that chronic patients and UA patients reported a greater frequency of illness symptoms and tended to cope with their heart disease through avoidant strategies. Chronic patients endorsed higher levels of state and trait anger compared with acute patients, and UA patients were less likely to believe that their illness could be cured or controlled (Control of Cure) than MI patients.

Based on the results of this study, it appears that avoidance coping may be an insufficient strategy for addressing negative emotions of chronic patients and UA patients. In addition, perceived lack of control over the success of treatment may be related to depression for UA patients. These findings have important implications for the development and implementation of interventions designed to address perceived control over treatment effectiveness and coping skills for negative emotions in the treatment and rehabilitation of cardiac patients.

INTRODUCTION

By the middle of the 20th century, coronary heart disease (CHD) had reached epidemic proportions, accounting for over half of all deaths in Western, industrialized countries. According to the American Heart Association, CHD is the leading cause of mortality in the United States, accounting for one of every five deaths. The AHA website, indicates that one American is expected to die from CHD every minute, and that someone will suffer a coronary event approximately every 29 seconds. CHD accounted for almost as many deaths in the United States in 1998 as cancer, accidents, and HIV, combined. Moreover, heart disease does not discriminate against gender, with males and females making up 50.8 and 49.2 percent of deaths from CHD, respectively (American Heart Association, 2000).

In addition to its consequences regarding loss of life, CHD has severe detrimental effects on the quality of life of persons who experience its symptoms. For example, heart disease often results in disability, loss of wages, and negative psychological reactions for those who have it. Approximately 22 percent of men and 46 percent of women who suffer a heart attack will be disabled due to congestive heart failure within 6 years (American Heart Association, 2000). Common psychological consequences of CHD also include depression, anxiety, anger, fear, guilt, and interpersonal conflict (Brannon & Feist, 1997). The medical expenses associated with CHD are an enormous burden

estimated to be more than $100 billion in 2001 by the American Heart Association (2000).

The grave consequences of cardiovascular disease in regard to loss of life, quality of life, and financial burden require that researchers and medical practitioners attend to causes and interventions for CHD in order to inform prevention and rehabilitation efforts. Recently, research on CHD has provided increased knowledge about alterable risk factors such as hypertension, smoking, and obesity, as well as improved medical and surgical treatments. The resulting intervention strategies have helped the medical community and its patients alter the progression of CHD, even reversing coronary artery damage with aggressive lifestyle interventions (Ornish, et al., 1998). Information resulting from heart research has contributed to preventative efforts, providing techniques for helping individuals to decrease their risk of developing CHD.

Application of CHD research findings have contributed substantially to a sharply declining incidence of cardiovascular events. According to the Heart and Stroke Foundation of Canada (HSFC), over the past 40 years, the rate of mortality due to cardiovascular disease had decreased in many countries, and in Canada the number of deaths due to cardiovascular disease continues to drop at a rate of 2% per year (HSFC, 1999). Nevertheless, CHD is still Canada's number one cause of mortality, and further research is needed to manage it.

Only approximately half of the variance in CHD can be accounted for by the traditional risk factors of smoking, age, gender, family history, hyperlipidemia, hypertension, and diabetes mellitus, (Weilgotz & Nolan, 2000), which leaves a great need for explanatory investigation of other relevant variables. By seeking an additional

explanatory understanding of CHD based on psychosocial behavior, researchers have gained insight into psychological factors that show considerable promise (Weilgotz & Nolan, 2000).

As early as the 1960's, researchers had begun examining the contribution of psychological characteristics to CHD. For example, in 1967, Lebovits, Shekelle, Ostfeld, and Paul examined the relationship between depression and heart disease in the Western Electric Study. To date, the most important breakthrough in research on the relationship between psychosocial factors and CHD is the recognition of the association between the Type A behavior pattern and CHD. In the Western Collaborative Group Study, it was noted that the incidence of new CHD in men classified as Type A was 3.4 times greater than that of their more relaxed Type B counterparts (Rosenman, 1967). More recent research points to the importance of anger and hostility as the atherogenic components of the Type A behavior pattern.

Finally, the nature of different manifestations of CHD can be diverse, particularly in regard to how chronic or acute the experience is. It is very important to understand psychological similarities and differences between forms of CHD to gain a better understanding of CHD manifestations and to aid in differential treatment approaches (Sydeman, 1998). Therefore, exploring the relationship between psychological characteristics associated with a chronic illness experience and different CHD disorders is an avenue of research that appears to demonstrate considerable potential.

The goal of this study was to examine the psychological characteristics of patients admitted to the hospital for Myocardial Infarction or Unstable Angina. In order to define the constructs of interest in this study, the Unstable Angina (UA) and Myocardial

Infarction (MI) manifestations of coronary heart disease are reviewed. Research on psychosocial and personality determinants of coronary heart disease (CHD) will then be examined. Specifically, both the historical and current role of Type A Behavior, Hostility, and Anger with CHD will be evaluated. Next, the role of depression in different manifestations of heart disease will be discussed. Then the role of psychological defensiveness in the adaptation of patients with MI and UA will be examined. Finally, differences in depression between patients with MI and UA will be considered in the context of psychological characteristics associated with chronic illness including perceived social support and coping responses.

PSYCHOSOCIAL AND PERSONALITY DETERMINANTS OF CORONARY HEART DISEASE (CHD)

Investigation of the relationship between psychosocial and personality variables with CHD has received increasing attention in the research literature. Because of the contribution that application of this information may offer to reducing cardiovascular risk, and therefore, loss of life, physical and psychological distress, and financial costs, psychological research examining the mental health correlates of CHD is of great importance to everyone who may potentially be affected by the profound consequences of this disease. Clearly prospective studies provide the best evidence of the nature of the contribution of these variables to CHD. Therefore an effort has been made to include these types of studies in the following literature review on psychosocial and personality determinants of CHD.

Most research on psychosocial and personality determinants of CHD has either focused on CHD without examining its components, or has emphasized the role of MI exclusively. Recent research (Sydeman, 1998) suggests important differences in psychosocial and personality characteristics of MI and UA patients. Because the major goal of this study is to compare psychosocial attributes of MI and UA patients, it is important to define the two major components of CHD.

A Myocardial Infarction (commonly called a heart attack) is a result of blood vessel disease in the heart, or Coronary Heart Disease (CHD). The Myocardial Infarction (MI) results from blockage of blood supply to the heart muscle (the myocardium), usually from atherosclerosis. Atherosclerosis is a long-standing disease process wherein

plaque builds up on one or more of the coronary arteries, progressively diminishing bloodflow through the diseased artery. If the plaque tears or ruptures, a blood clot blocks the artery and severely reduces or stops blood flow to the heart. During an MI, blockage of the coronary artery results in death of myocardial tissue (an infarction) usually accompanied by crushing or squeezing pain in the shoulders, jaw, chest, arms, or back.

Angina Pectoris is a type of temporary chest pain, discomfort, or pressure generally caused by lack of oxygen which results from restricted blood flow to the heart, or cardiac ischemia. A feeling of choking, suffocation, or crushing heaviness generally characterizes this form of CHD. Unstable Angina is a subtype of Angina Pectoris, which is characterized by at least one of three features: (1) pain that occurs at rest, or with minimal exertion, and generally lasts longer than twenty minutes, (2) it is a severe pain of new onset (within one month), (3) it is more severe, prolonged, or frequent than previously (crescendo pattern) (Braunwald, 2001). UA occurs more frequently, is more severe, and lasts longer than Stable Angina, which occurs during exertion and lasts from three to twenty minutes.

Type A Behavior Pattern and CHD

Two cardiologists, Meyer Friedman, M.D., and Ray H. Rosenman, M.D. noticed that prior to myocardial infarction, many of their patients seemed particularly ambitious, striving, competitive, hard driving, and hurried. The clinicians defined this pattern of behavioral characteristics as Type A, in contrast to Type B, a more relaxed behavior pattern lacking these characteristics (Friedman & Rosenman, 1959). As researchers

examined this observation, it became increasingly apparent that a very strong empirical relationship between the Type A behavioral pattern and CHD existed.

In 1966, Rosenman and colleagues found that the incidence of new CHD in men classified as Type A was 3.4 times greater than the incidence of new CHD in men classified as Type B. By 1981, a review panel for the National Heart, Lung, and Blood Institute (NHLBI) publicly accepted the body of evidence demonstrating this relationship. In the same announcement, they described the association of the Type A behavior pattern with increased risk of CHD in employed, middle-aged, U.S. citizens, as greater than that of age, elevated serum cholesterol, blood pressure, or cigarette smoking (NHLBI, Review Panel on Coronary-Prone Behavior and Coronary Heart Disease, 1981).

Following this, several subsequent studies failed to find a relationship between the Type A behavior pattern and CHD (Shekelle et. al, 1985; Ragland & Brand, 1988), leading researchers to question the validity of the Type A - CHD relationship (Dembroski & Williams, 1989). This uncertainty led many researchers to consider the prospect that the atherogenic components of the Type A behavior pattern could be extracted.

Matthews, Glass, Rosenman, and Bortner published a study in 1977 based on further analysis of data collected in the prospective epidemiological Western Collaborative Group Study (WCGS) involving over 3000 men in the San Francisco Bay Area and Burbank (Rosenman et al.,1964). This study indicated that previous achievement, need for achievement beyond one's job, and a tendency toward speedy activity, were Type A characteristics that did not contribute significantly to heart attacks. However, potential for hostility, experiencing anger more than once a week, anger directed outward, irritability at having to wait in lines, explosive voice modulation, and

vigorous responses to interview questions were found to be related to CHD. The theme consistent in these characteristics appeared to be anger (Spielberger & London, 1982). These findings informed other researchers who wished to investigate the possibility that the relationship between the Type A behavior pattern and CHD was best understood through examination of Type A subcomponents, particularly hostility and anger.

Hostility, Anger, and CHD

Julkunen, Idanpaan-Heikkila, and Saarinen (1993) examined Type A behavior and its subcomponents in an attempt to determine if it was the global Type A behavior pattern, or subcomponents of this construct that were pathogenic. Their findings suggested it was primarily irritability and anger that significantly predicted severe cardiac complications, and self-report questionnaires of the traditional overall TABP-construct were not associated with the prognosis of MI. Further support of the influence of anger on CHD risk was demonstrated in a prospective epidemiological study by Williams, Nieto, Sanford, and Tyroler (2001), whose findings suggested that an angry temperament places individuals without hypertension at similar risk to that of individuals who do have hypertension.

Research suggests that anger expression and control contribute substantially to the development of CHD as well. For example, Julkunen et al. (1994) found that the cynical distrust component of hostility and Anger-Control, characterized by efforts to control angry feelings, were strong psychological predictors of 2-year progression of carotid atherosclerosis, as measured ultrasonographically. Furthermore, Dembroski

(1985) found that potential for hostility and Anger-in, or individual differences in the frequency that angry feelings are held in or suppressed (Spielberger, 1992), were significantly associated with disease severity for both angina symptoms and number of myocardial infarctions. Dembroski (1985) also found that the association between potential for hostility and Anger-in was interactive. Specifically, his results indicated that potential for hostility was associated with disease end points only for participants who were high on the Anger-in dimension.

Depression and CHD

Recent studies propose that depression is a major contributor to the development of CHD. For example, several research studies have demonstrated that depression is prospectively associated with CHD (Sesso, Kawachi, Vokonas, & Sparrow, 1998; Pratt et al. 1996; Barefoot & Schroll, 1996; Anda, et al., 1993; Ford, et al., 1994). It has been suggested that vital exhaustion, typified by feelings of "unusual tiredness and lack of energy" (Appels, 1997, p. 445) prior to an MI may contribute to the relationship between depression and CHD. According to Appels, (1997) patients often report that they feel blue because it is hard for them to accept that they "do not have what it takes anymore" (p.445), indicating that these patients feel depressed in response to a loss of energy. Appels suggests that it is a sad mood "superimposed upon a state of fatigue" (p.445), that characterizes these patients.

It has also been shown that the presence of depression is related to subsequent cardiac events in patients with CHD. For example, Sydeman (1998) found that depressive symptomatology is associated with recurrent events 6 months after admission to the

hospital for patients suffering MI and UA. Carney et al. (1998) found that major depressive disorder was the best predictor of coronary events in the twelve months following diagnostic coronary angiography, and the impact of depression on mortality risk has also been demonstrated 18 months following an MI (Frasure-Smith, Lesperance, & Telajic, 1995).

Research suggests that the relationship between depression and CHD can vary for different manifestations of heart disease. For example, in a study by Sydeman (1998), UA patients appeared to be more psychologically "sick" than MI patients. Specifically, findings indicated that scores from the Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979) and current depression diagnoses generated from the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I; First, Spitzer, Gibbon, & Williams, 1997) were greater for individuals admitted for UA than for patients admitted for MI. Examining this relationship between depression with UA and MI is important because information regarding the causes of these differences is likely to direct further research and guide differential rehabilitation interventions.

Defensiveness and CHD

The role of defense mechanisms in heart disease is an issue that has been intermittently examined in the past and requires further investigation. Defense mechanisms function to reduce the intensity of painful or uncomfortable emotional states "by modifying, distorting, or rendering unconscious, the thoughts and memories of traumatic experiences" (Spielberger & Reheiser, 2000). The concept of a defense mechanism is also consistent with the information processing mechanism termed

"cognitive avoidance", recognized in the cognitive psychology literature (Watts, Tresize, & Sharrock, 1986). Cognitive avoidance is believed to occur when stimuli that are emotional in nature are less well processed and thus, less well remembered than neutral stimuli. Findings by Watts et. al. (1986) demonstrated use of this information processing mechanism in a study of spider phobics, whose ability to identify a spider in a recognition task decreased as the size of the spider increased.

The process of emotions and defensiveness in heart patients has been described by Guiry, Conry, Hickey, and Mulcahy (1987) in the following way: "the anxiety provoked by the onset of symptoms and subsequent hospital admission is initially dampened by denial, a purposeful narrowing of consciousness which probably serves to protect patients from the full significance of their situation. As denial recedes, anxiety is unmasked again, but the salient characteristic of this later phase is depression" (p.258). These authors also report that denial acts, …"as a defense which gives the patient a 'breathing space' to come to terms gradually with the traumatic situation. Depression is usually an indicator that the patient is beginning to deal realistically with the situation." (p. 259). This conceptualization of the defense mechanism as important at different stages of heart disease is supported by Doehrman (1977), who reported that anxiety and denial are emotions that tend to be experienced by patients with CHD immediately following the acute incident, whereas depression does not begin until approximately two weeks after the event.

Gentry, Foster, and Haney (1972) implicitly recognized that this pattern of coping is used by many, but not all heart patients, when they examined "denier" and "nondenier" coronary care unit patients admitted for myocardial infarction. Patients were categorized

on the basis of their response to the question: “Did you feel afraid, frightened or apprehensive at any time during your hospital stay so far?” (p. 40). Consistent with the use of denial as a defense mechanism, Gentry, Foster, and Haney (1972) found that patients who were categorized as deniers reported less state anxiety than that of normal, nonstressed individuals, whereas nondeniers experienced an elevated level of state anxiety, similar to that of psychiatric patients. In addition, deniers did not report that they perceived their health status immediately following their MI as significantly different from their general health prior to hospitalization, which would be expected in an individual who had just experienced an MI. Conversely, nondeniers did perceive the expected significant discrepancy between their health immediately following their MI and their general health. These findings suggest that, while not all MI patients experience denial, some appear to. Furthermore, these patients fail to experience the anticipated heightened anxiety or perception that their health status as changed, consistent with the use of denial as a defense mechanism.

The importance of examining denial in a study with cardiac outcomes was emphasized by Dimsdale and Hackett (1982), who reported that only after controlling for denial were they able to detect a significant relationship between the distress variables and cardiac disease. Failing to consider the role of defense mechanisms such as denial in heart disease research may confuse or distort the interpretation of other findings if an effect can only be detected after accounting for the use of defense mechanisms. Furthermore, Dimsdale and Hackett (1982), point out that failing to examine the use of denial in psychological research can make it difficult to determine in what contexts denial could be considered an effective coping strategy and in what situations it would be

more appropriate to consider it a pathological defense. Finally, Dimsdale and Hackett (1982) emphasize the importance of examining the use of denial in individuals with CHD because failure to do so would complicate the recognition and treatment of anxiety or depression in patients admitted for heart disease.

Heart disease research examining the use of defense mechanisms should also distinguish between individual manifestations of CHD to avoid contradictory research findings that may result from interactions between different forms of CHD and use of defense mechanisms. As early as 1964, results of a study by Ostfeld, Lebovits, Shekelle, & Paul, indicated that the degree to which heart disease patients use defense mechanisms depends on the form of CHD with which they have been diagnosed. In a prospective epidemiological study of 1990 forty to fifty-five year old men free of CHD, who were employed at the Western Electric Company in Chicago, these authors found differences between personality characteristics of individuals with MI and UA. At four years and five months, this study examined the relationship between premorbid measures of personality and subsequent CHD, comparing the following categories: “non-coronary” control groups, men diagnosed with angina pectoris, and men diagnosed with myocardial infarction regardless of angina diagnosis at previous examinations. Because the myocardial infarction group may have also been diagnosed with angina, a more chronic illness experience, these categories confound the chronicity of the experience for the MI group.

Despite the confounded categorization of these groups, Minnesota Multiphasic Personality Inventory (MMPI; Hathaway & McKinley, 1951) results showed very interesting differences between patients who later developed angina and MI. Specifically,

Ostfeld et al. (1964) indicated that these results suggested individuals who later suffered an MI were more emotionally "controlled" in comparison to those who later developed UA., indicating a tendency to "develop somatic symptoms as a way of resolving emotional conflicts" (p.273) were significantly higher for individuals who later developed UA than those who later had an MI. These authors also report that differences on the C scale of the Sixteen Personality Factor Questionnaire (16PF; Cattell, Saundes, and Stice, 1957) show that individuals who developed MI had a greater capacity to control emotional impulses and bodily reactions than individuals who developed UA. Although this study did not directly examine the differential use of defense mechanisms for patients with UA and MI, a defense mechanism is generally considered a method of controlling emotions that are very uncomfortable. Therefore, the findings of Ostfeld et al. (1964) have clear implications for a differential use of defense mechanisms in patients with MI and UA, indicating that such an avenue of research would be worthwhile.

Previous research has demonstrated that an 11-item defense mechanism measure, the Rationality/Anti-emotionality questionnaire (RA/Q; Grossarth-Maticek, 1980) was particularly useful for predicting coronary heart disease, as well as cancer. Specifically, in a 10-year prospective epidemiological study, the best single predictor of the development of both heart disease and cancer was a high score on this measure (Eysenck, 1985, 1994; Grossarth-Maticek& Eysenck, 1990). Spielberger and Reheiser, (2000), developed the Rationality/ Emotional Defensiveness (R/ED) scale in an attempt to improve on the clarity and specificity of the RA/Q (1980). There is evidence that the R/ED (2000) scale is able to differentiate between women with and without breast cancer, (Spielberger and Reheiser, 2000), but research is still needed to examine

relationships between the R/ED scale and heart disease, particularly the MI and UA manifestations of CHD.

Psychological Characteristics Associated with Chronic Illness and CHD

Manifestations of MI and UA in CHD patients tend to vary as a function of the chronicity of the illness. Individuals for whom an MI is the first symptomatic manifestation of CHD undergo an acute shocking, life-threatening experience, whereas the illness experience of UA patients is generally more chronic in nature. For example, in contrast to MI symptoms, symptoms associated with UA generally continue for many years subsequent to the initial diagnosis.

The acute versus chronic nature of different manifestations of CHD events is a potentially important factor in the treatment of patients with these disorders. Therefore, the psychological characteristics generally associated with chronic illness require careful examination. Previous research has shown that acute and chronic illnesses differ in regard to important psychological characteristics, such as perceived social support, coping and illness representations, and mental health (Cohen & Wills, 1985; Johnston, 1999).

Research findings provide evidence that social support has a “buffering effect” on levels of depression in chronically ill heart patients (Waltz, Badura, Pfaff, & Schott, 1988), and that the buffering effects of social support diminish dramatically with the duration of exposure to stressful conditions (Norris & Kanaisty, 1996; Lane & Hobfoll; 1992). Deterioration of the buffering effects of perceived social support would be

expected to result in higher levels of depression for chronic patients than for acute patients.

Coping strategies have also been recognized as important in adapting to the conditions of acute and chronic illness. The meta-analytic findings of Suls and Fletcher (1985) indicate that avoidant strategies initially provide more benefits than attention strategies, particularly after a severe crisis, and that attentional strategies tend to become more adaptive over time. These findings led Suls and Fletcher (1985) to conclude that attentional strategies are likely to be more effective in coping with long-term problems such as chronic illness. Consequently, it would be expected that that styles of coping would be differentially adaptive for acute and chronic patients because of differences in the chronicity of these patients' illness experiences. For example, depression would be expected to be negatively associated with avoidant coping for acute patients, whereas for chronic patients, depression is likely to be negatively associated with attention coping.

A patient's perception of his or her illness has also been identified as important in regard to the acute versus chronic experience of illness. These perceptions are reflected in specific cognitions that people have about their illness, which Leventhal et al. (1997) refer to as illness representations. The five attributes of illness representations identified by Leventhal et al. are: 1) identity; 2) cause; 3) time-line; 4) consequences; and 5) controllability. These components of illness representations have been described by Weinman, Petrie, Moss-Morris, and Horne (1996).

Identity is concerned with how the patient perceives the diagnosis and associated symptoms of his or her condition (Weinman et al., 1996). The cause component addresses the patient's thoughts about the likely cause of the illness. A patient's beliefs

about the likely duration of his or her illness, specifically, whether the condition is acute/short-lasting, chronic, or cyclical/episodic, are reflected in the time-line component. The patient's ideas about how severe the illness is and its impact on his or her physical, social, and psychological functioning characterize the consequences of these representations. Finally, the control component is defined by the extent to which the patient believes his or her illness can be cured or controlled.

Weinman et al. (1996) developed the Illness Perception Questionnaire (IPQ) to examine each of five illness representations. The IPQ Identity scale is comprised of items that describe core symptoms including pain and fatigue, which are rated in terms of frequency of occurrence. The Cause scale requires that the patient rate the extent to which they agree with items which describe a perceived cause of the patient's illness. The IPQ Time-line scale asks participants to respond to items that describe the perceived duration of their illness. The Consequences scale items describe thoughts and feelings about the seriousness of the patient's illness and its effect on his or her life. The Control/Cure scale inquires about the patient's beliefs about the likelihood that his or her illness will improve.

Findings by Leventhal, Easterling, Coons, Luchterhand, and Love (1986) suggest that that certain illness representations vary with duration of illness. In a study of women with metastatic breast cancer, 29% of the patients perceived their illness to be acute and curable during the early stages of chemotherapy. However six months later, only 11% of women still held this belief. Leventhal et al. (1997) concluded that it was the shift from an acute to a chronic experience of cancer associated with the failure of chemotherapy which altered the illness representations of these patients.

Because an individual with heart disease is also likely to evaluate his or her treatment in relation to illness representations, and do so differently at acute versus chronic stages of the disease, these representations may be differentially related to acute and chronic experiences. For example, patients with more chronic experiences of CHD might perceive their treatments as less effective because treatment has not "cured" them. Therefore, it seems likely that frequency of symptoms (identity component) would increase with duration of illness, and therefore be greater for patients with chronic than for acute patients. In addition, whereas the perception of the time-line of the illness may have been acute, chronic, or cyclic in nature at onset, it seems likely that a chronic illness would be perceived as either chronic or cyclic, but not acute. Therefore, chronic patients would be expected to be associated with either chronic or cyclic representations of their illness.

Furthermore, an individual may not expect removal of undesired consequences if his or her illness has already been present for a long duration. As a result, it seems likely that perceived consequences of the illness would be greater for more chronic patients than for acute patients. Finally, one would expect that controllability of the illness would be lower for individuals who have been admitted to the hospital for recurrent symptoms than for initial symptoms of illness. This is because a patient's efforts to keep symptoms from recurring, and his or her failure to do so results in evidence contrary to the belief that he or she could exert control over the illness (MacLeod, 1999). Because individuals with acute manifestations of CHD are less likely to have experienced multiple "failures" in this context, it would be expected that control of cure would be greater for this group than for chronic patients.

Finally, while both acute and chronic illnesses may be very debilitating, the symptoms of chronic illnesses are present over a long period of time and are often not constant. This combination of characteristics may be disconcerting in that, “people with chronic illnesses may feel relatively well at times and very sick at other times, but they are never completely healthy” (Brannon & Feist, 1997, p.266). Research suggests that patients with chronic illnesses have poorer mental health as well as poorer social and physical functioning than patients with more acute conditions, (Stewart et al, 1989). These mental health differences may aid in the examination of a meaningful interpretation of Sydeman’s (1998) finding that UA patients, whose experience tends to be relatively chronic, have higher levels of depression than MI patients.

STATEMENT OF THE PROBLEM

The importance of the influence of psychological characteristics on the etiology and manifestations CHD has been widely demonstrated in the research literature. The role of emotions, such as anger and depression in the development of CHD, can be seen in a number of prospective epidemiological studies (Anda, et al., 1993; Barefoot & Schroll, 1996; Ford, et al., 1994; Pratt et al. 1996; Williams et al., 2001). In addition, studies of recurrent events illustrate the contribution of emotions to the pathogenesis of already established heart disease (Julkunen, et al., 1994; Frasure-Smith, et al., 1995; Sydeman, 1998).

While most of the research that has examined contributions of psychosocial and personality variables to CHD has evaluated only MI patients or CHD patients without regard to specific disease manifestation, several studies have noted the importance of distinguishing between different forms of CHD. In particular, Sydeman, (1998) found notable differences in depression between MI and UA patients. Those diagnosed with UA were more depressed than MI patients, as evidenced by higher BDI scores, and were substantially more likely to meet diagnostic criteria for current major depression. The present study will endeavor to cross-validate Sydeman's (1998) findings that UA patients are higher in depression than patients with MI and replicate findings from the same study indicating that depressive symptomatology predicts recurrent events in patients suffering MI.

In a prospective study conducted nearly 40 years ago, Ostfeld et al. (1964) identified important differences between individuals who later developed MI and UA, as reflected in personality characteristics indicating the use of defense mechanisms. For example, Ostfeld et al. (1964) reported that individuals who later developed MI had lower MMPI scores on the Hysteria and Hypochondriasis (corrected for K) scales, as well as higher scores on Factor C of the 16PF than individuals who later developed UA. Ostfeld et al. (1964) interpret these findings to indicate that individuals who later developed MI were more emotionally "controlled" than those who later developed UA. The implications of this study demonstrate the importance of examining the differential use of defense mechanisms in MI and UA patients. The role of defense mechanisms in depression differences between MI and UA will be explored in the present study.

Finally, the duration of CHD symptoms an individual has experienced may contribute to depression. For example, Stewart et al., (1989) report that patients with chronic illnesses have poorer mental health than patients with more acute conditions. Because patients diagnosed with UA tend to have a more chronic illness experience than those diagnosed with MI, the duration of the illness experience may account for Sydeman's (1998) finding that UA patients have higher depression than MI patients. Therefore, the chronicity of the illness experience of individuals hospitalized for MI and UA will be considered in this study to evaluate depression differences in patients with these forms of CHD. Examination of the chronic illness literature indicates that perceived social support and coping responses may help to clarify depression differences in MI and UA patients. The following hypotheses were formulated on the basis of the review of the literature:

1. UA patients will be more depressed than MI patients.
    a. A larger proportion of UA patients will meet the criteria for depression, as defined by the SCID-I.
    b. Patients with UA will have higher depression scores than MI patients as measured by total scores on the BDI and the BDI Cognitive/Affective subscale.

2. MI patients will score higher on measures of defensiveness than UA patients.
    a. MI patients will have higher scores than UA patients on the STAXI-2 Anger Control Scales (AX/Con/In and AX/Con/Out).
    b. MI patients will have higher R/ED scale scores than UA patients.

3. MI patients will report more perceived social support than UA patients as indicated by higher scores on the ISEL-SF.

4. Patients with chronic manifestations of CHD will be more depressed than those with acute CHD symptoms.
    a. A larger proportion of MI and UA patients with prior CHD events will be diagnosed with current depression on the SCID-I than MI and UA patients with acute CHD.
    b. MI and UA patients with prior CHD events are expected to score higher in depression than MI and UA patients with acute CHD.

5. Acute CHD patients will be higher in defensiveness than chronic CHD patients.

    a. Acute MI and UA patients will score higher on the STAXI-2 AX/Con/In and AX/Con/Out scales than chronic MI and UA patients.

    b. Acute MI and UA patients will have higher R/ED scale scores than chronic MI and UA patients.

6. Patients with acute manifestations of MI and UA, will have higher perceived social support scores, as measured by the ISEL-SF, than patients with more chronic forms of MI and UA.

7. Acute MI and UA patients who use avoidance coping will experience less depression. The BDI depression scores of the acute patients will correlate negatively with avoidance coping, as measured by the CRI.

8. Chronic MI and UA patients who use approach coping will experience less depression. The BDI depression scores of the chronic patients will be negatively correlated with approach coping, as measured by the CRI.

Although there is no basis for formulating hypotheses regarding the relationship between depression and attention coping for acute patients, nor for the relationship between depression and avoidance coping for chronic patients, these relationships will be evaluated. Previous research with illness representations, i.e., thoughts that patients have about their illness, was considered insufficient to formulate specific hypotheses. However, exploratory analyses of differences in the responses of MI and UA patients to the Illness Perception Questionniare (IPQ) will be examined. Although no specific hypotheses were formulated, on the basis of Sydeman's (1998) findings that UA patients had marginally higher scores on the STPI State Depression, Anxiety, and Anger scales than MI patients, differences in the scores on these measures will be evaluated, taking chronicity into account.

METHOD

Sample

Study participants were recruited from Tampa General Hospital, a large medical center serving West Central Florida, between February 2002 and April 2003. A total of 228 patients who appeared to meet diagnostic criteria for Myocardial Infarction or Unstable Angina were approached and invited to take part in the study. Approximately 79% (179 out of 228) of the total number of patients who were approached agreed to participate in the study. Following a subsequent chart review, it was determined that 18 patients were ineligible for the study because they did not meet diagnostic criteria for Unstable Angina. Thus, 165 patients met the inclusion criteria for the study and were included in analysis.

Participants ranged in age from 30 to 87 (mean= 60.32 years, median = 59 years). Patients who declined participation were significantly older (mean age=68.27) than those who participated in the study, ($\underline{F}$ (1, 212) = 19.38, p <.01.). However, no differences in the gender of patients who participated in the study and those who declined participation were found. Of patients who participated in the study, 66.1% (109) were male and 33.9% (56) were female; 63.6% (n=105) were married, 12.7% (n=21) were single, 11.5% (n=19)

were divorced, 10.3% (n=17) were widowed, .6% (n=1) were separated, and no marital status data was available for 1.2% (2) of the patients. At least 8 years of education had been attained by 91.4% of the patients; 43.6% of the patients had at least 12 years of education; 10.7% of the patients had at least a 16 years of education. Participants were predominantly Caucasian (81.8%;n=135); 16 patients (9.7%) were African American, 10 patients (6.1%) were Hispanic, 1 patient (.6%) was Asian, and 3 patients (1.8%) did not consider themselves to be a member of any of these groups.

Means and standard deviations along with frequencies and percentages for medical variables and risk factors of MI and UA patients are reported in Table 1. Statistical tests of differences between patients with MI and UA are also reported in this table. No differences were found between the MI and UA patients on Left Ventricular Ejection Fraction (LVEF) or 3-vessel disease, both of which are indicators of cardiovascular disease severity. A significantly higher proportion of UA patients received Coronary Artery Bypass Grafting surgery during hospitalization (X^2 (1) = 4.40, $p < .05$.), however no differences between MI and UA patients were found for other, less invasive surgical revascularization procedures (stenting and PTCA).

Four major risk factors for coronary heart disease were examined: smoking, cholesterol, hypertension, and diabetes. No differences between MI and UA patients were found for any of these risk factors. Finally, medications prescribed to patients for cardiovascular problems were obtained from the Medication Administration Records (MARs) form in the patient's medical chart. Significantly more MI patients were prescribed Ace Inhibitors than UA

Table 1.

Means and Standard Deviations Along with Frequencies and Percentages for Medical Variables and Risk Factors of Myocardial Infarction and Unstable Angina Patients and Statistical Tests of Differences

Variable	Myocardial Infarction	Percent/SD	Unstable Angina	Percent/SD	Statistic F/X^2
Severity of Disease					
Left Ventricular Ejection Fraction - M (SD)	46.94	12.95	49.43	18.54	.57
Three Vessel Disease	8	9%	10	12%	.48
Surgical Revascularization					
PTCA	24	28%	21	27%	.04
Stent	5	6%	5	6%	.02
CABG	2	2%	8	10%	4.40*
Risk Factors					
Smoker - M (SD)	41	47.7	16	20.3	13.69
Cholesterol - M (SD)	181.0	53.7	178.5	53.3	.07
Hypertension	55	65%	58	73%	1.45
Diabetes	18	21%	25	32%	2.19
Medications					
Hyper-Cholesterolemia	62	53%	56	48%	.03
Anti-Platelet Agents	75	51%	71	49%	.11
Beta-Blockers	60	55%	49	45%	1.11
Ace Inhibitors	54	59%	37	41%	4.27*
Calcium Channel Blocker	16	55%	13	45%	.10

*p<.05

patients (X^2 (1) = 4.27, p < .05.), however no differences between MI and UA patients were found for any of the other medications.

Instruments and Measures

Each participant was administered a battery of measures as well as an interview designed to assess Major Depressive Disorder. The study measures and interview are described below (see Appendix A).

Beck Depression Inventory (BDI): The BDI is a 21- item questionnaire intended to measure affective, cognitive, motivational, and physiological symptoms of depression

(Beck, Rush, Shaw, & Emery, 1978). Instructions for this instrument ask the respondent to complete the questionnaire according to how he or she has felt in the last week, including today. The range of possible scores on the BDI are 0-63, with higher scores indicating higher levels of depression. Specifically, scoring guidelines suggest that scores of 0-9 reflect a subclinical level of depression, whereas moderate depression is denoted by a score ranging from 16-23, and a severe level of depression is associated with a score of 24 or greater. Instructions for this questionnaire were also altered to address the likelihood that patients have been admitted to the hospital for less than one week. As a result, for the purposes of this study instructions ask participants to respond according to how the participant has felt since entering the hospital, including today. Subscales of the BDI measure cognitive-affective and somatic-performance dimensions of depression.

Psychometric properties of the BDI are demonstrated with the following statistics. Correlations between clinical judgment of depression and BDI scores ranged from .40 to .66 according to Steer et al. (1967). Correlations between the BDI and the Zung (1965) Self-Rating Depression Scale were reported to be .77, and correlations between the BDI and the Center for Epidemiologic Studies Depression scale (CES-D: Radloff, 1977) were reported to be .86. Finally, the split-half reliability correlation coefficient of the BDI was reported at .86 (Steer, Beck, & Garrison, 1967).

State-Trait Anger Expression Inventory –2 (STAXI-2): The STAXI-2 (Spielberger, 1999) is a 57 item self-report measure designed to assess the experience and expression of anger. However, because the primary items of interest from this scale are found on the 32-item Anger Expression scales, only this portion of the STAXI-II is administered in the present study. The three components of Anger Expression are: Anger-

in, Anger-out, and Anger Control. Anger-in is conceptualized as holding anger in or suppressing angry feelings and is measured by the 8-item Anger-in (A/I) scale. Anger-out, assessed by the 8-item Anger-out (A/O) scale, is defined as expressing anger toward other people or objects in the environment. Finally, anger control, assessed with the 8-item control of anger out (C/O) and anger in (C/I) scales, reflects an individual's attempts to

control the expression of anger. On each of the Anger Expression scales respondents are asked to report how frequently they behave in a certain manner when they feel "angry or furious" by rating themselves on the following four-point scale: 1) Almost never, 2) Sometimes, 3) Often, 4) Almost always.

Good internal consistency for the individual STAXI-2 scales can be seen in alpha coefficients for the scales ranging from .75 to .93 for females and from .72 to .94. In addition, validity studies demonstrate high correlations between the T-Anger scale and other measures of hostility, providing strong evidence of concurrent validity (Spielberger, 1999). Additional psychometric properties of the STAXI-2 can be found in the measure's test manual (Spielberger, 1999).

Rationality/Emotional Defensiveness (R/ED) Scale: The R/ED scale is a 12-item measure intended to assess the use of psychological defenses in populations with heart disease and cancer. This scale was derived from the Grossarth-Maticek (1979) 11-item structured interview questionnaire of Rationality/Anti-emotionality (RA/Q). In a 10 year prospective epidemiologic study of 1400 initially healthy participants in Yugoslavia, Grossarth-Maticek, Eysenck, & Vetter (1988) found that high scores on the RA/Q significantly predicted incidence of both ischemic heart disease and cancer. The

incidence of cancer was 40 times greater in participants who responded positively to 10 of the 11 RA/Q questions compared to individuals with lower scores. The relative risk for heart disease was 10 times greater for individuals with RA/Q scores of 10 or 11 than for persons with scores of 9 or lower.

In an attempt to improve on the clarity and specificity of the RA/Q interview Spielberger and Reheiser, (2000), developed the Rationality/ Emotional Defensiveness (R/ED) scale. For example, rather than responding with yes or no to an item, instructions for the R/ED scale ask the respondent to describe the intensity of their feelings "right now" by choosing one of the following response options: 1) Not at all, 2) Somewhat, 3) Moderately so, 4) Very much so. The items on the R/ED were designed to maintain the content of the RA/Q while adjusting for item-statements that appeared to be so extreme that they had been criticized because a "yes" response was generally considered to be implausible (e.g. "Do you always try to do what is reasonable and logical?").

The similarity between the RA/Q and the R/ED scale is reflected in Solomon's (1987) finding of a .84 correlation between the two scales for both male and female university students. In addition, good internal consistency for the R/ED was demonstrated in alpha coefficients of .80 for males and .78 for females. Finally, test-retest reliability coefficients over a 7 to 10 week interval were .73 and .63 for males and females, respectively (Spielberger, 2000).

Coping Responses Inventory - Adult Form (CRI-Adult): The CRI-Adult is a measure of eight types of coping responses to stressful circumstances. These responses are measured by the following scales: Logical Analysis (LA), Positive Reappraisal (PR), Seeking Guidance and Support (SG), Problem Solving (PS), Cognitive Avoidance (CA),

Acceptance or Resignation (AR), Seeking Alternative Rewards (SR), and Emotional Discharge (ED). Approach coping is measured by the first four scales and the second four scales are a measure of avoidance coping. The response format for all 58 items on the eight scales is based on a four-point scale varying ranging from “not at all” to “fairly often”.

Women tend to report more coping on all eight scales, particularly for Seeking Guidance and Support, Seeking Alternative Rewards, and Emotional Discharge. In addition, internal consistency estimates for both men and women are adequate, ranging from .62 to .74 for men and .58 to .71 for women. In addition, test-retest reliability coefficients for all scales indicated stability, ranging from .45 to .43, and indicating adequate psychometric properties.

Interpersonal Support Evaluation List (ISEL) – Short Form: The ISEL-SF (Pierce, Frone, Russell, and Cooper, 1996) is a 15-item measure of perceived social support derived from the 48-item Interpersonal Support Evaluation List designed by Cohen and Hoberman (1983). This measure assesses the perceived availability of the following specific support resources, each of which comprises a subscale on the ISEL-SF: 1) tangible support – perceived availability of material aid, 2) appraisal support – perceived availability of someone with whom to discuss issues of personal importance, and 3) belonging support – perception the one is a member of a group with which one can identify and socialize. Each item is endorsed on a rating scale with the following response options: completely false, somewhat false, somewhat true, and completely true. Negatively phrased items on each scale are reverse scored so that higher scores reflect greater perceived availability of the specific support resource reflected in each subscale,

and for the total score. Adequate internal consistency (Cronbach's [alpha] = 0.81) has been demonstrated for this version of the ISEL in another population of medical patients (Widows, Jacobsen, & Fields, 2000).

Illness Perception Questionnaire (IPQ): The IPQ is a measure designed to assess cognitive representations of illness. Leventhal et al. (1997) assert that patients have their own ideas about the identity, cause, time-line, consequences of their illness, and likelihood that they will be cured. The IPQ is intended to examine each of these components of illness representations on five scales. The identity scale is comprised of 12 items, to which participants are asked to rate how frequently they perceive the symptom as part of their illness using a four point scale ranging from "all of the time" to "never". The other scales, Time-line, Cause, Consequences, and Control/Cure are rated from "strongly agree" to "strongly disagree".

Internal consistency and test-retest reliability levels for the IPQ were found to be good for a population of MI patients, with alphas of the separate scales ranging from .73 to .82, and one month retest correlations ranging from .49 (timeline) to .84. Evidence of concurrent validity was demonstrated in correlations of between the IPQ and other measures of perceived health and disability as well as recent doctor visits and beliefs about recovery. For example, with a correlation of .38, Control/Cure is significantly correlated with scores on the Recovery Self-Efficacy scale (Partridge and Johnston, 1989) as well as with patients' perceived control over their heart disease (r=.42). In addition, Time-line scores are significantly negatively correlated with perceived control over heart disease (r=-.38) as well as with self-rated health (r=-.29).

State-Trait Personality Inventory (STPI): The revised state-STPI (Form Y) is a 40-item inventory with four 10-item scales for measuring state and trait anxiety, anger, depression and curiosity. Instructions for the state subscales instruct respondents to rate the intensity of their emotion by indicating "how you have been feeling since your admission to the hospital" by responding to the following 4-point scale: (1) Not at all; (2) Somewhat; (3) Moderately so; (4) Very much so. The Anxiety, Depression and Curiosity scales are worded so that they assess the absence as well as the presence of anxiety, depression and curiosity (respectively).

The revised STPI (form Y) has been standardized on large groups of high school and college students, Navy recruits, and working adults. Evidence of internal consistency for college populations in the anxiety, curiosity and anger scales is represented primarily with high alpha coefficients, ranging from .81 to .87 on the trait scales and .78 to .92 on the state scales. Evidence of convergent validity for these scales is demonstrated in extremely high correlations between these scales and other well established measures of the same construct. These correlations range from .93 to .98 for the college population. Other psychometric properties of the anxiety, curiosity, and anger scales of the STPI are reported in the STPI (Form Y) preliminary test manual (Spielberger, 1998).

Evidence for internal consistency for the depression scale is also represented in very high alpha coefficients, ranging from .91 to .93 on the trait scale and .87 to .93 on the state scale, for a college population. Evidence for convergent validity of this scale can be seen in high correlations between this scale and other well-established measures of depression. For example, the correlation between the 10-item State Depression (S-DEP) Scale (Ritterband, 1995), which comprises the STPI S-DEP subscale, and the Beck

Depression Inventory (BDI; Beck & Steer, 1987) was .65. The correlation between the S-DEP Scale and the the Center for Epidemiological Study Depression Scale (CES-D; Radloff, 1977) was .70, and the correlation between this scale and Zung Self-Rating Depression Scale (SDS; Zung, 1965) was .66.

Structured Clinical Interview for DSM - IV (SCID-I): The SCID-I is a semi-structured interview intended to be administered by clinically-trained interviewers in generating DSM-IV criteria diagnoses for psychiatric disorders, including depression (First, Spitzer, Gibbon, and Williams, 1997). The SCID-I is designed with a modular nature, and can be modified for use specific to needs a various research studies (Spitzer et al., 1992).

Consistent with DSM-IV criteria, the standard instructions for the Current Depression module of the SCID-I instruct the administrator to ask the participant to respond based on feelings present in the past two weeks. These instructions were modified by Frasure-Smith and colleagues (1995) to ask about how participants have been feeling “since you were admitted to the hospital” because these researchers assumed that many of their participants stayed in the hospital less than two weeks. The same instructional set applies to this study. The SCID-I has well-established psychometric properties (Reich & Noyes, 1987). This instrument demonstrates a fair level of inter-rater agreement, with a K-coefficient of above .60 for patient samples being assessed for major depression and lifetime diagnoses.

Procedure

Study protocols were administered by individuals trained to use the depression module of the SCID-I with the designated SCID training tapes (First et al., 1994) and supervised interview practice. Patients were contacted on the Cardiology Stepdown Ward at least 24 hours following admission to the hospital. Following review of medical charts to determine if patients met eligibility criteria, potential participants were approached in their room and introduced to the study in the following manner:

> Hello, my name is _____. I'm part of a research team at the University of South Florida that is conducting an investigation of the effects of stress on people who have heart disease, and we will really appreciate your help. The research project involves responding to several questionnaires asking about your thoughts and feelings. Your participation in our study is completely voluntary, and we will not tell anyone about the information you provide us. If you choose not to participate, your medical care will not be affected by this decision in any way. We hope that what we learn from volunteers like yourself will help with your treatment, and with the care of other cardiac patients in the future. If you are willing to take part in our study, I would like to tell you more about it. Patients who decline to participate will be thanked for their time.

All participants who agreed to participate were then informed that questions will inquire about their thoughts and feelings in relation to their illness and asked to sign the IRB approved consent forms ensuring that the patients understand the nature of the study. The investigator read the consent form to patients who indicated that they were unable to

read it due to vision problems (i.e. the patient did not have his or her reading glasses) or fatigue. Patients who agreed to participate were asked to sign three copies of the consent form: the patient was be given one copy, a second copy was placed in the patient's medical chart, and the final copy was kept in the patient's research file.

The following study questionnaires were then administered to each participant by the principal investigator or an authorized research investigator designated by the principal investigator: IT, BDI, STAXI-2, STPI trait items, R/ED, CRI, ISEL-SF, and IPQ. If patients left items incomplete, the examiner approached the patient and encouraged him or her to complete the remaining items.

Finally, following a short break, participants were asked to consider the emotions they have experienced since they were admitted to the hospital in responding to state items from the STPI and interview items from the SCID-I (First et al., 1997) current depression module. In order to compare depression experienced as a response to the CHD event with depression experienced prior to the event, the interview was also administered with symptom duration instructions requesting that the patient report depression symptoms that were present two weeks prior to hospital admission. In cases where patients expressed suicidal ideation or met SCID-I criteria for major depression, the examiner notified the attending physician by placing a notification letter into the medical chart progress notes (see Appendix B).

Results

The major goal of this study was to examine the psychological characteristics of patients admitted to the hospital for Myocardial Infarction (MI) or Unstable Angina (UA). The results are presented in three main sections. In the first section, frequencies, percentages, and chi square tests are reported for the number of acute and chronic MI and UA patients who met criteria for depression before and after admission to the hospital. The means, standard deviations, and *F*-tests of 2 X 2 ANOVAs of acute and chronic MI and UA patients for all of the psychological measures are reported in the second section, along with correlations between depression and coping for the acute and chronic patients. The findings related to the eight specific hypotheses that were examined in the present study are reported in the third section.

Acute and Chronic MI and UA Patients who Met Criteria for Depression

The frequencies and percentages of acute and chronic MI and UA patients meeting SCID criteria for depression since admission to the hospital, and for the two weeks prior to admission, are reported in Table 2. Subsequent to admission to the

Table 2.

Frequency and Percentage of Acute and Chronic MI and UA Patients Meeting SCID Criteria for Depression Since to Admission to the Hospital, and for Two Weeks Prior to Admission to the Hospital

	Since Admission		Prior to Admission	
Chronicity	MI	UA	MI	UA
Acute	1(1.7%)	2(6.3%)	5(8.5%)	5(15.6%)
Chronic	3(13.6%)	7(18.4%)	4(18.2%)	7(18.4%)

hospital, more UA than MI patients met the criteria for depression, and this difference approached statistical significance in the 2 X 2 chi square test (X^2 (1) = 2.83, p = .09.) The finding that more chronic than acute patients met criteria for depression since admission was highly significant X^2 (1) = 7.96, p < .01. No differences were found in the number of patients who met the depression criteria for the two weeks prior to admission.

Comparisons of the Scores of Acute and Chronic MI and UA Patients on all Psychological Measures

The means and standard deviations for the BDI Total scale, and for the BDI Cognitive-Affective and Somatic Performance subscales are reported in Table 3 for the acute and chronic MI and UA patients, along with the results of 2 X 2 analyses of variance (ANOVAs) of differences between the scores of these patients. Although the results of the statistical analyses were not significant, the chronic patients had slightly higher scores on the BDI Total and Cognitive-Affective scales, whereas the UA patients scored slightly higher on the Somatic-Performance scale.

The means and standard deviations and the results of the 2 X 2 ANOVAs for the STPI state and trait anxiety, depression, anger, and curiosity scales for the acute and chronic MI and UA patients are reported in Table 4. For the STPI state scales, the chronic patients had significantly higher S-Anger scores (F (1, 126) = 6.46, p = .01), and S-Dep scores (F (1, 119) = 9.56, p < .01.) than the acute patients, and these differences were highly significant. The slightly higher S-Curiosity scores of the acute patients than the

Table 3.

Means and Standard Deviations for the Beck Depression Inventory (BDI) and the BDI Cognitive/Affective and Somatic Performance Subscales for the Acute and Chronic Myocardial Infarction and Unstable Angina Patients and Statistical Tests for Group Differences

Measures	Myocardial Infarction			Unstable Angina			ANOVA F Test		
							Diag	Chron	Intact
	N	Mean	SD	N	Mean	SD			
BDI Total Scale									
Acute	54	9.63	10.22	32	10.78	8.64	.30	2.05	.00
Chronic	21	12.52	13.30	42	13.50	13.04			
Cognitive/Affective									
Acute	59	4.19	6.06	32	4.69	5.63	.01	2.53	.09
Chronic	22	6.55	8.88	43	6.30	8.93			
Somatic/Performance									
Acute	57	4.00	3.32	32	4.84	3.15	2.52	.87	.03
Chronic	22	4.45	3.95	42	5.50	3.61			

chronic patients also approached statistical significance. No differences were found in the S-Anxiety scores of the acute and chronic MI or UA patients. The T-Anger scores of the chronic patients were significantly higher than those of the acute patients (F (1, 130) = 4.58, $p < .05$), and the T-Anxiety scores of UA patients were slightly higher than those of MI patients (F (1, 131) = 2.92, $p = .09$). No differences were found in the STPI T-Dep or T-Curiosity scores of the acute and chronic MI and UA patients.

The means and standard deviations for the STAXI-2 AX Index and anger expression and control scales are reported in Table 5 for acute and chronic MI and UA patients. Although the chronic patients had slightly higher AX-Out and AX-In scores, whereas the acute patients had slightly higher AX-Con/In scores, no significant differences were found between any of these measures of anger expression and control for which there was marked variability, especially for the AX/Index scores, which are

Table 4.

Means and Standard Deviations for the STPI State and Trait Anxiety, Depression, Anger, and Curiosity Scales for the Acute and Chronic Myocardial Infarction and Unstable Angina Patients and Statistical Tests of Group Differences

Measures	Myocardial Infarction			Unstable Angina			ANOVA F Test		
	N	Mean	SD	N	Mean	SD	Diag	Chron	Intact
STPI State									
S-Anxiety									
Acute	44	17.82	6.48	27	17.93	5.57	.97	1.27	.81
Chronic	20	18.10	7.22	34	20.47	7.56			
S-Dep									
Acute	44	15.68	5.19	26	16.35	5.05	.85	9.56**	.11
Chronic	21	18.76	8.29	32	20.16	5.82			
S-Anger									
Acute	46	12.09	3.46	28	11.71	2.64	.00	6.46**	.18
Chronic	21	13.95	6.05	35	14.31	6.54			
S-Curiosity									
Acute	45	28.91	6.22	26	27.31	5.79	1.84	3.14#	.02
Chronic	21	26.86	5.82	32	25.53	5.09			
STPI Trait									
T-Anxiety									
Acute	44	19.95	4.65	27	20.07	3.84	2.92#	.96	.08
Chronic	20	20.10	5.05	34	20.76	5.22			
T-Dep									
Acute	48	15.94	6.09	28	17.04	7.60	1.43	.27	.10
Chronic	20	16.20	6.27	39	18.08	7.44			
T-Anger									
Acute	48	16.77	5.28	29	16.45	5.94	.00	4.58*	.07
Chronic	20	18.90	5.26	37	18.68	5.88			
T-Curiosity									
Acute	46	31.33	9.64	26	28.92	6.80	.74	.59	.70
Chronic	18	29.06	5.90	37	29.03	5.20			

#p<.10, *p<.05, **p<.01

Table 5.

Means and Standard Deviations for the STAXI-2 AX Index and Anger Expression and Control Scales for the Acute and Chronic Myocardial Infarction and Unstable Angina Patients and Statistical Tests for Group Differences

Measures	Myocardial Infarction			Unstable Angina			ANOVA F Test		
							Diag	Chron	Intact
	N	Mean	SD	N	Mean	SD			
AX Index									
Acute	44	27.14	13.60	25	25.68	14.60	.15	.37	.03
Chronic	19	28.26	11.58	37	27.72	14.36			
AX-Out									
Acute	51	14.10	4.59	29	13.17	3.02	.93	1.52	.08
Chronic	20	14.80	3.32	40	14.30	4.52			
AX-In									
Acute	48	15.00	4.83	28	15.14	4.70	.49	1.03	.29
Chronic	19	15.42	4.23	38	16.53	5.17			
AX-Con/Out									
Acute	49	26.37	4.58	30	25.00	5.52	.40	.05	.83
Chronic	20	25.75	5.14	39	26.00	4.78			
AX-Con/In									
Acute	49	25.02	4.96	27	25.11	5.62	.36	.56	.25
Chronic	20	23.80	5.11	39	24.87	5.70			

based on the scores of the four anger expression and control scales (AX/Index = Ax-Out + AX-In – AX-Con/Out – Ax-Con/In + 48). The means, standard deviations, and *F*-tests of analyses of the 2 X 2 ANOVAs for the ISEL and RE/D scales are reported in Table 6. Although no statistically significant differences were found for either scale, the chronic MI patients had somewhat higher scores on the ISEL than the chronic UA patients, whereas the scores of acute MI and UA patients were quite similar. The chronic MI patients also had slightly lower scores on the R/ED scale than the other groups.

Table 6.

Means and Standard Deviations for the Interpersonal Support Evaluation List (ISEL) and Rationality/Emotional Defensiveness (RE/D) Scales for the Acute and Chronic Myocardial Infarction and Unstable Angina Patients and Statistical Tests for Group Differences

Measures	Myocardial Infarction			Unstable Angina			ANOVA F Test		
							Diag	Chron	Intact
	N	Mean	SD	N	Mean	SD			
ISEL									
Acute	46	53.13	6.94	25	53.20	7.68	1.61	.02	1.73
Chronic	19	55.21	5.95	38	51.52	8.92			
RE/D									
Acute	50	38.24	6.15	29	37.90	7.83	.33	.01	.72
Chronic	20	37.05	7.33	38	38.82	6.83			

The means and standard deviations of the scores of the acute and chronic MI and UA patients on the Coping Responses Inventory (CRI) are reported in Table 7. The results of the 2 X 2 ANOVAs for the CRI Approach and Avoidance scales, and of the eight CRI subscales are also reported in this table. The UA patients had significantly higher scores than the MI patients on the CRI Avoidance Scale, (F (1, 110) =3.97, $p <$ .05), due primarily to the highly significant difference between these patients on the Emotional Discharge subscale (F (1, 124) = 6.80, $p < .01$.) The scores of the chronic patients were significantly higher than those of the acute patients on the Avoidance scale (F (1, 110)= 4.08, $p < .05$.), due primarily to the higher Cognitive Avoidance subscale scores of these patients (F (1, 126) = 3.33, $p = .07$.)

Table 7.

Means and Standard Deviations for the Coping Responses Inventory Scale and Subscales for the Acute and Chronic Myocardial Infarction and Unstable Angina Patients and Statistical Tests for Group Differences

Measures	Myocardial Infarction			Unstable Angina			ANOVA F Test		
							Diag	Chron	Intact
	N	Mean	SD	N	Mean	SD			
Avoidance Scale									
Acute	39	47.38	10.96	26	49.50	9.95	3.97*	4.08*	.97
Chronic	18	49.44	12.25	31	55.58	9.13			
Cognitive Avoidance									
Acute	45	12.16	4.26	29	12.93	4.31	1.20	3.33#	.02
Chronic	19	13.53	4.69	37	14.54	4.56			
Acceptance/ Resignation									
Acute	47	12.87	4.14	29	13.28	3.63	0.33	.90	.00
Chronic	20	13.55	4.66	36	14.00	3.87			
Seeking Alternate Rewards									
Acute	45	12.78	4.69	29	13.79	4.87	1.71	.12	.01
Chronic	20	13.00	3.58	35	14.14	4.35			
Emotional Discharge									
Acute	46	9.22	3.05	26	10.08	3.27	6.80**	1.28	1.50
Chronic	19	9.16	3.02	37	11.54	3.80			
Approach Scale									
Acute	44	65.77	17.57	28	66.00	11.85	2.14	.00	1.90
Chronic	18	62.06	14.75	35	69.71	10.74			
Logical Analysis									
Acute	45	14.62	4.72	29	14.97	4.31	1.18	.00	.44
Chronic	19	14.11	4.27	36	15.53	4.10			
Positive Reappraisal									
Acute	46	18.04	7.25	28	17.25	3.36	.02	.05	1.05
Chronic	19	17.16	4.15	37	18.38	3.99			
Seeking Support									
Acute	46	16.30	4.64	29	16.55	3.87	2.41	1.27	1.51
Chronic	20	14.50	4.47	38	16.63	3.75			
Problem Solving									
Acute	47	16.79	4.75	29	17.66	3.86	3.45#	.18	.46
Chronic	20	16.60	3.90	38	18.47	3.31			

#p<.10, *p<.05, **p<.01

The UA patients had somewhat higher scores than the MI patients on the Problem Solving subscale and this difference approached statistical significance (F (1, 130) = 3.45, p = .06.) No differences were found for the CRI Approach Scale or the Logical Analysis, Positive Reappraisal and Seeking Support subscales.

The means and standard deviations for the six scales of the Illness Perception Questionnaire (IPQ) are reported in Table 8. The UA patients had significantly higher scores on the IPQ Identity scale (F (1, 127) = 8.84, p < .01.) and the External Cause scale (F (1, 125) = 7.53, p = .01.); the Control of Cure scale scores of MI patients were significantly higher than those of the UA patients (F (1, 127) = 17.37, p < .01.) The chronic patients also had significantly higher scores on the Identity scale than acute patients (F (1, 127) = 4.05, p < .05.) No differences were found in the analysis of the scores of the acute and chronic MI and UA patients on either of the IPQ Internal Cause, Timeline or Consequence scales.

Inter-Item Reliability Estimates for Study Measures

Because patients were recently hospitalized for a severe medical disorder, the consistency with which they responded to study measures was examined. Cronbach's Alpha Coefficients were computed to evaluate the internal consistency of their responses to the measures. Alpha coefficients for the BDI total scale (α=.94), and for the BDI Cognitive-Affective subscale (α=.93) were very high. The alpha coefficient for the 5-item Somatic Performance subscale was also very good (α=.83).

Table 8.

Means and Standard Deviations for the Illness Perception Questionnaire Scales for the Acute and Chronic Myocardial Infarction and Unstable Angina Patients and Statistical Tests for Group Differences

Measures	Myocardial Infarction			Unstable Angina			ANOVA F Test		
							Diag	Chron	Intact
	N	Mean	SD	N	Mean	SD			
Identity									
Acute	44	19.27	6.27	29	22.52	5.84	8.84**	4.04*	.01
Chronic	20	21.50	5.39	38	24.55	5.39			
External Cause									
Acute	43	8.16	2.06	28	9.11	2.11	7.53**	.43	.09
Chronic	20	8.30	1.92	38	9.47	2.21			
Internal Cause									
Acute	45	10.89	3.20	29	11.41	2.32	.04	.02	1.31
Chronic	20	11.60	2.85	38	10.84	3.51			
Timeline									
Acute	44	2.89	.96	29	3.39	.67	2.36	.00	2.65
Chronic	20	3.15	.86	37	3.14	.86			
Consequence									
Acute	46	2.84	.54	27	2.76	.53	.02	.15	.33
Chronic	19	2.74	.46	38	2.78	.63			
Control of Cure									
Acute	45	3.21	.54	29	2.50	.50	17.37**	.08	.12
Chronic	20	3.22	.49	37	2.77	.63			

#p<.10, *p<.05, **p<.01

Internal consistency was also high for the state and trait STPI scales, the STAXI-2 anger expression and control scales, the R/ED scale, and the ISEL scale. For example, alpha coefficients for the STPI state and trait anxiety, anger, curiosity, and depression scales ranged from .79 to .91. Alpha coefficients for the brief 8–item STAXI-2 anger expression and control scales ranged from .77 to .85. Internal consistency for the R/ED and ISEL scales was also high, with alpha coefficients of .87 and .86, respectively.

In general, internal consistency was slightly lower for the CRI and IPQ scales and subscales. The alpha coefficient for the 24-item CRI Approach scale was .83, and those

of the 6-item CRI Approach subscales ranged from .62 to .70,The alpha coefficient for the 24- item CRI Avoidance scale was .78 and coefficients for the 6-item CRI Avoidance subscales ranged from .58 to 75. Internal consistency was particularly variable for the IPQ scales. For example, the alpha coefficients for all other IPQ scales ranged from .60 to .85 whereas, the alpha coefficient for the 6-item External Cause scale was only .22.

Intercorrelations Among Study Measures

The relationships among study measures were evaluated by examining correlations between each major scale using the Pearson Product Moment Correlation Coefficient (reported in Table 9). The BDI was highly correlated with the STPI T-Dep scale (r=.81), and moderately correlated with the S-Dep scale (r=.68). The BDI was also substantially correlated with other measures of negative emotions such as T-Anxiety (r=.79), S-Anxiety (r=.63), and Anger In (r=.60).

State and trait depression were related to other measures of negative emotion as well. For instance, correlations between the T-Dep scale and the S-Anxiety and T-Anxiety scales were .64 and .88, respectively, and the S-Dep scale had a correlation of .75 with the T-Anxiety scale, .82 with the S-Anxiety scale, and .62 with the S-Anger scale. Alternatively, both the BDI and T-Dep scales were negatively correlated with social support, with correlation coefficients of -.66 and -.64, respectively.

Table 9.

Intercorrelations Among Measures of Anxiety, Curiosity, Anger, Depression, Coping, and Illness Perceptions

	BDI	SAnx	SCur	SAng	SDep	TAnx	TCur	TAng	TDep	A/O	A/I	C/O	C/I	ISEL	RED	CRI Avoid	CRI Appro.	Identity	Extern. Cause	Intern. Cause	Time Line	Conseq	Con /Cure
BDI	1																						
SAnx	.63	1																					
SCur	-.34	-.40	1																				
SAng	.54	.60	-.40	1																			
SDep	.68	.82	-.51	.62	1																		
Tanx	.79	.69	-.44	.49	.75	1																	
TCur	-.42	-.28	.52	-.14	-.41	-.53	1																
TAng	.51	.36	-.24	.50	.43	.53	-.25	1															
TDep	.81	.64	-.47	.52	.70	.88	-.57	.52	1														
A/O	.19	.16	.02	.33	.12	.20	-.14	.64	.23	1													
A/I	.60	.46	-.38	.36	.48	.59	-.38	.46	.59	.15	1												
C/O	-.27	-.33	.20	-.27	-.32	-.38	.36	-.43	-.46	-.55	-.05	1											
C/I	-.28	-.34	.35	-.26	-.35	-.41	.45	-.42	-.45	-.43	-.19	.68	1										
ISEL	-.66	-.47	.35	-.43	-.53	-.63	.37	-.39	-.64	-.15	-.58	.22	.37	1									
RED	-.36	-.24	.27	-.22	-.29	-.35	.48	-.46	-.48	-.48	-.11	.68	.64	.30	1								
CRI Avoid	.43	.35	-.19	.43	.43	.42	-.12	.42	.37	.15	.42	-.09	-.08	-.37	-.03	1							
CRI Appro.	.00	-.07	.41	-.04	-.13	-.11	.19	.13	-.11	.14	-.03	.03	.15	.08	.22	.32	1						
Identity	.43	.34	-.08	.30	.42	.42	-.15	.38	.32	.17	.22	-.21	-.04	-.29	-.08	.44	.33	1					
Extern. Cause	.05	.08	.09	.09	.10	.00	-.03	.07	-.04	-.06	.05	.07	.09	-.02	.08	.04	.22	.26	1				
Intern. Cause	.32	.24	-.01	.04	.18	.28	-.12	.21	.31	.13	.37	-.01	-.11	-.24	-.08	.09	.15	.18	.15	1			
Time line	.18	.26	-.17	.16	.23	.16	-.08	.20	.10	.14	.11	-.08	-.14	-.06	-.04	.21	.13	.26	.02	.23	1		
Conseq	.43	.39	-.13	.15	.32	.38	-.13	.21	.35	.08	.36	-.03	-.13	-.26	-.12	.22	.04	.31	.05	.39	.27	1	
Con/Cure	-.21	-.13	.37	-.20	-.32	-.27	.27	-.12	-.20	-.10	-.09	.17	.26	.24	.15	-.18	.05	-.26	-.17	.18	-.23	-.03	1

Measures of anger control and defensiveness were moderately correlated with one another. For example, the R/ED scale had a correlation of .64 with the AX/Con/In scale and .68 with the AX/Con/Out scale. The AX/Con/In and AX/Con/Out scales were correlated .68 with one another. Correlations among other measures of anger and negative emotions were also moderate, but notable. For instance, the correlation between the S-Anger and S-Anxiety scales was .60 and the correlation between the T-Anger and AX/Out scales was .64. In addition, AX/In and T-Anxiety had a correlation of .59. The Coping and Illness Perception scales were not substantially correlated with any of the other study measures. For instance, the highest correlation among the Coping and Illness Perception scales with any of the other study measures was.43 (BDI and Consequence scales).

Evaluation of Findings in Relationship to the Hypotheses of this Study

In keeping with the goals of the present study, eight specific hypotheses were formulated and evaluated. The findings in relation to each of these hypothesis are considered in detail.

Hypothesis 1. UA patients will be more depressed than MI patients. This hypothesis was evaluated by examining the proportion of MI and UA patients who met criteria for depression, as defined by the SCID-I, and scores of MI and UA patients on the BDI and STPI depression measures. As reported in Table 2, A larger proportion of the UA patients met criteria for depression since admission to the hospital as compared to the MI patients. However, no difference was found in the proportions of MI and UA patients who met criteria for depression during the two weeks prior to admission to the

hospital. Although no significant differences were found in the BDI total scale or subscales of the MI and UA patients, the UA patients scored slightly higher on the BDI Somatic-Performance subscale as may be noted in Table 3. These findings provide partial support for Hypothesis 1.

Hypothesis 2. MI patients will score higher than UA patients on measures of anger control and defensiveness. The second hypothesis was evaluated by examining differences in the scores of the MI and UA patients on the STAXI-2 Anger Control scales (AX/Con/In, AX/Con/Out), and on the Rationality/Emotional Defensiveness (R/ED) scale. Because no significant differences were found in the ANOVA tests of the scores of the MI and UA patients on the AX/Con/In, AX/Con/Out, or R/ED scales, hypothesis 2 was not supported (see Tables 5 and 6).

Hypothesis 3. The MI patients will report more social support than UA patients, as measured by the Interpersonal Support Evaluation List (ISEL). Differences in the perceived social support of the acute and chronic MI and UA patients were evaluated. Because no statistically significant differences were found in the 2 X 2 ANOVA of the ISEL scores of the MI and UA patients, Hypothesis 3 was not supported.

Hypothesis 4. Patients with chronic manifestations of CHD will be more depressed than acute patients. This hypothesis was evaluated by examining the proportion of chronic and acute patients diagnosed with depression as measured by the SCID and the BDI. More chronic than acute patients met the criteria for depression on admission to the hospital than acute patients, and this finding was highly significant ($p <$ .01.) Although no difference was found in the proportion of chronic and acute patients who met criteria for depression during the two weeks prior to hospital admission, the

chronic patients had higher S-Dep scores, and this difference was highly significant. These findings provide partial support for Hypothesis 4.

Hypothesis 5. Acute patients will be higher in defensiveness than chronic CHD patients. This hypothesis was examined by evaluating differences in the scores of the MI and UA patients on the STAXI-2 Anger Control scales (AX/Con/In, AX/Con/Out), and on the R/ED scale. Because no significant differences were found in the scores of the acute and chronic patients on the AX/Con/In, AX/Con/Out, or R/ED scales, Hypothesis 5 was not supported.

Hypothesis 6. Patients with acute manifestations of MI and UA will have higher perceived social support scores, as measured by the ISEL, than patients with more chronic CHD. As may be noted in Table 6, no differences were found in the ANOVA tests of differences between acute and chronic patients on the ISEL-SF. Therefore, Hypothesis 6 was not supported.

Hypothesis 7. Acute patients who use avoidance coping will experience less depression. This hypothesis was evaluated by correlating BDI total scores and CRI Avoidance scale scores for acute patients. The positive correlation found between scores for the BDI and the CRI Avoidance Coping scales (r=.43) disconfirms Hypothesis 7.

Hypothesis 8. Chronic patients who use approach coping will experience less depression. This hypothesis was evaluated by correlating BDI and CRI Approach Coping scores for chronic patients. Because the correlation between the BDI and CRI Approach Coping scales was zero, Hypothesis 8 was not supported.

DISCUSSION

The major goal of this study was to examine the psychological characteristics of patients admitted to the hospital for Myocardial Infarction (MI) or Unstable Angina (UA). The results indicated that since admission to the hospital, a larger proportion of UA than MI patients met criteria for depression as measured by the SCID. This finding provides partial support for Hypothesis 1, which predicted that UA patients would be more depressed than MI patients.

For the total group of chronic patients as compared with acute patients, a larger proportion met criteria for depression following admission to the hospital. The chronic patients also had significantly higher S-Dep scores and slightly higher BDI total scale and Cognitive-Affective subscale scores, providing partial support for Hypothesis 4, which predicted that chronic patients would be more depressed than acute patients. Further examination of the proportion of acute and chronic patients who met the SCID criteria for depression since admission to the hospital suggested that these findings were largely influenced by the greater proportion of chronic UA patients who met the SCID depression criteria.

Hypotheses 2 and 3, which predicted that MI patients would score higher than UA patients on measures of anger control, defensiveness, and social support, and Hypotheses

5 and 6, which predicted that acute patients would score higher than chronic patients on these measures were not supported by the findings of this study. The results of this study also failed to support Hypotheses 7 and 8, which predicted that acute patients who used avoidance coping and chronic patients who used approach coping would experience less depression.

Because the participants in this study varied in age from 30 to 87, possible effects of age were examined for the psychological variables for which differences in acute and chronic MI and UA patients were predicted. The participants were divided into younger and older groups based on a median split at age 60, and the data related to hypothesized differences among the younger and older clinical groups were evaluated in separate 2 X 2 ANOVAs and chi square analyses.

For the younger patients, a significantly higher proportion of UA patients (22.6%) than MI patients (6.4%) met the criteria for depression since admission to the hospital, whereas this difference only approached statistical significance for the total sample, providing stronger support for Hypothesis 1 for the younger patients. Similar to the findings for the total group, no difference was found in the proportion of UA and MI patients who met criteria for depression two weeks prior to admission in the younger or older samples. This finding indicates that younger UA patients were more prone than MI patients to experience depression in reaction to hospitalization for a cardiac event.

Several other interesting results, which were not considered in the specific hypotheses, were also found in the present study. The chronic patients had significantly higher scores in state anger and trait anger than acute patients. These findings suggest that chronicity of heart disease is associated with greater intensity of anger following

admission to the hospital and a more frequent experience of anger in general. Findings also indicate that both chronic patients and UA patients are more likely to use avoidance coping to manage their negative emotions. Higher scores on measures of both negative emotions and avoidance coping in the chronic and UA participants may indicate that these patients are managing depression and anger with an avoidance coping strategy that fails to effectively address their negative emotions.

On the Illness Perception Questionnaire (IPQ), the UA patients reported a greater frequency of illness symptoms relating to their heart problems and perceived less control over the success of their treatment. As this group was also more likely to experience depression in reaction to hospitalization for their cardiac event, it is possible that low perceived control over the success of treatment was related to the higher incidence of depression in this group. For instance, UA patients may experience greater depression due in part to the perception that they have little influence over the success of their treatment.

Patients' perception of control over the treatment of their illness may have significant implications for the likelihood that they will engage in future positive health behaviors as well. For example, research by Gump et al. (2001) emphasizing the positive relationship between perceived control and future constructive health behavior changes may suggest that these patients will be less likely to engage in positive health behavior changes following discharge from the hospital due to low perceived control over the cure of their illness.

One limitation of this study is that the Coping Responses Inventory appears to inadequately measure approach coping in reaction to recent events. For example, an item

asking a patient “Did you spend more time in recreational activities?” to cope with heart disease will not elicit a meaningful response if the patient has not left the hospital since he or she learned of this condition. Use of a measure that more specifically measures approach coping in reaction to a recent event may result in a more accurate measure of the construct for this study population.

In addition, internal consistency for the External Cause scale of the Illness Perception Questionnaire was very poor (α=.22), suggesting that it should be interpreted with extreme caution. Examination of inter-rater reliability among interviewers who administered the SCID would also have been helpful in estimating the consistency with which this instrument was administered and scored.

Because individuals collecting data for this study were not formally medically trained, another limitation of this study is the possibility of patient misdiagnosis. In an effort to minimize this possible source of error, the charts of all unstable angina patients were reviewed after they had been discharged from the hospital. While data from 18 patients were excluded from analysis upon follow-up chart review, it is still possible that a small amount of error due to misdiagnosis is contributing to findings in the study.

In addition, the generalizability of this study may be limited due to problems inherent in obtaining participants from only one site. For example, it is expected that the demographic characteristics of patients admitted to this hospital differ from those of patients admitted to a Veteran’s Administration hospital or a smaller, more rural medical facility.

In previous research, psychological variables, especially depression, were found to predict incidence of future cardiac events (Frasure-Smith, Lesperance, & Telajic,

1995). Results of the present study provide evidence for important differences in depression, anger, coping, and illness perceptions of acute and chronic MI and UA patients. Therefore, it will be essential to examine the impact of these differences on cardiac event recurrence in follow-up research. Given the evidence that psychological variables are related to recurrence of cardiac events and the implications of illness perceptions on future health behavior changes, findings from this study underscore the importance of future research on the role of emotions, coping, and illness perceptions in the treatment and rehabilitation of patients with CHD.

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APPENDICES

APPENDIX A. Instruments and Measures

BDI – II

Instructions: This questionnaire consists of 21 groups of statements. Please read each group of statements carefully, and then pick out the **one statement** in each group which best describes the way you have been feeling during the **past two weeks, including today**. If several statements in the group seem to apply equally well, circle the highest number for that group. Be sure you do not choose more than one statement for any group, including Item 16, (Changes in Sleeping Pattern) or Item 18 (Changes in Appetite).

Sadness

0 I do not feel sad.
1 I feel sad.
3 I am sad all the time and I can't snap out of it.
4 I am so sad or unhappy that I can't stand it.

Pessimism

0 I am not discouraged about my future.
1 I feel more discouraged about my future than I used to be.
2 I do not expect things to work out for me.
3 I feel that the future is hopeless and will only get worse.

Past Failure

0 I do not feel like a failure.
1 I have failed more than I should have.
2 As I look back, I see a lot of failures.
3 I feel I am a total failure as a person.

Loss of Pleasure

0 I get as much pleasure as I ever did from the things I enjoy.
1 I don't enjoy things as much as I used to.
2 I get very little pleasure form the things I used to enjoy.
3 I can't get any pleasure from the things I used to enjoy.

Guilty Feelings

0 I don't feel particularly guilty.
1 I feel guilty over many things I have done or should have done.
2 I feel quite guilty most of the time.
3 I feel guilty all of the time.

APPENDIX A. (Continued)

BDI – II (continued)

Punishment Feelings

0 I don't feel like I am being punished.
1 I feel I may be punished.
2 I expect to be punished.
3 I feel like I am being punished.

Self-Dislike

0 I feel the same about myself as ever.
1 I have lost confidence in myself.
2 I am disappointed in myself.
3 I dislike myself.

Self-Criticalness

0 I don't criticize or blame myself more than usual.
1 I am more critical of myself than I used to be.
2 I blame myself for all my faults.
3 I blame myself for everything bad that happens.

Suicidal Thoughts or Wishes

0 I don't have any thoughts of killing myself.
1 I have thoughts of killing myself, but I would not carry them out.
2 I would like to kill myself.
3 I would kill myself if I had the chance.

Crying

0 I don't cry any more than usual.
1 I cry more now than I used to.
2 I cry over every little thing.
3 I feel like crying, but I can't.

Agitation

0 I am no more restless or wound up than usual.
1 I feel more restless or wound up than usual.
2 I am so restless or agitated that it's hard to stay still.
3 I am so restless or agitated that I have to keep moving or doing something.

APPENDIX A. (Continued)

BDI – II (continued)

Loss of Interest

0 I have not lost interest in other people or activities.
1 I am less interested in other people or things than before.
2 I have lost most of my interest in other people or things.
3 It's hard to get interested in anything.

Indecisiveness

0 I make decisions about as well as ever.
1 I find it more difficult to make decisions than usual.
2 I have much greater difficulty in making decisions than I used to.
3 I have trouble making any decisions.

Worthlessness

0 I do not feel I am worthless.
1 I don't consider myself as worthwhile and useful as I used to.
2 I feel more worthless as compared to other people.
3 I feel utterly worthless.

Loss of Energy

0 I have as much energy as ever.
1 I have less energy than I used to have.
2 I don't have enough energy to do very much.
3 I don't have enough energy to do anything.

Changes in Sleeping Pattern

0 I have not experienced any change in my sleeping pattern.

1a I sleep somewhat more than usual.
1b I sleep somewhat less than usual.

2a I sleep a lot more than usual.
2b I sleep a lot less than usual.

3a I sleep most of the day.
3b I wake up 1-2 hours early and can't get back to sleep.

Irritability

0 I am no more irritable than usual.
1 I am more irritable than usual.
2 I am much more irritable than usual.
3 I am irritable all the time.

APPENDIX A. (Continued)

BDI – II (continued)

Changes in Appetite

0 I have not experienced any change in my appetite.

1a My appetite is somewhat less than usual.
1b My appetite is somewhat greater than usual.

2a My appetite is much less than before.
2b My appetite is much greater than before.

3a I have no appetite at all.
3b I crave food all the time.

Concentration Difficulty

0 I can concentrate as well as ever.
1 I can't concentrate as well as usual.
2 It's hard to keep my mind on anything for very long.
3 I find I can't concentrate on anything.

Tiredness or Fatigue

0 I am no more tired or fatigued than usual.
1 I get more tired or fatigued more easily than usual.
2 I am too tired or fatigued to do a lot of the things I used to do.
3 I am too tired or fatigued to do most of the things I used to do.

Loss of Interest in Sex

0 I have not noticed any recent change in my interest in sex.
1 I am less interested in sex than I used to be.
2 I am much less interested in sex now.
3 I have lost interest in sex completely.

APPENDIX A. (Continued)

STAXI-2

Everyone feels angry from time to time, but people differ in the ways that they react when they are angry. A number of statements are listed below which people use to describe their reactions when they feel *angry or furious*. Read each statement and then circle with the number which indicates how often you generally react or behave in the manner described when you are feeling angry or furious. Remember that there are no right or wrong answers. Do not spend too much time on any one statement.

	Almost Never	**Sometimes**	**Often**	**Almost always**
1. I control my temper.	1	2	3	4
2. I express my anger.	1	2	3	4
3. I take a deep breath and relax	1	2	3	4
4. I keep things in.	1	2	3	4
5. I am patient with others.	1	2	3	4
6. If someone annoys me, I'm apt to tell him or her how I feel.	1	2	3	4
7. I try to calm myself as soon as possible.	1	2	3	4
8. I pout or sulk.	1	2	3	4
9. I control my urge to express my angry feelings.	1	2	3	4
10. I lose my temper.	1	2	3	4
11. I try to simmer down.	1	2	3	4
12. I withdraw from people.	1	2	3	4
13. I keep my cool.	1	2	3	4
14. I make sarcastic remarks to others.	1	2	3	4
15. I try to soothe my angry feelings	1	2	3	4
16. I boil inside, but I don't show it.	1	2	3	4
17. I control my behavior.	1	2	3	4
18. I do things like slam doors.	1	2	3	4
19. I endeavor to become calm again.	1	2	3	4

APPENDIX A. (Continued)

STAXI-2 (continued)

	Almost Never	Sometimes	Often	Almost always
20. I tend to harbor grudges that I don't tell anyone about.....	1	2	3	4
21. I can stop myself from losing my temper.....	1	2	3	4
22. I argue with others.....	1	2	3	4
23. I reduce my anger as soon as possible	1	2	3	4
24. I am secretly quite critical of others.	1	2	3	4
25. I try to be tolerant and understanding.....	1	2	3	4
26. I strike out at whatever infuriates me.....	1	2	3	4
27. I do something relaxing to calm down	1	2	3	4
28. I am angrier than I am willing to admit.	1	2	3	4
29. I control my angry feelings.	1	2	3	4
30. I say nasty things.....	1	2	3	4
31. I try to relax.....	1	2	3	4
32. I'm irritated a great deal more than people are aware of.....	1	2	3	4

APPENDIX A. (Continued)

STPI Form Y-2

Directions: A number of statements that people use to describe themselves are given below. Read each statement and then darken the appropriate space on the answer sheet to indicate how you *generally* feel. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you **generally** feel.

		Almost never	**Sometimes**	**Often**	**Almost always**
1.	I am a steady person……..	1	2	3	4
2.	I feel like exploring my environment.....	1	2	3	4
3.	I am quick-tempered.	1	2	3	4
4.	I feel gloomy.	1	2	3	4
5.	I feel satisfied with myself.	1	2	3	4
6.	I am curious.	1	2	3	4
7.	I have a fiery temper.	1	2	3	4
8.	I feel happy.	1	2	3	4
9.	I get in a state of tension or turmoil as I think over my recent concerns and interests.....	1	2	3	4
10.	I feel interested.....	1	2	3	4
11.	I am a hot-headed person.	1	2	3	4
12.	I feel depressed.	1	2	3	4
13.	I wish I could be as happy as others seem to be.....	1	2	3	4
14.	I feel inquisitive.	1	2	3	4
15.	I get angry when I'm slowed down by others mistakes.	1	2	3	4
16.	I feel sad.....	1	2	3	4
17.	I feel like a failure.	1	2	3	4
18.	I feel eager	1	2	3	4

APPENDIX A. (Continued)

STPI (continued)

		Almost never	Sometimes	Often	Almost always
19.	I feel annoyed when I am not given recognition for doing good work	1	2	3	4
20.	I feel hopeless	1	2	3	4
21.	I feel nervous and restless	1	2	3	4
22.	I am in a questioning mood.....	1	2	3	4
23.	I fly off the handle.	1	2	3	4
24.	I feel low.	1	2	3	4
25.	I feel secure.	1	2	3	4
26.	I feel stimulated.....	1	2	3	4
27.	When I get mad, I say nasty things.	1	2	3	4
28.	I feel whole.	1	2	3	4
29.	I lack self-confidence.	1	2	3	4
30.	I feel disinterested.	1	2	3	4
31.	It makes me furious when I am criticized in front of others.	1	2	3	4
32.	I feel safe.....	1	2	3	4
33.	I feel inadequate.	1	2	3	4
34.	I feel mentally active.	1	2	3	4
35.	When I get frustrated, I feel like hitting someone.	1	2	3	4
36.	I feel peaceful.....	1	2	3	4
37.	I worry too much over something that does not matter.	1	2	3	4
38.	I feel bored.	1	2	3	4

APPENDIX A. (Continued)

STPI (continued)

		Almost never	Sometimes	Often	Almost always
39.	I feel infuriated when I do a good job and get a poor evaluation.	1	2	3	4
40.	I enjoy life.	1	2	3	4

APPENDIX A. (Continued)

R/ED

INSTRUCTIONS: A number of statements are listed below which people have used to describe their interactions with others. Read each statement and then circle the appropriate number to indicate how often you generally react in the manner described. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe how you generally react.

		Almost Never	Sometimes	Often	Almost always
1.	I try to do what is sensible and logical.	1	2	3	4
2.	I try to understand people and their behavior.....	1	2	3	4
3.	I try to behave reasonably in my relations with others	1	2	3	4
4.	I use intelligence and reason to overcome conflicts or disagreements with other people.	1	2	3	4
5.	When I am in a situation in which I strongly disagree with other people, I try not to show my emotions.	1	2	3	4
6.	If someone deeply hurts my feelings, I still try to treat them reasonably and to understand their behavior.	1	2	3	4
7.	I try to understand other people even if I do not like them.....	1	2	3	4
8.	I succeed in avoiding arguments with others by using reason and logic (often contrary to my feelings)	1	2	3	4
9.	If someone acts against my needs and desires, I still try to understand him/her.....	1	2	3	4

APPENDIX A. (Continued)

R/ED (continued)

		Almost Never	Sometimes	Often	Almost always
10.	My behavior in most life situations is logical and reasonable, and not influenced by my emotions.....	1	2	3	4
11.	If someone deeply hurts my feelings, I may attack them or respond purely emotionally.….....	1	2	3	4
12.	My use of reason and logic prevents me from attacking others, even if there are good reasons for doing so.....	1	2	3	4

APPENDIX A. (Continued)

CRI

Read each item carefully and indicate how often you engaged in that behavior in connection with the problem of your heart disease and its treatment. Circle the appropriate response on the answer sheet.

		Not at all	Once or Twice	Sometimes	Fairly Often
1.	Did you think of different ways to deal with the problem?.....	1	2	3	4
2.	Did you tell yourself things to make yourself feel better?.....	1	2	3	4
3.	Did you talk with your spouse or other relative about the problem?.....	1	2	3	4
4.	Did you make a plan of action and follow it?.....	1	2	3	4
5.	Did you try to forget the whole thing?	1	2	3	4
6.	Did you feel that time would make a difference-that the only thing to do was wait?.....	1	2	3	4
7.	Did you try to help others deal with a similar problem?.....	1	2	3	4
8.	Did you take it out on other people when you felt angry or depressed?..	1	2	3	4
9.	Did you try to step back from the situation and be more objective?.....	1	2	3	4
10.	Did you remind yourself how much worse things could be?.....	1	2	3	4
11.	Did you talk with a friend about the problem?	1	2	3	4
12.	Did you know what had to be done and try hard to make things work?..	1	2	3	4
13.	Did you try not to think about the problem?	1	2	3	4
14.	Did you realize that you had no control over the problem?.....	1	2	3	4

APPENDIX A. (Continued)

CRI (continued)

		Not at all	Once or Twice	Sometimes	Fairly Often
15.	Did you get involved in new activities?	1	2	3	4
16.	Did you take a chance and do something risky?	1	2	3	4
17.	Did you go over in your mind what you would say or do?	1	2	3	4
18.	Did you try to see the good side of the situation?	1	2	3	4
19.	Did you talk with a professional person (e.g., doctor, lawyer, clergy)?	1	2	3	4
20.	Did you decide what you wanted and try hard to get it?	1	2	3	4
21.	Did you daydream or imagine a better time or place than the one you were in?	1	2	3	4
22.	Did you think that the outcome would be decided by fate?	1	2	3	4
23.	Did you try to make new friends?	1	2	3	4
24.	Did you keep away from people in general?	1	2	3	4
25.	Did you try to anticipate how things would turn out?	1	2	3	4
26.	Did you think about how you were much better off than other people with similar problems?	1	2	3	4
27.	Did you seek help form persons or groups with the same type of problem?	1	2	3	4
28.	Did you try at least two different ways to solve the problem?	1	2	3	4
29.	Did you try to put off thinking about the situation, even though you knew you would have to at some point?	1	2	3	4
30.	Did you accept it; nothing could be done?	1	2	3	4
31.	Did you read more often as a source of enjoyment?	1	2	3	4

APPENDIX A. (Continued)

CRI (continued)

		Not at all	Once or Twice	Sometimes	Fairly Often
32.	Did you yell or shout to let off steam?	1	2	3	4
33.	Did you try to find some personal meaning in the situation?	1	2	3	4
34.	Did you try to tell yourself that things would get better?	1	2	3	4
35.	Did you try to find out more about the situation?	1	2	3	4
36.	Did you try to learn to do more things on your own?.....	1	2	3	4
37.	Did you wish the problem would go away or somehow be over with?	1	2	3	4
38.	Did you expect the worst possible outcome?.....	1	2	3	4
39.	Did you spend more time in recreational activities?	1	2	3	4
40.	Did you cry to let your feelings out?	1	2	3	4
41.	Did you try to anticipate the new demands that would be placed on you?	1	2	3	4
42.	Did you think about how this event could change your life in a positive way?.....	1	2	3	4
43.	Did you pray for guidance and/or strength?.....	1	2	3	4
44.	Did you take things a day at a time, one step at a time?.....	1	2	3	4
45.	Did you try to deny how serious the problem really was?	1	2	3	4
46.	Did you lose hope that things would ever be the same?.....	1	2	3	4
47.	Did you turn to work or other activities to help you manage things?	1	2	3	4
48.	Did you do something that you didn't think would work, but at least you were doing something?	1	2	3	4

APPENDIX A. (Continued)

ISEL-SF

This scale is made up of a list of statements, each of which may or may not be true about you. Please read each statement, then circle the one number that best describes how true or false that statement is about you. Remember to circle only one number for each statement.

		Completely False	Somewhat False	Somewhat True	Completely True
1.	If I had to go out of town for a few weeks, someone I know would look after my home, such as watering the plants or taking care of the pets.	1	2	3	4
2.	If I were sick and needed someone to drive me to the doctor, I would have trouble finding someone.....	1	2	3	4
3.	If I were sick, I would have trouble finding someone to help me with my daily chores.....	1	2	3	4
4.	If I needed help moving, I would be able to find someone to help me.....	1	2	3	4
5.	If I needed a place to stay for week because of an emergency, such as the water or electricity being out in my home, I could easily find someone who would put me up. ...	1	2	3	4
6.	There is at least one person I know whose advice I really trust.	1	2	3	4
7.	There is no one I know who will tell me honestly how I am handling my problems.	1	2	3	4
8.	When I need suggestions about how to deal with a personal problem, I know there is someone I can turn to.	1	2	3	4
9.	There isn't anyone I feel comfortable talking to about intimate personal problems.	1	2	3	4

APPENDIX A. (Continued)

	Completely False	Somewhat False	Somewhat True	Completely True
10. There is no one I trust to give me good advice about money matters.	1	2	3	4
11. I am usually invited to do things with others.	1	2	3	4
12. When I feel lonely, there are several people I could talk to	1	2	3	4
13. I regularly meet or talk with my friends or members of my family.....	1	2	3	4
14. I often feel left out by my circle of friends.	1	2	3	4
15. There are several different people I enjoy spending time with.....	1	2	3	4

APPENDIX A. (Continued)

IPQ

Please indicate how frequently you now experience the following symptoms as part of your heart disease.

Circle the number that corresponds to the option which applies to you.

	All the time	**Frequently**	**Occasionally**	**Never**
1. Pain.....	1	2	3	4
2. Nausea.....	1	2	3	4
3. Breathlessness	1	2	3	4
4. Weight Loss	1	2	3	4
5. Fatigue.....	1	2	3	4
6. Stiff Joints	1	2	3	4
7. Sore Eyes.....	1	2	3	4
8. Headaches	1	2	3	4
9. Upset Stomach Sleep Difficulties.....	1	2	3	4
10. Dizziness Loss of Strength.....	1	2	3	4

APPENDIX A. (Continued)

IPQ (continued)

We are interested in your own personal views of how you now see your heart disease. Please indicate how much you agree or disagree with the following statements about your heart disease.

Circle the number that corresponds to the option which applies to you.

	Strongly Agree	Agree	Neither Agree Nor Disagree	Strongly Disagree
11. A germ or virus caused my heart disease.	1	2	3	4
12. Diet played a major role in causing my heart disease.....	1	2	3	4
13. Pollution of the environment caused my heart disease.	1	2	3	4
14. My heart disease is hereditary it runs in my family.	1	2	3	4
15. It was just by chance that I became ill.....	1	2	3	4
16. Stress was a major factor in causing my heart disease.....	1	2	3	4
17. My heart disease is largely due to my own behavior.....	1	2	3	4
18. Other people played a large role in causing my heart disease.....	1	2	3	4
19. My heart disease was caused by poor medical care in the past.....	1	2	3	4
20. My state of mind played a major part in causing my heart disease.....	1	2	3	4
21. My heart disease will last a short time.	1	2	3	4
22. My heart disease is likely to be permanent rather than temporary	1	2	3	4
23. My heart disease will last for a long time.....	1	2	3	4

APPENDIX A. (Continued)

IPQ (continued)

	Strongly Agree	Agree	Neither Agree Nor Disagree	Strongly Disagree
24. My heart disease is a serious condition.	1	2	3	4
25. My heart disease has had a major consequence on my life.....	1	2	3	4
26. My heart disease has become easier to live with.	1	2	3	4
27. My heart disease has not had much effect on my life.	1	2	3	4
28. My heart disease has strongly affected the way others see me.....	1	2	3	4
29. My heart disease has serious economic and financial consequences.	1	2	3	4
30. My heart disease has strongly.	1	2	3	4
31. My heart disease will improve in time.	1	2	3	4
32. There is a lot which I can do to control my symptoms.....	1	2	3	4
33. There is very little that can be done to improve my heart disease.....	1	2	3	4
34. My treatment will be effective in curing my heart disease.....	1	2	3	4
35. Recovery from my heart disease is largely dependent on chance or fate..	1	2	3	4
36. What I do can determine whether my heart disease gets better or worse.	1	2	3	4

APPENDIX A. (Continued)

Self-Analysis Questionnaire

STPI

Directions: A number of statements that people use to describe themselves are given below. Read each statement and then circle the number that best describes how you have been feeling since your admission to the hospital. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to best describe how you have been feeling since you entered the hospital.

		Not at all	Somewhat	Moderately so	Very much so
1.	I feel calm……	1	2	3	4
2.	I am in a questioning mood.....	1	2	3	4
3.	I am furious.	1	2	3	4
4.	I feel strong.	1	2	3	4
5.	I am tense.	1	2	3	4
6.	I feel curious.	1	2	3	4
7.	I feel like banging on the table..	1	2	3	4
8.	I feel blue.	1	2	3	4
9.	I feel at ease.	1	2	3	4
10.	I feel interested.....	1	2	3	4
11.	I feel angry.	1	2	3	4
12.	I feel miserable.....	1	2	3	4
13.	I am presently worrying ..... over possible misfortunes.	1	2	3	4
14.	I feel inquisitive.	1	2	3	4
15.	I feel like kicking somebody.....	1	2	3	4
16.	I feel downhearted.	1	2	3	4
17.	I feel nervous.	1	2	3	4
18.	I feel like exploring my environment.	1	2	3	4
19.	I feel like breaking things	1	2	3	4
20.	I feel alive.	1	2	3	4

APPENDIX A. (Continued)

STPI (continued)

		Not at all	Somewhat	Moderately so	Very much so
21.	I am jittery.....	1	2	3	4
22.	I feel stimulated.....	1	2	3	4
23.	I am mad.	1	2	3	4
24.	I feel sad.....	1	2	3	4
25.	I am relaxed.....	1	2	3	4
26.	I feel mentally active.....	1	2	3	4
27.	I feel irritated.....	1	2	3	4
28.	I feel safe.....	1	2	3	4
29.	I am worried.....	1	2	3	4
30.	I feel bored.....	1	2	3	4
31.	I feel like hitting someone.....	1	2	3	4
32.	I feel gloomy.....	1	2	3	4
33.	I feel steady.....	1	2	3	4
34.	I feel eager.	1	2	3	4
35.	I feel annoyed.....	1	2	3	4
36.	I feel healthy.	1	2	3	4
37.	I feel frightened.....	1	2	3	4
38.	I feel disinterested.....	1	2	3	4
39.	I feel like swearing.....	1	2	3	4
40.	I feel hopeful about the future...	1	2	3	4

APPENDIX A. (Continued)

SCID – Since Admission to the Hospital

Current Major Depressive Episode	MDE Criteria	Rating
Now I am going to ask you some questions about your mood.	A. Five (or more) of the following symptoms have been present during the duration criteria specified and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood, or (2) loss of interest or pleasure.	
1. Since you were admitted to the hospital, have you been feeling depressed or down most of the day nearly every day? (What was it like?) If yes: Has this been since you were admitted to the hospital?	1). Depressed mood most of the day, nearly every day, as indicated either by subjective report (e.g. feels sad or empty) or observation made by others (e.g., appears tearful)	? 1 2 3
2. Since you were admitted to the hospital, have you lost interest or pleasure in things you usually enjoyed? If yes: Was it nearly every day?	2). Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated either by subjective account or observation made by others).	? 1 2 3

?=inadequate information 1=absent or false 2=subthreshold 3=threshold or true

APPENDIX A. (Continued)

Current Major Depressive Episode	MDE Criteria	Rating
3. Since you were admitted to the hospital, how was your appetite? (What about compared to your usual appetite?) (Did you have to force yourself to eat?) (Eat [less/more] than usual?) (Was that nearly every day?) (Did you lose or gain any weight?) (How much?) (Were you trying to [lose/gain] weight?)	3). Significant weight loss when not dieting, or weight gain (e.g., a change of more than 5% of body weight in a month) or decrease or increase in appetite nearly every day. Check if: ____ weight loss or decreased appetite ____ weight gain or increased appetite	? 1 2 3
4. How have you been sleeping since you were admitted to the hospital? (Trouble falling asleep, waking frequently , trouble staying asleep, waking too early, or sleeping too much? How many hours a night compared to usual? Has it been nearly every night?	4) insomnia or hypersomnia nearly every day check if: _____ insomnia _____ hypersomnia	? 1 2 3

?=inadequate information 1=absent or false 2=subthreshold 3=threshold or true

APPENDIX A. (Continued).

Current Major Depressive Episode	MDE Criteria	Rating
5. Since you were admitted to the hospital, have you been so fidgety or restless that you were unable to sit still? (Has it been so bad that other people noticed it? What did they notice? Has that been nearly every day since you were admitted to the hospital?) If no: What about the opposite --- talking or moving more slowly than is normal for you? (Has it been so bad that other people noticed it? What did they notice? Has it been nearly every day?)	5) psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down). Note: also consider behavior during the interview. Check if: ____ psychomotor retardation ____ psychomotor agitation	? 1 2 3
6. Since you were admitted to the hospital, what has your energy been like? (Tired all the time? Nearly every day since you were admitted to the hospital?)	6. fatigue or loss of energy nearly every day	? 1 2 3

?=inadequate information 1=absent or false 2=subthreshold 3=threshold or true

APPENDIX A. (Continued)

Current Major Depressive Episode	MDE Criteria	Rating
Since admission to the hospital…		
7. … how have you felt about yourself? (Worthless?) (Nearly every day?) … what about feeling guilty about things you have done or not done? (Nearly every day?)	7) feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick)	? 1 2 3
8. …did you have trouble thinking or concentrating? (What kinds of things has it interfered with?) (Nearly every day?) If no: Has it been hard to make decisions about everyday things? (Nearly every day?)	8) diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others) Check if: ____ diminished ability to think ____ indecisiveness	? 1 2 3
9.… were things so bad that you were thinking a lot about death or that you would be better off dead? What about thinking of hurting yourself? If yes: Did you do anything to hurt yourself? Check if: _____ thoughts of own death _____ suicidal ideation _____ specific plan	9) recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide Note: code "1" for self-mutilation w/o suicidal intent	? 1 2 3

?=inadequate information 1=absent or false 2=subthreshold 3=threshold or true

APPENDIX A. (Continued)

Current Major Depressive Episode	MDE Criteria	Rating
10. (IF UNCLEAR): Has (DEPRESSIVE EPISODE IN INTERVIEWER's OWN WORDS) made it hard for you to do your work, take care of things at home, or get along with other people?	Criteria C 10). The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.	? 1 2 3
11. Did this begin soon after someone close to you died?	Criteria E 11) The symptoms are not better accounted for by Bereavement, i.e., after the loss of a loved one, the symptoms persist for longer than 2 months or are characterized by marked functional impairment, morbid preoccupation with worthlessness, suicidal ideation, psychotic symptoms, or psychomotor retardation.	1 Simple Bereave-ment 3 Not Simple Bereave-ment Continue Below
	MAJOR DEPRESSIVE EPISODE CRITERIA A, C, and E are coded "3"	3- CURRENT MAJOR DEPRESSIVE EPISODE SINCE HOSPITAL ADMISSION

?=inadequate information 1=absent or false 2=subthreshold 3=threshold or true

APPENDIX A. (Continued)

SCID – Two Week Period Prior to Hospital Admission

Current Major Depressive Episode	MDE Criteria	Rating
Now I am going to ask you some questions about your mood.	A. Five (or more) of the following symptoms have been present during the duration criteria specified and represent a change from previous functioning; at least one of the symptoms is either (1) depressed mood, or (2) loss of interest or pleasure.	
1. For the two week period prior to hospital admission, were you feeling depressed or down most of the day nearly every day? (What was it like?) If yes: Was this since you were admitted to the hospital?	1). Depressed mood most of the day, nearly every day, as indicated either by subjective report (e.g. feels sad or empty) or observation made by others (e.g., appears tearful)	? 1 2 3
2. For the two week period prior to hospital admission, had you lost interest or pleasure in things you usually enjoyed? If yes: Was it nearly every day?	2). Markedly diminished interest or pleasure in all, or almost all, activities most of the day, nearly every day (as indicated either by subjective account or observation made by others).	? 1 2 3

?=inadequate information 1=absent or false 2=subthreshold 3=threshold or true

APPENDIX A. (Continued)

Current Major Depressive Episode	MDE Criteria	Rating
3. For the two week period prior to hospital admission, how was your appetite? (What about compared to your usual appetite?) (Did you have to force yourself to eat?) (Eat [less/more] than usual?) (Was that nearly every day?) (Did you lose or gain any weight?) (How much?) (Were you trying to [lose/gain] weight?)	3). Significant weight loss when not dieting, or weight gain (e.g., a change of more than 5% of body weight in a month) or decrease or increase in appetite nearly every day. Check if: ____ weight loss or decreased appetite ____ weight gain or increased appetite	? 1 2 3
4. How were you sleeping for the two week period prior to hospital admission? (Trouble falling asleep, waking frequently , trouble staying asleep, waking too early, or sleeping too much? How many hours a night compared to usual? Was it nearly every night?)	4) insomnia or hypersomnia nearly every day check if: _____ insomnia _____ hypersomnia	? 1 2 3

?=inadequate information 1=absent or false 2=subthreshold 3=threshold or true

APPENDIX A. (Continued)

Current Major Depressive Episode	MDE Criteria	Rating
5. For the two week period prior to hospital admission, had you been so fidgety or restless that you were unable to sit still? (Had it been so bad that other people noticed it? What did they notice? Had that been nearly every day since you were admitted to the hospital?) If no: What about the opposite --- talking or moving more slowly than is normal for you? (Had it been so bad that other people noticed it? What did they notice? Had it been nearly every day?)	5) psychomotor agitation or retardation nearly every day (observable by others, not merely subjective feelings of restlessness or being slowed down). Note: also consider behavior during the interview. Check if: ____ psychomotor retardation ____ psychomotor agitation	? 1 2 3
6. For the two week period prior to hospital admission, what has your energy been like? (Tired all the time? Nearly every day for the two week period prior to hospital admission?)	6. fatigue or loss of energy nearly every day	? 1 2 3

?=inadequate information 1=absent or false 2=subthreshold 3=threshold or true

APPENDIX A. (Continued)

Current Major Depressive Episode	MDE Criteria	Rating
For the two week period prior to hospital admission… 7. … how had you felt about yourself? (Worthless?) (Nearly every day?) … what about feeling guilty about things you have done or not done? (Nearly every day?)	7) feelings of worthlessness or excessive or inappropriate guilt (which may be delusional) nearly every day (not merely self-reproach or guilt about being sick)	? 1 2 3
8. …did you have trouble thinking or concentrating? (What kinds of things has it interfered with?) (Nearly every day?) If no: Had it been hard to make decisions about everyday things? (Nearly every day?)	8) diminished ability to think or concentrate, or indecisiveness, nearly every day (either by subjective account or as observed by others) Check if: ____ diminished ability to think ____ indecisiveness	? 1 2 3
9.… were things so bad that you were thinking a lot about death or that you would be better off dead? What about thinking of hurting yourself? If yes: Did you do anything to hurt yourself? Check if: _____ thoughts of own death _____ suicidal ideation _____ specific plan	9) recurrent thoughts of death (not just fear of dying), recurrent suicidal ideation without a specific plan, or a suicide attempt or a specific plan for committing suicide Note: code "1" for self-mutilation w/o suicidal intent	? 1 2 3

?=inadequate information 1=absent or false 2=subthreshold 3=threshold or true

APPENDIX A. (Continued)

Current Major Depressive Episode	MDE Criteria	Rating
10. (IF UNCLEAR): Has (DEPRESSIVE EPISODE IN INTERVIEWER's OWN WORDS) made it hard for you to do your work, take care of things at home, or get along with other people?	Criteria C 10). The symptoms cause clinically significant distress or impairment in social, occupational, or other important areas of functioning.	? 1 2 3
11. Did this begin soon after someone close to you died?	Criteria E 11) The symptoms are not better accounted for by Bereavement, i.e., after the loss of a loved one, the symptoms persist for longer than 2 months or are characterized by marked functional impairment, morbid preoccupation with worthlessness, suicidal ideation, psychotic symptoms, or psychomotor retardation.	1 Simple Bereave-ment 3 Not Simple Bereave-ment Continue Below
	MAJOR DEPRESSIVE EPISODE CRITERIA A, C, and E are coded "3"	3- CURRENT MAJOR DEPRESSIVE EPISODE SINCE HOSPITAL ADMISSION

?=inadequate information 1=absent or false 2=subthreshold 3=threshold or true

APPENDIX B. Notification Letter to Physicians

Date:

Dear Dr. _____,

Thank you for allowing our research team to include your patients in the study entitled "Psychosocial and Behavioral Correlates of Heart Disease". In this study, your patient responded to several questionnaires and a structured clinical interview designed to evaluate depression.

In the course of this study, it has come to our attention that your patient
(patient's full name)
appears to be suffering from _____*(**) 1 and/or 2*_____.

You may wish to consider this information in the management of your patient.

Thank you,
Ashley Owen, M.A.
Douglas Schocken, M.D.

If you have any further questions about your patient or this study, please contact Ashley Owen at (813) 974-2342 or Dr. Douglas Schocken at (813) 974-2880.

***** The following information will be provided if indicated in the patient's responses to the BDI and/or the SCID-I.***
(1) clinical depression (2) suicidal thoughts

ABOUT THE AUTHOR

Ashley Ellen Owen received a Bachelor's Degree in Psychology from Sewanee, the University of the South in 1996. She worked as a research assistant at the Vanderbilt University Learning Technology Center for one year prior to entrance into the University of South Florida Clinical Psychology Ph.D. program in 1997. She completed requirements for her Master's of Arts in 2000 and trained on internship at the Veteran's Administration Medical Center in Pittsburgh from 2002 to 2003. She looks forward to starting her postdoctoral fellowship at Emory University in Atlanta where she will work with Obstetrics patients and African American women and children who are victims of domestic violence. She hopes to continue work that integrates her background and interests in children and families and women's health throughout her career.