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THE PSYCHOSOCIAL ADAPTATION OF TYPE A VERSUS TYPE B
INDIVIDUALS FOLLOWING MYOCARDIAL INFARCTION

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THE PSYCHOSOCIAL ADAPTATION OF TYPE A
VERSUS TYPE B INDIVIDUALS
FOLLOWING MYOCARDIAL INFARCTION

by

Susan Michele Blake

A Dissertation Submitted to the Faculty of the

DEPARTMENT OF PSYCHOLOGY

In Partial Fulfillment of the Requirements
For the Degree of

DOCTOR OF PHILOSOPHY

In the Graduate College

THE UNIVERSITY OF ARIZONA

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THE UNIVERSITY OF ARIZONA
GRADUATE COLLEGE

As members of the Final Examination Committee, we certify that we have read
the dissertation prepared by Susan Michele Blake

entitled THE PSYCHOSOCIAL ADAPTATION OF TYPE A VERSUS TYPE B
INDIVIDUALS FOLLOWING MYOCARDIAL INFARCTION

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Susan Michele Blake

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ABSTRACT

The present research compared the psychosocial responses of Type A and Type B individuals following myocardial infarction. Differences in self-referential style and responsiveness to an uncontrollable event were of interest. Thirty-three post-MI patients were followed over a three month period. Self-report measures were administered at two weeks, one month, and three months post-MI to assess levels of psychosocial adjustment and factors associated with adjustment. Type A individuals were more self-involved and reported a greater frequency of negative self-statements following the heart attack. They appeared more depressed, reported more symptoms, had lower expectancies for success, and were hypersensitive to a perceived lack of control relative to Type B's. They resumed activities sooner, but delayed their return to work. No differences between the two groups were found on measures of information seeking, medical compliance, health locus of control, or life satisfaction. The results were discussed with reference to previous research on the Type A behavior pattern and implications for cardiac rehabilitation were presented.

CHAPTER 1

INTRODUCTION

Each of us, at various points in our lives, experience changes of different magnitudes. These changes may be sought after or occur unexpectedly, but each typically requires some form of adjustment. During the interval of time preceding and following a significant change event, the individual can be said to be in transition. That is, the individual is typically involved in both overt and covert behavioral activity designed to prepare for or respond to the change that has or will occur. Under normal circumstances relatively stable patterns of behavior develop in relation to the individual's environment. These stable, often habitual, patterns of activity can be considered as baseline levels of behavior whereupon changes can be observed to occur. Often change involves the disruption of significant and expected standing patterns of activity. Individual efforts to adapt to these changes by altering expectancies or modes of response characterize the process of transition.

The focus of this thesis was to document the process of transition in a group of first heart attack (myocardial infarction) patients. Differences in levels of adjustment between two groups, Type A and Type B individuals, were examined. Various methodological and theoretical lines of inquiry converged in the formulation of this study. Relevant aspects of adaptation to stressful life events and individual factors

mediating adjustment were discussed. Information on the coronary prone behavior pattern, Type A vs. Type B, and adaptation following myocardial infarction were presented. The hypotheses being examined were based upon previous literature describing Type A vs. Type B responses to uncontrollable or unpredictable events, as well as the more general literature addressing individual adaptation to stressful life events.

Adaptation

One of the most pervasive characteristics of all biological systems is the principle of adaptation (Sells, 1969). "Essentially, this involves the self-regulating tendency of living organisms to maintain themselves by various means of accommodating or adjusting to changes in the environment" (Sells, 1969, p. 17). From a biological perspective, adaptation means the success of a population (Hamburg, Coelho, and Adams, 1974; Wilson, 1975). From a physiological perspective, adaptation refers to the body's response to nonspecific demands which stress the normal homeostatic state of the biological system (Selye, 1976). Given the presence of an environmental stressor situation, the organism responds with an increase in autonomic and cortical levels of arousal. For example, increased hormonal levels, increased catecholamine production, heart rate increases, and other generalized responses to stress occur. As the body responds to circumvent the effects of the stressor or toxic agent, local adaptive responses develop to facilitate coping with the situation. A final stage of exhaustion occurs under conditions of prolonged exposure to the noxious stimuli; when the disintegration of the local defensive mechanisms allows for the generalized spread of

infection and taxes the body's ability to handle the stressor condition.

Helson's (1964) adaptation level theory is relevant to the perception of and responses to environmental stimuli, and especially stimuli which are changing. Perception of a given stimulus as neutral is a function of the magnitude of the stimulus at a given point in time, the context in which it appears, and the individuals' prior history of experiences with similar stimuli (Lawton and Nahemow, 1973).

Types of Transitional Experiences

Transitional experiences vary from relatively minor changes in the environment to major transitions or changes in the life space of the individual. The concept of change must be evaluated from at least three perspectives. From the first perspective, change can be viewed as a stimulus. Characteristics such as salience, intensity, and duration are relevant aspects of stimuli evoking individual responses. In viewing change from the perspective of response, organismic characteristics such as prior history, exposure, perception, and expectations must be considered. And finally, change can be studied as a stimulus-response relationship wherein the individual transaction with the environment is "reciprocally determined" (Bandura, 1977a, p. 6).

A typology of stimulus characteristics has not as yet been developed. Numerous studies have observed individual differences in response to changes in climate, geographic locale, and natural disasters. Most of the remaining studies have focused on stressful life

events. A review of both stimulus factors and individual factors is presented in the next chapter.

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CHAPTER 2

LIFE EVENTS

Stimulus Factors

In a review of the research on life events, stress, and illness, Rabkin and Struening (1976) distinguished between "stressor" and "individual" characteristics. Certain properties or characteristics of stimuli make them more or less salient, more or less stressful. The following list of stimulus characteristics is not meant to be exhaustive, but indicative of the features of particular relevance in the study of life events: (1) magnitude; (2) intensity; (3) duration; (4) predictability; (5) novelty; (6) continuity or consistency; (7) complexity; (8) controllability. Each event or stimulus occurrence could be hypothetically mapped out on a matrix of these dimensions and summarized by a total impact score. As yet, this has not been done. Researchers have chosen only one or two of these dimensions at a time to study, and have done so vis a vis subjective estimations.

The question of whether or not they represent "stressor" characteristics versus "individual" characteristics, or the interaction of the two, must also be raised. As they are currently assessed, the measures appear to reflect an interactive or transactive component between the stimulus occurrence and subjective response. The section on life stress events will clarify this point, but first the characteristics need to be defined.

The magnitude of an event refers to the extent to which the stimulus event departs from ongoing baseline conditions. Intensity refers to a rate of change measure of how rapidly or slowly this departure from baseline can be observed to occur (Rabkin and Struening, 1976). Duration measures the length of time of the event's occurrence. Although this is not currently being done, duration of the stimulus event should be differentiated from the duration of the effect of the stimulus. Predictability refers to whether or not the event can be anticipated. Novel events have a low probability of occurrence, and place unique demands on the organism. Continuity or consistency can be determined by the extent to which an event is continuously or intermittently salient (stable over time). Complexity refers more to the number of life domains affected by a change rather than the intensity of the change. Controllability refers to the extent to which the individual's response can potentially change the event. Research findings on the effects of each of these "stressor" or stimulus characteristics were presented in Blake (1978a) and Rabkin and Struening (1976).

Each characteristic or dimension was assumed to contribute to the stressfulness of a given change. If an event is of considerable magnitude or intensity, the duration is prolonged, or if the event is unpredictable, novel, complex, or inconsistently present, then we might assume a greater likelihood that the event will be perceived as stressful. Yet, an individual's response will in part be contingent upon their cognitive evaluations of the situation. Their evaluations may or may not match the environmental stimulus characteristics.

Assessment of Life Events

The assessment of life events received increasing attention over the past three decades. The impact of life events on health status, both psychological and physical, was extensively studied. Consistent relationships between accumulations of life change and individual health status were demonstrated. There was less agreement on the factors considered critical to increased stress responses and subsequent health deterioration. The methodology and the results of these efforts will be presented simultaneously.

In 1949, Holmes and his colleagues began to develop a methodology for measuring life changes and for studying the effects of these life changes on health status (Garritty and Marx, 1979). By 1967, the Schedule of Recent Experiences (SRE), or the Social Readjustment Rating Scale (SRRS), was published (Holmes and Rahe, 1967). The SRE consisted of 43 commonly reported life events with normative estimations of the extent of readjustment required for each. Subjects responded to the SRE by checking all of the events experienced within a given time interval, and the summed values or life change units (LCU) yielded a total life stress score (Sarason, Johnson, and Siegel, 1978). Changes in health status were then assessed and compared to the extent of life stress reported (Johnson and Sarason, 1979).

Despite the usefulness of the instrument in the prediction of health changes, there has been criticism of both the theoretical premises underlying the construction of the instrument and the pragmatics of its application. Various authors did not accept the theory of

"change per se" as a unidimensional index of life stress (Rabkin and Struening, 1976; Redfield and Stone, 1979). Authors more recently viewed change as a multidimensional phenomenon, and suggested that instruments be designed to assess the various components of change rather than merely the amount of readjustment required (Redfield and Stone, 1979; Sarason et al., 1978; Stone and Neale, 1978). Some of the proposed alternative components included the desirability of the event (Fontana et al., 1979; Ruch, 1977), the life sphere affected (Ruch, 1977), meaningfulness (Redfield and Stone, 1979; Ruch, 1977), stressfulness (Stone and Neale, 1978), and the magnitude of adjustment required (Ruch, 1977).

The use of normative vs. ideographic estimations of stressfulness was a second criticism of the SRE (Johnson and Sarason, 1979). The SRE forced the researcher to assume an average estimation of the magnitude of an event rather than a subjectively determined estimate of impact. New measurement instruments were developed. The Life Experiences Survey (LES) was developed to assess the frequency, desirability, and impact of life events ideographically (Sarason et al., 1978). Results from preliminary analyses of the LES were encouraging. Negative life change scores were significantly associated with state anxiety ($r = .46$; $p < .001$), self-ratings of depression ($r = .24$; $p < .05$), and the social nonconformity ($r = .20$; $p < .05$) and discomfort ($r = .23$; $p < .05$) scales of the Psychological Screening Inventory. Since positive life change was not related to these indices of pathology, the authors concluded that life stress is best conceptualized in terms of negative

life change (Sarason et al., 1978). Concurrent findings by Smith, Johnson, and Sarason (1978) suggested that negative life events lead to greater psychological discomfort than positively perceived events. Despite the differences methodologically and conceptually in this area, the bulk of the evidence from retrospective and prospective studies using the SRE or similar assessment tools to evaluate the frequency and impact of life events consistently found increased levels of life stress to be related to illness (Johnson and Sarason, 1979). Significant relationships have been found between life stress and chronic illness, major and minor health changes (Wyler, Masuda, and Holmes, 1970), sudden cardiac death (Rahe and Lind, 1971), myocardial infarction (Lundberg, Theorell, and Lind, 1975; Rahe and Paasikivi, 1971; Theorell and Rahe, 1971), and various other health related problems (Dohrenwend and Dohrenwend, 1974; Rabkin and Struening, 1976).

Individual Factors

The preceding section focused on the characteristics and measurement of life events. In this section, individual factors consistently found to mediate or influence adaptation across events (e.g., divorce, migration, illness) will be discussed.

These individual factors can be expected to change during the process of transition. Immediately following an event, the individual may be responding to the saliency or recency of an experience. Over time, changes occur in both individual responsiveness and individual perceptions of the event. There may be shifts in priorities, in attention, or in environmental demands such that to remain focused upon the

event would be considered maladaptive. The extent of change and the direction of change in personal variables can be expected to influence pathological indices such as anxiety, depression, and life satisfaction. For example, Totman (1979) hypothesized that the adequacy of a person's adaptation following a stressful event was best assessed by comparing the overall extent of involvement in goal directed activity and the extent of social contact before and after the event. A comprehensive understanding of the personal characteristics mediating responses to stressful events could improve the identification of high-risk individuals and facilitate the development of more efficacious intervention strategies. Individuals facing an environmental change meet the event with a host of historically accumulated personal and contextual features. Varied demographic characteristics expectedly influence adaptive abilities. Prior exposures, habits, coping strategies, cognitive influences, and social support are some of the constructs to be discussed.

Demographic Characteristics

Demographic characteristics usually considered included age, sex, occupation, education, marital status, social status, and geographic locale. Age was a factor influencing the incidence of myocardial infarction (Suinn, 1977), and could influence subsequent adjustment. Sex was related to the extent of subjective discomfort experienced during stressful events, with women expressing greater discomfort (Corah and Boffa, 1970), and levels of anxiety relative to men (Vetter et al., 1977). Marital status was related to adjustment through the stress-buffering role of social support (Dean and Lin, 1977). Social status

and occupation influenced adaptive abilities in at least two ways. The economic benefit of high social status or occupation was considered as a resource reducing the impact of an event. Secondly, the demands of different occupations varied in their stressfulness and either added to or detracted from adaptation. For example, occupations differed in the stress of deadlines, competition, and demands for commitment (Suinn, 1977). Following a heart attack, blue collar workers found the cardiac equipment more threatening, were less well informed, avoided asking questions, and displayed more regressive behaviors during hospitalization (Hackett and Cassem, 1976). Educational background can influence responses to medical communications and the ability to understand the meaning and implications of illness.

Prior Exposure

Reactions to change depend upon the types and quality of previous experience. Individuals who have experienced varied, personally demanding situations, and who have successfully "weathered the storm," would be expected to respond to new, and perhaps novel, experiences in a more adaptive fashion. Of course, there are limits to individual levels of tolerance such that even the strongest individuals have difficulty generalizing from previous experience to the nuances of novel ones.

Behavioral treatment interventions have demonstrated the effectiveness of repeated exposures to an anxiety provoking stimulus in the reduction of anxiety and in the enhancement of approach behaviors (Marks, 1975). These procedures were most often used in the treatment

of phobias or irrational fears where the perceived consequences of action varied greatly from the probable consequences. The number of prior exposures to a stressful medical procedure, as a preparatory device, reduced anxiety in in vivo situations (Shipley et al., 1978). The rate of habituation to novel stimuli was a function of the number of previous exposures (Graham, 1973). Individuals exposed to a novel stimulus initially displayed signs of arousal. When a situation became ambiguous, novel, or the consequences unclear, and the value to act was high, considerable sympathetic nervous system arousal occurred (Obrist et al., 1976). Prior exposure to similar events influenced responses to novel events through the process of generalization. Familiarity with circumstances served to decrease the amount of arousal associated with an event, and therefore facilitated the process of adjustment.

Habits

Habits are established behavior patterns, marked by increasing automaticity, decreased awareness, and partial independence from reinforcement (Hunt et al., 1979). The value of a habit is based upon its utility in promoting a desired end. Habitual behaviors have the advantage of efficiency, speed, and response stability. The consequences of certain types of life change severely disrupt habitual modes of behavior.

A complete contextual alteration was an opportune time for a revision of habits considered detrimental to one's health. Health related habit changes often did not occur until an individual's health was seriously threatened (Roskies et al., 1979). Even with the threat of illness, certain requirements existed for the establishment of new

habits. Three such requirements were (1) the simplicity of the new habit, (2) the compatibility of the habit with daily routines, and (3) the contiguity of the cues for compliance with the habit (i.e., bed-exercise) (Hunt et al., 1979).

When an event threatens to disrupt habitual patterns of behavior, an initial state of disequilibrium ensues prior to the adoption of an alternate response. For example, consider the business person on a familiar route through town who arrives unexpectedly at a roadblock. There is an initial panic response at the prospect of being late for an appointment until an alternate set of overt or covert responses can be established, such as an alternate route or an acceptable way of explaining the tardiness. The extent of disequilibrium can vary with the extent of the disruption of routine, and the significance of the plans being interfered with.

Thus, habits and routines provide for a certain amount of predictability. They are maintained through practice and repetition, and tend to serve the positive function of economy and efficiency (Hunt et al., 1979). Some habits are detrimental to health, but remain as integral components of response styles until alternate modes of response can be established. Changes in situational demands necessitate a reappraisal and consequent shift in response. Individual styles of coping with changing situational demands can facilitate or deter the process of adaptation and the development of new habit patterns.

Coping Strategies

Coping style is a euphemistic term that has been vaguely and variably defined throughout the stress literature. What does coping really mean? To cope means to struggle or contend on fairly even terms or with a degree of success according to a contemporary dictionary (Barnhart and Stein, 1964). From this perspective coping can be defined as any response that adequately and successfully meets the demands of a particular situation and protects the individual from substantial psychological or physical harm. Lazarus (1976) presented a demand-resource model of coping that parallels this definition. Six categories of resources were identified and considered to assist in coping with the demands of a threatening situation. These six resources were (1) health/energy, (2) morale, (3) problem solving skills, (4) belief systems, (5) social supports, and (6) material resources (Roskies and Lazarus, 1980).

Two primary constructs have been used in the assessment of coping styles. They seemed to represent fairly similar behavioral dimensions of response. The repression-sensitization construct (Byrne, 1961) was used to describe coping styles in response to stressful medical procedures (Andrew, 1970; Kinney, 1977; Shipley et al., 1978), and health related behaviors (Gayton et al., 1978). The repression-sensitization dichotomy referred to two extreme behavioral mechanisms of either approach vis a vis intellectualization or obsessional preoccupation, or avoidance vis a vis denial and repression (Byrne, 1961). Individuals classified as one or the other had different orientations

to novel stimuli (Pagano, 1973). Sensitizers were more fearful in a simulated dental situation and less able to relax (Early and Kleinknecht, 1978), made more illness related visits to a dispensary (Gayton et al., 1978), demonstrated a monotonic decrease in heart rate as a function of the number of preparatory exposures to a stressful medical procedure (Shipley et al., 1978), and reported greater levels of arousal than indicated by physiological indices (Pagano, 1973). Repressors reported less fear, were more able to relax during a relaxation tape (Early and Kleinknecht, 1978), either did not report illnesses or experienced illnesses less frequently (Gayton et al., 1978), showed an inverted, U-shaped heart rate response from 0 to 1 to 3 presentations of a stressful videotape (Shipley et al., 1978), and displayed autonomic responses that were greater than self-report measures (Pagano, 1973). Pagano (1973) felt the repression-sensitization construct was most predictive of behavior in circumstances characterized by few external cues and increased threat appraisal. Selective attention to positive or negative self-referential information was dependent in part on repression-sensitization (Mischel, Ebbesen, and Zeiss, 1973). Mischel et al. considered the constructs to measure learned patterns of attending to or avoiding threatening stimuli. Attention seemed to play a role in the differential response styles of these two groups since sensitizers displayed anticipatory arousal patterns and focused on physiological cues indicative of arousal.

The second coping style mentioned in the literature was the vigilance-avoidance construct. There appeared to be minimal differences

between this construct and repression-sensitization. Vigilant copers searched for cues related to the threatening event. In one study, vigilance was determined by the amount of information about an elective surgery, e.g., knowledge of the operation, procedures, and course of recovery. The vigilant copers had slower recovery rates (Cohen and Lazarus, 1973). The authors concluded that vigilant copers attempted to master situations, but within the postoperative context dependency was necessary which led to a decline in self-esteem and increased vulnerability. Vigilance was also accompanied by anticipatory stress responses (Averill and Rosenn, 1972).

There have been other studies, especially in the behavioral literature, assessing the effects of coping on levels of arousal. Coping versus mastery models were more effective in reducing anxiety (Melamed and Siegel, 1975). Coping imagery was more effective than systematic desensitization in reducing anxiety and in reducing the discrepancy between perceived and ideal self-image (Hodges et al., 1979). Other factors, such as social support, personal or outcome expectancies, and perceived control also influence coping abilities.

The repression-sensitization and vigilance-avoidance constructs appeared to be helpful constructs for understanding individual variations in behavioral responses and attention following a stressful event. Similarities between this body of literature and the Type A coronary prone behavior pattern have not been explored. The extent of symptom reporting may be one method for assessing the tendency to focus on or repress physical problems associated with a heart attack.

Perceptions and Cognitions

Attention. Attentional factors play a role in the perception and cognition of events, as well as influence subsequent adjustment. The amount of attention focused on an event determined the perceived significance level (Weidner and Matthews, 1978). Predictable events resulted in faster habituation, less negative affect and less attentional focus (Matthews and Scheier, 1979). Individuals attending to the negative aspects of an event reported greater psychological and physical distress (Heinrichs, MacKenzie, and Almond, 1969; Kanfer and Goldfoot, 1973; Langer, Janis, and Wolfer, 1975; Weidner and Matthews, 1978). Tolerance for negative events increased when subjects were provided with responses designed to distract attention from the aversive features of an event (Kanfer and Goldfoot, 1973). Attention towards more favorable aspects of events increased the expected gains (Langer et al., 1975).

Based on the information presented, it would seem that immediately preceding and following an event, attention should be focused upon the situation as a preparatory mechanism. Once an event has been attended to, an evaluation of the event, e.g., as either threatening, innocuous, or controllable, occurs. Prolonged attention on the event, without concurrent plans for action may increase subjective distress and deter adjustment.

Perceived Control. Perceived control can be achieved both cognitively and behaviorally (Bandura, 1979). The subject of a change

can perceive the ability to control the event itself, or, control their responses to the event. Both forms of perceived control essentially render the event less threatening or overwhelming. Increasing perceptions of control decreased levels of arousal (Bandura, 1979; Langer et al., 1975). When subjects were allowed to control the administration of shocks, they became less anxious (Houston, 1972; Pervin, 1963). Tolerance for a noxious stimulus increased when subjects were provided with controlling responses (Kanfer and Goldfoot, 1973; Kanfer and Seidner, 1973). Subject initiated controlling mechanisms, i.e., slide presentations during a cold pressor test, versus experimenter initiated controlling mechanisms, increased tolerance levels by increasing the subjects' sense of control over the aversive stimulus (Kanfer and Seidner, 1973). Thus, personal control can be exercised by responses designed to alter the circumstances, or by selective attention designed to distract from the negative aspects of the circumstances (Langer et al., 1975).

Kobasa (1979) recently assessed the personality characteristics of middle and upper class executives who reported high levels of significant life events within the three years preceding the study. Comparisons between the high stress/high illness and high stress/low illness subjects showed the high stress/low illness group to be "hardier." Hardy persons (1) believed they could control or influence events, (2) were deeply involved or committed to the activities of their lives, and (3) anticipated change as a challenge to further development. Control was defined as decisional control over actions, cognitive control over

appraisal, and a substantial repertoire of coping skills and resources for the achievement of mastery. Involvement in life tasks and with others prevented them from giving up under the pressures and stressors of everyday circumstances.

Perceived control influenced responses to threatening life events. To perceive control was to perceive a contingency between behavior and outcome (Matthews and Glass, 1979). Control decreased arousal over and above the benefits of predictability (Bandura, 1979). Perceived control over events or over responses to events reduced anxiety, and increased tolerance for aversive stimuli. Perceived control and efficacy evaluations are probably highly correlated.

Choice. When alternatives for action existed, subjects often reported an increased "sense of control" (Corah and Boffa, 1970). Aversive stimuli elicited less arousal as measured by levels of skin conductance under choice conditions characterized by no escape (Corah and Boffa, 1970). Choices over events or response alternatives led to increased satisfaction with a situational context (Liem, 1975). Individuals seeking change felt more effective and tended to value the change more than those who had no choice (Gordon, 1976). Subjects given a choice of training methods performed better on reading speeds than those who lost the freedom of choice (Kanfer and Grimm, 1978). Residents in a home for the elderly who were given greater personal responsibilities and choices in daily routines improved on measures of alertness, active participation, and self-ratings of well-being compared to control subjects (Langer and Rodin, 1976). The stress of mobility and immigration

was attributed to a lack of choice in certain instances (Fried, 1972; Roskies, Iida-Miranda, and Strobel, 1977). In summary, perceptions of choice between alternatives enhanced performance, involvement, and self-rated feelings of satisfaction and well-being.

Cognitive Mediation. Cognitive behavioral treatment strategies are appearing in the literature with increasing frequency, and offer a useful approach to altering the coping strategies of persons undergoing stress. Cognitive behavioral approaches to stress inoculation (Jaremko, 1978; Sarason et al., 1978), to behavioral deficits or excesses such as assertiveness (Jacobs and Cochran, 1979), and anxiety (Kendall et al., 1979), are being extensively studied.

Interventions are based on the assumption that covert stimuli (e.g., thoughts, self-statements, interpretations, expectancies, or self-precepts) determine individual action, and influence autonomic arousal. Maladaptive cognitions thought to deter adjustment include (1) selective inattention, (2) misperception, (3) maladaptive focusing, and (4) maladaptive self-arousal (Mahoney, 1974). Selective inattention involves the ignoring of performance relevant stimuli. Misperceptions involve attending to stimuli, but mislabeling them. Maladaptive self-arousal involves the generation of detrimental private stimuli such as phobic cognitions. Cognitive behavioral interventions are designed to teach people how to alter internal dialogues and beliefs to enable more adaptive coping strategies.

Kendall and Korgeski (1979) reviewed the various methodological approaches for evaluating covert activity. They identified seven

distinct categories of measurement including attributional measures, irrational beliefs, self-efficacy measures, thought sampling, and self-statement analyses. These methodologies are still in the early stages of development. Nevertheless, promising results have accrued suggesting the approach is a valid one for understanding the process of adaptation to stress. According to Goldfried and Sobocinski (1975), cognitive misinterpretations of events represent well-learned, generalized cognitive sets. Maladaptive cognitions and self-statements were found to mediate mood states (Goldfried and Sobocinski, 1975; Sutton-Simon and Goldfried, 1979). Low assertive subjects were characterized by an internal dialogue of conflict and displayed a greater frequency of negative self-statements (Schwartz and Gottman, 1976). Through studies such as these, the mediational role of cognitive activity between stimulus events and behavioral responses is beginning to be understood.

Comparisons between various cognitive approaches to the reduction of pain or anxiety in medical populations have been interesting. Three different cognitive strategies were employed to reduce pain in chronic pain patients (Rybstein-Blinchik, 1979). The three groups did not differ in their expectations for change from treatment. Significant changes on ratings of the quality and intensity of pain, and on behavioral responses were observed in the group using the reinterpretive cognitive instructions. This approach was more effective than the attention-diversion and sensation focusing treatment approaches. Two other studies compared the effects of cognitive behavioral treatments with standard patient education and attention placebo controls

(Kendall et al., 1979; Langer et al., 1975). For subjects undergoing cardiac catheterization, all three groups reported decreases in anxiety following the medical procedure, but only the intervention groups reported less anxiety during the procedure (Kendall et al., 1979).

Individuals with more negative self-statements received lower adjustment ratings by the medical staff. Education was somewhat desensitizing. The cognitive behavioral group produced and maintained reduced state anxiety levels, and showed the greatest level of predominantly positive self-statements (Kendall et al., 1979). In the second study, the cognitive coping group displayed the least anxiety and greatest adjustment, followed by the coping plus information group, the information alone group, and finally, the control group (Langer et al., 1975).

These findings are obviously relevant to adjustment following myocardial infarction. Better adjustment is expected in individuals reporting fewer negative self-statements, fewer phobic cognitions, more attention to performance relevant cues, and fewer misinterpretations of illness related events. Cognitions appear to have a greater influence on adjustment than information alone.

Information. Despite the fact that cognitive interventions were more effective than information alone in facilitating coping with a stressful circumstance, accurate information is essential for the planning of actions. The role of information in increasing stress tolerance especially in the area of medical communications and preparation for stressful medical procedures has been discussed by various authors (Janis, 1958, 1971; Lazarus and Alfert, 1964). Discrepancies between

the information provided and the subjects' actual experience increased discomfort and anxiety (Borkovec, Grayson, and Hennings, 1979).

Patients recovering from open heart surgery identified specific needs for information pre- and post-operatively (Miller and Shada, 1978).

Information about post-operative physical sensations, symptoms, prognosis, self-care, mood changes, and family involvement was requested.

Giving pre-operative information reduced anxiety levels in both repressors and sensitizers (Kinney, 1977). Recovery from myocardial infarction was seriously compromised when information about symptom occurrences, habit changes, and the resumption of normal work, leisure, and sexual activities was not provided (Gulledge, 1979; Hackett and Cassem, 1976; Mitchell, 1979; Scalzi and Dracup, 1979).

It seems obvious that information is necessary to prepare individuals for a stressful event. Yet, the beneficial effects of information in the development of accurate, realistic appraisals of future consequences are not observed unless the individual possesses adequate personal resources for coping with an event. Information contributes to expectations about the future which will be discussed next.

Expectancies. The construct of expectancy received considerable attention in recent years. Expectancies derive from current information and prior experience, and form the basis for action. When individual expectations were unmet, or there was a discrepancy between expectation and experience, a disruption of ongoing behavior occurred (Fontana et al., 1979; Johnson, 1973; Weidner and Matthews, 1978). As previously stated, knowledge of what to expect experientially (e.g., sensations,

symptoms) combined with behavioral instructions for coping reduced psychological distress (Johnson, 1973; Johnson and Leaventhal, 1974).

The concept of expectancy was divided into two dimensions; outcome expectancy and efficacy expectancy (Bandura, Adams, and Beyer, 1977). Discussions thus far have focused primarily on outcome expectancies or the estimate that a given behavior will lead to certain outcomes.

An efficacy expectation is the conviction that one can successfully execute the behavior required to produce the outcomes. Efficacy and outcome expectations are differentiated because individuals can come to believe that a particular course of action will result in certain outcomes, but question whether they can perform those actions. The strength of convictions in one's own effectiveness determines whether coping behavior will be attempted in the first place (Bandura et al., 1977, p. 125).

If outcome expectancies are related to predictability, efficacy expectancies are related to control. The importance of prediction and control, thus, extends beyond the scientific community.

Self-efficacy was conceptually related to perceived control (Perlmutter and Monty, in press). Efficacy expectations were related to the selection or avoidance of activities and environmental settings, as well as to persistence and effort on performance tasks (Bandura, 1979). With greater levels of task difficulty, subjects approached the upper limits of perceived efficacy and performed aversive activities with greater agitation (Bandura, 1979). Perceived coping inefficacy was associated with fear arousal and stress reactions on tasks varying in threat value (Bandura, 1979; Bandura et al., 1980). Belief in the ability to exert an influence over the occurrence of aversive events

reduced autonomic arousal (Miller, 1979). Thus, perceived efficacy appears to be a cognitive mechanism whereby controllability reduces fear arousal. Bandura (1977b) faulted problems of measurement indistinction between personal hopes for a positive outcome and personal mastery assertions for any inconsistent results in this area.

We have determined that individuals approach a novel event with a host of previously acquired experiences. Demographic variables were considered to be relevant to adjustment. Previous experience with similar events was considered relevant. The strength of prior habits influenced the acquisition of new ones. Coping strategies varied following events. Attentional factors influenced levels of arousal. Perceived control and choice over circumstances mediated individual responses. Information accuracy and outcome/efficacy expectations were described as cognitive factors influencing adaptation to stressful life events. These were all obviously significant convergent and overlapping mediational factors. Applying these factors to the process of adjustment following myocardial infarction is important. If patients believe or expect that certain actions will result in a further exacerbation of illness, they will be hesitant to act in that fashion.

During the initiation of new behaviors and responses, reinforcement must occur. If the product of individual efforts is not reinforced in the long run, the behavior leading to it will not be maintained (Homme, 1973). Two significant sources of reinforcement exist. One is self-generated or initiated and is generally described as self-reward. The other is socially derived and has often been referred to as social

support. Thus, even if an individual has adequate information and resources to act, and perceives the ability to assume control or alter the negative circumstances cognitively or behaviorally, their efforts may not persist without sufficient self-reinforcement or social support. These two factors will now be discussed.

Self-Reward

Self-reward is a component of self-regulation operating to increase the likelihood of desired behaviors. Self-reward can be considered another aspect of cognitive control. The sustainment of effort to meet the challenges of life stress events was in part dependent on the ability to find satisfaction and reward value in the incremental attainment of proximal goals (Bandura, 1979). The attainment of sub-goals served to enhance efficacy judgements and subsequent efforts towards recovery. Self-evaluation and approval were discriminatively activated by performances and partially determined by the value of the activity itself (Simon, 1979). Highly valued activities were subjected to finer evaluative discriminations (Simon, 1979). Self-rewards were based upon judgements of performance compared to both personally and socially referenced standards (Karoly and Decker, 1979). Thus, self-reward appears to be a factor relevant to the efficacy evaluations of myocardial infarction patients, and probably plays a significant role in maintenance of the habit changes necessary for physical recovery.

Social Support

The final factor mediating between life stress events and individual adjustment is social support. The opinions, standards, responses, and involvement of significant others are important sources of information, feedback, and extrinsic reward determining the success of adaptation. The support of valued others was thought to provide protection during stressful periods (Dean and Lin, 1977; Sarason, 1979).

Support is most often obtained from primary groups of value to the individual (Henderson, 1977). The two primary sources of support for most persons are the family and the work environment. Sherif and Sherif (1964) described the processes whereby groups of importance are established and maintained. They suggested that "reference groups" are established which provide a consistent, stable, self-image over time. These groups become anchor points for social comparisons.

Social support has been variously defined and imprecisely measured. Social support was defined as information leading the subject to believe he/she is cared for, loved, esteemed, and part of a social network of mutual obligations (Cobb, 1976). The extent of social support lies not only in the quality of interpersonal interactions, but also in the range of opportunities for the occurrence of these interactions (Blake, 1978b). The function of a supportive social environment is in the maintenance of an individual's positive self-image (Mechanic, 1974).

The measurement of social support presents some serious methodological problems. Assessment techniques have varied from "cognitive sociometrics" of significant others (Ziller, 1973, 1974), to schematic

representations of interpersonal distance (Wapner, 1977), to social adjustment surveys of the qualitative (i.e., affection, conflict) features of relationships (Ellsworth and Clayton, 1959; Katz and Lysterly, 1963; Paykel et al., 1971; Weissman and Bathwell, 1976), to marital status and the number of self-reported friends (Gove, 1973; Myers, Lindenthal, and Pepper, 1975). A quantitative and qualitative measure of social support has yet to be developed.

Despite the inconsistencies in measurement and the lack of a standardized instrument for quantifying social support, research findings have consistently identified social support as a buffer against the impact of life stress events. A number of studies emphasized the importance of social support during work-related activities, and employment stressors (Caplan, 1971; Cassel and Tyroler, 1961; Gore, 1974). Supportive relationships were found to protect against the stressful impact of physical illness (Burnell, 1977; Kaplan et al., 1977; Moos, 1977; Nuckolls, Cassel, and Kaplan, 1972). During unpredictable natural disasters most people sought the comfort and assistance of others (Bowlby, 1973; Henderson and Bostock, 1977). A number of other references to life events existed (e.g., divorce, aging, and death of a spouse) that verified social support as being a critical factor in the adjustment process (Blake, 1978b).

This concludes the chapter on life events, stimulus factors and individual factors mediating adjustment. In a coronary population, certain modes of coping can be considered as extremely maladaptive given the relationship between increased anxiety or emotional arousal and

concomitant demands on the cardiovascular system (Obrist et al., 1978). The remainder of the text will focus specifically on coronary heart disease, coronary risk factors, the Type A coronary-prone behavior pattern, and the impact of myocardial infarction. The preceding stimulus and individual factors will be integrated into the discussion and will provide the basis for comparing the psychosocial responses of Type A and Type B individuals following myocardial infarction.

CHAPTER 3

CORONARY HEART DISEASE

Coronary heart disease is a major health problem in this country that has been directly associated with standard health risk factors, as well as being indirectly related to stress and individual responses to stress. Coronary heart disease (CHD) is a disorder produced by lesions of the coronary arteries. The two major clinical manifestations of coronary heart disease are angina pectoris and myocardial infarction. Myocardial infarction refers to the "necrosis of the heart tissue caused by insufficient oxygen supply over a relatively long period of time" (Glass, 1977, p. 15). In most cases, myocardial infarction results from a clot or thrombosis in a coronary artery. The development of coronary artery disease (CAD) or atherosclerosis follows from the formation of plaques within the arteries which occlude the flow of blood and nutrients to the heart.

Impact of Myocardial Infarction

Personal illness was ranked as one of the ten most stressful life events (Holmes and Rahe, 1967; Ruch, 1977). Physicians rated myocardial infarction as the seventh most serious illness out of 126 diseases (Wyler, Masuda, and Holmes, 1970). The impact of such an event can be devastating. Numerous studies have provided documentation of the process of recovery post-MI. "Cardiac invalidism" began early in

the recovery process (Gulledge, 1979), and typically inhibited the resumption of normal functioning (Gruen, 1975). Anxiety was observed in the first few days following transfer from the intensive care to the coronary care unit (Philip et al., 1979). Women were more anxious than men (Vetter et al., 1977).

The percentage of individuals reporting adjustment problems during the year post-MI varied from 30-42 percent (Cay et al., 1972; Mayou, Foster, and Williamson, 1978; Mayou, Williamson, and Foster, 1978). At two months post-MI, frequently reported symptoms included anxiety, depression, fatigue, irritability, and the inability to concentrate. There was a decline in physical activities in 90 percent of the population. Only one quarter of those employed had returned to work. Family relations were strained and demands for social support remained primarily within the nuclear family unit. At the end of a year, mental state was related to work and leisure satisfaction, marital quality, assumed responsibilities, and symptom occurrences (Mayou et al., 1978). Occupational status influenced both affective and behavioral responses post-MI (Byrne, 1980). The loss incurred from MI was reportedly greater for blue collar workers because their jobs often demanded physical activity. Fewer personal/financial resources and less job security may have also contributed to these results.

Standard and Psychosocial Risk Factors

The standard risk factors of coronary heart disease were identified through careful studies comparing the behavioral and physiological characteristics of individuals with and without diagnosed symptoms of

heart or artery disease. These factors included (1) age, (2) sex, (3) cigarette smoking, (4) elevated serum cholesterol and triglycerides, (5) lack of exercise, (6) hypertension, (7) excess weight, (8) diabetes mellitus, (9) a family history of heart disease or diabetes, and (10) evidence of left ventricular hypertrophy (LVH) (Glass, 1977; Maccoby et al., 1977; Milsum, 1980). Certain of these risk factors are clearly avoidable and represent habitual excesses, as in for example, eating habits (Blackburn, 1980). Life styles and habit patterns contribute to at least five of the standard risk factors either directly or indirectly. The remaining risk factors, e.g., age, sex, or family history, are not amenable to control by the individual.

The precise mechanisms whereby these cited risk factors lead to coronary heart disease are not clearly understood. Jenkins (1976, p. 1037) summarized the role of psychosocial risk factors in the onset of cardiovascular disease when he stated,

Except for behaviors that affect the standard risk factors and those that influence environmental exposures, it appears that all the remaining psychosocial risk factors may operate through the central nervous system to generate changes in autonomic nervous functioning and endocrine activity that have an impact upon the cardiovascular system.

Considerable research has been directed at assessing the physiological mechanisms underlying personality patterns associated with increased risk for coronary heart disease. Some of the personality characteristics of high risk individuals included anxiety, depression, obsessive-compulsive defense style, and aggressiveness (Jenkins, 1976). High risk individuals worked overtime with greater frequency, and were more

involved in their jobs, although they expressed higher levels of dissatisfaction with life. Unrealistic personal demands were characteristic of this group. Despite excessive work related activity, their leisure time was devoid of physical exercise. Demographic variables such as occupation, marital status, social mobility, or status incongruity were rarely related to the occurrence of heart disease (Jenkins, 1976). Many of the foregoing personality characteristics would appear to have a significant effect on autonomic nervous system functioning and subsequently the cardiovascular system, as Jenkins (1976) suggested.

The best composite behavioral predictor of coronary heart disease was the coronary prone, Type A behavior pattern (Rosenman and Friedman, 1977). Research findings demonstrated the Type A pattern, or associated traits, to be validly associated cross-sectionally with coronary heart disease, "prospectively associated with the incidence of CHD, related to the recurrence of myocardial infarction in persons already having clinical CHD, and correlated with the severity of coronary atherosclerosis as determined angiographically" (Jenkins, Zyzanski, and Rosenman, 1978, p. 25). In the Western Collaborative Group Study, Type A individuals displayed between 1.7 and 4.5 times the rate of new CHD (Rosenman et al., 1970). The identification of individuals with the Type A behavior pattern enabled discriminations between recurring CHD (N = 67) and persons with a single episode (N = 220), and was more predictive of recurrent CHD than levels of serum cholesterol or the number of cigarettes smoked per day (Jenkins, Zyzanski, and Rosenman, 1976).

Jenkins (1976) reviewed 24 studies which dealt with the relationship between Type A behavior and CHD. Only one study reported negative results. Two of the articles reviewed were equivocal. Results of this nature lay emphasis on the importance of studying the behavioral and physiological factors associated with the pathogenesis of cardiovascular disease. A closer examination of the Type A behavior pattern may help clarify some of the behavioral characteristics and underlying physiological mechanisms thought to influence the development of CHD.

Type A Behavior Pattern

The Type A behavior pattern has been described as "an action-emotion complex that can be observed in any person who is aggressively involved in a chronic, incessant struggle to achieve more and more in less and less time, and, if required to do so, against the opposing efforts of other things or persons" (Friedman and Rosenman, 1974, p. 67). Specific characteristics included excessive achievement striving, a sense of time urgency, aggressiveness, and hostility (Glass, 1977). Suinn (1977) noted competitiveness, the desire for recognition, impatience, pressured speech, exaggerated movements, and vigilance as additional behaviors displayed by Type A persons. Type A individuals identified themselves as being aggressive, active, sociable, dominant, hard-working, achievement oriented, and lacking in self-control (Chesney et al., 1981; Matthews, 1981). These are characteristics often rewarded in western society given the obvious associations with an upwardly mobile status (Mettlin, 1976). Yet, inconsistent relationships have been found between Type A classification and social class

(Caffrey, 1970; Dimsdale et al., 1978; Shekelle, Schoenberger, and Stamler, 1976).

The two most widely used measures for the identification of the Type A behavior pattern are the Structured Interview (SI) (Rosenman et al., 1964) and the Jenkins Activity Survey (JAS) (Jenkins, Rosenman, and Friedman, 1967). Other measures exist, such as the Framingham Type A scale (Haynes, Feinleib, and Kannel, 1980), and the Bortner Test Battery (Bortner and Rosenman, 1969), but these have been less frequently cited in the literature.

The SI was designed to assess Type A status through ratings of verbal speech characteristics, mannerisms and response content to a series of standard questions presented during an interview. Stylistics rated include loud explosive speech, rapid accelerated speech, response latency, hostility and competitiveness. The JAS was designed to assess Type A status from responses on a self-administered questionnaire. Fifty questions related in content to the SI yielded three factor analytically derived subscale scores (hard driving/competitive, speed/impatience, and job involvement) along with the Type A classification (MacDougall, Dembroski, and Musante, 1979). Scores were based upon optimal weights generated by a series of discriminant function analyses predicting the Type A classification of a sample of men originally classified using the SI in the Western Collaborative Group Study (Jenkins, Zyzanski, and Rosenman, 1971).

Comparisons between the SI and JAS using the Western Collaborative Group Study data demonstrated the superiority of the SI as a

predictor of CHD (Brand, Rosenman, and Jenkins, 1978). Individuals with high Structured Interview scores had twice the incidence of new CHD compared to low scorers over a four year period (Jenkins, Rosenman, and Zyzanski, 1974). Test-retest reliability data demonstrated that 80% of the men classified in the Western Collaborative Group Study maintained a similar classification 18 months later (Jenkins, Rosenman, and Friedman, 1968). Inter-rater reliabilities ranged from 75-90% (Rosenman, 1978). Classifications based upon the JAS agreed with the SI approximately 73% of the time (Jenkins et al., 1971). Test-retest reliability data from the Jenkins Activity Schedule ranged from $r = .65$ to $.70$ (Jenkins et al., 1974). Questions regarding the degree of overlap between assessments made on each of these scales have been raised. Despite the reported superiority of the SI, enough studies have shown the JAS to be predictive of physiological reactivity (Dembroski et al., 1978), severity of atherosclerosis (Zyzanski et al., 1976), and recurrent myocardial infarction (Jenkins et al., 1976) to substantiate the validity of the instrument in the measurement of coronary prone behavior.

Both the JAS and SI predicted differences in physiological arousal between Type A and Type B individuals during experimental tasks. Matthews (1981) reviewed the psychophysiological studies using the Structured Interview and reported that ten (out of 14) showed Type A's to have elevations in systolic blood pressure, plasma epinephrine and norepinephrine, and heart rate response following environmental stressors which were challenging, difficult, frustrating, or moderately competitive. Similar findings were recently obtained by comparing the

responses of Type A and Type B women in an experimental condition which challenged interpersonal skills. Type A women displayed greater baseline systolic blood pressure indicative of ancillary stress as well as increases in systolic blood pressure during a challenging face-to-face interaction (MacDougall, Dembroski, and Krantz, 1981). Performance differences between A's and B's on experimental tasks were minimal in most studies.

The psychophysiological studies using the Jenkins Activity Schedule appeared to be less accurate than those using the Structured Interview to predict differences in arousal. Only half of the 21 studies measuring blood pressure and heart rate during task performances demonstrated elevated systolic blood pressure for A's, but not heart rate or diastolic pressure, compared to B's. Similar task characteristics, e.g., difficult, moderately competitive, elicited the expected A-B differences. A recently reported study (Gamino and Houston, 1981) assessed the effect of failure feedback on physiological reactivity during a competitive task using Type A and Type B college students. High Type A scores were associated with decreased systolic blood pressure in the severe failure condition and increased systolic blood pressure in the low stress control condition. The results suggested that Type A subjects become hypo-responsive during uncontrollable failure situations, and hyper-responsive during competitive challenges.

Four major approaches exist for conceptualizing the Type A behavior pattern. Each approach attempts to identify the links between the Type A behavior pattern and coronary heart disease through research

on: (1) components predictive of arousal, (2) responses to uncontrollable events, (3) self-referential styles, and (4) ambiguous performance standards.

The component analysis approach focuses on identifying the specific behaviors within the Type A pattern which are most predictive of arousal. For example, the speed impatience questions from the SI were reasonably predictive of arousal ($r = .39$ with systolic blood pressure and $r = .34$ with heart rate). The hard driving/competitive scale of the JAS strongly predicted blood pressure ($r = .40$) and heart rate changes ($r = .38$) (Dembroski et al., 1978). These same sub-factors were most predictive of coronary heart disease (Matthews et al., 1977). Dembroski et al. (1978) suggested the scales may have different labels but measure similar attributes. Irritability over blocked goals appeared to be the component common to both scales.

Experimental studies of Type A responses to uncontrollable events led to the second conceptual approach (Glass, 1977). From this framework, Type A individuals engage in a chronic struggle to maintain control over the environment. Under uncontrollable circumstances they become vigilant in their efforts to regain control compared to Type B individuals. In analogue studies, initial hyper-responsiveness to uncontrollable events was followed by hypo-responsiveness when exposure was prolonged and when the cues for failure were extremely salient (Glass, 1977). In a recent comparison of A and B responses to undesirable, unpredictable, and ambiguous events, the Type A group reported increased distress as events became less controllable (Suls, Gastorf,

and Witenberg, 1979). Type B individuals relinquished personal responsibility when events were beyond their control.

As you may recall from the section on perceived control in the last chapter, "hardy" individuals (Kobasa, 1979) believed they could control or influence events. Changes were perceived as challenges for future growth. The probable difference between "hardy" individuals and Type A individuals lies in their cognitive appraisal of life circumstances. Self-efficacy evaluations may mediate between uncontrollable events and the arousal of Type A individuals.

Research on the self-referential style of Type A individuals formed the basis for the third conceptualization (Scherwitz, Berton, and Leventhal, 1978). Self-involvement was postulated as the factor influencing physiological arousal. Cognitive factors associated with arousal have been extensively studied in the past. Active coping with stressful events was associated with increased catecholamine production (e.g., norepinephrine) and sympathetic activity (Weiss, Stone, and Harrell, 1970). Individuals prone to anxiety over achievements became excessively preoccupied with their own personal difficulties (Sarason, 1975, 1978; Wine, 1971). Self-referent preoccupations produced arousal as well as performance decrements by diverting attention away from the task at hand (Bandura, 1979). Comparisons of the self-referential styles of Type A and Type B subjects during stressful tasks were not as conclusive. Self-referencing Type A's displayed elevated resting, but not task induced, blood pressure (Lovallo and Pishkin, 1980). The problem solving skills of Type A subjects deteriorated on an insoluble

task as overt self-referential statements of responsibility for the failure increased (Matthews and Glass, 1979). The non-contingency between behavior and performance outcomes in this study severely affected generalized precepts of self-efficacy. Despite the inconclusive findings, the concept of self-involvement remains interesting and is worth further assessment.

A fourth conceptualization of the Type A behavior pattern was recently presented, but relatively few direct tests of the suggested relationships have been made. From this perspective, the Type A behavior pattern is the consequence of a strong value in productivity combined with ambiguous standards for evaluating performances. Situations without clear standards for evaluating performance lead to chronic achievement striving in Type A individuals. When ambiguous standards exist, Type A's engage in more social comparison processes (Matthews, 1981). Two studies, indirectly related to the concept, found Type A's versus Type B's set initially higher goals for themselves (Snow, 1978), and expressed a stronger interest in performing well relative to others (Suls et al., 1979). Further studies are necessary to determine the validity of this concept.

A few other noteworthy differences between Type A and Type B individuals have been mentioned in the literature. In a series of three attentional studies, Matthews and Brunson (1979) found that (1) Type A's focused more attention on tasks of central significance versus peripheral tasks, and (2) Type A's suppressed attention towards task-irrelevant distractions. Despite greater autonomic arousal, they failed

to report symptoms of arousal or fatigue during task performances (Carver, Coleman, and Glass, 1976; Weidner and Matthews, 1978). Type A individuals therefore focused attention on salient environmental features and ignored symptoms of physiological arousal. This attentional style may be relevant to the pathogenesis of coronary heart disease in that Type A individuals may (1) delay seeking medical treatment when they have physiological evidence suggesting they should consult a physician, (2) may not use symptoms as cues for altering their behavior, and (3) may repeatedly subject their system to physiological overloads through their hyper-alertness and consequent increase in sympathetic nervous system arousal (Matthews and Brunson, 1979).

Summary and Hypotheses

To summarize, the Type A behavior pattern was conceptualized as a mode of coping with stress, a habitual response style, conditioned and reinforced by society. Type A individuals were characterized by a competitive, hard driving, impatient, and time urgent response style. Conditions of challenge, threat, or a lack of control aroused these individuals to a state of physiological hyper-responsiveness. Physiological differences between Type A's and Type B's on baseline measures of heart rate and blood pressure were not observed in some studies (Dembroski et al., 1978), but were observed in others (Dembroski, MacDougall, and Shields, 1977). Type A individuals did show greater heart rate variability at baseline (Dembroski et al., 1978). Differences between the two groups following experimental manipulations included increased motor activity (Matthews and Glass, 1979), increased

plasma norepinephrine (Friedman et al., 1975), elevated autonomic nervous system and cardiovascular arousal (Dembroski et al., 1977, 1978), and elevated systolic blood pressure (Weidner and Matthews, 1978) in Type A individuals. Despite this apparent activation of the autonomic nervous system in challenge situations, Type A individuals rarely displayed increased performance abilities as measured by reaction time or problem-solving skills (Matthews and Glass, 1979). Programs designed to alter the Type A behavior pattern have emphasized the inefficiency of the style in response to challenge, as well as informed subjects of the long-term negative physiological effects (Roskies et al., 1978, 1979; Suinn, 1977).

Type A individuals typically responded to uncontrollable situations with vigilant efforts to regain control until their efforts proved unsuccessful, and they ceased responding altogether. They had a tendency to make self-referential evaluations of their performance even when external circumstances were clearly beyond their control, and thus their responsibility. The self-referential style of the Type A individual may have reflected lower self-efficacy appraisals in circumstances beyond their control. Although attempts at behavioral control escalated, there seemed to be a breakdown of cognitive control in minimizing the extent of distress experienced.

The Type B behavior pattern may not be merely the absence of the Type A response to uncontrollable stress. Type B individuals may exhibit a distinct style of coping response (Matthews and Glass, 1979). With Type B persons, exposure to uncontrollable events resulted in an

initial reduction of efforts to control the situation. They did not assume personal responsibility for the absence of control, nor did they generalize from the specific event to the total environmental field. Their performance on subsequent tasks was therefore not affected by previous failures.

Although coronary prone, Type A individuals are not the only persons to develop coronary heart disease, a distinct relationship between the behavioral response style and the development of coronary heart disease has been demonstrated. The theoretical distinctions between Type A and Type B individuals were rarely tested following a naturally occurring, uncontrollable/unpredictable event. In the present research, Type A and Type B responses were compared following myocardial infarction. Response styles were expected to be similar to the results found in laboratory based experiments.

The hypotheses being tested derived from both the Type A literature and the literature on mediational factors influencing adaptation following stressful events because the latter area provided a more comprehensive and well-researched framework from within which Type A responses might be viewed. Research on the Type A behavior pattern has rarely included the simultaneous assessment of other psychosocial variables of relevance. The identification of similarities and dissimilarities between Type A and other more thoroughly researched constructs might help us to understand the behavior pattern with greater clarity.

The following hypotheses were proposed, as it was expected that Type A and Type B individuals would differ in their responses following myocardial infarction.

Ho 1-Ho 4. Type A individuals were expected to engage in increased efforts, or vigilance, to control their circumstances compared to Type B individuals. More specifically, Type A individuals were expected to (1) seek more illness related information, (2) appear more compliant, (3) resume work activities sooner, and (4) resume social activities sooner than Type B individuals.

Ho 5. Type A individuals were expected to report a greater frequency of self-referential statements about the heart attack and recovery period than Type B individuals. Directional predictions were not made for the frequency of positive or negative self-statements.

Ho 6. Given a perceived lack of control, Type A individuals should report more depressive symptomatology across the measurement periods.

Ho 7. This hypothesis was extrapolated from the repression-sensitization coping style literature and the evidence indicating fewer symptom complaints in Type A individuals. Type A individuals were expected to report fewer symptom complaints, and to wait a longer period of time between symptom occurrences and seeking medical advice.

Ho 8. Type B individuals were expected to report less personal responsibility for their illness than Type A individuals.

Ho 9. Type B individuals were expected to report greater life satisfaction than Type A individuals.

Ho 10. Type A and Type B individuals were expected to differ in their outcome/efficacy expectations, with the Type A group reporting lower expectations for success in the future.

Relationships between the variables in this study were expected to be consistent with previous data. For example, perceptions of control should be correlated with expectations for success and levels of psychopathology. Individuals reporting more negative self-statements should display greater psychopathology. The interrelationships between scale scores should be directionally consistent with previous research findings. Variables highly correlated with outcome measures of adjustment might eventually be used to (1) identify patients at risk for adjustment problems, and (2) help design interventions to facilitate adequate coping. The results from the Type A vs. Type B comparisons may also help to clarify aspects of coping style unique to each group.

CHAPTER 4

METHOD

Subjects

Thirty-three subjects, 5 females and 28 males, were obtained through referrals from six hospital post-coronary care units. Due to a low rate of subjects fitting the selection criteria, all referrals were accepted. The original proposal required 30 subjects for completion of the research. Forty-three subjects were actually referred during the project period. Four individuals refused, citing nervousness as their reason for not participating. Another individual declined, citing a drinking problem as the deterrent. One subject who consented to participate experienced further medical complications during the second week of hospitalization. Four subjects were eliminated prior to acceptance, two for cognitive impairments and two for problems with literacy. The response rate during the project was good. Only two of the 33 subjects who agreed to participate were unable to complete the three month follow-up. One subject died of a heart attack, and the other suffered severe aphasia secondary to a stroke.

Selection criteria were established to eliminate referrals over the age of 75, persons who were illiterate or demonstrated deficiencies in the English language, persons with notable cognitive impairments (e.g., memory disturbances), persons who were not medically stable or

who had other major medical problems (e.g., diabetes or cancer). Thus, four of the 43 referrals were inappropriate.

Of the six hospitals, two were located in Arizona and four were located in Minnesota. One university hospital, one veterans' hospital, two county hospitals, and two private hospitals agreed to make referrals. All of these facilities provided some form of post-MI patient education. Four of them had formal cardiac rehabilitation services which were provided primarily during the patient's hospitalization. Outpatient cardiac rehabilitation services were minimal. Thus, the majority of subjects were followed up by their primary physician.

A large percentage of the subjects were married (82%). Ninety-four percent were living with their family or spouse. Given the mean age of the subject sample (Type A \bar{X} = 56.9; Type B \bar{X} = 55.6), the fact that 64% of the subjects did not have children at home was not unusual. The mean number of years of education was 11.8 (SD = 3.74) with a range from five to 20 years. Sixty-nine percent of the subjects were employed at the time of the heart attack. The remainder were either retired (24%) or unemployed (6%). The occupational status breakdown was blue collar workers (53%), mid-management level workers, including clerical, sales personnel, technicians, or support staff (19%), and finally, executive, administrative or professionals (28%).

The sample was divided into two groups for the purpose of comparing the psychosocial responses between Type A coronary prone and Type B non-coronary prone individuals. Seventeen subjects were classified as Type A and 16 as Type B based upon scores from the Jenkins

Activity Schedule (JAS) taken during the second week post-MI. Problems in obtaining an adequate sample size necessitated using the entire referral group. The suggested JAS cutoff scores of +5 and -5 were therefore not used. The mean Type A score was 4.8, and the mean Type B score was -9.9. Forty-two percent of the subjects' scores were within the -5 to +5 range. Therefore, the reliability of subject classification was not as good as it could have been using the cutoff criteria.

Raters

In each hospital, registered nurses were asked to make assessments of each subject's information seeking behavior, quantity and quality of information, and level of adjustment. A set of procedures (see Appendix A) for approaching subjects was designed to increase consistency in the raters' approach to subjects across hospitals. Depending on staffing patterns and the distribution of educational roles within the facilities, either one or two nurses were assigned to rate a given subject. No more than four nurses were raters in any given hospital. The nurses selected were responsible for providing education and/or primary care to the subject being rated and therefore, had frequent contact with the subjects. Immediately following discharge, ratings were independently made using the rating criteria form to aid in subjective estimates (see Appendix A). When two nurses rated the same subject, the mean of their score was used for the analysis. None of the raters were aware of the specific hypotheses under study.

Similar ratings were made at the three month follow-up point by either the primary physician or a registered nurse involved in

follow-up patient care. Rating sheets and criteria forms were mailed to the responsible medical providers with instructions for completion (see Appendix A).

Measures

Information Sheet

Demographic information was obtained on the information sheet and used for subject identification purposes, as well as for demographic comparisons between the Type A and Type B groups (see Appendix B).

Jenkins Activity Schedule (JAS)

The Jenkins Activity Schedule was used to classify subjects into either the Type A or Type B behavior pattern group. Comparisons between these two groups were made on the 13 dependent variables to be discussed subsequently. Test-retest reliability correlations ranged between .60 and .70 over a four year interval (Jenkins, 1978). The JAS classifications were consistent with those from the SI 73% of the time (Jenkins et al., 1971). The JAS scores were normally distributed ($\bar{X} = 0$; $SD = 10$) within the validation sample. Higher scorers on the JAS (5 and above) had twice the incidence of new coronary heart disease as low scorers (-5 and below) over the four year period (Jenkins, Rosenman, and Zyzanski, 1974). Misclassification of subjects scoring within the mid-range (+5 to -5) did occur. Approximately 36% of the Western Collaborative Group sample fell within the mid-range (Jenkins, Zyzanski, and Rosenman, 1979). In the present sample, 42% fell within the mid-range making it more difficult to trust the reliability of the classification

of subjects. There was only a 54% correspondence rate with the SI classification when subject scores on the JAS fell within the mid-range (Jenkins et al., 1979). Questions about the reliability of classifications within this study must therefore be raised (see Appendix B).

Health Locus of Control Scale (HLC)

The 11-item HLC was designed to measure expectancies regarding locus of control specific to the area of health (Wallston et al., 1976). The total score provided a measure to test Ho 8 which stated that Type B individuals would perceive less personal responsibility for their illness than Type A's. Theoretically, high locus of control subjects believe that habits and/or life styles affect the occurrence of illness. They, therefore, assume more responsibility for physical maladies, whereas low scorers consider illness a matter of fate or luck over which they have little control.

From a 34 face-valid item pool, 11 items were selected having a wide distribution of responses, significant item-to-scale correlations ($r = .20$), low correlations with the Marlowe Crown Social Desirability Scale, and item means close to the midpoint. Test-retest reliability was .71. Internal subjects who valued health sought more health related information than external subjects with high or low levels of health valuation. Concurrent validity of the HLC with Rotter's I-E Scale was claimed by a .33 ($p < .01$) correlation between the two. The overlap was purposely kept low to enhance discriminant validity (Wallston et al., 1976) (see Appendix B).

Self-Statement Inventory (SSI)

The self-statement inventory was a 20-item questionnaire developed by this author to assess the self-referential styles of Type A and Type B individuals following a heart attack. Type A's were expected to be more self-referencing. The frequency of positive versus negative self-statements was not predicted. Subjects indicated how frequently each self-statement characterized their thoughts during the recovery period.

The development of the inventory was similar to the design process of the SSI in the cardiac catheterization project (Kendall et al., 1979). Thirty-six original items having face-valid relevance to persons recovering from MI were generated. Fifteen clinical psychologists, clinical psychology interns and psychiatrists rated each self-statement on whether it would help or hinder recovery from a heart attack. Twenty items were selected from the original 36 (10 positive and 10 negative). Only one of the items did not have 100% agreement as to the direction of the statement (+ or -). The agreement rate in this instance was 93%. A Likert format of 1 = hardly ever, to 5 = very often for the frequency of self-statements was used. Three scores were derived (e.g., total positive, total negative, and a grand total score), and analyzed for differences between Type A's and Type B's in self-referential style.

Generalized Expectancy for Success Scale (GESS)

This scale was developed by Fibel and Hale (1978) to measure generalized expectancies for the successful attainment of desired goals.

It derived from the social learning theory perspective that behavior potential is a function of reinforcement value and expectancies. It was used in this study to test the hypothesis that Type A and Type B expectancies for success would differ. Type A's were expected to report lower expectations for success in the future.

The instrument was constructed by generating 150 face-valid items sampled across situational domains (e.g., private, familial, work related and interpersonal). One hundred four items were selected and given to $N = 100$ subjects. "An item analysis yielded 30 items that were substantially correlated with the total score ($r = .50$) but were not significantly related to social desirability ($r = .10$) as measured by the Marlowe-Crowne Social Desirability Scale" (Fibel and Hale, 1978, p. 925). Test-retest reliability taken over a six-week interval was .83. A split-half reliability check of odd versus even items yielded a .90 coefficient, and a correlation of the first 15 items with the last 15 items yielded a .82 correlation. The highest overall correlation with other measures was found with the Beck Depression Inventory ($r = -.57$). Persons with low expectancies for success reported more depression. A varimax rotation factor analysis yielded four factors: general efficacy, long-range career oriented expectancies, personal problem solving, and a residual group. These factors might have been useful for separating outcome and efficacy expectations, but the overlap in loadings on the four factors suggested a lack of independence. Only the total score was used to measure general efficacy expectations (see Appendix B).

Symptom Check List-90R (SCL-90R)

The SCL-90R is a 90-item, self-report inventory developed to assess the symptom patterns of psychiatric and medical patients (Derogatis, Rickels, and Rock, 1976). Each item is rated on a 5-point scale (0-4) ranging from "not at all" to "extremely" distressing. The checklist measures current symptoms indicative of psychological status versus personality per se. Nine primary symptom dimensions and three global indices of distress can be scored. Test-retest reliability correlations from 94 psychiatric patients after one week ranged between $r = .80$ to $r = .90$ for each of the nine symptom dimensions. Internal consistency coefficients ranged from a low of .77 for psychoticism to a high of .90 for depression. Information on factorial invariance was also presented suggesting that the SCL-90R construct dimensions were generalizable across social class, psychiatric diagnosis (Derogatis et al., 1971, 1972) and sex (Derogatis and Cleary, 1977). Criterion-oriented concurrent validity was conducted using the MMPI for comparison. High convergent validity was obtained between all of the SCL-90R scales, except the Obsessive-Compulsive scale, and the corresponding MMPI scales (e.g., Psychoticism and SC, $r = .64$). A variety of discriminative validity studies were presented in the SCL-90R manual. Construct validity was evaluated by a principle components factor analysis of 1,002 psychiatric patients. Factors obtained were then rotated and compared with the hypothesized structures of the SCL-90R. The empirical analysis matched the theoretical structure quite well on all but two dimensions.

For the purpose of this study, only four of the 12 possible scale scores were used. The Somatization, Anxiety, Depression, and Global Severity Index (GSI) scales were selected for use in this study. The Somatization score reflected physical symptom complaints (e.g., headaches, pains in heart or chest, trouble getting your breath, and weakness in parts of your body). Type A individuals were expected to have fewer physical symptom complaints than Type B individuals.

The Depression scale score was used to evaluate Ho 6 predicting greater levels of depression in Type A individuals when a perceived lack of control over their illness existed. The two remaining scores, Anxiety and the Global Severity Index, were used in the overall correlational analysis. All four scores were derived T-scores from the SCL-90R "normal population" profile (see Appendix B).

Employment

A short, five-item questionnaire related to employment was developed to assist in the testing of Ho 3. Type A individuals were expected to resume work activities sooner than Type B. individuals. Only item number two was used to evaluate this hypothesis. The primary measure was the number of weeks from discharge to the date of return to work (see Appendix B).

Activities

Thirty-five social, cultural, recreational, and community activities were generated using the Pleasant Events Schedule (MacPhillamy and Lewinsohn, 1974) as a model. Subjects indicated for each activity

their frequency of involvement (from 0 = not at all to 5 = 1 x per day). The potential range of scores was 0 to 175. The probable range was somewhat less. The total score was used to assess differences between Type A's and Type B's in the resumption of physical activities post-MI (see Appendix B).

Medical Advice Form (MAF)

The Medical Advice Form was also designed specifically for this study. The eight questions pertained to (1) the use of medications, (2) alcohol consumption, (3) cigarette smoking, (4) diet, (5) medical checkups, and (6) exercise. A summed total score was derived with higher scores indicating greater medical compliance. Non-directional comparisons were made between the Type A and Type B groups. Items seven and eight were analyzed separately, as well as being included in the total score. Type A individuals were expected to wait longer before seeking medical advice following symptom occurrences. This prediction (Ho 7) was based upon prior research demonstrating that task involvement for Type A persons precludes the focusing of attention on symptom occurrences until the task has been completed (see Appendix B).

Satisfaction Scale

This self-report scale was designed to measure satisfaction with life circumstances. Questions regarding satisfaction with levels of activity, progress in recovery, physical strength, personal relationships, medical treatment, and general life quality were included. A summed total score was obtained, with higher scores indicating greater

satisfaction. The range of scores was from 10 to 48. The total score was used in testing Ho 9 predicting less satisfaction in the Type A group (see Appendix B).

Perceptions

The perceptions scale was designed to assess individual perceptions of control relative to a heart attack; control over events, over the future, and over behaviors and emotions. The summed score from this scale was used to evaluate Ho 6. Type A individuals who perceived a lack of control over events surrounding their illness were expected to report more depressive symptomatology (see Appendix B).

Nurses Rating Scale

A six-item, Likert-type rating scale (see Appendix A) was developed to evaluate information seeking, information quantity and accuracy, and level of adjustment. Ratings from the first three items were combined to form an information seeking score covering questions about (1) heart disease, (2) medical procedures, and (3) the recovery period. On the remaining two items, ratings of information quality and accuracy were made. The final item evaluated levels of adjustment to the heart attack. Each patient was rated by a registered nurse responsible for patient education on the post-coronary care unit. The three month follow-up rating was made by either the primary physician or a nurse involved in follow-up care. Reliability data obtained by asking six pairs of nurses to independently rate three recently discharged coronary patients yielded an averaged correspondence of 30%, with a

range of between 16 and 50% correspondence per subject (e.g., \bar{X} across subjects). Interviews with the nurses following the ratings revealed three sources of variance: (1) quantity of time spent with subjects, (2) quality of nurse-patient interactions, and (3) different subjective criteria (e.g., using patient attitude to determine ratings of information seeking). Therefore, standard rating criteria for each question were designed to provide greater consistency in the ratings (see Appendix A). Use of the rating criteria in a subsequent sample increased the average rate of correspondence to 72%. The extent of discrepancy between ratings on each item decreased as well (e.g., from ratings of 1 and 5 on an individual item, to 4 and 5 suggesting greater agreement between raters). The rating criteria were then used by all nurses and physicians responding to the questionnaire. The information seeking score was used to test $H_0 1$, stating that Type A individuals should seek more illness related information in an effort to control their circumstances.

In summary, 13 scores were used to compare Type A versus Type B responses following myocardial infarction across two (or three) measurement periods. The six measures developed for the purpose of this study were not tested prior to their use to determine the reliability or validity of the instruments. Table 1 presents a display of the independent and dependent variables analyzed in the study.

Table 1. Graphic display of the 2 x 2 x 13 variables included in the overall analysis

Comparison Groups	Length of Time Post-MI		
	Two Weeks	One Month	Three Months
Type A	Health Locus of Control	Activities	Health Locus of Control
Type B	Self-statements		Self-statements
	1) Total		1) Total
	2) Positive		2) Positive
	3) Negative		3) Negative
	Expectancy for Success		Expectancy for Success
	Depression/Perceived Control		Depression/Perceived Control
	Somatization		Somatization
	1) SCL-90		1) SCL-90
	2) Symptom Delay		2) Symptom Delay
	Work Return		Work Return
	Activities		Activities
	Compliance		Compliance
	Satisfaction		Satisfaction
	Information Seeking		Information Seeking

Procedure

All subjects were referred following an initial screening for selection criteria by the head nurse or clinical director responsible for coordinating the project at each separate post-coronary care unit. Physician approval to interview subjects was initially obtained. Prospective subjects were approached individually during the latter portion of their hospital stay (with a few exceptions). Five patients were contacted during the first week post-discharge. Only one of these five individuals agreed to participate in the study. The latter portion of the week following transfer from the intensive care unit to the post-coronary care unit was selected to give each patient time to adjust to the transfer and to begin assuming more independent functions.

Each subject was asked to participate in a research project designed to assess factors related to adjustment following a heart attack. The requirements for participation over a three month period were explained and a review of the questionnaire instruments was given prior to asking the subject to sign the Subject's Consent form (see Appendix C). The interaction allowed the opportunity for a clinical assessment of cognitive functions and an evaluation of language or reading deficiencies. Self-report measures were given to the subjects to complete during the remainder of their hospitalization. Completed forms were left at the nurses' station in a sealed envelope for the interviewer. One month following the initial interview each subject received in the mail a copy of the Activities measure (see Appendix B) to be completed and returned in a self-addressed, stamped envelope.

Three months following the initial interview, the entire set of self-report measures was mailed for completion and return by the subjects. Subjects were not aware of (1) the hypothesized Type A-Type B differences in adjustment, (2) the specific factors mediating adjustment, or (3) the ratings done by the nursing staff in the hospital. Seventeen out of 31 subjects completing the study requested copies of the results.

Analysis

Subjects were divided into two groups, Type A or Type B, on the basis of their scores on the Jenkins Activity Schedule. A repeated measures analysis of variance was separately performed on each of the 15 dependent variables using subject group (Type A or Type B) and measurement period (two weeks, one month, and three months post-MI) as the grouping and trial factors respectively. Comparisons between the Type A and Type B groups were made at each measurement point and over time in order to assess differential responses to myocardial infarction. An overall correlational analysis helped evaluate the relationships between mediational variables and outcome measures of adjustment. Patterns within the data approaching significance were not ignored, and the strength of associations between variables was taken into account in the final discussion.

Limitations of the Study

Prior to presenting the results, the limitations of the study will be discussed to provide the reader with a framework for assessing the significance of the findings. Certain limitations derive from

selecting a field experiment which is not characteristic of laboratory experiments. This type of study often limits what can be said with certainty, because of the sacrifice in experimental control. There were limitations in gaining access to a reasonably sized subject pool, limitations restricting the amount of invasiveness or extent of the assessment, limitations based on the subject selection criteria, and time limitations for follow-up evaluations.

Some of the specific problems influencing the internal validity of the study included: problems with instrumentation, changes in observers providing subject ratings, the lack of an assessment of pre-MI status (possible selection bias), no control over intersession history, the absence of an appropriate control group, and problems with the reliability of the A-B classification. The primary threat to external validity derives from the number of hospitals used to obtain subjects. Procedural differences, differences in educational opportunities and support, and recommendations for recovery may have had an effect on the results, and between-subjects error variance. On a more positive note, the results may be more generalizable because of the variety of hospital settings used (e.g., veterans', county, private, university).

The univariate analysis of multiple dependent variables ($N = 13$) in a limited subject pool ($N = 33$) creates a significant statistical problem. When multiple variables are analyzed from the same population, the experiment-wise error rate increases. The F tests are not statistically independent, and the probability of at least one spurious result (Type I error) increases. Two mechanisms exist for handling this

problem. A MANOVA including all of the dependent variables would protect the experiment-wise error rate (EW) and would assess whether a difference between the two groups, A and B, existed. This approach is extremely useful when the variables in isolation have no meaning. A post-hoc analysis would be required to locate the differences between the two groups. A second alternative found useful when there is a limited subject pool, and the variables are independently meaningful, is the Bonferroni correction (Hayes, 1973; Meyers, 1976). Adjustments for the experiment-wise error rate per comparison (EC) at the $EC = EW/K$ significance level where K = the number of dependent variables. Using the correction for 13 variables, the error rate per comparison should be set at .004. Since the equation provides a conservative correction when the variables are correlated with one another (Meyers, 1976), the .01 level of significance will be used as the standard for the error rate per comparison.

Despite these limitations, the results provided some interesting patterns of response and stimulated ideas for further, more systematic and controlled exploration into the Type A behavior pattern.

CHAPTER 5

RESULTS

Demographic Comparisons

A series of contingency table analyses to test the statistical significance between group membership, Type A or Type B, and marital status, relationship status, living arrangements, years of education, work hours, work status, number of children at home, sex, and occupational status was performed. The Chi-square test statistic was used to identify the presence or absence of a systematic relationship between group membership and each of the demographic variables. Chi-square essentially computes the cell frequencies expected when no relationship between variables exists, and then compares the obtained values with the expected ones. Large discrepancies between expected and actual frequencies are indicative of a systematic relationship between the variables under study. Smaller deviations may be due to chance and reflect statistical independence. Chi-square was selected as the test statistic since both variables, or at least one of the variables, being tested were measured at the nominal level.

The results, as indicated in Table 2, revealed no significant differences on demographic variables between the Type A and Type B groups. A T-test to identify differences between the two groups on age was also non-significant ($N = 29$, $t = -.35$, $p < .73$).

Table 2. Chi-square values for comparisons between group membership (type A or type B) and demographic variables

	Raw Chi-square	df	Level of Significance
Marital status	4.9	3	.18
Relationship status	2.3	1	.13
Living arrangement	3.9	3	.27
Education	2.5	3	.48
Work hours	6.3	5	.27
Work status	2.4	2	.31
Children	4.2	5	.53
Sex	.31	1	.58
Occupational status	1.3	2	.52

Demographic comparisons were made between the six hospitals to identify any unique population differences that might confound the results. No significant differences were found in patient demographic characteristics between the hospitals.

Analysis of Variance

A repeated measures analysis of variance (2 x 2 x 13) was computed on each of the 13 dependent variables. In 12 of the analyses there were only two repeated measures (two weeks and three months post-MI) making the analysis similar to a paired comparison t-test. In all but three instances, the analysis included one grouping factor (Type A

versus Type B), and one trial factor with either two or three levels (two weeks, one month, and three months post-MI). Subjects were nested within levels of the grouping factor. The design was comparable to a mixed design with one between subjects variable and one within subjects variable.

Control

The hypothesis that Type A individuals would respond to a heart attack with increased efforts to control their circumstances was partially substantiated. More specifically, Type A individuals were expected to seek more illness related information, return to work sooner, resume social/recreational activities sooner, and to appear more compliant than Type B individuals.

No significant differences between Type A and Type B individuals on information seeking were found. As displayed in Table 3, the mean

Table 3. Comparison of means between type A and type B groups on ratings of information seeking over time

	<u>Type A Group</u>		<u>Type B Group</u>	
	X	S.D.	X	S.D.
	N = 15		N = 12	
Two weeks post-MI	9.7	2.6	9.1	3.3
Three months post-MI	9.9	2.2	9.8	1.9

rating of information seeking was higher in the Type A group, although the difference between the two groups was non-significant ($F = .22$, $df = 1, 25$, $p < .64$). No significant trial or interaction effects were present.

In order to test the assumption that Type A individuals would return to work sooner, a measure taken three months post-MI of the actual time in weeks taken to resume employment was used. Retired subjects and subjects who had not returned to work by the three month period ($N = 7$) were eliminated from the analysis. The results based upon a t-test for differences between means were contrary to expectation. The Type A ($N = 13$) group took significantly longer to return to work ($\bar{X} = 9$ weeks) than the Type B ($N = 11$) group ($\bar{X} = 6.2$ weeks) ($t = -1.68$, $df = 17$, $p < .05$). The t-test was selected because there were no repeated measurements of this variable.

With reference to the resumption of activities, the repeated measures ANOVA compared activity levels between the Type A and Type B groups at two weeks, one month, and three months post-MI. For the two week assessment, subjects were asked to rate their activity level in the month preceding the heart attack. A significant main effect for activity level was obtained ($F = 8.36$, $df = 1$, $p < .007$). Figure 1 depicts the main effects for activity level. Type A individuals were more active than Type B individuals at all three measurement periods. There was a significant decline in activities for the Type B group at one month post-MI, and at three months, they began approaching ($\bar{X} = 52.5$) the pre-MI or baseline level of activity ($\bar{X} = 55.6$). In contrast, the

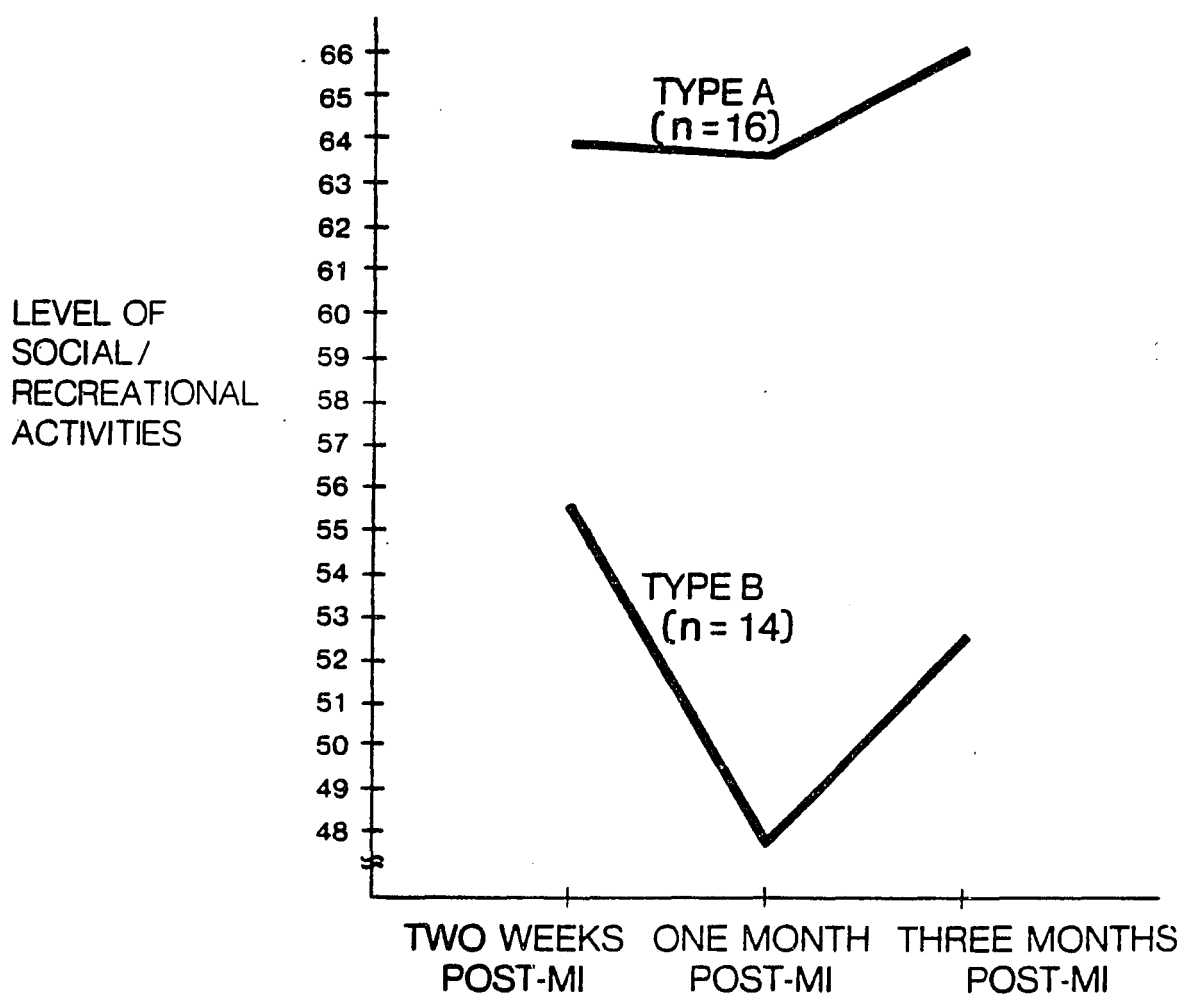


Figure 1. Coronary type A or B and length of time post-MI main effects for the level of social/recreational activity

Type A group at one month ($\bar{X} = 63.6$) resumed the number of social/recreational activities engaged in at the baseline measurement point ($\bar{X} = 63.9$). By the three month period, their overall activity level ($\bar{X} = 66.1$) surpassed the baseline scores.

In order to further assess the significance of these changes, an analysis of covariance using the two-week activity score as a covariate was performed. Evidence of a significant main effect ($F = 5.94$, $df = 1, 27$, $p < .02$) remained following the adjustment for the pre-MI baseline activity level. The Type A and Type B groups were significantly different from one another with Type A individuals, as predicted, resuming activities sooner. The covariate was associated with the dependent variables ($F = 12.2$, $df = 1, 27$, $p < .002$, Beta estimate = .53). The error terms were significantly reduced in comparison to the original analysis of variance. The trial effect approached statistical significance ($F = 3.11$, $df = 1, 28$, $p < .09$). No interaction effects were present. Figure 2 presents a display of the adjusted mean scores for the two groups when activity level at baseline was used as a covariate in the analysis of covariance.

Medical compliance, measured as a composite score of dietary restrictions, alcohol consumption, medication use, smoking, and exercise, was analyzed in a repeated measures analysis of variance. No significant main effects were observed ($F = 2.31$, $df = 1, 29$, $p < .14$), although the Type A group ($N = 17$, $\bar{X} = 40$) was more compliant than the Type B group ($N = 14$, $\bar{X} = 34$) two weeks post-MI. A significant trial effect revealed that both groups became more compliant over time ($F = 43.7$, $df = 1, 29$, $p < .00001$).

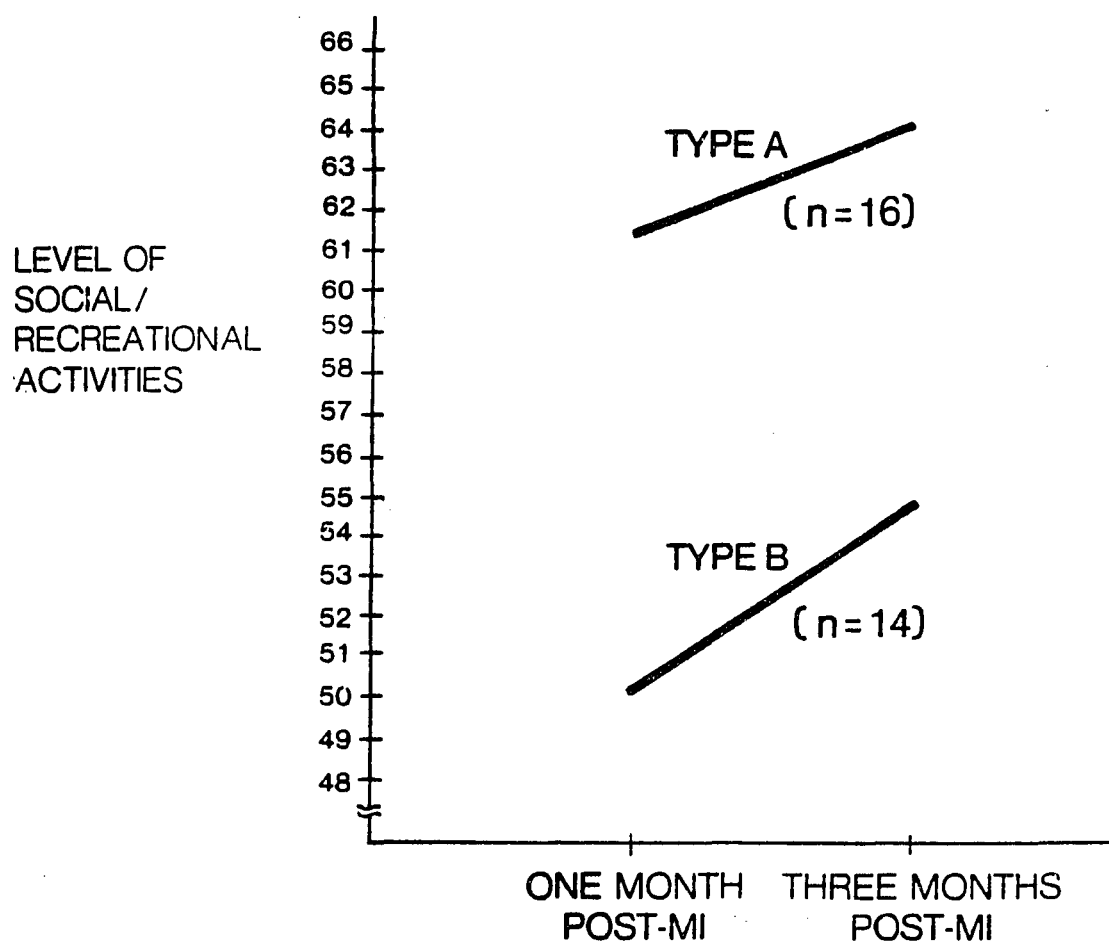


Figure 2. Coronary type A or B and length of time post-MI main effects for the level of social/recreational activity using activity level rating at two weeks post-MI as the covariate

Comparisons using only levels of exercise were comparable to the results from the composite medical compliance analysis of variance. The trial effect was significant ($F = 12.85$, $df = 1, 28$, $p < .001$) demonstrating an increase in exercise compared to baseline levels. A posthoc Mann Whitney U analysis of smoking behavior was interesting. Differences between Type A and Type B pre-MI smoking behavior were non-significant. At the three month follow-up, a tendency for Type A's to decrease smoking relative to Type B's was observed ($U = 84.5$, $p < .05$). The findings did not necessarily confirm the original hypothesis that Type A individuals would become more compliant in an effort to control their circumstances. Both groups improved in health related habits following the MI.

Self-Referential Style

The fifth hypothesis posited that Type A individuals would be more self-referential than Type B individuals on the self-statement inventory. No directional predictions were made about differences between the two groups in positive or negative self-statements. Consistent with the hypothesis and previous research, the Type A group ($N = 17$) reported a greater frequency of overall (+ and -) self-statements at two weeks and three months post-MI. The main effect for total self-statements approached statistical significance ($F = 6.21$, $df = 1, 29$, $p < .02$). The analysis of positive self-statements yielded no significant main, trial, or interaction effects despite the Type A groups' greater frequency of positive self-statements. The statistically significant results from the negative self-statement analysis ($F = 9.40$, $df = 1, 29$,

$p < .005$) can be seen in Figure 3. Type A individuals engaged in a greater frequency of negative self-statements than Type B individuals. The results from the negative and the total self-statement analyses were consistent with proposed differences between the two groups in self-referential style following stressful events. Type A persons were more pessimistic about their recovery and the ramifications of physical illness.

Depression and Perceived Control

A marginally significant main effect for depression as measured on the SCL-90R ($F = 5.85$, $df = 1, 29$, $p < .02$) further substantiated the negative cognitive style of Type A individuals following a heart attack. Perceptions of control over the event differed between the two groups (Type A $\bar{X} = 28$; Type B $\bar{X} = 31$), but the main effect in the analysis of variance did not reach statistical significance ($F = 2.76$, $df = 1, 27$, $p < .10$). To test the hypothesis that Type A individuals would become more depressed than Type B individuals by a perceived lack of control, the control score taken at the two week assessment period was used as the second grouping factor. The only statistically significant result derived from the main effects for levels of control between subjects ($F = 5.54$, $df = 1, 25$, $p < .027$). In other words, regardless of group membership or assessment time, persons high on initial perceptions of control had lower scores on measures of depression. Individuals who had low initial perceptions of control reported more depressive symptomatology. Figure 4 presents a graphic display of the main and interaction effect. As can be seen, individuals who initially had lower

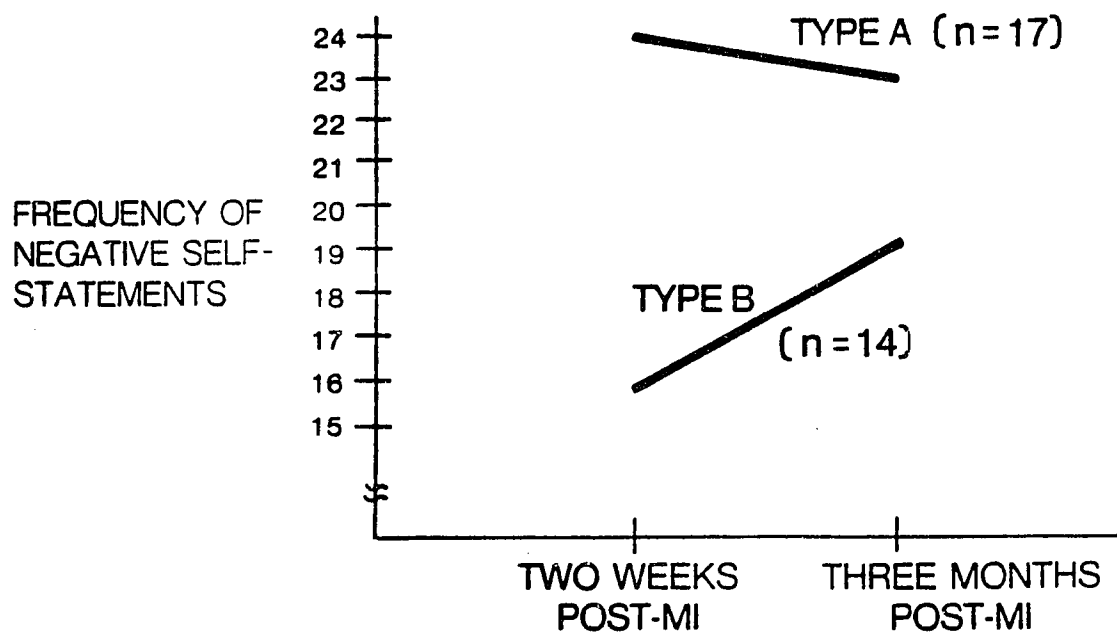


Figure 3. Coronary type A or type B and length of time post-MI main effects for the frequency of negative self-statements

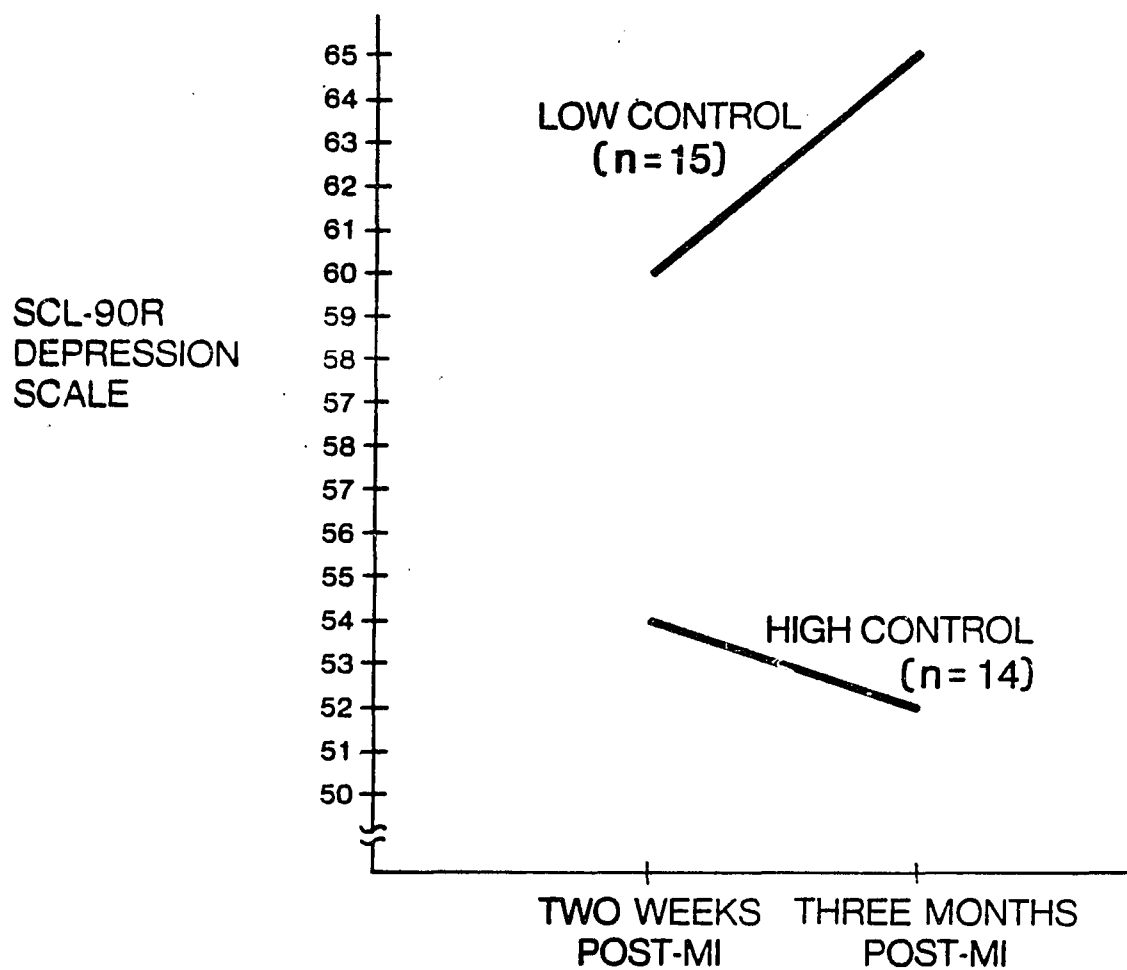


Figure 4. Initial perceptions of control x time post-MI main and interaction effects for levels of depression on the SCL-90R

perceived control over their circumstances demonstrated an increase in depression over time. Individuals who initially had high perceptions of control became less depressed over time. Finally, Figure 5 presents the overall results including the differences between the Type A and Type B groups.

Symptom Complaints

Previous research cited in the literature review led to the supposition that Type A individuals would resemble repressors in coping style, whereas Type B individuals would appear more like sensitizers. This assumption was based upon the observation that Type A individuals suppressed symptoms during uncontrollable stress conditions. Symptom complaints were analyzed using the analysis of variance repeated measures model. Scores from the Somatization Scale of the SCL-90R were compared over time and between groups. Contrary to expectation, the Type A group reported symptoms more frequently ($F = 5.72$, $df = 1, 29$, $p < .02$). As can be seen in Table 4, the Type A group maintained approximately the same level of symptom complaints across the measurement periods, while the Type B group showed a decline in symptom reporting.

The second analysis of symptom complaints was obtained from ratings by subjects of the amount of time taken between symptom occurrences and contacting the physician. Type A individuals were expected to delay seeking medical advice. Although the results from the analysis of main effects were not statistically significant, the interaction effect approached significance ($F = 3.65$, $df = 1, 27$, $p < .06$). The Type A group took longer to report symptoms at three months than at

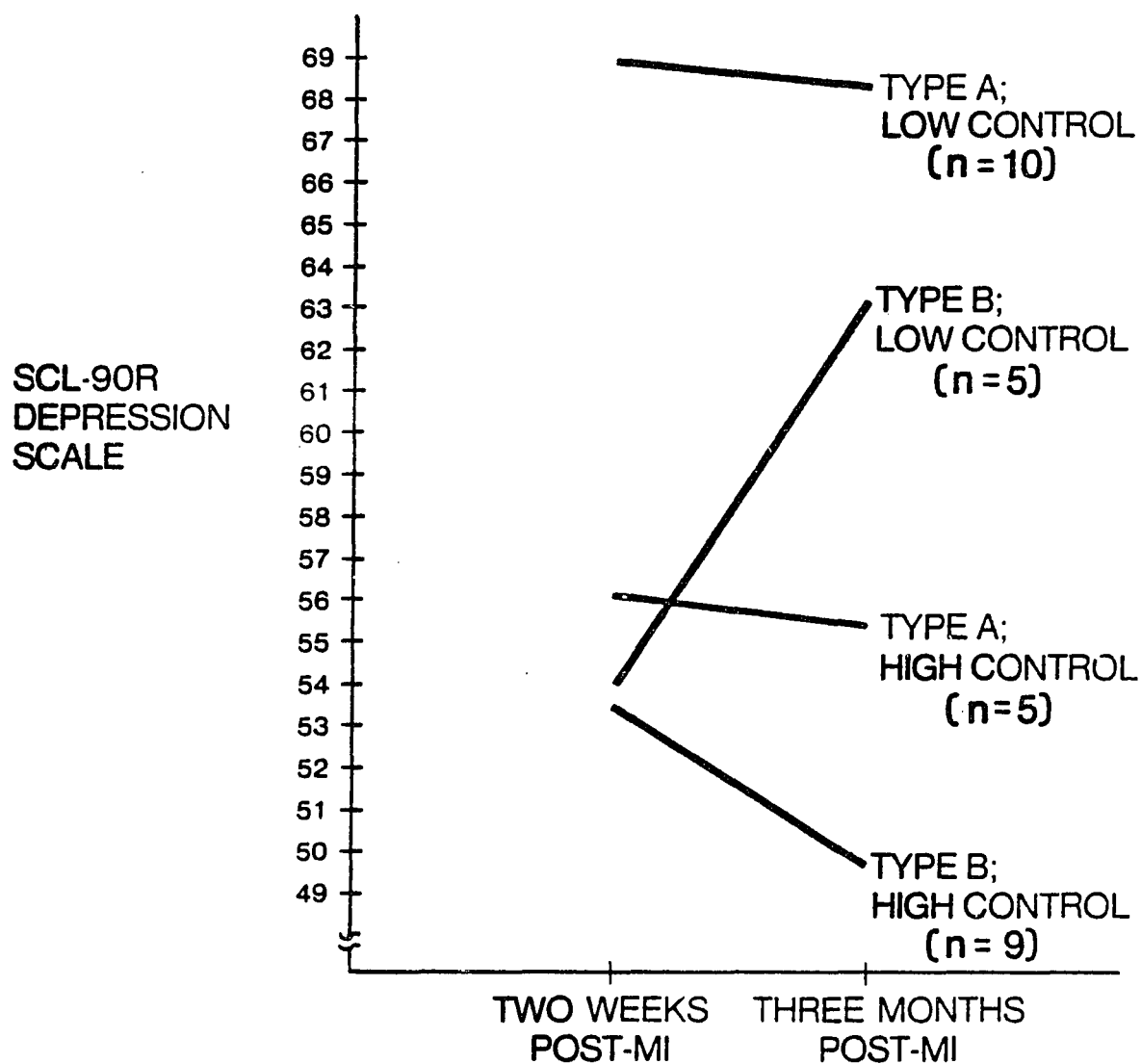


Figure 5. Initial perceptions of control x group A or group B x time post-MI for levels of depression on the SCL-90R

Table 4. Comparison of means between type A and type B groups on the somatization scale of the SCL-90R

	Type A Group		Type B Group	
	\bar{X}	S.D.	\bar{X}	S.D.
	(N = 17)		(N = 14)	
Two weeks post-MI	61.4	11	57.4	13
Three months post-MI	62.8	9	54	11

two weeks post-MI. The Type B group showed an overall increase in their responsiveness to symptoms by the three month follow-up. To summarize, results from the analysis of symptom complaints were contrary to expectation. Type A individuals appeared more like sensitizers in coping style with Type B individuals appearing more like repressors. The second analysis was more consistent with expectation in that over the three months, the Type A group became less likely to contact their physician immediately following symptom occurrences. The Type B group became more responsive to symptom occurrences over time.

Locus of Control and Satisfaction

Differences between the two groups were not observed on the measure of overall life satisfaction. The Type A group was expected to display greater levels of dissatisfaction than the Type B group. The Type A group did report significantly less social support at the three month follow-up. The Mann Whitney U mean rank comparison score of 74.5

was significant at the $p < .02$ level. In Table 5, the mean ranking of social support scores from both groups is presented.

Table 5. Comparison of mean ranks between the type A and type B groups on ratings of social support

	Type A Group		Type B Group	
	Mean Rank	(N)	Mean Rank	(N)
Two weeks post-MI	16.4	(17)	17.7	(16)
Three months post-MI	13.4	(17)	19.2	(14)

To test the assumption that Type A individuals would report an internal health locus of control and Type B individuals would report an external health locus of control, an analysis of variance was computed using scores from the Health Locus of Control Scale as the dependent variable. No significant main, trial, or interaction effects were obtained. None of the significance tests were approaching statistical significance. A trend was observed in a 2 X 2 (Type A/Type B X high/low health locus of control) Chi-square analysis of the two week post-MI scores ($\chi^2 = 3.77$, $df = 1$, $p < .05$). Type A individuals were more frequently in the high health locus of control median split group, indicative of an external health locus of control.

Expectancy for Success

The final hypothesis selected for study involved a nondirectional prediction of differences between the two groups on expectancies for success in the future. The results from this analysis are depicted in Figure 6. Analysis of the main effects yielded a trend towards significance ($F = 2.89$, $df = 1, 27$, $p < .10$). No trial effects were evident. The interaction effect ($F = 3.36$, $df = 1, 27$, $p < .07$) was also approaching statistical significance.

Posthoc t-test comparisons between means were significant at the two week post-MI period ($T = 2.08$, $df = 30$, $p < .05$), but not at the three month assessment point. In general, the Type A group appeared more pessimistic regarding future successes relative to the Type B group immediately following the heart attack. The presence of an interaction effect reflects the tendency for A's to increase efficacy expectations over time and for B's to decrease efficacy expectations over time.

Correlational Data

An overall correlational analysis was done using the Spearman Rank Correlation Coefficient for ordinal data because many of the variables could not be classified on an interval scale of measurement. It is beyond the scope of this thesis to display and discuss all of the significant relationships between variables. A few of these will be discussed at this time. The remainder will be covered in a subsequent paper. The relationship between perceptions of control over responses and events associated with a heart attack, and efficacy expectations for success in the future was $\rho = .59$, $p < .001$. No relationships

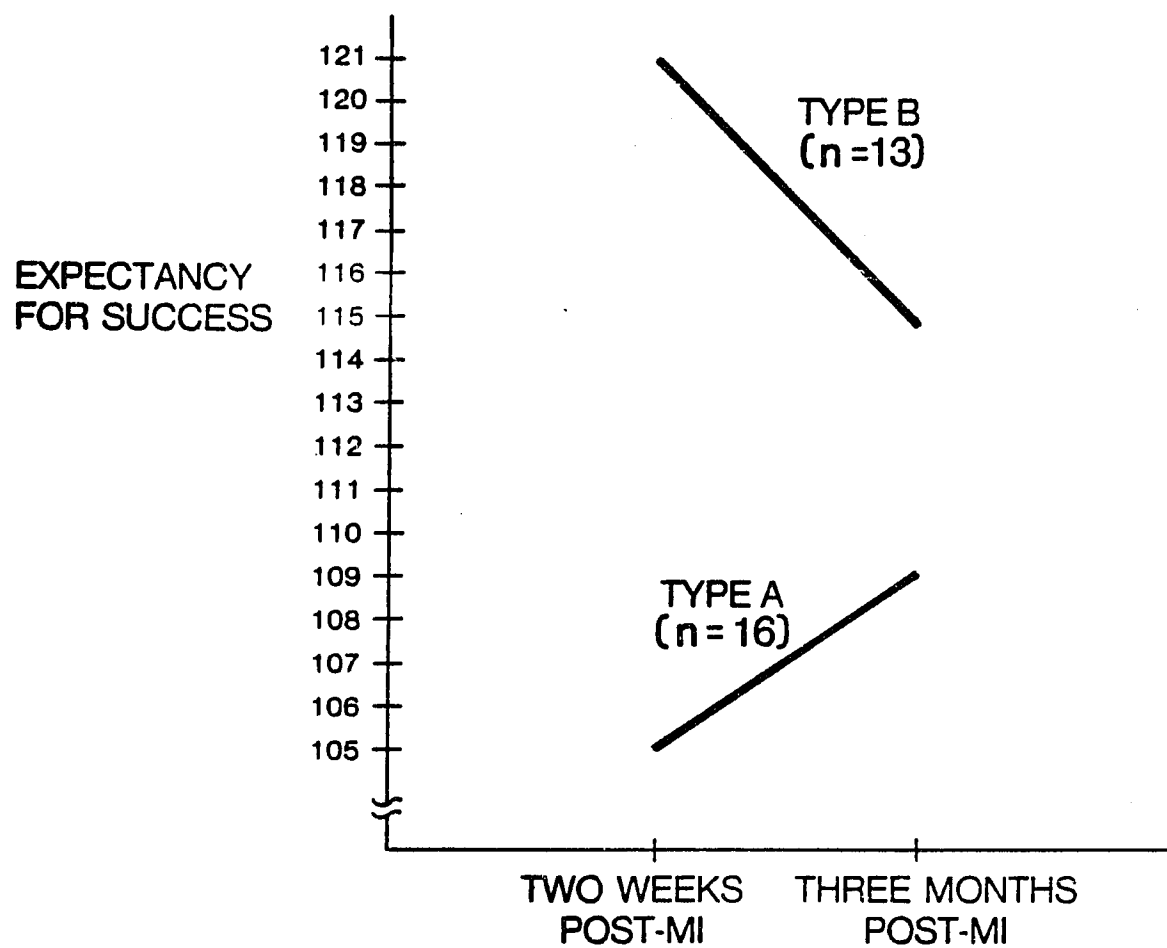


Figure 6. Coronary type A or B and length of time post-MI interaction effects for expectations for success in the future

were found between information accuracy and subsequent measures of medical compliance, although accuracy was related to further medical complications ($\rho = .33, p < .05$). A significant relationship was found between measures of social support and overall life satisfaction ($\rho = .65, p < .001$). Individuals who engaged in negative self-statements were less adjusted as evidenced by the associations with depression ($\rho = .49, p < .002$), anxiety ($\rho = .48, p < .003$), and overall psychopathology ($\rho = .40, p < .01$). Comparable correlations were found at the three month follow-up. Individuals who reported more symptomatology were more anxious ($\rho = .41, p < .01$) and were more likely to report symptoms to their physicians sooner ($\rho = .35, p < .03$). No relationship was found between initial symptom reporting and subsequent medical status (e.g., further medical complications). Individuals with an external health locus of control reported less control over their responses and the events associated with a heart attack ($\rho = -.31, p < .03$). Type A individuals with an internal health locus of control were more likely to seek more information related to heart disease ($\rho = -.65, p < .001$). Thus, many of the predicted relationships between variables were found in the overall correlational analysis.

Variables at the two week point found to be significantly related to the three month measures of elevated psychopathology were (1) Jenkins Activity Speed Impatience scores ($\rho = .56, p < .001$), (2) negative self-statements ($\rho = .54, p < .01$), (3) expectancies for success ($\rho = -.65, p < .001$), (4) depression ($\rho = .70, p < .001$), (5) anxiety ($\rho = .57, p < .001$), (6) psychopathology ($\rho = .69, p < .001$),

(7) plans to return to work ($\rho = -.34, p < .03$), (8) Type A status ($\rho = .47, p < .004$), (9) life satisfaction ($\rho = -.54, p < .001$), (10) social support ($\rho = -.46, p < .01$), (11) perceived control ($\rho = -.55, p < .001$), (12) hostility ($\rho = .60, p < .001$), and (13) sexual activity level at one month ($\rho = -.32, p < .04$). All of the relationships were in the expected direction. The only two demographic variables associated with levels of psychopathology at three months were employment status ($\rho = .33, p < .03$), and occupational status ($\rho = -.47, p < .005$). Thus, individuals who displayed greater psychopathology at three months were more likely to be unemployed or retired, and if they were employed, they were usually blue collar workers.

Physician ratings of adjustment at the three month point were associated with the following variables taken from the two week post-MI period: (1) health value ($\rho = .32, p < .05$), (2) positive self-statements ($\rho = .37, p < .02$) and (3) negative self-statements ($\rho = -.33, p < .05$). Individuals who valued their health, who reported a high frequency of positive self-statements and a low frequency of negative self-statements at two weeks were rated as more adjusted by their physicians at three months. Ratings of information accuracy at three months were associated with higher levels of job involvement ($\rho = .62, p < .001$), expectancies for success ($\rho = .34, p < .04$), less depression ($\rho = -.44, p < .01$), less anxiety ($\rho = -.44, p < .01$), less general psychopathology ($\rho = -.50, p < .004$), and greater life satisfaction ($\rho = .33, p < .05$).

Little is known about the relationship between scores on individual scales from the Jenkins Activity Schedule and other measures of

psychological or social status. Table 6 depicts the statistically significant relationships between demographic and psychosocial variables and the JAS speed/impatience scale, job involvement scale, hard driving/competitive scale, and Type A scale respectively.

Individuals reporting greater speed/impatience tend to experience a sense of time urgency, become easily irritated, and approach situations rapidly. As can be seen in Table 6, these individuals were more often involved in a significant relationship, had a lower occupational status, were more depressed following the heart attack, were more medically compliant prior to hospitalization, and were often classified as Type A. They reported less perceived control and social support. Yet, they resumed social-recreational activities sooner.

Individuals involved in their jobs worked more hours, were younger, better educated and of higher occupational status. They were more active physically (e.g., exercise), were more satisfied with their lives, and were rated by physicians at three months as having more accurate information about heart disease and recovery factors. They typically engaged in fewer negative self-statements and reported an internal health locus of control.

Interestingly, the hard driving/competitive scale which purportedly measures personal responsibility, seriousness, competitiveness, conscientious actions, and effort was not statistically related to many of the other variables. These individuals were less active physically prior to the heart attack and reported significantly less control over their responses and situations associated with a heart attack.

Table 6. Significant correlations between each of the factor scales from the Jenkins Activity Schedule and psychosocial variables

Psychosocial Variables	Jenkins Activity Schedule Scales			
	Speed/ Impatience	Job Involvement	Hard Driving/ Competitive	Type A
Two Weeks				
Age		-.37*		28
Relationship	.40**			
Education		.54***		
Occupation	-.44**	.64***		
Work hours		.43**		
Speed/impatience				.56***
Job involvement				
Hard driving/ competitive				
Type A	.56***			
Depression	.30*			.38*
Activities				.31*
Medical compliance	.33*			
Exercise		.35*	-.34*	
Negative self- statements	.36*	-.32*		
Social support	-.35*			
Life satisfaction		.47**		
Perceived control	-.33*			
Health locus of control		-.39**		
One Month				
Activities	.38**			.56***
Three Months				
Speed/impatience	.58***		-.32*	.52**
Job involvement		.74***		
Hard driving/ competitive	-.32*			
Type A	.46**			.84***
Depression	.54***			.34*
Symptomatology				.45**
Anxiety				.33*
General pathology	.56***			.47**
Hostility	.42**			.32*
Information accuracy		.62***		

Table 6, continued

Psychosocial Variables	Jenkins Activity Schedule Scales			
	Speed/ Impatience	Job Involvement	Hard Driving/ Competitive	Type A
Exercise		.32*		
Social support	-.58***			-.39**
Health locus of control		-.38*		
Perceived control			.38*	-.34*
Activities	.37*			.47**

*p < .05

**p < .01

***p < .001

Finally, the tendency towards a Type A classification was strongly associated with higher depression scores and greater activity levels. A significant relationship exists between Type A status and speed/impatience characteristics. In fact, neither of the other two Jenkins Activity Schedule scales were significantly correlated with the Type A factor. A test-retest reliability of $\rho = .84$ was obtained on the Type A scale. At three months, depression, symptom complaints, anxiety, hostility, and overall psychopathology were related to initial Type A status. Type A individuals reported less perceived control over their circumstances and emotional responses and less social support than Type B individuals.

Summary of Results

Confirmation of several of the original hypotheses was obtained within the preceding sections. Type A individuals were found to resume social/recreational activities sooner than Type B individuals. Type A individuals appeared to be more self-referential in response to a heart attack, meaning that they reported a greater frequency of self-statements overall than the Type B group. Negative self-statements were also more frequently observed in the Type A group. Consistent with the findings of a greater incidence of negative self-statements were the higher levels of depressive symptomatology in the Type A group. Regardless of group membership, individuals who perceived a lack of control over their illness or personal responses to illness were more depressed. Individuals in the Type A group who perceived a lack of control were significantly more depressed than individuals in the Type B group who

perceived a lack of control. The low initial control, Type B group, showed a substantial increase in depression by the three month period compared to the Type A low control group which although higher remained the same across measurement periods. The efficacy expectations and expectations for success were significantly lower in the Type A group at both measurement points.

A number of the analysis results were contrary to expectation. No significant differences between the two groups on information seeking were found. Type A individuals were found to return to work later than Type B individuals. No differences were obtained between the two groups on the measure of compliance, although both groups increased their compliance over time. The Type A group had significantly higher somatization scores on the SCL-90R indicating more symptom complaints. More consistent with the initial prediction was a marginally significant interaction effect which demonstrated an increase in the delay between symptom occurrences and symptom reporting for the Type A group, and a decrease in the time taken to report symptoms within the Type B group. Finally, no differences between groups were found on the measures of life satisfaction or the Health Locus of Control Scale.

CHAPTER 6

DISCUSSION

The intent of this thesis was to compare the responses of Type A and Type B individuals following an unpredictable, uncontrollable event, myocardial infarction. Differences observed between these two groups in laboratory experiments were expected to appear in a naturalistic setting. The choice of a field experiment created problems in experimental design that limited what could be said with certainty about the results. Most of the limitations in the research design and analysis were reviewed previously (p. 60), and included a limited subject sample, instrumentation problems, minimal control over extraneous factors and the experiment-wise error rate from a univariate analysis of multiple dependent variables. Experimental sophistication was sacrificed to better study the responses of individuals following a naturally occurring, salient, and stressful significant life event. Although the prediction of specific behaviors from general principles was difficult, the pattern of findings was consistent with previous research on the Type A behavior pattern.

Out of the four conceptualizations of the Type A behavior pattern presented earlier, two were selected for study. The self-referential style of Type A individuals, and their hyper-responsive attempts to regain control over uncontrollable events, were of interest.

The present research found that Type A individuals were more self-involved and engaged in more negative self-statements than Type B individuals following the heart attack. They responded differently to the lack of control, but the Type A group did not necessarily react with hyper-responsive attempts to regain control over their circumstances. These findings will be discussed in greater detail.

Self-involvement as a concept has been used to describe the hyper-responsive style of Type A individuals (Scherwitz et al., 1978). Although self-involvement may represent active coping with a stressor, the quality of the coping response must be considered. In this study, Type A individuals engaged in more covert self-statements overall, but also reported a greater frequency of negative self-statements including fears about physical or sexual activity, fears of further impairment or dying, thoughts of disappointing others, and lamenting the past. Previous associations between negative self-statements and maladjustment (Kendall et al., 1979) support the contention that the coping strategies of the Type A group were not particularly adaptive. It is therefore suggested that the self-referential style of the Type A behavior pattern may contribute to the development of coronary heart disease through the process of maladaptive self-arousal, and inadequate coping strategies which do not allow for the resolution of internal conflict.

The second set of evidence supporting the greater self-involvement of Type A individuals derived from the analysis of symptom complaints. The Type A group reported more physical symptoms following the heart attack than the Type B group. These results were contrary to

expectation. Type A individuals were expected to report fewer symptom complaints and focus more attention on work, significant activities, or rehabilitative tasks. The hypothesis was based on previous findings of symptom suppression during task performances (Matthews and Brunson, 1979; Schlegal, 1980; Weidner and Matthews, 1978). In retrospect, the findings seem reasonable since hyper-alertness to signs of physical disturbance may represent a means of evaluating progress in recovery.

Two other interpretations were entertained. In previous research with Type A individuals, more symptom complaints were observed when they were not challenged by work (Schlegal, 1980). An interaction effect would be expected for the results to be consistent with the previous findings. Symptom complaints for the Type A group would have been high at two weeks post-MI, and low at three months post-MI when subjects returned to work. This was not the case. An alternative explanation is that Type A individuals reported more symptoms because they experienced greater cardiac infarction. The medical records unfortunately were not accessible to objectively evaluate this alternative. The lack of a difference between the two groups on medical status (e.g., the presence or absence of medical complications) at three months post-MI weakened the probability of this interpretation.

Thus, differences between Type A's and Type B's in self-involvement and self-statements were evident. The greater frequency of negative self-statements and symptom complaints seemed indicative of maladaptive cognitions and self-arousal in the Type A group. These findings can be related to the physiological hyper-responsiveness

observed in Type A's in previous studies and in studies of individuals who resort to sensitization versus repression as a coping strategy. The cognitive style of Type A individuals may mediate between uncontrollable events and physiological arousal.

In support of the second conceptualization, Type A individuals appeared to be more affected by a perceived lack of control over their circumstances. They reported feeling less control over their moods, actions, habits and plans relative to the heart attack. The elevations in depression found in the Type A group were consistent with previous studies (Dimsdale et al., 1978; Feist, Pimm, and Raines, 1981), in which Type A individuals displayed more intense affective responses following cardiac illness and coronary bypass surgery respectively.

Results from the perceived control x levels of depression analysis were interesting. Both groups were affected by a perceived lack of control (e.g., low perceived control, elevated depression; high perceived control, lower depression). When perceived control was high, the Type A and Type B groups were comparable on levels of depression. Differences between the two groups were most pronounced in the low perceived control condition. The Type A group immediately responded to the perceived lack of control with symptoms of depression, whereas the Type B group with low perceived control did not show significant elevations on depression until the three month measurement period. This pattern seemed to support the hyper-sensitivity of Type A individuals to a perceived lack of control. They displayed immediate signs of affective disturbance, whereas the Type B group demonstrated a delay

in affective responsiveness consistent with a repressive coping strategy. The results did not support the statement that "Type B's should respond similarly to controllable and uncontrollable events" (Matthews and Glass, 1979, p. 17). At the three month period, levels of depression between the high and low control Type B's were significantly different. Type B's may initially suppress or deny affective responses to a lack of perceived control, but over time the effects became evident.

The results from the analysis of expectancies for success in the future are relevant to the discussion of responses to a perceived lack of control since low outcome and efficacy expectations are theoretically related to perceptions of the future as less predictable and controllable (Bandura, 1979). Perceived efficacy reduced levels of arousal (Bandura, 1979). The Type A group had lower expectancies for success in the future. They may have perceived the heart attack as a personal failure having ramifications on career goals, marital happiness, coping abilities, and successful interpersonal involvements.

Previous comparisons of responses to uncontrollable events consistently described Type A's as hyper-vigilant in their attempts to regain control. Following prolonged or salient failure experiences, Type A individuals shifted from a hyper-response style to hypo-responsiveness. Type B individuals presumably recognized or acknowledged their lack of responsibility for the uncontrollable situation, and demonstrated relatively consistent responses over time. On the basis of these findings, it was hypothesized that Type A individuals

would display increased efforts to control their circumstances as evidenced by greater information seeking, increased activities, faster work return, and increased compliance relative to Type B's. In formulating the hypothesis, the hypo-responsiveness of Type A's following prolonged or salient failure experiences was not taken into account.

Type A individuals did resume social/recreational activities, such as visiting friends or attending cultural events, sooner than Type B individuals. This finding was consistent with the self-reports of Type A individuals in previous studies citing greater social involvement relative to Type B's (Matthews, 1981). Type B individuals in this research reported an initial decline in activities (one month post-MI) followed by an eventual increase approaching baseline levels. Whether or not the results reflected attempts to control their circumstances in the Type A group is not answerable. Previous research found that Type A individuals preferred to wait with others versus alone during stressful experimental conditions (Dembroski and MacDougall, 1978). They tended to value social involvements and engaged in social comparison processes more than Type B's (Matthews, 1981). It is therefore difficult to identify whether increased activity levels in the Type A group represented efforts to obtain information relative to progress, affiliative tendencies under stress, or attempts to control their circumstances.

Finding that the Type B group returned to work sooner was unexpected. Numerous explanations are possible. Delayed work return may represent an attempt to control their circumstances by resting

sufficiently and regaining physical stamina. All of the hospitals provided educational information on the standard risk factors (e.g., smoking, exercise), as well as discussed the contributions of stress and the Type A behavior pattern. Perhaps this information influenced their decision to postpone work return.

No differences were found between the two groups on information seeking or medical compliance suggesting that differential attempts to control their circumstances were not significant. The information seeking scores have questionable reliability because of difficulties in training raters to criterion. Control over rater reliability was non-existent at the three month measurement period. Both groups became more compliant following the heart attack suggesting a belief in their susceptibility to further illness or a recognition of the efficacy of health related recommendations (Dunbar and Agras, 1980). "The validity of the patients' reports, however, depends upon their memory, their ability to observe and evaluate their behavior, and willingness to report accurately to the clinician" (Dunbar and Agras, 1980, p. 126). Patients tend to underreport low or non-adherence and there may have been differences in the validity of the responses between the two groups. Therefore, no definite conclusions can be made about medical compliance.

Thus, the overall results from data considered to be indicative of attempts to regain control were inconclusive. Type A's were more active socially, but returned to work later than Type B's. There were no differences between the two groups on levels of compliance or

information seeking. It is possible that the lack of a difference parallels laboratory findings where no task performance differences were found between Type A and Type B individuals. The inconsistencies highlight the difficulty of predicting specific behaviors from general theories. Further research will be necessary to clarify this area.

The remaining comparisons taken from the analysis of variance data were even less illuminating. Differences were not found between the two groups on a measure of life satisfaction. Given the usual relationship between life satisfaction and depression, the finding was curious. Instrument problems may have contributed to the insignificant results. At three months post-MI, the Type A group reported a perceived loss of social support consistent with the loss of social reinforcement found in depressed individuals (Lewinsohn, 1975). The negative self-evaluations, expectations, and symptom focusing could have facilitated this process. Evaluations by significant others would be useful in future work.

Type A's were expected to respond to the Health Locus of Control Scale in an internal direction because internality was associated with information seeking and compliance for subjects who valued health (Wallston et al., 1976). Significant differences between Type A's and Type B's were not obtained. This scale was recently revised because of psychometric inadequacies. Previous studies showed a relationship between external locus of control (Rotter's I-E Scale) and depression (Becker, 1977). Naditch, Gargan, and Michael (1975) suggested that depressed individuals resembled

externals in their perceived lack of control, but internals in assuming responsibility for negative consequences. A median split, posthoc analysis of high-low locus of control subjects classified more of the Type A's into the external locus of control region. The relationship between Type A status and internal-external locus of control is an interesting one. The locus of control literature is extensive, and the measurement of Type A's and Type B's on a LOC scale (e.g., Rotter's I-E Scale) might contribute to our understanding of the cognitive style of Type A individuals.

The results from the correlational analysis yielded information relevant to cardiac rehabilitation. Use of clinical assessment tools in the early recovery stages might help to screen and identify individuals at risk for further psychological or coping problems. Independent family and employer ratings of adjustment would enhance secondary prevention efforts to reduce the tremendous drain in energy and resources incurred from "cardiac invalidism." Clinical assessments can be used to design individualized programs to facilitate enhanced coping and psychological recovery following myocardial infarction.

Some examples might help to demonstrate the implications for intervention derived from descriptive data. Cognitive behavioral treatment strategies designed to lower the frequency of negative self-statements, increase perceptions of control over emotions and behavior, reduce excessive symptom reporting and provide information regarding locus of control could be beneficial to cardiac patients. Intensive interventions with impatient or Type A individuals, blue collar workers,

the unemployed, or persons with high levels of psychopathology might be useful since these variables were related to follow-up indices of adjustment. Job involvement was a positive prognostic indicator. Greater job security, personal resources, fewer negative self-statements, and greater perceived control over their health characterized this group. Thus, individual perceptions and interpretations of the cardiac event, as well as objective circumstances, influenced levels of psychosocial and psychological adjustment post-MI. The provision of instructions in cognitive and behavioral coping strategies during the early stages of recovery might prevent subsequent maladjustment, especially if provided at a time when individuals are personally overwhelmed by the magnitude of the life event. Helping patients anticipate their own reactions could enhance anticipatory coping responses and prepare them for the future. Teaching skills to reduce the levels of concurrent physiological arousal could also aid in the recovery of normal cardiac function.

Broadening the range of instruments used in the assessment of Type A individuals has the added advantage of linking the Type A construct to other, well researched psychological dimensions. Comparisons with other instruments may assist in the identification of the specific behaviors and/or cognitions precipitating increased physiological responsiveness in the Type A group.

Of the four conceptualizations of the Type A behavior pattern, two were selected for study; self-referential style and responses to uncontrollable events. The results supported both perspectives. The fact that Type A's did not appear hyper-vigilant in their attempts to

control events may be the result of viewing the event as a salient, failure experience. Overall, the results supported a synthesis of the two conceptualizations. Well learned, generalized cognitive sets (e.g., self-referential style) are activated by relatively specific features, or perceived features, of environmental events (e.g., challenge, uncontrollability). The self-referential style may precipitate hyper-responsive attempts to control events initially, as well as increased physiological arousal, since these events typically have a negative valence for Type A individuals. The consequent hypo-responsiveness is comparable to the learned helplessness model of depression (Seligman, 1975) wherein discrepancies between expected and obtained outcomes led to lower efficacy and personal evaluations of the self. Further research into the cognitive style of Type A individuals is clearly indicated from the results in this study.

APPENDIX A

NURSES RATING SCALE, SAMPLE OF INFORMATION

SEEKING, RATING CRITERIA, AND

NURSING PROCEDURES

Nurses Rating Scale

Name _____

Please rate the above patient on the following items by circling the number to the right that best describes his/her level of heart-related information seeking.

- | | Not At
All | | | Extremely
Often | |
|--|---------------|---|---|--------------------|-----------------------|
| 1. This patient asks questions about heart disease, heart attacks, and/or asks for descriptions of what has occurred to them physically. | 1 | 2 | 3 | 4 | 5 |
| 2. This patient asks questions about hospital-related procedures, tests, and interventions such as stress tests, catheterization procedures, blood pressure checks, etc. | 1 | 2 | 3 | 4 | 5 |
| 3. This patient asks questions about the recovery period, levels of physical activity, compliance issues and/or other information related to what he/she can do after hospitalization. | 1 | 2 | 3 | 4 | 5 |
| | | | | Very
Uninformed | Knowledgeable |
| 4. Overall, regarding the <u>amount</u> of information this person is aware of, I would rate this person as: | 1 | 2 | 3 | 4 | 5 |
| | | | | Inaccurate | Extremely
Accurate |
| 5. Regardless of the amount of information, the quality of their information is: | 1 | 2 | 3 | 4 | 5 |
| 6. Overall, I would say the adjustment made by this patient in recovering from a myocardial infarct has been: (check one) | | | | | |

Excellent

Good

Fair

Poor

Information Seeking

Questions may Include:

- 1) asking about printed information
- 2) asking for clarification
- 3) asking about personally relevant matters

Heart Disease:

- Item #1. What occurs in a H.A.?
2. How do I know when its angina or a H.A.?
 3. Do I have pericarditis?
 4. Why do these arrhythmias continue?
 5. What do these symptoms mean?
 6. How will my heart work in the future?
 7. Does it ever heal itself?
 8. How much damage was there?
 9. Why am I so short of breath?

Procedures

- Item #2:
1. What does the stress test tell you?
 2. What were my results from the lab & tests yesterday?
 3. What does my blood pressure tell you?
 4. Will these drugs help the chest pain, arrhythmias or fluid retention?
 5. What do these heart monitors do?
 6. Can I take my own pulse? What do I look for?
 7. How many more tests do I have to take?
 8. What happens when they do a biopsy, or catheterization?
 9. What is a biopsy?

Recovery

- Item #3:
1. When can I go back to work?
 2. I have numerous things to take care of, what can I start with?
 3. Why can't I eat salt, eggs?
 4. When can I start to really exercise?
 5. Will I ever be the same again?
 6. How much rest do I need?
 7. What if I get upset or have symptoms?
 8. What will happen if I don't stop smoking?
 9. When can I have sex again?
 10. I feel great, why can't I start . . . work, running, etc. next week?
 11. What should I do if this occurs?

One Month Rating Criteria

Items: 1, 2, and 3

- Rating 1: Never asks questions; not interested in materials; doesn't read them or just glances through; hard to communicate with; feel they aren't listening or interested; say they don't want to know; don't initiate discussion.
- Rating 2: May read materials; may listen somewhat; very few questions usually related to the immediate situation, or material; don't ask for clarification; don't initiate discussion.
- Rating 3: Read materials; may initiate questions without prompting; usually only ask general questions in class or when teaching; not consistent in seeking information, but attempt to find out; ask about printed materials; average rating.
- Rating 4: Read materials; initiate and ask questions independent of class or training; concerned over what is going on, what to expect, what outcomes are; ask for clarification of specific material; seem attentive and want more detail.
- Rating 5: Read materials; initiate and ask questions independent of class or training; concern about what is going on, what to expect, what outcomes are; ask for extensive clarification and detailed descriptions; involved, active listener, want details of information; questions are challenging, make you think to explain.

Item 4

- Rating 1: Knows very little; knows had a heart attack, but not what that means or consists of; not familiar with procedures, or cardiac terminology; not familiar with risk factors, not familiar with requirements for recovery.
- Rating 2: Some information; knows had heart attack and what that means; some familiarity with procedures; not well acquainted with terminology or symptoms; not very familiar with risk factors or why they are important; vaguely aware of requirements for recovery.
- Rating 3: Moderate information; knows about heart attack and what that consists of; knows why procedures (i.e., stress test, blood pressure) are taken; general understanding of angina, arrhythmias and other terms or symptoms; know the risk factors; aware of general recovery requirements; aware of medications.

Rating 4: Above average information; know heart attacks and meaning; know about procedures, can define most of the terminology; can relate that to own symptoms; know the risk factors and how they relate to heart disease; know requirements for recovery; aware of what they have to do over next months; using information to plan recovery activities.

Rating 5: Superior amount of information; know about heart attacks, tissue damage, and healing process; know what tests are for; quite familiar with terminology and can relate to symptoms; know medications, diet restrictions, exercise regimens, know risk factors; know methods of stress management; have plan for recovery, know more about physiology.

Item 5

Rating 1: The quality of even the smallest amount of information seems inaccurate; superficial, vague, and poor understanding. Not able to articulate understanding.

Rating 2: Inaccurate with 3/4 of information; not able to articulate; still vague, focus on irrelevant information.

Rating 3: Accurate with 1/2 information, inaccurate with other information. Still need to clarify some ideas; able to articulate some areas.

Rating 4: Accurate with most information (3/4); little misunderstanding; articulates relevant information.

Rating 5: Extremely accurate and specific information; understands relationship between lifestyle and disease process; concise, articulate, excellent understanding. Comprehensive, can relate information from one area to another.

Area 6

Excellent: Acceptance of heart disease; confident about ability to cope; actively planning for recovery; independent in self-care activities; responsible for self-care; don't hesitate to seek support; value health; realistic goals; and optimistic attitude; medical compliance; calm, mature.

Good: Acceptance of heart disease; confident with some reservations of coping ability; general recovery plans; responsible for self-care; not overly dependent; able to ask for assistance; medically compliant; good follow through.

- Fair: Ambivalence about accepting; worried about ability to handle; possibly depressed; vacillate between assuming and not assuming responsibility; minimal support seeking; minimal health values; questionable or vague goals for recovery; variable or questionable compliance.
- Poor: Lack of acceptance of heart disease; lack of confidence about ability to cope; no plans for recovery; dependent on staff; little or no responsibility for self-care; no support seeking; no apparent health values; unrealistic goals; pessimistic attitude; not medically compliant. Disregard for suggestions.

Three Month Rating Criteria

Items 1, 2, and 3

- Rating 1: Patient asks no questions in this area; typically quiet, talks about other things, but does not ask relevant questions.
- Rating 2: Asks few questions, usually related to immediate situation, e.g., in response to your questions, in response to blood pressure check; do not usually initiate questions, or ask for clarification.
- Rating 3: Average amount of questions; not overly interested or disinterested; attempt to find out basic information in this area.
- Rating 4: Above average questioning; want more than just the basics; want to know what to expect, ask for clarification; questioning of details independently.
- Rating 5: Extensive questions; patient may have a list of questions; seems to have thought of everything of concern to ask about since the last visit; questions are usually challenging, detailed, and extensive. Wants to know details about their physical status, results of tests, or adjustment; clarification necessary; initiates discussion.

Item 4

- Rating 1: Knows very little; knows had a heart attack, but not what that means or consists of; not familiar with procedures, or cardiac terminology; not familiar with risk factors; not familiar with requirements for recovery.
- Rating 2: Some information; knows had heart attack and what that means; some familiarity with procedures; not well acquainted with terminology or symptoms; not very familiar with risk factors or why they are important; vaguely aware of requirements for recovery.
- Rating 3: Moderate information; knows about heart attack and what that consists of; knows why procedures (i.e., stress test, blood pressure) are taken; general understanding of angina, arrhythmias and other terms or symptoms; know the risk factors; aware of general recovery requirements; aware of medications.

Rating 4: Above average information; know heart attacks and meaning; know about procedures, can define most of the terminology; can relate that to own symptoms; know the risk factors and how they relate to heart disease; know requirements for recovery; aware of what they have to do over next months; using information to plan recovery activities.

Rating 5: Superior amount of information; know about heart attacks, tissue damage, and healing process; know what tests are for; quite familiar with terminology and can relate to symptoms; know medications, diet restrictions, exercise regimens, know risk factors; know methods of stress management; have plan for recovery, know more about physiology.

Item 5:

Rating 1: The quality of even the smallest amount of information seems inaccurate; superficial, vague, and poor understanding. Not able to articulate understanding.

Rating 2: Inaccurate with 3/4 of information; not able to articulate; still vague, focus on irrelevant information.

Rating 3: Accurate with 1/3 information, inaccurate with other information. Still need to clarify some areas. Able to articulate some areas.

Rating 4: Accurate with most information (3/4); little misunderstanding; articulates relevant information.

Rating 5: Extremely accurate and specific information; understands relationship between lifestyle and disease process; concise, articulate, excellent understanding. Comprehensive, can relate information from one area to another.

Item 6

Excellent: Acceptance of heart disease; confident about ability to cope; actively planning for recovery; independent in self-care activities; responsible for self-care; don't hesitate to seek support; value health; realistic goals; optimistic attitude; medical compliance; calm, mature.

Good: Acceptance of heart disease; confident with some reservations of coping ability; general recovery plans; responsible for self-care; not overly dependent; able to ask for assistance; medically compliant; good follow through.

- Fair: Ambivalent about accepting; worried about ability to handle; possibly depressed; vacillate between assuming and not assuming responsibility; minimal support seeking; minimal health values; questionable or vague goals for recovery; variable or questionable compliance.
- Poor: Lack of acceptance of heart disease; lack of confidence about ability to cope; no plans for recovery; dependent on staff; little or no responsibility for self-care; no support seeking; no apparent health values; unrealistic goals; pessimistic attitude; not medically compliant. Disregard for suggestions.

Nursing Procedures

1. Introduce yourself as the nurse on staff, along with _____, assigned to provide information related to heart attacks, hospital procedures, and the recovery period.
2. Leave the materials. Ask them to read them and let them know you will be available to answer any questions.
3. When you return, make sure you have enough available time to be responsive. At this point, it might be useful to ask what kinds of questions or concerns they might have thought of after reading the materials. The purpose will be to provide an opportunity for the patient to seek information.
4. On the day preceding discharge, set aside enough time to talk with the patient. During this session it will be important to evaluate the amount and quality of information obtained during hospitalization. Direct questions aimed at determining the level of understanding will be important. Questions such as, "What is your understanding of heart attacks?", "How do the risk factors relate to heart disease?", "What are some of the important aspects of the recovery period?". These and similar questions may help you to determine the amount and quality of information.
5. The adjustment rating scale is an important one. Aside from the information above, it will be important to know some of the following:
 - "What effect has this had on your life?"
 - "What plans do you have when you leave the hospital?"
 - "Do you think you will be able to follow through on your plans?"
 - "How long do you think it will take to get back to a personally satisfying level of functioning?"

APPENDIX B

SELF-REPORT MEASURES

Information Sheet

Name _____ Home Address: _____

Age _____

Marital Status (check one)

Single _____ Widowed _____

Married _____ Divorced _____

Phone: _____

Relationship Status (check one)

Currently involved _____

Currently uninvolved _____

Living Situation (check one)

Live alone _____ Live with a friend(s) _____ Live with

Live with marital (relationship) partner _____ family _____

Education (number of years completed) _____

Number of children living at your home _____

Employment Status

1) Employed, self-employed

_____ 60 hours per week

_____ 40 hours per week

_____ 30 hours per week

_____ 20 hours per week

_____ 10 hours per week

_____ less than 10 hours per week

2) Unemployed _____

Length of time _____

3) Retired _____

Length of time _____

Significant Other (spouse, lover, close friend)

Name: _____

Address: _____

Phone: _____

Jenkins Activity Survey

For each question, mark the best answer. Mark only one answer for each question.

1. Do you ever have trouble finding time to get your hair cut or styled?
 - ☐ Never
 - ☐ Occasionally
 - ☐ Almost always
2. How often does your job "stir you into action"?
 - ☐ Less often than most people's jobs
 - ☐ About average
 - ☐ More often than most people's jobs
3. Is your everyday life filled mostly by
 - ☐ Problems needing solution?
 - ☐ Challenges needing to be met?
 - ☐ A rather predictable routine of events?
 - ☐ Not enough things to keep me interested or busy?
4. Some people live a calm, predictable life. Others often find themselves facing unexpected changes, frequent interruptions, inconveniences, or "things going wrong." How often are you faced with these minor (or major) annoyances or frustrations?
 - ☐ Several times a day
 - ☐ About once a day
 - ☐ A few times a week
 - ☐ Once a week
 - ☐ Once a month or less
5. When you are under pressure or stress, what do you usually do?
 - ☐ Do something about it immediately
 - ☐ Plan carefully before taking any action
6. Ordinarily, how rapidly do you eat?
 - ☐ I'm usually the first one finished.
 - ☐ I eat a little faster than average.
 - ☐ I eat at about the same speed as most people.
 - ☐ I eat more slowly than most people.
7. Has your spouse or a friend ever told you that you eat too fast?
 - ☐ Yes, often
 - ☐ Yes, once or twice
 - ☐ No, never

8. How often do you find yourself doing more than one thing at a time, such as working while eating, reading while dressing, or figuring out problems while driving?
 - o I do two things at once whenever practical.
 - o I do this only when I'm short of time.
 - o I rarely or never do more than one thing at a time.
9. When you listen to someone talking, and this person takes too long to come to the point, how often do you feel like hurrying the person along?
 - o Frequently
 - o Occasionally
 - o Almost never
10. How often do you actually "put words in the person's mouth" in order to speed things up?
 - o Frequently
 - o Occasionally
 - o Almost never
11. If you tell your spouse or a friend that you will meet somewhere at a definite time, how often do you arrive late?
 - o Once in a while
 - o Rarely
 - o I am never late
12. How often do you find yourself hurrying to get places even when there is plenty of time?
 - o Frequently
 - o Occasionally
 - o Almost never
13. Suppose you are to meet someone at a public place (street corner, building lobby, restaurant) and the other person is already 10 minutes late. What will you do?
 - o Sit and wait
 - o Walk about while waiting
 - o Usually carry some reading matter or writing paper so I can get something done while waiting
14. When you have to "wait in line" at a restaurant, a store, or the post office, what do you do?
 - o Accept it calmly
 - o Feel impatient but not show it
 - o Feel so impatient that someone watching can tell I am restless
 - o Refuse to wait in line, and find ways to avoid such delays

15. When you play games with young children about 10 years old (or when you did so with your children when they were younger), how often do you purposely let them win?
 - o Most of the time
 - o Half of the time
 - o Only occasionally
 - o Never
16. When you were younger, did most people consider you to be
 - o Definitely hard-driving and competitive?
 - o Probably hard-driving and competitive?
 - o Probably more relaxed and easy going?
 - o Definitely more relaxed and easy going?
17. Nowadays, do you consider yourself to be
 - o Definitely hard-driving and competitive?
 - o Probably hard-driving and competitive?
 - o Probably more relaxed and easy going?
 - o Definitely more relaxed and easy going?
18. Would your spouse (or closest friend) rate you as
 - o Definitely hard-driving and competitive?
 - o Probably hard-driving and competitive?
 - o Probably relaxed and easy going?
 - o Definitely relaxed and easy going?
19. Would your spouse (or closest friend) rate your general level of activity as
 - o Too slow--should be more active?
 - o About average--busy much of the time?
 - o Too active--should slow down?
20. Would people who know you well agree that you take your work too seriously?
 - o Definitely yes
 - o Probably yes
 - o Probably no
 - o Definitely no
21. Would people who know you well agree that you have less energy than most people?
 - o Definitely yes
 - o Probably yes
 - o Probably no
 - o Definitely no

22. Would people who know you well agree that you tend to get irritated easily?
- ☐ Definitely yes
 - ☐ Probably yes
 - ☐ Probably no
 - ☐ Definitely no
23. Would people who know you well agree that you tend to do most things in a hurry?
- ☐ Definitely yes
 - ☐ Probably yes
 - ☐ Probably no
 - ☐ Definitely no
24. Would people who know you well agree that you enjoy a "contest" (competition) and try hard to win?
- ☐ Definitely yes
 - ☐ Probably yes
 - ☐ Probably no
 - ☐ Definitely no
25. How was your temper when you were younger?
- ☐ Fiery and hard to control
 - ☐ Strong but controllable
 - ☐ No problems
 - ☐ I almost never got angry
26. How is your temper nowadays?
- ☐ Fiery and hard to control
 - ☐ Strong but controllable
 - ☐ No problem
 - ☐ I almost never get angry
27. When you are in the midst of doing a job and someone (not your boss) interrupts you, how do you usually feel inside?
- ☐ I feel o.k. because I work better after an occasional break.
 - ☐ I feel only mildly annoyed.
 - ☐ I really feel irritated because most such interruptions are unnecessary.
28. How often are there deadlines on your job?
- ☐ Daily or more often
 - ☐ Weekly
 - ☐ Monthly or less often
 - ☐ Never
29. These deadlines usually carry
- ☐ Minor pressure because of their routine nature.
 - ☐ Considerable pressure, since delay would upset my entire work group.
 - ☐ Deadlines never occur on my job.

30. Do you ever set deadlines or quotas for yourself at work or at home?
- o No
 - o Yes, but only occasionally
 - o Yes, once a week or more
31. When you have to work against a deadline, what is the quality of your work?
- o Better
 - o Worse
 - o The same (pressure makes no difference)
32. At work, do you ever keep two jobs moving forward at the same time by shifting back and forth rapidly from one to the other?
- o No, never
 - o Yes, but only in emergencies
 - o Yes, regularly
33. Are you content to remain at your present job level for the next five years?
- o Yes
 - o No, I plan to advance
 - o Definitely no; I strive to advance and would be dissatisfied if not promoted in that length of time.
34. If you had your choice, which would you rather get?
- o A small increase in pay without a promotion to a higher level job.
 - o A promotion to a higher level job without an increase in pay.
35. In the past three years, have you ever taken less than your allotted number of vacation days?
- o Yes
 - o No
 - o My type of job does not provide regular vacations.
36. In the last three years, how has your personal yearly income changed?
- o It has remained the same or gone down.
 - o It has gone up slightly (as the result of cost-of-living increases or automatic raises based on years of service).
 - o It has gone up considerably.
37. How often do you bring your work home with you at night, or study materials related to your job?
- o Rarely or never
 - o Once a week or less
 - o More than once a week

38. How often do you go to your place of work when you are not expected to be there (such as nights or weekends)?
- o It is not possible on my job.
 - o Rarely or never
 - o Occasionally (less than once a week)
 - o Once a week or more
39. When you find yourself getting tired on the job, what do you usually do?
- o Slow down for a while until my strength comes back.
 - o Keep pushing myself at the same pace in spite of the tiredness.
40. When you are in a group, how often do the other people look to you for leadership?
- o Rarely
 - o About as often as they look to others
 - o More often than they look to others
41. How often do you make yourself written lists to help you remember what needs to be done?
- o Never
 - o Occasionally
 - o Frequently

For questions 42-46 compare yourself with the average worker in your present occupation, and mark the most accurate description.

42. In amount of effort put forth, I give
- o Much more effort
 - o A little more effort
 - o A little less effort
 - o Much less effort
43. In sense of responsibility, I am
- o Much more responsible
 - o A little more responsible
 - o A little less responsible
 - o Much less responsible
44. I find it necessary to hurry
- o Much more of the time
 - o A little more of the time
 - o A little less of the time
 - o Much less of the time

45. In being precise (careful about detail), I am
- o Much more precise
 - o A little more precise
 - o A little less precise
 - o Much less precise
46. I approach life in general
- o Much more seriously
 - o A little more seriously
 - o A little less seriously
 - o Much less seriously

For questions 47-49, compare your present work with your work setting of 5 years ago. If you have not been working for 5 years, compare your present job with your first job.

47. I worked more hours per week
- o At my present job.
 - o 5 years ago.
 - o Cannot decide
48. I carried more responsibility
- o At my present job.
 - o 5 years ago.
 - o Cannot decide
49. I was considered to be at a higher level (in prestige or social position)
- o At my present job
 - o 5 years ago
 - o Cannot decide
50. How many different job titles have you held in the last 10 years? (Be sure to count shifts in kinds of work, shifts to new employers and shifts up and down within a firm.)
- o 0-1
 - o 2
 - o 3
 - o 4
 - o 5 or more
51. How much schooling did you receive?
- o 0-4 years
 - o 5-8 years
 - o Some high school
 - o Graduated from high school
 - o Trade school or business college
 - o Some college (including junior college)
 - o Graduated from a four-year college
 - o Post-graduate work at a college or university

52. When you were in school, were you an officer of any group, such as a student council, glee club, 4-H Club, sorority or fraternity, or captain of an athletic team?
- o No
 - o Yes, I held one such position.
 - o Yes, I held two or more such positions.

Health Locus of Control Scale

Name _____

Please read each of the following statements and indicate at the right the extent to which you agree or disagree with the statement.

	Strongly Disagree				Strongly Agree	
1. If I take care of myself, I can avoid illness.	1	2	3	4	5	6
2. Whenever I get sick it is because of something I've done or not done.	1	2	3	4	5	6
3. Good health is largely a matter of good fortune.	1	2	3	4	5	6
4. No matter what I do, if I am going to get sick, I will get sick.	1	2	3	4	5	6
5. Most people do not realize the extent to which their illnesses are controlled by accidental happenings.	1	2	3	4	5	6
6. I can only do what my doctor tells me to do.	1	2	3	4	5	6
7. There are so many strange diseases around that you can never know how or when you might pick one up.	1	2	3	4	5	6
8. When I feel ill, I know it is because I have not been getting the proper exercise or eating right.	1	2	3	4	5	6
9. People who never get sick are just plain lucky.	1	2	3	4	5	6
10. People's ill health results from their own carelessness.	1	2	3	4	5	6
11. I am directly responsible for my health.	1	2	3	4	5	6
	Not Valuable				Very Valuable	
How important is your health?						
How valuable is it to you?	1	2	3	4	5	6

Self-Statement Inventory

Listed below are several statements that people make to themselves (their thoughts) during recovery from myocardial infarction. Please read each self-statement and indicate how frequently these statements characterized your thoughts during the last few weeks. Please read each item carefully and then circle the appropriate number as it relates to your thoughts.

	Hardly Ever				Very Often
1. I think that any physical activity might bring on more problems.	1	2	3	4	5
2. I keep reminding myself about all of the times in the past when I have been successful in coping with stress or pain and that this is no worse than those situations.	1	2	3	4	5
3. I keep thinking the medications are not very helpful.	1	2	3	4	5
4. I remind myself to focus on pleasant things and all of the positive aspects of my life.	1	2	3	4	5
5. I think about how successful I've been in everyday activities.	1	2	3	4	5
6. I think that I am letting my family down.	1	2	3	4	5
7. I have thoughts of not being able to do my work as well.	1	2	3	4	5
8. I think to myself I am recovering as quickly as anyone else with this problem.	1	2	3	4	5
9. I think about the past and how much better things were.	1	2	3	4	5
10. I think about how important my life is.	1	2	3	4	5
11. I think about asking the doctor about ways to live a healthier life.	1	2	3	4	5
12. I think the doctors are not telling me everything.	1	2	3	4	5
13. I have been thinking I'll never get better.	1	2	3	4	5

	Hardly Ever				Very Often
14. I think about how much progress I have made in recovery.	1	2	3	4	5
15. I have been having thoughts that I am receiving capable, knowledgeable medical treatment and care.	1	2	3	4	5
16. I think if I had lived a better life this would not have happened.	1	2	3	4	5
17. I think I might die soon.	1	2	3	4	5
18. I keep thinking sexual activities will be too strenuous.	1	2	3	4	5
19. I have thoughts of how much stronger I am becoming.	1	2	3	4	5
20. I think about how well off I am despite my illness.	1	2	3	4	5

Generalized Expectancy for Success Scale

Name _____

This is a questionnaire to find out how people believe they will do in certain situations. Each item consists of a 5-point scale and a belief statement regarding one's expectations about events. Please indicate the degree to which you believe the statement would apply to you personally by circling the appropriate number. (1 = highly improbable, 5 = highly probable) Give the answer that you truly believe best applies to you and not what you would like to be true or think others would like to hear. Answer the items carefully, but do not spend too much time on any one item. Be sure to find an answer for every item, even if the statement describes a situation you presently do not expect to encounter. Answer as if you were going to be in each situation. Also try to respond to each item independently when making a choice; do not be influenced by your previous choices.

In the future I expect that I will	Highly Improbable			Highly Probable	
1. Find that people don't seem to understand what I am trying to say.	1	2	3	4	5
2. Be discouraged about my ability to gain the respect of others.	1	2	3	4	5
3. Be a good parent.	1	2	3	4	5
4. Be unable to accomplish my goals.	1	2	3	4	5
5. Have a successful marital relationship.	1	2	3	4	5
6. Deal poorly with emergency situations.	1	2	3	4	5
7. Find my efforts to change situations I don't like are ineffective.	1	2	3	4	5
8. Not be very good at learning new skills.	1	2	3	4	5
9. Carry through my responsibilities successfully.	1	2	3	4	5
10. Discover that the good in life outweighs the bad.	1	2	3	4	5
11. Handle unexpected problems successfully.	1	2	3	4	5
12. Get the promotions I deserve.	1	2	3	4	5

	Highly Improbable			Highly Probable	
13. Succeed in the projects I undertake.	1	2	3	4	5
14. Not make any significant contributions to society.	1	2	3	4	5
15. Discover that my life is not getting much better.	1	2	3	4	5
16. Be listened to when I speak.	1	2	3	4	5
17. Discover that my plans don't work out too well.	1	2	3	4	5
18. Find that no matter how hard I try, things just don't turn out the way I would like.	1	2	3	4	5
19. Handle myself well in whatever situation I am in.	1	2	3	4	5
20. Be able to solve my own problems.	1	2	3	4	5
21. Succeed at most things I try.	1	2	3	4	5
22. Be successful in my endeavors in the long run.	1	2	3	4	5
23. Be very successful working out my personal life.	1	2	3	4	5
24. Experience many failures in my life.	1	2	3	4	5
25. Make a good impression on people I meet for the first time.	1	2	3	4	5
26. Attain the career goals I have set for myself.	1	2	3	4	5
27. Have difficulty dealing with my superiors.	1	2	3	4	5
28. Have problems working with others.	1	2	3	4	5
29. Be a good judge of what it takes to get ahead.	1	2	3	4	5
30. Achieve recognition in my profession.	1	2	3	4	5

Symptom Check List 90-R

SCL-90-R

Name: _____		Technician: _____ Ident. No. _____	
Location: _____		Visit No.: _____ Mode: S-R _____ Nar _____	
Age: _____ Sex: M _____ F _____ Date: _____		Remarks: _____	

INSTRUCTIONS

Below is a list of problems and complaints that people sometimes have. Read each one carefully, and select one of the numbered descriptors that best describes HOW MUCH DISCOMFORT THAT PROBLEM HAS CAUSED YOU DURING THE PAST _____ INCLUDING TODAY. Place that number in the open block to the right of the problem. Do not skip any items, and print your number clearly. If you change your mind, erase your first number completely. Read the example below before beginning, and if you have any questions please ask the technician.

EXAMPLE	HOW MUCH WERE YOU DISTRESSED BY:
<p>HOW MUCH WERE YOU DISTRESSED BY:</p> <p>Ex. Body Aches Ex. 3</p>	<p>HOW MUCH WERE YOU DISTRESSED BY:</p> <p>Ex. Body Aches Ex. 3</p>

Descriptors	Descriptors
<p>0 Not at all</p> <p>1 A little bit</p> <p>2 Moderately</p> <p>3 Quite a bit</p> <p>4 Extremely</p>	<p>0 Not at all</p> <p>1 A little bit</p> <p>2 Moderately</p> <p>3 Quite a bit</p> <p>4 Extremely</p>

<p>1. Headaches <input type="checkbox"/></p> <p>2. Nervousness or shakiness inside <input type="checkbox"/></p> <p>3. Repeated unpleasant thoughts that won't leave your mind <input type="checkbox"/></p> <p>4. Faintness or dizziness <input type="checkbox"/></p> <p>5. Loss of sexual interest or pleasure <input type="checkbox"/></p> <p>6. Feeling critical of others <input type="checkbox"/></p> <p>7. The idea that someone else can control your thoughts <input type="checkbox"/></p> <p>8. Feeling others are to blame for most of your troubles <input type="checkbox"/></p> <p>9. Trouble remembering things <input type="checkbox"/></p> <p>10. Worried about sloppiness or carelessness <input type="checkbox"/></p> <p>11. Feeling easily annoyed or irritated <input type="checkbox"/></p> <p>12. Pains in heart or chest <input type="checkbox"/></p> <p>13. Feeling afraid in open spaces or on the streets <input type="checkbox"/></p> <p>14. Feeling low in energy or slowed down <input type="checkbox"/></p> <p>15. Thoughts of ending your life <input type="checkbox"/></p> <p>16. Hearing voices that other people do not hear <input type="checkbox"/></p> <p>17. Trembling <input type="checkbox"/></p> <p>18. Feeling that most people cannot be trusted <input type="checkbox"/></p> <p>19. Poor appetite <input type="checkbox"/></p> <p>20. Crying easily <input type="checkbox"/></p> <p>21. Feeling shy or uneasy with the opposite sex <input type="checkbox"/></p> <p>22. Feelings of being trapped or caught <input type="checkbox"/></p> <p>23. Suddenly scared for no reason <input type="checkbox"/></p> <p>24. Temper outbursts that you could not control <input type="checkbox"/></p> <p>25. Feeling afraid to go out of your house alone <input type="checkbox"/></p> <p>26. Blaming yourself for things <input type="checkbox"/></p> <p>27. Pains in lower back <input type="checkbox"/></p>	<p>28. Feeling blocked in getting things done <input type="checkbox"/></p> <p>29. Feeling lonely <input type="checkbox"/></p> <p>30. Feeling blue <input type="checkbox"/></p> <p>31. Worrying too much about things <input type="checkbox"/></p> <p>32. Feeling no interest in things <input type="checkbox"/></p> <p>33. Feeling fearful <input type="checkbox"/></p> <p>34. Your feelings being easily hurt <input type="checkbox"/></p> <p>35. Other people being aware of your private thoughts <input type="checkbox"/></p> <p>36. Feeling others do not understand you or are unsympathetic <input type="checkbox"/></p> <p>37. Feeling that people are unfriendly or dislike you <input type="checkbox"/></p> <p>38. Having to do things very slowly to insure correctness <input type="checkbox"/></p> <p>39. Heart pounding or racing <input type="checkbox"/></p> <p>40. Nausea or upset stomach <input type="checkbox"/></p> <p>41. Feeling inferior to others <input type="checkbox"/></p> <p>42. Soreness of your muscles <input type="checkbox"/></p> <p>43. Feeling that you are watched or talked about by others <input type="checkbox"/></p> <p>44. Trouble falling asleep <input type="checkbox"/></p> <p>45. Having to check and doublecheck what you do <input type="checkbox"/></p> <p>46. Difficulty making decisions <input type="checkbox"/></p> <p>47. Feeling afraid to travel on buses, subways, or trains <input type="checkbox"/></p> <p>48. Trouble getting your breath <input type="checkbox"/></p> <p>49. Hot or cold spells <input type="checkbox"/></p> <p>50. Having to avoid certain things, places, or activities because they frighten you <input type="checkbox"/></p> <p>51. Your mind going blank <input type="checkbox"/></p> <p>52. Numbness or tingling in parts of your body <input type="checkbox"/></p>
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PAGE ONE

PLEASE CONTINUE ON THE FOLLOWING PAGE

SCL-90-R

<p>HOW MUCH WERE YOU DISTRESSED BY:</p> <p><u>Descriptor</u></p> <p>0 Not at all</p> <p>1 A little bit</p> <p>2 Moderately</p> <p>3 Quite a bit</p> <p>4 Extremely</p>	<p>HOW MUCH WERE YOU DISTRESSED BY:</p> <p><u>Descriptor</u></p> <p>0 Not at all</p> <p>1 A little bit</p> <p>2 Moderately</p> <p>3 Quite a bit</p> <p>4 Extremely</p>
<p>53. A lump in your throat <input type="checkbox"/></p> <p>54. Feeling hopeless about the future <input type="checkbox"/></p> <p>55. Trouble concentrating <input type="checkbox"/></p> <p>56. Feeling weak in parts of your body <input type="checkbox"/></p> <p>57. Feeling tense or keyed up <input type="checkbox"/></p> <p>58. Heavy feelings in your arms or legs <input type="checkbox"/></p> <p>59. Thoughts of death or dying <input type="checkbox"/></p> <p>60. Overeating <input type="checkbox"/></p> <p>61. Feeling uneasy when people are watching or talking about you <input type="checkbox"/></p> <p>62. Having thoughts that are not your own <input type="checkbox"/></p> <p>63. Having urges to beat, injure, or harm someone <input type="checkbox"/></p> <p>64. Awakening in the early morning <input type="checkbox"/></p> <p>65. Having to repeat the same actions such as touching, counting, washing <input type="checkbox"/></p> <p>66. Sleep that is restless or disturbed <input type="checkbox"/></p> <p>67. Having urges to break or smash things <input type="checkbox"/></p> <p>68. Having ideas or beliefs that others do not share <input type="checkbox"/></p> <p>69. Feeling very self-conscious with others <input type="checkbox"/></p> <p>70. Feeling uneasy in crowds, such as shopping or at a movie <input type="checkbox"/></p>	<p>71. Feeling everything is an effort <input type="checkbox"/></p> <p>72. Spells of terror or panic <input type="checkbox"/></p> <p>73. Feeling uncomfortable about eating or drinking in public <input type="checkbox"/></p> <p>74. Getting into frequent arguments <input type="checkbox"/></p> <p>75. Feeling nervous when you are left alone <input type="checkbox"/></p> <p>76. Others not giving you proper credit for your achievements <input type="checkbox"/></p> <p>77. Feeling lonely even when you are with people <input type="checkbox"/></p> <p>78. Feeling so restless you couldn't sit still <input type="checkbox"/></p> <p>79. Feelings of worthlessness <input type="checkbox"/></p> <p>80. The feeling that something bad is going to happen to you <input type="checkbox"/></p> <p>81. Shouting or throwing things <input type="checkbox"/></p> <p>82. Feeling afraid you will faint in public <input type="checkbox"/></p> <p>83. Feeling that people will take advantage of you if you let them <input type="checkbox"/></p> <p>84. Having thoughts about sex that bother you a lot <input type="checkbox"/></p> <p>85. The idea that you should be punished for your sins <input type="checkbox"/></p> <p>86. Thoughts and images of a frightening nature <input type="checkbox"/></p> <p>87. The idea that something serious is wrong with your body <input type="checkbox"/></p> <p>88. Never feeling close to another person <input type="checkbox"/></p> <p>89. Feelings of guilt <input type="checkbox"/></p> <p>90. The idea that something is wrong with your mind <input type="checkbox"/></p>

Employment

1. Have you returned to work? Yes _____ No _____

2. If yes, when did you return to work?

Date of return _____

3. If you answered no, how soon do you plan to return to work?
(check one)

within a few weeks _____
one month _____
two months _____
3-6 months _____
over 6 months _____
not at all _____

4. How many hours per week did you work? (check one)

_____ 60 hours per week	_____ 20 hours per week
_____ 40 hours per week	_____ 10 hours per week
_____ 30 hours per week	_____ less than 10 hours
	per week
	_____ not at all

5. What would you say your current workload compared to your workload before the heart attack is? (check one)

_____ substantially greater
_____ a little more
_____ about the same
_____ a little less
_____ substantially reduced

Activities

On this page we would like to find out about the kinds of activities you are usually or periodically involved in.

Choose from the following options the frequency of your involvement during the last month and place the corresponding number in the spaces provided.

0 = not at all
1 = 1 x per month
2 = 2-3 x per month

3 = 1 x per week
4 = 2-3 x per week
5 = 1 x per day

_____ out to dinner	_____ housework
_____ house or yard projects	_____ community event
_____ church	_____ picnic
_____ community meetings	_____ camping
_____ shopping	_____ travel
_____ reading (leisure)	_____ recreation (outdoor)
_____ reading (work)	_____ recreation (indoor, e.g., cards, games)
_____ watch t.v.	_____ religious activity
_____ visit family	_____ out to lunch (breakfast)
_____ visit friends	_____ lecture, workshop attendance
_____ cultural events	_____ classes
_____ movies	_____ school functions
_____ yardwork	_____ have friends over
_____ special occasions (weddings, graduation)	_____ have family over
_____ sexual activity	_____ sports events
_____ parties	_____ leisure activity
_____ thinking of self	_____ out for drinks
	_____ physical contact (affection)

Medical Advice Form

Pre-Myocardial Infarction

Often individual physicians suggest that their patients make certain changes in diet, smoking, or other habits. We would like to find out how closely you follow medical advice. Please report actual changes you have made and not what you think we would like to hear. Answer these questions with the month before your heart attack in mind.

1. How often do you take PRN medications? This includes valium, pain medications, nitroglycerin, etc. Check only one space please.

Valium

☐ 2-3 x per day
☐ (or more)
☐ 1 x per day
☐ 2-3 x per week
☐ 1 x per week
☐ once every few weeks
☐ not at all

Pain Medication

☐ 2-3 x per day
☐ 1 x per day
☐ 2-3 per week
☐ 1 x per week
☐ once every few weeks
☐ not at all

Other (please specify)

☐ 2-3 x per day
☐ 1 x per day
☐ 2-3 x per week
☐ 1 x per week
☐ once every few weeks
☐ not at all

2. How regularly do you take hypertensive or other heart-related medications? (check one)

☐ as prescribed
☐ most of the time
☐ occasionally

☐ with symptom occurrences
☐ hardly ever
☐ not at all

3. How often do you drink alcoholic beverages? (check one)

☐ 1 x per day
☐ 2-3 x per week
☐ 1 x per week

☐ 1 x per 2 weeks
☐ 1 x per month
☐ not at all

4. How many cigarettes do you smoke?

- | | |
|---|---|
| <input type="checkbox"/> 2-3 packs per day | <input type="checkbox"/> 1 pack per day |
| <input type="checkbox"/> 1 pack per week | <input type="checkbox"/> quit smoking |
| <input type="checkbox"/> 2-3 packs per week | <input type="checkbox"/> never smoked |

5. A. Which of the following dietary suggestions do you observe rigorously? (check each)

- ☐ low sodium (salt)
☐ low cholesterol
☐ low caloric intake

B. How often do you eat foods high in the above? (check one)

- | | |
|---|--|
| <input type="checkbox"/> 1 x per day | <input type="checkbox"/> 1 x per 2 weeks |
| <input type="checkbox"/> 2-3 x per week | <input type="checkbox"/> not at all |
| <input type="checkbox"/> 1 x per week | |

6. Do you schedule regular medical checkups?

- ☐ as advised by my physician
☐ annually
☐ every six months
☐ when I notice symptoms
☐ not at all

7. If you notice any changes in your physical status, how long do you usually wait before contacting your physician?

- | | |
|-----------------------------------|--------------------------------------|
| <input type="checkbox"/> that day | <input type="checkbox"/> 4-5 days |
| <input type="checkbox"/> one day | <input type="checkbox"/> one week |
| <input type="checkbox"/> 2-3 days | <input type="checkbox"/> over a week |

8. For each of the following exercises or sports activities, please rate the frequency of your involvement in each during the last month. Choose from the listed options and place the corresponding number in the provided spaces.

- | | |
|--------------------|-------------------|
| 5 = 1 x per day | 2 = 2 x per month |
| 4 = 2-3 x per week | 1 = 1 x per month |
| 3 = 1 x per week | 0 = not at all |

- | | | | |
|---|---|---------------------------------|------------------------------------|
| <input type="checkbox"/> walking | <input type="checkbox"/> running | <input type="checkbox"/> hiking | <input type="checkbox"/> bicycling |
| <input type="checkbox"/> swimming | <input type="checkbox"/> golf | <input type="checkbox"/> tennis | <input type="checkbox"/> bowling |
| <input type="checkbox"/> racquet ball, handball | <input type="checkbox"/> standard exercises | | |
| <input type="checkbox"/> team sport (baseball, softball) | <input type="checkbox"/> weight lifting | | |
| <input type="checkbox"/> team sport (rugby, football, soccer) | | | |
| <input type="checkbox"/> team sport (volleyball, basketball) | | | |
| <input type="checkbox"/> badminton, ping pong | | | |

Medical Advice Form

Post-Myocardial Infarction

Often individual physicians suggest that their patients make certain changes in diet, smoking, or other habits. We would like to find out how closely you follow medical advice. Please report actual changes you have made and not what you think we would like to hear.

1. How often do you take PRN medications? This includes valium, pain medications, nitroglycerin, etc. Check only one space please.

Valium

☐ 2-3 x per day
 (or more)
☐ 1 x per day
☐ 2-3 x per week
☐ 1 x per week
☐ once every few weeks
☐ not at all

Pain Medication

☐ 2-3 x per day
☐ 1 x per day
☐ 2-3 per week
☐ 1 x per week
☐ once every few weeks
☐ not at all

Other (please specify)

☐ 2-3 x per day
☐ 1 x per day
☐ 2-3 x per week
☐ once every few weeks
☐ not at all

2. How regularly do you take hypertensive or other heart-related medications? (check one)

☐ as prescribed
☐ most of the time
☐ occasionally

☐ with symptom occurrences
☐ hardly ever
☐ not at all

3. How often do you drink alcoholic beverages? (check one)

☐ 1 x per day
☐ 2-3 x per week
☐ 1 x per week

☐ 1 x per 2 weeks
☐ 1 x per month
☐ not at all

4. How many cigarettes do you currently smoke? (check one)

☐ 2-3 packs per day
☐ 1 pack per week
☐ 2-3 packs per week

☐ 1 pack per day
☐ quit smoking
☐ never smoked

5. A. Which of the following dietary suggestions do you observe rigorously? (check one)

☐ low sodium (salt)
☐ low cholesterol
☐ low caloric intake

- B. How often do you eat foods high in the above? (check one)

☐ 1 x per day ☐ 1 x per 2 weeks
☐ 2-3 x per week ☐ not at all
☐ 1 x per week

6. Do you schedule regular medical checkups?

☐ as advised by my physician
☐ annually
☐ every six months
☐ when I notice symptoms
☐ not at all

7. If you notice any changes in your physical status, how long do you usually wait before contacting your physician?

☐ that day ☐ 4-5 days
☐ one day ☐ one week
☐ 2-3 days ☐ over a week

8. For each of the following exercises or sports activities, please rate the frequency of your involvement in each during the last month. Choose from the listed options and place the corresponding number in the provided spaces.

5 = 1 x per day 2 = 2 x per month
 4 = 2-3 x per week 1 = 1 x per month
 3 = 1 x per week 0 = not at all

☐ walking ☐ running ☐ hiking ☐ bicycling
☐ swimming ☐ golf ☐ tennis ☐ bowling
☐ racquet ball, handball ☐ standard exercises
☐ team sport (baseball, softball) ☐ weight lifting
☐ team sport (rugby, football, soccer)
☐ team sport (volleyball, basketball)
☐ badminton, ping pong

Satisfaction Scale

1. All things considered regarding the quality of your life, would you say you are (check one):

<u>very</u> satisfied	<u>somewhat</u> satisfied	<u>satisfied</u>	<u>somewhat</u> dissatisfied	<u>very</u> dissatisfied
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2. All things considered regarding the quality of your personal relationships, would you say you are (check one):

<u>very</u> satisfied	<u>somewhat</u> satisfied	<u>satisfied</u>	<u>somewhat</u> dissatisfied	<u>very</u> dissatisfied
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3. All things considered, how "supportive" would you say your family has been?

<u>very</u> supportive	<u>somewhat</u> supportive	<u>supportive</u>	<u>somewhat</u> nonsupportive	<u>very</u> nonsupportive
---------------------------	-------------------------------	-------------------	----------------------------------	------------------------------

4. All things considered, how "supportive" would you say your friends have been?

<u>very</u> supportive	<u>somewhat</u> supportive	<u>supportive</u>	<u>somewhat</u> nonsupportive	<u>very</u> nonsupportive
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5. All things considered, the progress I have made in recovery has been (check one):

<u>very</u> good	<u>somewhat</u> good	<u>good</u>	<u>somewhat</u> poor	<u>very</u> poor
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6. My family and friends feel the progress I have made in recovery has been (check one):

<u>very</u> good	<u>somewhat</u> good	<u>good</u>	<u>somewhat</u> poor	<u>very</u> poor
---------------------	-------------------------	-------------	-------------------------	---------------------

7. All things considered regarding my level of activity, I am (check one):

<u>very</u> satisfied	<u>somewhat</u> satisfied	<u>satisfied</u>	<u>somewhat</u> dissatisfied	<u>very</u> dissatisfied
--------------------------	------------------------------	------------------	---------------------------------	-----------------------------

8. Regarding my physical stamina or strength, I can do (check one):

- ☐ much more than I thought I would be able to do
- ☐ more than I thought I would be able to do
- ☐ as much as I thought I would be able to do
- ☐ less than I thought I would be able to do
- ☐ much less than I thought I would be able to do

9. How would you rate your overall adjustment since the heart attack?

<u>Poor</u>	<u>Fair</u>	<u>Good</u>	<u>Very Good</u>
1	2	3	4

10. How would you rate the type of medical treatment you have received?

<u>Poor</u>	<u>Fair</u>	<u>Good</u>	<u>Very Good</u>
1	2	3	4

Rate below the extent to which these items are currently disturbing to you.

	Very Disturbing		Not Disturbing at All		
1. Being helpless and unable to change things.	1	2	3	4	5
2. Feeling as though I have very few alternatives.	1	2	3	4	5
3. Being unable to plan for the future.	1	2	3	4	5
4. Feeling as though no one understands or can help me.	1	2	3	4	5
5. Being unable to control my moods or emotions.	1	2	3	4	5
6. Being unable to control my actions.	1	2	3	4	5
7. Feeling as though things are unpredictable.	1	2	3	4	5
8. Being unable to change old habits.	1	2	3	4	5

Perceptions

You have recently been through a serious event that may change certain aspects of your life. On the following page are sets of items. We are interested in having you estimate how intense or disturbing these thoughts or feelings were by assigning numbers to them.

To the first item assign any number that seems appropriate. Then, assign the remaining statements numbers to reflect their intensity. For example, if the first item was given the number 20, and the second item seems twice as intense or disturbing, assign the number 40.

Use any numbers you wish except 0 and negative numbers. Place the number to the immediate right of the item.

Following the above instructions, rate below how disturbing each of these aspects of a heart attack are to you.

1. The disruption of ongoing activities _____
2. The suddenness of the problem _____
3. The length of time involved during the heart attack _____
4. The length of time involved in recovery _____
5. The unpredictable nature of the heart attack _____
6. The novelty or lack of familiarity with heart attacks _____
7. The inconsistency of the problems associated with heart attacks _____
8. The number of life areas affected _____
9. The lack of control over the event _____

APPENDIX C
SUBJECT'S CONSENT

We are requesting your participation in a project entitled "The Process of Psychosocial Adaptation following Myocardial Infarction." The purpose of the project is to determine what factors are influential in promoting adjustment following the first diagnosed incident of myocardial infarction. We hope to obtain this information in order to assist individuals and families who are adjusting to this experience. The objectives are: 1) to understand the process of adjustment; 2) to obtain information related to individual expectations for recovery; 3) to identify individuals who may experience some difficulty in adjustment; and 4) to eventually use this information to provide educational assistance to patients who have recently experienced a myocardial infarction.

Participation in the project will involve filling out a series of questionnaires pertaining to levels of activity, social relationships, and perceptions of your experience. The questionnaires will take approximately two hours of your time to complete on three separate occasions. They will be given to you to complete two weeks post-myocardial infarction, one month following discharge and three months following discharge. The one month and three month questionnaires will be mailed to you so that you do not have to schedule an appointment to complete them.

Your participation in this project is voluntary. In no way will participation affect your medical treatment. You are free to withdraw at any time without ill will or risk to your patient-doctor relationship. All questions you have will be answered at any point. For further questions, please contact Susan Blake at 373-8870 or leave a message. The information will be highly confidential and medical personnel will not have access to your individual responses.

I have read the above "Subject's Consent." The nature, demands, risks, and benefits of the project have been explained to me. I understand that I may ask questions and that I am free to withdraw from the project at any time without incurring ill will or affecting my medical care. I also understand that this consent form will be filed in an area designated by the Institutional Review Board with access restricted to the principal investigator or authorized representatives of the particular department. I understand that a copy of this consent form will be given to me.

Subject's Signature _____ Date _____

Witness _____

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