TYPE A BEHAVIOR PATTERN AND DEPENDENCY IN THE ADJUSTMENT OF POST-MYOCARDIAL INFARCTION PATIENTS

by

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The confrontation with death - and the reprieve from it - makes everything look so precious, so sacred, so beautiful that I feel more strongly than ever the impulse to love it, to embrace it, and to let myself be overwhelmed by it. My river has never looked so beautiful... Death, and its ever present possibility, makes love more possible. I wonder if we could love passionately, if ecstasy would be possible at all, if we knew we'd never die.

From a letter by the psychologist Abraham Maslow, written while recuperating from a heart attack.

PREFACE

The study work described in this thesis was carried out in the Department of Psychology, University of Natal, Durban, from Feb. 1982 to Jan. 1984 under the supervision of J. Strydom (Supervisor) and L. Schlebusch (co-supervisor). The study work represents original work by the author and has not been submitted in any form to any other university. Where use has been made of the work of others, it has been duly acknowledged in the text.

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ABSTRACT

The World Health Organization (1969) has declared that heart disease is the largest plague that ever faced humanity. Myocardial Infarction (MI), in addition to causing more deaths than all other diseases of the heart combined, is responsible for changes, and in many cases deterioration, in the quality of life of survivors. Intervention programs tend to focus on preventing re-occurrence of MI. At the same time there is an urgent need for sophisticated rehabilitation programs that aim to improve quality of life after MI. It is speculated here that identification of the personality factors that relate to the different adjustment patterms of different subgroups of post-MI patients will assist in the design of an efficient rehabilitation program.

Accordingly, the present study focuses on the inquiry of the psychological mechanisms that mediate between the Type A behavior pattern (TABP) and adjustment style. An integrated crisis and developmental theory based on psychoanalytical, attachment and social learning theories is proposed. The Thesis put forward is that TABP is not a homogeneous pattern and that interpersonal dependency is an underlying personality factor that subdivides Type A patients to subgroups with different developmental and adjustment patterns. It is claimed here that dependent Type A patients have a dependent-independent developmental psychodynamic conflict, and that for them, TABP is an adopted defense mechanism. They are expected to have more adjustment difficulties to the specific characteristics of the post-MI crisis than inde-

pendent Type A patients for whom TABP is a socially learned developmental process in an urban Western environment. Type B patients, who also lack the psychodynamic conflict, are expected to adjust as a group better than dependent Type A patients.

Seventy-nine white urban South African males aged 30-60 years, after clinical MI, were tested. A combination of qualitative and quantitative methods of assessment was used in order to test the relationships between personality factors and adjustment, which was defined by multi-dimensional criteria (32 indices of adjustment) that related to various aspects of life in the post-MI period.

The results confirmed the heterogeneity of TABP, dependent Type A patients adjusted less well than independent Type A patients to 16 out of 32 indices of adjustment. As expected for the same 16 indices, the behavior of Type B patients was better adjusted than dependent Type A patients. The outcomes of the adjustment of post-MI patients to all 32 indices is discussed. On the basis of the study's results and the crisis and developmental theory set out here, a differential rehabilitation program is proposed that relates to the different needs of the subgroups of post-MI patients.

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LIST OF ABBREVIATIONS

AD	-	Dependent Type A patients
AI	-	Independent Type A patients
BD	-	Dependent Type B patients
BI	-	Independent Type B patients
CBPS	-	Coronary Artery Bypass Surgery
CHD	-	Coronary Heart Disease
CPBP	-	Coronary Prone Behavior Pattern
CSBP	-	Changes in Systolic Blood Pressure during the interview
D	-	Dependency
D/I	-	Dependent/Independent
I	-	Independency
IPAT	-	Cattell's Anxiety Test
JAS	-	Jenkins Activity Scale
MAT	-	Marital Adjustment Test
MI	-	Myocardial Infarction
SI	-	Structured Interview
TABP	-	Type A Behavior Pattern
TBBP	-	Type B Behavior Pattern

INTRODUCTION

The Thesis put forward here is that Type A behavior pattern, which is the dominant pattern among post-myocardial infarction patients, is a heterogeneous pattern that expresses different underlying developmental processes that result in different adjustment patterns. The research presented here - through the formulation of hypotheses relating to TABP and dependency in the adjustment of post-MI patients - is based on a proposed developmental theory relating to the interaction of types of behavior and personality predispositions in the post-MI crisis situation. Additionally, in the context of the developmental theory and the research, a systematic differential rehabilitation program for subgroups of post-MI patients is proposed.

Coronary heart disease (CHD) is a cardiovascular disease usually resulting from atherosclerosis; it is characterized by an inadequate supply of oxygen to the heart. One major symptom of CHD is Myocardial Infarction (MI). In addition to causing more deaths than all other cardiovascular diseases combined (Price, 1982), MI is responsible for changes in the quality of life of survivors.

The inquiry of the psychological factors that are conected with MI coincided with the development of health psychology as an independent branch of the psychopathology-oriented clinical psychology. In the last 30 years, systematic epidemiological, empirical and theoretical efforts have been made to identify and to understand the connection between psychological factors and the etiology of MI. The

present study relates to a second branch of inquiry, which has dealt with the psychological aspects of rehabilitation after MI. A third trend has related to the patient's reaction during the acute stage of hospitalization (for a review see Razin, 1982). Some of the ideas and findings of the well-developed field of research on the etiology of CHD can be usefully adapted to studies on the independent field of post-MI adjustment, and will form the basis of some of the ideas presented here.

The post-MI period is characterized by two psychological problem elements: The first relates to secondary prevention, that is to the occurrence and prevention of another MI; the second element relates to adjustment aspects such as occupation, social life, family life, emotional state, general physical activity, compliance with medical instructions, and other psycho-social aspects of post-MI quality of life. The literature on the psychology of CHD does not make a sufficiently clear distinction between psychological processes in secondary prevention of MI, and in adjusting to a more satisfactory quality of life after MI. My purpose here is to relate to post-MI quality of life as an independent goal for investigation. The possible implications of the pattern of adjustment to secondary prevention is perceived here only as a possible by-product to this goal. This approach is also supported by Stunilloff (1984), who noticed that "major changes in cardiac rehabilitation programs are now taking place, with the emphasis moving away from prolongation of life toward improvement in the quality of life" (p.723).

Various studies (Fielding, 1980; Jenkins, 1976; and others) indicate that the adjustment of post-MI patients depends on their psychological state as an independent factor from their medical condition. By identifying those psychological factors that relate to the quality of life of the post-MI patients, and by understanding the ways in which they influence differential adjustment, better systematic intervention can be developed.

Type A behavior pattern (TABP), as a characteristic of most CHD patients, is a major concept in cardio-psychological studies. TABP is a specific combination of behaviors and emotional behavioral dispositions that include ambitiousness, competitiveness, impatience, chronic time urgency, aggressiveness, hostility, muscle tenseness, alertness, and vigorous speed production. Type-B behavior pattern (TBBP) describes persons who are more introverted, deferential, satisfied, relaxed, and unhurried. The descriptions of both TABP and TBBP suggest that although extreme TABP and TBBP lie at the opposite ends of a continuum, persons of both types have a qualitative identity such that TBBP can neither be described as nor related to as a pattern of behavior that is simply not the Type A pattern. The clinical experience of the author suggests not only that TABP and TBBP have different qualitative patterns, but that TABP by itself is qualitatively subdivided. Empirical and theoretical investigations of the subdivision - a goal of the present study - may facilitate research for a better understanding of the adjustment of post-MI patients and, consequently, result in a more efficient rehabilitation program.

There are two major schools of thought in cardio-psychology: one is inductive and empirically oriented; the second, which is deductively oriented, argues the need to develop psycho-social rehabilitation theories prior to the design of empirical studies. Theoretical interpretations of observed processes are usually speculative and as such considered to be a problematic issue in psychology. In spite of this, psychology values theoretical models, which are regarded as useful methods for the development of new ideas and for the design of systematic research. The present study adopts the approach that recognizes the importance of the formulation of theories in order to advance cardio-psychology. Accordingly a theoretical model is proposed here.

Theoretically-oriented studies are either cognitively oriented or psychodynamically oriented. For the cognitive social learning theories, TABP is learned as an exaggeration of urban Western cultural values; for the psychodynamic theories, TABP is adopted as a psychodynamic defense mechanism. Cognitively-empirically oriented studies (studies that derive from cognitive social learning theories often interact with empirical studies) advocate guidance support and stress reduction techniques; psychodynamically-oriented studies advocate insight techniques. Both assume homogeneous psychological processes in post-MI Type A patients. Because typical personality variability of the patients is not considered a relevant factor in their adjustment process, cognitively-empirically and psychodynamically oriented studies thus deal only with one dominant subgroup of post-MI patients - that group which exhibits TABP or a similar pattern of behavior. Yet

their findings and results are generalized to all TABP patients. Because both schools generalize the behavior of one observed group to the whole population of Type A post-MI patients, each school offers inadequate therapy to a part of these patients. Cognitively-empirically oriented studies propose behavior therapy to patients with psychodynamic complications; psychodynamically-oriented studies offer insight therapy in cases where it is not needed. The offered rehabilitation methods are often not relevant to the particular problems and needs of a part of the whole group of post-MI patients, who react to the inadequate rehabilitation effort with non-compliance. The common solution for dealing with non-compliance is to offer rehabilitation programs to selected groups that are thought to have good chances of benefitting from a specific therapeutic method. Other patients are regarded as if they do not need systematic intervention or as if they could not gain from intervention. To date, not enough effort has been made to inquire into the reasons for the difficulties that many patients experience in complying with the rehabilitation programs and why some patients receive no rehabilitation at all. It is argued here that systematic (i.e., not improvised but pre-planned and goal-oriented) intervention can help most patients to improve their post-MI quality of life and that patients are cooperative when the proposed intervention is relevant to their specific psychological needs, and in addition it does not raise anxieties. These needs can be successfully met by identifiying those personality factors that relate to the patient's differential adjustment. The emphasis here is on the patient's personality and not on the appropriate technique.

Nine years of being in charge of post-MI rehabilitation groups suggested to the author that TABP and interpersonal dependency are personality factors that affect the way patients adjust to the post-MI situation. The research goal is to put forward the notion that a patient's personality characteristics, in terms of TABP and interpersonal dependency, predict adjustment outcomes. The outcome of the study should also be in line with the proposed developmental theory, which describes the mediating processes between personality characteristics (TABP and Dependency) and a particular way of adjustment. The empirical results and the theoretical interpretation will be used in the design of a differential rehabilitation program aimed to help post-MI patients achieve better adjustment.

Due to the lack of accepted criteria for adjustment in the literature (mortality and morbidity, return to work, stress reduction, and smoking habits are the most common criteria), it is difficult to compare different outcomes, concepts or methods, or to generalize the results. A multi-dimensional criterion is proposed here, that relates to the emotional, behavioral, familial, occupational and medical aspects of patients' lives in order to offer an empirically testable "picture" of different patterns of post-MI way of life.

The theory presented here links developmental theories to crisis theory. The MI experience is regarded here as an existential traumatic crisis; the post-MI adjustment is a recovery process from the crisis. The approach to adjustment described here is not psychopathology oriented. Instead, it deals with the coping mechanisms of a

person who, unexpectedly, is exposed to a traumatic and threatening stress situation. People mature and change throughout their life cycle. A person can make use of his personality resources to cope with the post-MI crisis provided he does not have personality characteristics or dynamics that interfere with his adjustment.

The Thesis put forward here is that TABP is a heterogeneous behavior pattern that expresses different developmental processes. The developmental theory proposed here relates to social learning theories, psychodynamic theories, and to Bowlby's ethological theory (which blends both intrapsychic and behavioral aspects). The three theoretical frameworks emphasize the development of dependency in early childhood and its influence on the whole life cycle of the individual. Each theory can, by itself, provide its own interpretation to the development of different adjustment patterns among post-MI patients. It is argued, here, however, that a conceptualization of adjustment processes by an integrated approach to these theories is more useful for an efficient systematic intervention that aims to improve quality of life after MI.

Interpersonal dependency is considered to be the personality trait that underlies and subdivides TABP into two groups of patients with different adjustment abilities in terms of their psychological development. For one group (the dependents) TABP is a defensive pattern that was adopted as a result of psychodynamic developmental conflict with dependency (or attachment); for the other group (the independents), TABP is the result of a social-behavioral learned

process. Thus, patterns of adjustment for Type A patients can be predicted through the interaction of TABP and interpersonal dependency. Patients with TABP who are dependent will react differently from patients with TABP who are independent.

Adjustment difficulties in the form of denial or regression are frequently observed in post-MI patients. It is speculated here that the largest and most problematic group of post-MI patients is the group exhibiting TABP who are basically dependent, and who, in Bowlby's terms, have attachment difficulties that were expressed throughout their personal development in terms of a threat to the possible exposure of their immature emotional overdependency. In order to cope with this unaccepted and threatening dependency they develop the defensive reaction formation known as TABP, which is a hyper-independent pattern. This psychodynamic process becomes more acute as a result of the post-MI crisis, which tends to (a) strengthen the typical family and social positive attachment behaviors that might encourage dependency, and which are therefore perceived by the patient as a threat to their defensive independency pattern (TABP), and (b) encourage the cognitive acknowledgment of the need to change their Type A behavior because it is a major risk factor for the re-occurrence of MI, which means also to give up a model of self-identification and self-esteem and a defense mechanism that prevents a confrontation with the threatening dependency. The result might be an extreme state of stress and anxiety which, in a reciprocal way, typically causes the defensive TABP to strengthen. Sometimes the reaction is of helplessness and exaggeration of the sick role. But the more

common reaction to the complicated post-MI crisis situation is exaggerating the defensive TABP through denial. The possible result of the conflictual situation after the MI, is distortion in reality testing and in the interpretation of typical post-MI environmental processes and social interactions, which in turn results in a chain of inadequate behaviors over a broad range of life aspects. Accordingly, it is expected that the group which combines TABP and dependency will have adjustment difficulties after MI.

For the TABP-independent group (the AI group), TABP is socially learned, and developed as an exaggerated pattern of the normative value-system that characterizes the Western, urban way of life. Through personal and environmental expectations along with daily reinforcing experiences, TABP becomes a model for self-idenitification and self-esteem. The AI group, as well as post-MI patients exhibiting TBBP, are persons who have not experienced the above mentioned conflictual psychodynamic process. Because these patterns do not serve as psychodynamic defensive patterns, a better adjustment is expected compared to those patients who present TABP and dependency. A difference in the adjustment between the dependent and independent subgroups for TBBP is not expected. It is reasonable though, to expect, that the TBBP groups also have special needs, which result from being dependent or independent; the rehabilitation program should therefore consider also their needs in order to help them improve as much as possible their post-MI adjustment. Through the identification and differentiation of patients whose personality interferes with adequate post-MI adjustment from patients whose personality is able to grow and

change after the MI crisis, it is possible to design a differential rehabilitation program that will relate adequately to the various groups. In terms of the suggested theory, when TABP is derived from social norms it is more flexible to change than if derived from an unconscious psychodynamic process, when the patient has to protect his own integrity even at the expense of quality of life.

The developmental theory presented here offers a systematic interpretation of some of the major ideas of the Thesis: The patient is the focus of study; the importance of personality factor for adjustment; the reaction of personality characteristics to the crisis as a factor for adjustment; and the need for differential intervention programs according to individual personality characteristics and patterns of development. The differential rehabilitation program, based on the developmental processes theory and the research results, is designed on the assumption that for the more problematic dependent TABP group, direct guidance would interfere with their defensive TABP; supportive therapy would only encourage the dependency threat, and stress reduction techniques would not successfully cope with the basic dynamics of the situation. The proposed rehabilitation program is to treat this group in two stages. The emphasis during the first stage would be on the psychodynamic conflict, that is emphasizing - through behavioristic, cognitive or maybe even psychodynamic intervention techniques - the distinction between immature dependency and mature support, while maintaining TABP as a defensive and self-esteem pattern. Only during the second stage would cognitive guidance and relaxation tech-

niques be applied in order to manipulate TABP and to improve reality testing.

For the independent TABP group, the Type A behavior pattern is learned as an exaggeration of Western civilization system values; it does not have a defensive function. The nature of this behavior allows a more flexible rehabilitation approach in terms of the use of guidance, support, and stress-reduction techniques. The same techniques, with appropriate administration, could also serve patients exhibiting TBBP. By relating to the specific needs and fears of different groups of patients, patient cooperation is encouraged, which can only lead to better therapeutic results.

Specifically, the following hypotheses were formulated.

1. The group of patients exhibiting TABP and dependency (the AD group) will be larger than all other study's groups combined (the AI, BI and BD groups) or at least larger than the other sub-group of Type A patients (the AI groups).

2. TABP does not represent a homogeneous group of post-MI patients. Dependent Type A patients will obtain lower adjustment scores than independent Type- A patients.

3. Dependent Type A patients will obtain lower adjustment scores than Type-B patients.

4. Dependent and independent Type-B patients are expected to obtain similar adjustment tendencies.

5. The tendencies formulated in hypotheses 2-4 are expected to be similar for the various dimensions of adjustment.

Health psychologists who function within the medical framework have to find ways to communicate with other professionals and researchers in this field. Their conceptualization models should be communicative in order to encourage cooperation and prevent defensive antagonism in other professionals. From the standpoint of the psychologist in the medical setting who wishes to develop psychological models in health psychology, it is essential that a suggested model will be integrated both in a medical and a psychological (clinical or rehabilitational) way of thinking. The present study relates to this practical need by the psychological categorization of post-MI patients, that is by trying to understand the psychological dynamics of the various groups and suggesting a differential intervention program. The approach proposed here should be acceptable to the medical profession because it relates to (a) the identification of the factors resulting in the variability of post-MI adjustment, (b) the way these factors cause the disturbances, and (c) the way treatment responds to these psychological factors and to the mechanism through which they affect various ways of adjustment. The concept could be acceptable also to the psychology profession because it maintains flexibility in relation to individual differences within the rehabili-

tation group sessions, which is an important element in clinical and rehabilitation psychological care.

CHAPTER 1

THE SCOPE OF HEART DISEASE

History of Health Psychology

Clinical psychology uses the historical dimension as a method of studying an individual in terms of his personal development. By analogy, a historical understanding of health psychology provides more than just an academic background (Mowbray et al., 1979).

The idea suggesting an interaction between body and soul appears in the most ancient writings of our civilization and goes as far back as 500 B.C. (Ehrenwald, 1976). Graeco-Roman medicine, though radically somatic, incorporated psychosomatic concepts such as Hippocrates' temperamental concepts. Plato complained that Greek physicians omitted "fair words" for the soul, which he said are necessary for a cure (Friedman & Rosenman, 1975).

Galen, who was as somatically minded as his predecessors, developed the concept of passions, which were previously discussed by Plato and Aristotle as relevant to pathogenesis and treatment (Jarcho, 1970). Passions, as a concept of psychosomatic medicine, served medicine up to the 20th century. Only in 1929 was it displaced, by the Index Catalogue of the Library of Surgeons General, with the concept of emotion. The psychosomatic approach has, therefore, a tradition of some 1700 years (Ackerknecht, 1982).

In the Middle Ages, when philosophical interest began to drift from theology toward a scientific way of thinking, Maimonides suggested that emotions cause physical changes and that emotional treatment is as important as physical treatment (Southern & Smith, 1982). The Renaissance saw the introduction of the concept of "imagination," which is similar to the modern concept of suggestion. At that time many physicians considered it a cause for disease, and in many cases a cause for cure (Ackerknecht, 1968). In the 17th and 18th centuries, various ideas were developed that dealt with the psychological component of various diseases. In 1755, Van Suieten dealt with the interaction of body and soul, and with the therapeutic effects of emotion manipulation on physical diseases (Knowles, 1977). In 1788, Falconer proposed a list of diseases caused by anger, pain, love, and fear.

Hobbes (1588-1671), Descartes (1586-1650), Leibnitz (1646-1711), and Spinoza (1632-1671) dealt with the relationship between body and soul, a concern still current in modern medical psychology and medicine. In the past Descartes' dualistic philosophy guided psychology and medicine. Only recently, with the development of physiology, neurology, and sociology, has the concept of bio-psycho-socio medicine begun to be recognized. The first steps in this direction were taken by Wundt (1832-1920), who was influenced by Darwin (Ackerknecht, 1981). At the beginning of the 20th century, Freudian concepts on neuroses and the conversion of symptoms heralded the beginning of theoretical opportunities to unify all psychosomatic observations under one theoretical roof. The psychologist William

James, the physicians Draus, Siebold, and Von-Berman, and the physiologists Parlor, Cannon, Kesl and Selye, all dealt with psychosomaticism (Ackerknecht, 1982). Their professional heterogeneity points to the interdisciplinary roots of the modern psycho-sociobiological approach.

By the 1930s, America had become the center for progress in psychosomatic medicine. The Journal of Psychosomatic Medicine was published there in 1939; in Europe the first journal dealing with psychosomaticism was published only in 1956. The trend of the involvement of psychology in medical issues was further promoted by several other journals (such as the Journal of Behavioral Medicine, which began in 1978). In 1979, the American Psychological Association (APA) formally introduced Health Psychology as an independent division.

The argument that Psychology should develop as a health profession as opposed to a mental health profession, is now well accepted (Schofield, 1969). The detachment between clinical psychology and psychiatry is strongly advocated by Rachman (1977). "The scope of clinical psychology (perhaps better called medical psychology) should expand from its nearly exclusive association with psychiatry, to include other branches of medicine" (p.6). Rachman and Philips (1975) argued that the "theory of clinical psychology would have to be expanded to include the application of psychological science to behavioral problems which arise in psychological normal people who have general medical problems" (p.20). Rachman (1980) suggested "that psychologists would use their conceptions, training and knowledge to

enrich the theory of medicine" (p.2) in issues such as "theories of illness, concepts of sickness behaviour, doctor-patient relationships, the theory of pain and its alleviation, the behaviour and feelings of doctors, patients' expectations, fears and satisfactions and many other critical subjects" (1977, p.7). Rachman (1980) predicts that "If psychologists insist on working their own ground - the psychology of health and illness - the coming decade could be the most rewarding in the history of their emerging profession" (p.5).

The interaction between psychology and general medicine was not only viewed more favorably but was assisted due to internal developments in medicine: the concept of, "One germ one disease" was replaced by bio-psycho-social model. Adolf Meyers (1866 - 1950) represents, more than any other person, the comprehensive approach in medicine. He argued for multicausal roots for disease and multifactorial influences on its cure (Mowbray et al., 1979). This approach was promoted by Matarazzo (1955). Later, the interdisciplinary approach was represented by Behavioral Medicine (reviewed by Miller, 1983), which is "the interdisciplinary field concerned with the development and integration of behavioral and biomedical knowledge and technique relevant to health and illness, and the application of this knowledge and technique to prevention, diagnosis, treatment and rehabilitation" (Schwartz & Weiss, 1978, p.250).

The specific contribution of psychology to the interdisciplinary approach is Health Psychology, which is the "aggregate of the specific educational, scientific, and professional contributions

of the discipline of psychology to the promotion and maintenance of health, the prevention and treatment of illness and the identification of etiologic and diagnostic correlates of health, illness, and related dysfunction" (Matarazzo, 1980, p.815). This definition, with the addition of the following sentence - "and to the analysis and improvement of the health care system and health policy formation" - was accepted as the formal definition of Health Psychology by the APA. Lipowski (1984), in his review on the development of psychosomatic medicine, said that it has "become an inseparable blend of psychophysiology and the holistic approach" (p.164). This conclusion is certainly the truth for the interdisciplinary approach for the rehabilitation of patients after MI.

History of Coronary Psychology

The recognition that psycho-social factors, especially psychological stress, are related to heart disease is not a new phenomenon. William Harvey (1628) mentions that "every affection of the mind that is attended with either pain or pleasure, hope or fear, is the cause of an agitation whose influence extends to the heart." John Hunter (1729-1793), who himself suffered from Angina Pectoris, mentioned the connection between his behavior, his emotional state, and his heart condition. Heberden (1772) was the first to document the pathogenic relationship of excessive stress to cardiovascular disorder. In 1806, Corvisart wrote that continuous emotional stress is

more dangerous to the heart than short and sudden emotional explosion (paraphrased from Leibowitz, 1970).

Sir William Osler was probably the first to suspect that emotional factors are connected directly to the pathogenesis of heart disease (Friedman, 1971). Osler (1910) established diagnosis in accordance with patients' appearance and the way they entered his clinic. In 1897, he wrote "I believe that the high pressure at which men live and the habit of working the machine with maximum capacity, are responsible for arterial degeneration, rather than excesses in eating and drinking." He described the coronary prone person as "vigorous in mind and body ... the indicator of whose engines is always at full speed ahead" (Strumpfer, 1983, p.3).

The Menningers (1936) were the first psychiatrists to deal with the relation between aggressivity and heart disease. In 1943, Dunbar, working on the classification of patients' personalities in a general hospital, researched the behavior of heart patients and described the coronary personality as comprehensive, dominant, and aggressive. Arlow (1945) and Kemple (1945) added restlessness, hard working, striving, needful of authority, and passively hostile, as typical characteristics of heart patients.

Scientists such as Mink et al. (1963) and Cady et al. (1961, 1964) have attempted to understand the personality traits of heart patients through factor analysis of the MMPI and Cattell's 16-Personality-Factor questionnaire. In a literature review Dijl (1982)

mentioned that other personality questionnaires were used by Klein and Parsons (1968), and by Theorell and Rahe (1972). Siltmanen (1975) used the sentence completion test, and Cleveland and Johnson (1962) used Rorschach variables. Researchers from Holland - Bastiaans (1968), Groen et al. (1965), Kits (1966), Valk and Groen (1967), and Dijl (1978) - have researched the psychodynamic aspects of heart patients' behavior.

The fact that CHD is a characteristic disease of an urban-industrial environment has brought about intensive efforts to understand the socio-demography of the disease (Brown et al., 1969). In comprehensive reviews, Jenkins (1971, 1976) categorized the available data to social indexes of occupation, education, income, marital status, religion, emotional sources, and socioeconomic strata. He concluded that inquiries should relate themselves not to demographic factors but to the lifestyle qualities relating to them.

The dramatic advance in the study of psychological aspects of heart disease took place in the 1950s, at a time when the effects of the disease on modern society became more widely recognized. In the mid-1950s Meyer Friedman and Ray Rosenman, researchers at the Harold Brunn Institute of Cardiovascular Research, Mount Zion Hospital, San Francisco, began the first systematic study of the association between psychological behavior patterns and CHD. Friedman and Rosenman described a particular behavior that they termed as Type A behavior pattern (TABP), and which was later recognized as a primary independent risk factor for CHD. In addition to the empirical approach into

TABP and the etiology of CHD initiated by Friedman and Rosenman, some researchers have offered a psychoanalytic description of heart patients' personality in terms similar to TABP. Other investigators have dealt with the psychological aspects of hospitalization, and still others with rehabilitation. The connection between CHD and TABP has been established by the NHLBI (The Review Panel, 1981), but we are still in the initial stage of understanding the pattern itself and the underlying physiological and psychological mechanisms through which TABP affects CHD. There is also a need for a better definition of the concept of adjustment in relation to the post-MI period and the specific psychological mechanisms through which TABP affects adjustment after heart attack. The understanding of post-MI adjustment will help in the development of efficient post-MI intervention programs.

The growing interest in a holistic approach to health problems - as reflected by the emergence of the multidisciplinary field of behavioral medicine, by the specific contribution of health psychology, and by the demonstration of TABP as a primary risk factor for CHD - has resulted in a dramatic increase in studies on TABP. In the effort to understand post-MI adjustment processes, and in proposing methods of rehabilitation, there are obvious advantages in adjusting ideas, methods and conclusions from the more developed etiological studies. Chapter 2 reviews and discusses the literature on the psychoetiology of MI in terms of TABP.

High-Risk Population

In the last thirty years various epidemiological studies, most notably those of Epstein (1965), Felton and Cole (1963), and Jenkins (1971,1976), have established the magnitude of coronary heart disease in the Western world. The World Health Organization (1969b) declared that heart disease has become the largest plague that ever faced humanity.

Heart disease is the most common severe disease occurring in the Western world (Kannel, 1976). It has been recognized as the major factor in premature death at an early age in the United States (May et al., 1982; The Review Panel, 1981); in the United Kingson (Naismith et al., 1979); and in the whole of Europe (WHO, 1964). In spite of the impressive development in biochemistry, heart disease, which was relatively rare at the beginning of the century, has increased dramatically in the last 30 years. What is more, it has increased out of all proportion to population growth (Anderson, T., 1973).

In his review of the developments and experiments over the last 20 years in the effort to achieve primary prevention of CHD in the United States, Stamler (1981) reported a decline in mortality from CHD over the last decade. He concluded that "it is reasonable inference, given all the facts, that the positive changes in life-sytles and in handling risk factors among Americans relates causally to the decline so far registered in the coronary mortality rates" (p.731). Wenger et al. (1982) surveyed 6,000 physicians in 1970 and 1979; they

reported changes in the physicians' management of patients as a possible cause for the recorded decline in CHD. Although a decrease in deaths resulting from heart disease has become evident since 1968 (National Center for Health Statistics, 1980), it is still the most damaging disease to Western civilization (Price, 1982; Steptoe, 1981).

The most high risk population is considered to be young males in the urban industrial sector of the Western civilization (Chesney et al., 1981b; Kannel, 1976; WHO, 1964), especially those who are liable to occupational and area mobility (Cohen, 1978). The risk level for men aged between 37 and 65 is 73%; for women in the same age group it is 18%. The least vulnerable population is the rural community (Rosenman, 1978). In 1975, 26% of the deaths in the United Kingdom and 37.8% of the deaths in the United States were related to heart disease; in comparison, 19.3% of deaths in these two countries were caused by cancer (DHSS, 1976; Steptoe, 1981). In 1978, 52% of all deaths in the United States were related to heart disease (American Heart Association, 1980); one third of all deaths were the direct result of CHD (National Center for Health Statistics, 1978). The rate is similar in all other Western countries (Chesney et al., 1981b). In 1978, one million Americans suffered a heart attack, 65% of them died; thirty million Americans suffered from heart disease or disease of the blood vessels. Price (1982) stated that more than 4 million Americans have a documented history of CHD. In the United States alone, approximately 600,000 Americans die each year from CHD; of these deaths, 35% occur in persons less than 65 years of age (Chesney & Rosenmann, 1982).

It was estimated that in 1975 heart disease related illnesses caused some 50 billion dollars of economic damage in the United States. Apart from the fatal aspect it is necessary to take into account changes in the occupational performance of family members of the dead or sick person, and of course the reduced occupational performance of the survivor. This sort of economic damage is well recognized, but is difficult to quantify (Price, 1982).

Psychological Factors as Etiological Risk Factors

Survivors of MI are liable to another MI (Beard et al., 1960) after a short, critical period from the onset of the original symptoms. Survivors are stabilized at a risk of dying some 4-8 times that faced by the comparable non-coronary population (May et al., 1982). Fifty percent of survivors can expect to live at least 5 years (Frank et al., 1973; Herd, 1981). Other studies report that if a person survives an infarction the risk of re-infarction is currently about 36% for the 5 years following the initial episode. Although the CHD mortality rate has declined since 1968, the death rate from heart disease in the 5 years following an infarction has not seen any improvement since 1966 (American Heart Association, 1982,1981). The tendency of patients not to comply with their doctor's instructions (Cay et al., 1976; Kavanagh et al., 1975; Stern et al., 1977) probably contributes to the high mortality rate after the first MI.

Although the pathophysiology of the development of atherosclerosis is not known till today (Matteson & Ivancevich, 1980; The Review Panel, 1981), changes in neuroendocrine system (Levi, 1968), lipid metabolism (Corlson et al., 1972), blood pressure (Brod, 1964; Gambaro & Rubin, 1969), and the cardiovascular system (Williams et al., 1977) are considered to be risk factors for MI and sudden death (Herd, 1978; Raab, 1966). It is generally accepted that CHD is associated with different combinations of coronary risk factors such as high blood pressure, high concentration of serum cholesterol, cigarette smoking, obesity, diabetes, lack of exercise, age, and family history (Price, 1982). The above are considered to be significant factors in the development of physiological processes that eventually end in CHD.

Large scale projects were designed to reduce these risk factors as the major aim of primary prevention programs. They include the Belgian Heart Disease Prevention Project (Kornitzetr & Lellouch, 1984), the United Kingdom Heart Disease Prevention Project (Rose et al., 1983),* the Primary Preventive study in Gothenburg, Sweden (Wilhelmsen et al., 1972), the World Health Organization European Collaborative group (1982,1983), and the North Karelia Project (Fuska et al., 1983).

Because any combination of the high risk factors accounted for less than half of CHD incidents (Jenkins, 1976), there arose

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* Differences in the results of the U.K. and the Belgian heart disease prevention projects are discussed by Kornitzer (1984).

research on the "new" risk factor - TABP. The importance of the psychological risk factor is supported by findings that the occurrence of MI is associated with a continuous state of emotional stress.* Accordingly, physiologically oriented programs were designed in order to prevent the initial MI (Levy, 1981). A discussion of the possibility of prevention of MI is concluded by an editorial in The Lancet (1982) with the comment that "The doubters can still doubt" (p.804). Some large scale projects, such as the Multiple Risk Factor Intervention Trait study (MRFIT) (1982), were designed in order to prevent a second MI.

Within the whole multi-causality spectrum, the psychobehavioral component that accounts for the etiology of CHD was also recognized by the American National Heart, Lung and Blood Institute (NHLBI) as a major risk factor for the occurrence of another MI (The Review Panel, 1981). Fifty-one percent of post-MI patients were reported as suffering from emotional stress a year after MI; 33% reported continuous anxiety and depression (Winefield et al., 1981-82). Anxiety, depression, and general feelings of emotional stress were observed also by Cay et al. (1973a), Rosen and Bibring (1966), and Wrzesziewski (1980). The continuous emotional stress resulting from MI is the result of a crisis situation (Croog et al., 1968) in which the individual has to cope with the possibility of death and the threat of permanent physical disability (Byrne, 1980).

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* Friedman et al. (1975,1960); Glass (1977a,b); Haft et al. (1972); Kotchen et al. (1971); Raab (1971); Selye (1971); Simpson et al. (1974); Theorell et al. (1974); Williams (1977).

The psychological and social difficulties caused by a heart condition are distressing and for some patients are more emotionally and behaviorally harmful than the physiological disease itself (The Lancet, editorial, 1971). Various studies have found that dysfunctions related to psycho-social and social factors are not associated with the severity of the heart condition (Byrne, 1982; Klien et al., 1965; Mayou, 1981; Nagel et al., 1971; Vetter et al., 1977; Wenger, 1979). In fact, psychological factors are considered to be independent contributors to adjustment to a better quality of life in the post-MI period (Fielding, 1980; Jenkins, 1976;); this approach is supported by various field studies (Croog & Levine, 1982; Pancheri et al., 1978; Philip et al., 1981, 1979; Wynn, 1967; and others).

Quality of Life

Inadequate behavior of CHD patients in issues relating to their quality of life (such as family relations, leisure time activities, diet, smoking, and physical activities) has been noted by several researchers (Cook, 1979; Mayou et al., 1978b; Naismith et al., 1979; and others). Psychological and social malfunctioning is not related to the seriousness of the damage to the patient's heart, but is associated with his general life environment (Byrne et al., 1981; Mayou, 1979, 1981). Specific damage to the patient's family, especially to his wife, was recorded in regard to her work performance (Herd, 1981; Mayou et al., 1978a); her mental condition (Stern &

Pascate, 1979); and in response to the personal condition of wife and children (Croog & Levine, 1982).

MI survivors have to face a sudden change in their life perspective as a result of an acute traumatic experience. These changes are connected with changes in self-image and future security feelings of patients and their families. The particular implications of suffering a heart attack causes anxiety to patients, to their families, and to other individuals who identify the victim as belonging to their own socio-group (i.e., same sex, same age, same career pattern, etc.). The negative effect of MI on patient's life and his family was acknowledged by the World Health Organization (1979), the International Society of Cardiology (Council on Rehabilitation, 1973), and the Royal College of Medicine in London (Cardiac Rehabilitation, 1975). The NHBLI has recommended to devote a major effort to find a way to improve the quality of life of post-MI patients (The Review Panel, 1981). Since 1985 a new American periodical - Quality of Life and Cardiovascular Care - copes directly with this challenge.

The psychological factors concerning the patient's adjustment, and their influence on his quality of life, and indirectly on his life expectancy, present a major challenge to the profession. The challenge lies in the understanding of the psychological factors involved in the post-MI adjustment and in the development of methods of psychological intervention that will contribute to the post-MI adjustment of the patient and his family. Thus far, intensive efforts have been made to investigate psychological factors relating to the

etiology of MI. Much less has been done in relation to adjustment in the post-MI period. The present study is an attempt to contribute to the understanding of the psychological factors involved in the post-MI period, as it relates to adjustment in terms of improved quality of life. This approach was acknowledged later by Stunilloff (1984), who has stated that "Major changes in cardiac rehabilitation programs are now taking place with the emphasis moving away from prolongation of life toward improvement in the quality of life" (p.723).

Coronary Heart Disease in South Africa

Within the world-wide trend of introducing psychiatric liaison services in general hospitals, clinical psychologists were used in tackling health problems. Schlebusch (1983) noted this trend in South Africa and reported on the usefulness of psychological studies in this field.

South African whites (with the exception of South African Indians) have the highest mortality rate in the world (Strumpfer, 1974). In 1977, the mortality rate for white males aged 15-64 was 224.4 per thousand. In the same year it was, respectively, 154 per thousand in the United States, 141.1 in Australia, and 148.7 in England. Wyndham (1982) compared mortality patterns of South Africans with patients from other countries over a 10-year period (1968-1977). He recorded no significant change in mortality rate in the U.K. and in

South Africa; but in the U.S., and in Australia, significant reductions in mortality rates were recorded over the same period (Australia, 19.8%, U.S., 25.5%). Wyndham suggests that these differences can be explained by the vigorous CHD prevention programs followed in the United States and Australia since the 1960s. Strumpfer (1983) wrote that "among (South African) males in the 35-44 year age group, the incidence is 163 per 100,000, a rate 1.9 times that of the same group in the U.S., 1.6 times that in the U.K., 3.4 times that in West Germany, and 7.7 times that in France" (p.24). Strumpfer has argued that, in addition to other factors that relate to the etiology of CHD, the high mortality rate in South Africa results also from job related stress. He stated that in 1979, whites constituted 17.4 percent of the total South African population, and in 1977, 18.7 percent of the economically active population, "yet they occupy virtually all positions of responsibility" (Strümpfer, 1980, p.3). As a result, white Type A individuals are "likely to keep going up even beyond the level of incompetence epitomized in the Peter Principle" (p.8). The importance of psychological studies in the field of psychocardiology in South Africa, as well as in other Western cultures, is obvious.

CHAPTER 2

TYPE A BEHAVIOR PATTERN (TABP) AND CORONARY HEART DISEASE (CHD)

Today, the association between TABP and CHD is well established, in similar accuracy to medical measurements such as X-ray and other laboratory measurements (The Review Panel, 1981). TABP as a major independent risk factor for CHD was labeled by Price (1982) as the new risk factor, in addition to other standard major risk factors such as high blood pressure, elevated serum cholesterol, smoking, overweight, and lack of physical activity. The Review Panel (1981), assembled by the American National Heart, Lung and Blood Institute (NHLBI), stated that:

> This risk (TABP) is greater than that imposed by age, elevated values of systolic blood pressure and serum cholesterol, and smoking, and appears to be of the same order of magnitude as the relative risk associated with the latter three of these factors (p.1200)

In addition to its direct effect on the cardiovascular system, TABP may have an indirect influence on the development of CHD, as Type A persons might smoke, overeat, or be too busy for physical exercises (Price, 1982). Rosenman and Chesney (1980) concluded a review study in the following way:

> We have reviewed relevant findings concerned with the Type A behavior pattern (T.A.P.B.). It has strong construct

> validity and does not equate with personality and emotional factors measured by standard psychometric inventories. It is an interplay of certain behavioral modes and emotional responses with the environmental milieu. T.A.B.P. is causally related to the severity of coronary atherosclerosis and to clinical coronary heart disease in both sexes, with a predictive strength that is equivalent to that of the standard risk factors for C.H.D. The concept of T.A.B.P. and its relevance for C.H.D. have cross-cultural validity and specificity in a relationship that has a biological gradient of pathogenicity. (p.46)

It should be kept in mind that, so far, no causative relation has been suggested between TABP and CHD. Further, more than 50% of the urban American male population are Type As and only a small percentage of them will develop CHD (Rosenman et al., 1976).

Investigation into TABP, which began in the 1950s, has attracted most of the research in psycho-cardiology because of its potential in contributing to the understanding of the etiology of heart disease. Meyer Friedman and Ray Rosenman of the Harold Brunn Institute of Cardiovascular Research, Mount Zion Hospital, San Francisco, developed the TABP construct as a result of the disappointment from the predictive power of classical standard risk factors (Rosenman & Friedman, 1959). They were influenced by the clinical observations of Osler (1910), the Menningers (1936), Arlow (1945),

Dunbar (1943), Gildea (1949), Miles et al. (1954), and their own observations as physicians working with cardiac patients.*

Type A Behavior Pattern (TABP) and the Type B Pattern (TBBP)

TABP and TBBP lie at opposite ends of a continuum with distinguishable different typical characteristics. Although Type A behavior pattern will dominate the discussion here, Type B behavior will be also elaborated.

TABP Defined

The available literature provides a long list of descriptors of components of the Type A pattern, but a concise definition of these characteristics has not yet been supplied. Moreover, a descriptive analysis of TABP does not make clear which components are central to the pattern and which are more peripherally or even tangentially involved (Price, 1982, p.13). While reading the following TABP descriptions it should be kept in mind that "these characteristics are present to varying degrees in most men in present day Western cultures, since they constitute the stereotype and the role expectations of masculinity. However, when they are present to an enhanced or

* An interview with M. Friedman that relates to his life experience with Type A persons was recently written by Hoffman (1984).

excessive degree the pattern is referred to as coronary prone or Type A behaviour pattern" (Strümpfer, 1978, p.47).

> Although originality conceptualized as an individual personality trait that interacts with environmental stresses, Type A behavior is now recognized to be a set of observable responses to the milieu of daily life. Thus, the TABP is not a personality description. Instead, it includes behavioral dispositions such as ambitiousness, aggressiveness, competitiveness, and impatience, as well as behaviors such as muscle tenseness, alertness, vigorous speech production, and a rapid pace in most activities. The TABP is an integrated pattern of behaviors that differs from anxiety and other manifestations of psychopathology; it is a characteristic style of responding to and coping with environmental stressors. (Chesney & Rosenman, 1982, p.12)

Friedman and Rosenman (1974, p.67) defined TABP 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 other persons. The major facets or "core" elements of the behavior pattern are extremes of aggressiveness, easily aroused hostility, a sense of time urgency, and competitive achievement striving (Rosenman, 1978, p.xv). Jenkins and Zyzanski (1980) characterized TABP as:

A style of living characterised by extremes of competitiveness, striving for achievement, aggressiveness (sometimes strongly denied), haste, impatience, restlessness, intensely alert posture, explosiveness of speech, tenseness of facial muscles, abruptness of gesture patterns, and feelings of being under the pressure of time and the challenge of resposibility. Persons having this pattern are often so deeply committed to their vocation or profession that other aspects of their lives are relatively neglected. Not all aspects of this pattern need to be present for a person to be classified as Type A. (p.157)

Strümpfer (1983, pp.3-5) has stated that:

Type A persons are characterized by hard-driving conscientiousness. They engage in a chronic and excessive struggle, in the hope of obtaining an excessive number of poorly-defined things from their environment (Rosenman, 1978). They usually try to do so in the shortest possible time. They are willing to work hard to succeed. They also tend to suppress fatigue and other subjective reactions that could interfere with their task performance (Carver et al., 1976). They seem determined to persevere, in the belief that sufficient effort can overcome any obstacle. They seem to be compulsively attracted to challenges and competition. They also tend to be inflexible, responsible and conscientious. They prefer to be respected for what they do; to maintain

productivity to them means maintaining self-worth. They seem to have an almost Puritan streak of reacting the more strongly when demands are at least minimally distressful (Glass & Carver, 1980). They rarely find time for leisure activities, but when they do, their avocational pursuits are usually as competitive and aggressive as their vocational ones.

Secondly, Type As show an overwhelming sense of time urgency. They are chronically impatient and in a hurry; or as Rosenman and Friedman (1974) put it, they suffer from "hurry sickness." They are usually annoyed when they have to wait, for example in a queue or at a traffic light. They are constantly preoccupied with deadlines. They react rapidly. They speak fast, with bursts of words. They often use explosive or semi-violent accentuations in the rhythm of their speech. They walk rapidly. They eat in a hurry; so that their spouses and others often complain that they eat too fast. When sitting or standing they tend to be restlees, often tapping fingers or feet or playing with something (to the benefit of makers of "executive toys"!). They often try to do several things at once, like carrying on with a task while speaking on the telephone, or carrying a second line of thought. They also tend to juggle several projects at once, before old ones are completed. They even anticipate what comes next and begin to react in advance, such as getting keys out long before reaching the car or the door,

or interrupting a speaker with an answer before the question has been fully asked, or simply complete a statement for the speaker. They interrupt just to have say their say.

Lastly, Type As' interpersonal relationships are characterized by lack of concern for others and even hostility. Anger and aggression are close to the surface. Some Type As seem "almost continuously in a struggle against other persons" (Friedman & Rosenman, 1974, p.79). They tend to be self-centered, abrasive, and to want things their way. When someone else's frame of reference is different from their own interests and pre-occupations, they find it difficult to follow, even irritating. At work they are often frustrated and impatient with both superiors and subordinates. Even so, they may deny the existence of hostile impulses and may be genuinely surprised when their own behaviour is fed back to them.

In general, it is as if Type A persons lack subtle adaptive responses (Rosenman, 1978). They seem to have difficulty to match the strength of their reactions to the real requirements of the situation, but rather react with "all or nothing"; obviously they are likely to strain themselves needlessly and to waste energy this way (Roskies, 1980).

TBBP Defined

Type B is rarely defined in the literature and is usually related to as the opposite of Type A or as its relative absence (Price, 1982, p.20). Strümpfer (1983) summarized Rosenman and Friedman's description of Type B persons.

> Compared to Type As, they are less competitive and when they compete it is more as a means of social interaction. They are more mellow, satisfied, relaxed, easy-going, and less impatient. When at work they tend to work steadily but without a feeling of being driven and without the constant slavery of the clock. They tend to prefer to be liked for who they are, rather than for what they do. They are likely to appreciate people more than things (Strumpfer, 1983, p.6).

Price (1982) described a person classified as Type B as one who "has more confidence in his worth, his primary source of validation and support comes from within himself. He considers other persons' judgments but he treats their judgments as secondary to his own. He does not fear their disapproval because he does not rely on their approval" (p.177).

The descriptions of both TABP and TBBP suggest that although extreme TABP and TBBP lie at the opposite ends of a continuum, persons of both types have a qualitative identity such that TBBP can neither

be described as nor related to as a pattern of behavior that is simply not the Type A pattern. Chesney and Rosenman (1982, p.12) stated that "Type B behavior pattern represents an alternative style of responding to, and coping with, environmental challenge." It is on the basis of this approach that a better understanding of the post-MI adjustment process of subgroups of patients is to be found.

TABP and Coronary Prone Behavior Pattern (CPBP)

It is important to distinguish between the concepts TABP and CPBP (Coronary Prone Behavior Pattern). Dembroski (1978), Jenkins (1978a) and Matthews (1982) mentioned that many people who are not going to suffer from CHD are described as exhibiting TABP and that the correct categorization for CHD sufferers is CPBP. They argued that CPBP should be referred to in the context of the etiology of CHD, and that TABP is a more general description that can relate to other diseases (Glass, 1977b; Jenkins et al., 1974; Rose et al., 1978). Obviously, this distinction is also important to the task at hand. In the literature, no distinction is made between the concepts (for example, see Radley, 1982), but in the future CPBP might be related only to the etiology of heart disease (The Review Panel, 1981). Jenkins (1978b) stated that:

> The CPBP is a construct, and hence criterion validity is helpful but not complete. Coronary-prone behavior is a

> family of processes existing in nature. It cannot be captured and mounted on a pin under glass like a rare butterfly. The best current measures, including the Structured Interview, are only approximations of clearly real but not totally specified complexes of behavior. We can see most expressions of coronary-prone behavior clearly enough to recognise them, but yet, like lateborn colleagues of van Leeuwenhoek, parts of our visual field are blurred, and we are not quite sure about the boundaries of this behavior pattern. (p.71)

The Coronary Prone Behavior Pattern is a complex construct in need of more extensive theoretical development and research. The CPBP is at a relatively early state of refinement despite over 20 years work with the meaning, validity and predictive power of the construct. Whatever description or definition is currently designated for the CPBP, it is probable that as additional knowledge is gained, the meaning of the construct will change (Matteson & Ivancevich, 1980). Development of a more accurate construct is perhaps the most important goal of psycho-cardiology in its effort to identify the psychological aspects of the etiology of CHD.

The present study is not interested in the etiological value of Type A, but rather in its value as a type of behavior that characterizes many post-MI patients and which might influence their ability to use their personality resources for adjustment. It is argued here that the psychological factors for adjustment are different from the etiological factors. To emphasize the different aspects of TABP that

relate to the occurrence of CHD and those that relate to adjustment to the post-MI period, I propose to use the term CPBP as a risk factor for CHD. In the current context of post-MI adjustment, the use of the term TABP seems to be more appropriate; by distinguishing TABP from its cardio-etiological aspect (CPBP), it is possible to investigate its specific interactions with different forms of adjustment to MI. Another reason for the use of the general concept of TABP in the post-MI adjustment period, is the potential possibility of generalizing rehabilitation factors in MI to other diseases. Although the CPBP is not used here, data and ideas relating to etiological studies will be used as potential contributors to the enquiry of the post-MI adjustment process.

Assessment of TABP

Various methods were developed for assessing the Type A behavior pattern, although some of the methods have yet to prove their usefulness. The NHLBI (The Review Panel, 1981) chose to define Type A through the Structured Interview (SI), as used in the Western Collaborative Group Study (WCGS) (Brand, 1978; Brand et al., 1976; Rosenman, 1976), and the Jenkins Activity Survey (JAS) (Jenkins, 1978b; Zyzanski, 1978). The SI and the JAS are the most commonly used and the best validated measures of TABP; they are elaborated on later. Other assessment methods include:

1. The Framingham Type A Behavioral Scale (as developed by the Framingham Massachusetts Heart Study) consists of 10 questions that ask about presumed Type A characteristics. Subjects classified as Type A have an increased incidence rate of CHD (Haynes et al., 1980; Haynes et al., 1978).

2. The Bortner Performance Battery Motor Tests (Bortner & Rosenman, 1967).

3. In the United Kingdom the Bortner Short Rating Scale (Bortner & Rosenman, 1969) has been shown, in a case control study, to be associated with CHD (Heller, 1979), and with peripheral vascular atherosclerosis (Adler & Galeazzi, 1977). The Belgian-French Pooling Project (Kornitzer & Lellouch, 1984) also indicated the association between the scale and CHD in a study with 2699 males.

4. The Voice Analysis (Friedman et al., 1969; Schucher & Jacobs, 1977).

5. Assessment through physiological factors such as heart rate (Dembroski et al., 1979; Friedman et al., 1969; Friedman et al., 1975; Manuck & Garland, 1979; Manuck et al., 1978; Matthews et al., 1977).

6. Personality tests such as the Thurstone Development Scale, Gough Adjective Check List, Eysenck Personality Inventory,

Symptom Distress Check List, State-Trait Anxiety Inventory, Barrett Impulsiveness Scale, MMPF, Bendig Anxiety Scale, and Demsey Depression Scale (Caffrey, 1969; Glass, 1977b).

Of all the available measurements, only the SI, the JAS, the Framingham, and the Bortner Short Rating Scale suggest direct prediction of CHD (Jenkins & Zyzanski, 1982).

The present study uses the JAS scale for the measurement of TABP. The developmental relations between the JAS and SI justify the elaboration of the two scales. The Framingham Type A Behavioral Scale and the Bortner Short Rating Scale are not used in the study, hence they are not elaborated. The Structured Interview (SI), developed in the 1960s by Rosenman and Friedman (Rosenman et al., 1964,1966,1975), is used as the the major instrument for the assessment of TABP. The interview is not just a collection of data, but a special form of interaction that provokes Type A responses from the interviewee by a trained interviewer. The interviewee's ratings depend more on the style with which he responds to the interviewer than on the actual content of the responses (Jenkins & Zyzanski, 1980). The assessment is basically a clinical judgment that classifies subjects into four categories:

A - fully-developed Type A

A2 - undeveloped Type A

X - A and B equally represented

B - absence of Type A qualities.

However, the SI is an expensive instrument in terms of the time and training required to administer it.

Because of the need for an inexpensive, objective and easy to administer instrument, the Jenkins Activity Survey was developed (Price, 1982, p.245). The JAS is a self-administered, multiple-choice questionnaire scored by computer. Scales were developed statistically to identify persons judged as Type A or Type B by the Structured Interview. Scores are calculated and statistically adjusted to a common measurement metric. These are continuous, numeric scales in much the same way that blood pressure or cholesterol are numerically reported. The scoring norms of the JAS were developed on the Western Collaborative Group Study (WCGS). (The WCGS is described in detail in the following section.)

Comparison between the SI and JAS records agreement ratios between 70-73%, and on extreme scales, 89-91%, for the prediction of the occurrence and re-occurrence of MI (Jenkins, 1978; Kittel et al., 1978). The SI, though, is a better predictor of CHD (Jenkins et al., 1974). The relatively low agreement rate suggests that both tests probably present different aspects of Type A behavior pattern. The sources of common variance appear to be in measures of self-reported pressure drive, hostility, energy level, and competitiveness. The source of unique variance in the JAS is self-reported time pressure (Matthews et al., 1982).

The JAS defines Type As as exhibiting exaggerated achievement striving, a rapid pace, and aggressiveness when confronted by certain environmental circumstances (Bierenbaum et al., 1973). Refinement of the original JAS yielded a composite Type A scale and three sub-scales derived from factor analysis: speed and impatience, job involvement, and hard-driving approach (Chesney & Rosenman, 1982).

The JAS Type A scale has been: (a) found to be consistently related, retrospectively, to coronary heart disease, in seven independent studies in the United States and in one European country; (b) found to have a predicitive validity for CHD in the WCGS, thereby demonstrating that a self-administered psychological test based on a clinical concept can predict the future emergence of coronary disease; (c) related to the severity of atherosclerosis; (d) translated with good reliability and shown to relate to coronary heart disease in other cultures; and (e) found by many studies to be basically independent of major CHD risk factors for both initial and recurrent CHD events (Chesney & Rosenman, 1982).

Evidence to date suggests that the JAS Type A scale currently in use is most valid for employed males, with at least eight years of education, who are between the ages of 25 and 65 (Zyzanski, 1978). Jenkins (1981) summarized the issue:

> There is some evidence that combining the SI and JAS gives greater predictive power than either method alone. The future is likely to see improved measures of Type A, combi-

> ned with other psychological risk factors, to provide much stronger prediction of specific pathogenic cardiovascular processes. (p.22)

Because the JAS is relatively more objective and easy to administer, the present study uses it for the measurement of TABP; the JAS is further described in the Method (chapter 6).

Association Between TABP and CHD

The most significant contribution to the establishment of the Type A behavior pattern to the development of CHD came from the Western Collaborative Group Study (WCGS) (Rosenman et al., 1966,1970, 1975). The WCGS was a prospective study that followed a population of 3,154 apparently healthy men aged 34-59 for eight and a half years in the 1960s. The subjects were classified by the Structured Interview as exhibiting TABP (N=1,589) or TBBP (N=1,565). The eight and a half years follow-up indicated that subjects with initial TABP were "more than twice as prone to the onset of clinical coronary heart disease as the subjects originally assessed as Type B" (Rosenman & Friedman, 1974). The study also showed that (a) Type A subjects were five times more prone to a second myocardial infarction than Type Bs and that (b) fatal MI occurred twice as frequently in Type As than in Type Bs.

Rosenman et al. (1975) reported that "The Type A behavior pattern was strongly related to the CHD incidence, and this association could not be explained by association of behavior pattern with any single predictive risk factor or with any combination of them" (p.872). Price (1982) stated that the association between TABP and CHD was proved even when other risk factors such as hypertension, smoking, and dietary habits were held constant. The same results showed up in two separate Swedish studies on a total of 6,500 subjects (Naughton et al., 1968). In these separate studies TABP predicted narrowing of the coronaries (Blumenthal et al., 1975; Frank et al., 1978; Zyzanski et al., 1976).

In retrospective studies, the Type A scale (JAS) had significant results in comparing healthy Type A and Type B persons to CHD subjects (Jenkins et al., 1971b). Hospitalized CHD subjects were also compared to hospitalized other subjects (Hiland, 1978; Kenigsberg et al., 1974). Retrospective studies using SI and JAS validated the connection between various aspects of Type A behavior patterns and CHD: in the USA (Caffrey, 1970; Glass, 1977a; Keith et al., 1965; Shekelle et al., 1976; Stokols, 1973; Thiel et al., 1973; Wandell & Bahnson, 1973); The Netherlands (Appels et al., 1982; Dijl, 1978); Sweden (Bengtsson et al., 1973; Liljefors & Rahe, 1970; Theorell & Rahe, 1971); the Soviet Union (Ganelina & Kravesky, 1971); Belgium (Kornitzer et al., 1981); Honolulu (Cohen, 1974); and Communist Poland (Zyzanski et al., 1979). In an important study with 1,400 monks (Caffrey, 1968, 1969,1970) established a connection between CPBP and CHD by comparing sick monks to healthy monks. Quinlan et al. (1968,

1969), using Caffrey's study, demonstrated that CPBP can distinguish between different kinds of CHD such as Angina Pectoris (AP) and MI. The CPBP is more typical to post-MI patients than to those who suffer from AP. Friedman established the association between CPBP and CHD by postmortem operations, physiological tests, and family interviews (Friedman et al., 1973; Friedman & Rosenman, 1959,1960; Rosenman & Friedman, 1961). Jenkins summarized 32 studies in 1976 (Jenkins, 1976), and some more in 1971 (Jenkins, 1971), and came to the same conclusion.

Many other recent studies suggest a positive association between TABP and CHD (Haynes et al., 1978; Ort-Gomer et al., 1980; Shekelle et al., 1976; Theorell et al., 1975). Some studies failed to find an association between TABP and CHD (Bass & Wade, 1982; Dimsdale et al., 1979; Friedman et al., 1974). A detailed review of the literature on the association between TABP and CHD is provided by Brand (1978), Glass (1977b), Jenkins (1976), Price (1982), Rowland and Sokol (1977) and Zyzanski (1978). Discussion on the issue of association between TABP and CHD (Feinleib et al., 1978) raised points for further research. In general the main body of studies on association lead the NHLBI to recognize the TABP as a major risk factor for CHD.

The association between TABP and CHD is summarized by Rosenman and Chesney (1980). "The concept of TABP and its relevance for CHD are shown to have cross-cultural validity and to have specifity for CHD in a relationship that has a biological gradient of pathogenicity" (in Radley, 1982, p.107).

Qualitative Aspects of TABP

TABP is Not a Psychopathological Phenomenon

Antonovsky (1979) proposed studying health instead of disease, that is to study what he terms the salutogenic rather than the pathogenic approach to health. This approach is specially relevant to multiple causation diseases such as CHD or the TABP phenomenon. Strümpfer (1979) postulated a similar approach to general hospital patients. In relation to CHD, he argued that the psychopathological approach to the understanding of coronary prone behavior would be inappropriate. Instead of the traditional clinical approach he argued that "psychological reaction to medical conditions can be understood better in terms of developmental crisis" (p.67) of basically mentally healthy persons. Friedman and Rosenman, both of whom are cardiologists, tried to select a label (TABP) that does not imply psychological abnormality (Friedman, 1977). Friedman and Rosenman (1971) argued that persons with TABP are different from neurotic patients; Type As tend to cope with challenges, persons with anxiety neuroses tend to withdraw from challenges. Friedman has emphasized that aggression and the struggle to overcome barriers in the environment are the most critical aspects of Type A behavior. Rosenman (1978) stated that "since Type As rarely despair of losing the chronic struggle, such individuals differ sharply from those with fear, anxiety, or a garden variety of neuroses" (p.xv).

It is important to distinguish Type A behavior from the concept of stress. The term "stress" is used in a variety of ways, sometimes to refer to a painful stimulus or upsetting situation, and at other times to refer to a personal reaction of alarm, discomfort, or pain. In contrast, "Type A behavior pattern is neither a stress situation nor a distressed type of response, but is rather, a style of overt behavior by which such individuals, confront, interpret, and respond to their life situations" (Rosenman, 1978, p.xvi), either pleasant or troubling, provided that some element of challenge is felt to be present.

Wadden et al. (1983), in comparing JAS and the MMPI, concluded that "factors assessed by the JAS scales are generally unrelated to factors assessed by traditional measures of psychopathology" (p.32). In a sample of monks aged 25-64 (Caffrey, 1968), TABP was shown to be independent of neurotic anxiety. Contrary to these findings, Irvine et al. (1982) found a Type A group to be significantly more neurotic than a control group. This result was also found by Haynes (1978) and Kittel et al. (1982). Following the approach that Type A behavior pattern is not a psychopathological syndrome, one should consider the positive and negative consequences of being a Type A person in urban Western civilization. The positive consequences include a high social status, high level of overt self-esteem, and high level of alertness. The Nobel prizewinner, Sir Peter Medawar, went even further: "Type As are without a doubt the great doers of the world. Even if Type As lead shorter lives they live more life while they are living it" (Strümpfer, 1983, p.5). The negative consequences

include permanent conflict and tension in social interactions, mental turmoil, overactivation of neuroendocrine responses, elevated levels of cholesterol (Price, 1982), and of course a greater chance to develop CHD.

Radley (1982) summed up the Type A's quality of life: "Rather than regarding the Type A individual as somehow a cultural hero, we may perhaps better understand him as an anxious wretch who is incapable of keeping up with the demands that life and employment make of him" (p.118). Thus, though Type A persons are not abnormal, they do have psychological problems to adjust to daily life in a way that will provide them with a better quality of life before and after clinical MI.

TABP-TBBP Continuum and Typology

No single person should be expected to show all of the characteristics described under the rubric of Type A or Type B. The distinction between the two types must be viewed in terms of a continuum of behavior, with only a small number of people at the extremes and those in between showing less of whichever extreme, as well as different combinations of the range of possible behaviors. Accordingly, some studies define extreme As as A-1, moderate As as A-2, extreme Bs as B-4 and moderate Bs as B-3. The distribution among employed American males was found to be A-1 15%, A-2 40%, B-3 40%, and B-4 10% (Jenkins et al., 1975; Rosenman & Friedman, 1971). Another

classification is A1, A2, X and B: X represents those patients who present the same amount of A and B; B indicates an absence of Type A qualities.

It is relevant to ask whether persons who exhibit TABP are qualitatively different from those who exhibit TBBP. The argument presented here is that although TABP and TBBP belong to a continuous concept, the understanding of the unique qualities of each group of patients will facilitate a better understanding of their behavior. Price (1982), who advocates the continuum approach and suggested a "multidimensional profile instead of typology" (p.167), realized that "the characteristics tend to cluster together because most of them are interdependent rather than independent of each other" (p.168); the result is a unique personal configuration of Type A behavior. Blumenthal et al. (1981), and Chesney and Rosenman (1982), related to TABP and TBBP as a characteristic style of responding to and coping with environmental stress. Matthews (1983) found that Type A and Type B patients react in different ways to the initial symptoms of MI.

In an overview of literature on Type A, Matthews (1982) argued that "the behavioral and medical data suggest a typological classification of Type A and Type B. The implication of this is that researchers should design their studies to permit qualitative as well as quantitative differences between As and Bs to emerge" (p.317). Typological approaches include those psychoanalytical theories that

relate to a behavioral typology as a part of a differential psychodynamic developmental process.

My own clinical experience suggests not only that TABP and TBBP have different qualitative patterns, but that TABP by itself is an overt expression of two different personality structures, each with unique qualities that underly different personality developments. Subdividing Type A is a logical step in a typological approach. Empirical and theoretical investigations of the subdivision - a goal of the present study - may facilitate research for a better understanding of the adjustment of post-MI patients and, consequently, lead to more efficient rehabilitation programs.

Psychological Mechanisms Underlying TABP and CHD

It is well established that there is a positive association between TABP as a predictor risk factor for CHD, and especially for MI (Friedman et al., 1974; The Review Panel, 1981). That the intensity of Type A relates to the seriousness of atherosclerosis and to the risk of re-occurrence of MI was found in different places in the USA and in many other countries (Blumenthal et al., 1975; Frank et al., 1978; Zyzanski et al., 1976).

The TABP concept, initially envisaged as an epidemiological construct, only later attracted interdisciplinary research efforts

(medical, physiological, epidemiological, social, psychological) related to the psychological meaning of the construct (Matthews, 1982). Only after TABP was subjected to interdisciplinary research was the phenomenological construct known as TABP established as a major risk factor for the occurrence of MI.

I attempt here to justify the need to study the personality mechanisms that mediate between TABP and CHD. The establishment of TABP as the dominant topic on the etiology of CHD and the resulting conceptual and methodological literature that developed on the topic, has contributed to the development of empirical post-MI intervention efforts. In the last 30 years most of the research efforts were invested in identifying TABP, finding ways to measure it, establishing its association with CHD, and recognizing coronary risk factors. Little attention has been paid, however, to the alternation of the pattern, or to the possibility of altering the pattern in the post-MI period. The under emphasis on the post-MI period probably results from a number of reasons: (1) The research work concerning TABP is relatively new, thus it is natural that the main effort first went to establish the relevancy of the TABP-CHD connections; (2) the pattern, though different from the concept of personality, resembles it, consequently efforts directed to changing the behavior pattern have suffered from the traditional belief among psychologists that it is difficult, if not impossible, to change the personality (Matteson & Ivancevich, 1980). Intervention with TABP depends on a better methodology. Until such methodology is established, systematic attempts to change behavior in the rehabilitation period will not yield testable results.

In addition to studies that concentrate on the alteration of TABP, studies such as that by Friedman et al. (1984) have to be developed in order to demonstrate that changes in TABP will cause changes in CHD. In order to develop such studies, a better understanding of the physiological and psychological mechanisms that mediate between TABP and CHD have to be developed.

It is a common trend in the literature to emphasize the environment as a major factor in provoking TABP. "TABP is a style of overt behavior by which such individuals confront, interpret, and respond to their life situation" (Rosenman, 1978, p.xvi). The environmental approach emphasizes the influence of the environmental circumstances as a cause for the overt appearance of TABP or TBBP. Contemporary Western culture, as well as the business and professional environments of most developed countries, challenge, encourage, and reward ambitious, competitive individuals who can perform rapidly and aggressively, and with much drive (Strümpfer, 1983). If the challenges of the milieu are removed, however, it is quite possible that an already present TABP might be reduced or even disappear (Rosenman & Friedman, 1974, p.271 [taken from Strümpfer, 1983, p.52]).

Thus the Type A pattern is neither a personality trait nor a standard reaction to the environment. Rather, it is a set of overt behaviors that is elicited from susceptible individuals by an appropriately challenging environment (Rosenman, 1978, p.xvi).

Marmot (1980) suggested that Type A behavior is "neither a personality pattern nor a reflection of a stressful environment but a combination of the two" (p.605). Different kinds of situations evoke maximal reactions from different persons (Jenkins & Zyzanski, 1980, p.158). The environmental approach does not exclude accepting TABP as an expression of a personality structure that interacts with specific environmental circumstances. It is possible to describe and classify TABP as an overt type of behavior that is underlined by covert personality trends. Researchers conducting epidemiological and clinical studies that focus on the descriptions of TABP (Cohen, 1978; Marmot, 1980) have realized that the origin of TABP has to date been described in a vague way and that the psychological dimensions that underly the characteristics of TABP have not yet been identified. Cohen and Marmot's approach suggests the possibility that behind the overt behavior there are relevant personality traits. Kobasa et al. (1983), for instance, suggested that the personality trait of "Hardiness" relates to the onset of illness of Type A patients. Rosenman (1978) stated that TABP may be viewed as an aroused state superimposed upon a complex of underlying substates of interrelated factors. Matthews (1982), mentioned that non-behavioral approaches argue that the action-emotion complex is in fact a disturbing trait underlying the overt symptom described by TABP. Vickers et al. (1981) related to personality variables that underly TABP as a defense mechanism; these variables may contribute to CHD risk.

Matteson and Ivancevich (1980) asked the following questions relating to the understanding of the etiology of CHD:

1. A fundamental question relates to the nature of the behavior pattern itself. To what extent is the behavior pattern an expression of an underlying personality dimension or cluster of dimensions? To the extent that it is, perhaps attention is being focused on the wrong set of variables. If the CPBP is the behavioral manifestation of an underlying personality characteristic, which is more important in terms of CHD? Do we attempt to alter the behavior pattern or the personality dimension which may be the pattern's genesis?

2. Do some personality facets either hinder or facilitate the potential role of the CPBP? For example, are CPBP individuals who have high feelings of self-worth less likely to develop CHD or are the effects of the CPBP intensified among individuals who display low tolerance for ambiguity? The entire area of the possible moderating role of personality variables on the CPBP bears much further examination.

3. Finally, is it possible to learn as much (or more) about the CPBP by increasing our knowledge of its personality correlates than it is by studying the behavior pattern directly? Can we transfer what we know about personality formation and change to the study of the CPBP in a meaningful way? How can we use what we know about the personality facets that are associated

with the CPBP to better predict and control/alter the behavior pattern?

It should be noted that in this area of personality variables there is more room for question asking and formation of hypotheses than in any other area. The possibilities for using the breadth and conceptual models of the personality theorists are virtually unending. (p.347)

Dimsdale et al. (1978) asked similar questions: "Is Type A behaviour the central psycho-social variable related to CHD? Is Type A pattern related to an underlying psychosocial variable that in itself is the causative factor? or is Type A behavior causal only in interaction with other psychosocial variables?" (p.582). The argument that personality factors might underly TABP and that psychological mechanisms intermediate between the behavioral constructs and the occurrence of CHD, should encourage efforts toward understanding the psychological factors related to CHD. It is suggested, therefore, that future research concentrate on personality factors that underly TABP as a possible cause for the pathogenic effect to TABP and also, like the present study, concentrate on the differential adjustment of post-MI patients. Two major means were suggested in the available literature for a better understanding of the interaction between TABP and CHD. One approach advocates empirical studies (Chesney et al., 1981b; Gentry & Suinn, 1978; The Review Panel, 1981); the second approach advocates emphasizing the development of theories as guidelines for further research (Doehrman, 1977). A combined approach is

presented by Jenkins and Zyzanski (1982), who "welcome attempts to integrate the observations regarding the Type A pattern into old or new psychological theories" (p.221). Ortega and Pipal (1984), for instance, presented a new theory, which postulated that Type A persons are more challenge-seeking persons than Type Bs and that a state of continuous and constant challenge results in a physiological process that causes CHD.

The three most comprehensive theoretical approaches are presented below:

Self-Involvement

Scherwitz, Berton and Leventhal (1978) offered a "self-involvement" approach to conceptualizing TABP. They argued that the extent to which the individual is personally involved in responding to interview themes and intense feelings categorizes him as Type A or Type B. Accordingly, intensive self-involvement creates physiological changes such as changes in heart rate, blood pressure. Scherwitz, Berton et al. (1978) and Scherwitz, Leventhal et al. (1978) suggested that the self-involvement construct may explain why Type A behavior arose in the patient in the first place, and its connection to patho-physiological changes that may lead to CHD. The main critique is that self-involvement should be conceptualized as a moderator variable and not as an underlying psychological dimension of Type A (Matthews et al., 1982).

Uncontrollability

The most comprehensive and systematic effort to conceptualize TABP was introduced by Glass (1978) and his group. They argued that Type A persons are people who work hard for achievement, suppress subjective situations that may interfere with success, and act fast. Glass suggested that this behavior represents an effort to gain control on stressogenic aspects of the environment.

Behind much of Type A behavior there seems to be an overwhelming need to assert control over whatever happens (Glass & Carver, 1980). Type As' continuous attempts to gain control make them appear aggressive, competitive, and irritated. When they fail to control the threatening environment, they respond with helplessness. The uncontrollability theory suggests that TABP represents a particular way of coping with stressful aspects of the environment. It further suggests that psychological stress causes physiological and neurological disturbances that eventually may cause heart attack. It argues that frequent exchange between coping responses and feelings of helplessness cause instability in catecholamines, which eventually causes CHD. This approach is rejected by Lovallo and Piskin (1980), who tried to predict the performance of Type A persons according to this theory. Glass' research group, with its behavioral orientation, did not relate to the question of what underlines the extreme need for control of the environment, which is perceived as threatening and dangerous. The question of what are the underlying personality trends of the Type A person remains, by and large, unanswered.

Ambiguous Standards of Evaluation

This approach (or conceptualization) is based on Matthews' (1982) group work on the sources of Type A behavior patterns. Matthews argues that understanding developmental factors may help to conceptualize Type A patterns in adults. In Matthews' opinion one source for Type A behavior is a combination of high values relating to productivity, and ambiguous standards to evaluate the productivity. This ambiguity causes the subjective feeling that time is running fast and that there is not enough time to fulfill the person's goals. This feeling is thus responsible for a chronic struggle for achievement. If the criteria for self-evaluation are ambiguous, subjects try to compare themselves to others. Working hard to achieve the other person's position will bring them to the same point in the circle again with the feeling that time is short for achieving their goals.

The self-involvement, uncontrollability, and ambiguity frameworks are all based on the idea that TABP has an underlying psychological set-up that causes particular external behaviors and the physiological mechanisms associated with them. The internal set-up causes the external Type A behavior and predisposition toward CHD.

Physiological Mechanisms Underlying TABP and CHD

In addition to studies that focus on psychological mechanisms, efforts have been made to identify the physiological mechanisms that interact between TABP and the occurrence of MI. In other words, what are the unique physiological properties of TABP persons that lead to CHD? The main concern is in determining the biochemical and neuroendocrine mechanisms that are involved in the linkage of TABP and CHD (Matteson & Ivancevich, 1980).

The importance of the issue in terms of the potential development of cause and effect relationships between TABP and CHD has attracted intensive research by Dembrowski et al. (1979), Friedman et al. (1969), Manuck and Garland (1979), Matthews et al. (1977), and Shiffer et al. (1976). There is evidence that TABP persons have different physiological reactions than Type B persons. While responding to particular stimuli, physiological differences were found in systolic blood pressure, heartbeat, and catecholamines (Friedman et al., 1975; Friedman et al., 1960; Simpson et al., 1974), and in adrenaline and noradrenaline (Kotchen et al., 1971). Type A subjects have a faster clotting time than Type Bs (Friedman & Rosenman, 1959), increased platelet aggregation (Jenkins et al., 1975), and a higher urinary output of catecholamines during working hours (Friedman, 1977). It is not clear, however, whether the association between CHD death and TABP is related to these mechanisms (Marmot, 1980).

Several theories have tried to explain the way TABP manipulates physiological processes that lead to atherosclerosis, or arrhythmia and sudden death. Williams et al. (1977) argued that the extreme behavior of TABP persons is associated with neurological, metabolic, and cardiovascular changes, which may lead to arrhythmia, MI, and sudden death. Kagan and Levi (1981) suggested a physiological chain that mediates between psychological stressors and CHD. Theorell (1980) reviewed studies that suggested association between life events, physiological changes, and CHD.

Current thinking regarding the mechanisms outlined above is theoretical rather than empirical. Consequently, conclusions regarding mechanisms involved in TABP and which cause CHD are speculative and inferential in nature (Matteson & Ivancevich, 1980; The Review Panel, 1981; Williams, 1975). However, the present state of research is encouraging in that efforts are being made to understand better the physiological mechanisms underlying TABP and CHD, and in this way to manipulate them for primary and secondary prevention of CHD. For the improvement of quality of life, however, it is important to inquire into the psychological mechanisms that intermediate between TABP and the adjustment of post-MI patients to daily life. The idea of inquiring into the underlying factors that result in a certain adjustment pattern is similar to advocating inquiry into physiological mechanisms as underlying factors that intermediate between TABP and the occurrence of MI. To this end it would be useful to consider selected personality attributes that may be important to the understanding of the differential adjustment of post-MI Type A persons.

The ultimate goal of a useful model of TABP is to suggest efficient intervention methods for the improvement of patients' quality of life in the post-MI period. Without a clear conceptual model that relates to the underlying personality traits that enable the post-MI Type A person to cope in an appropriate manner with the stressful environment, this goal will be most difficult to attain. The present study makes use of the conceptual and empirical achievements of the inquiry into TABP for a better understanding of the adjustment process in the post-MI period and, accordingly, for the design of an efficient post-MI rehabilitation program. The research work that has investigated the association between TABP and CHD serves here as a guideline for similar efforts to identify underlying personality traits that are related to the differential adjustment of post-MI Type A patients. Understanding the way TABP and underlying personality traits affect adjustment will assist the progress toward more efficient rehabilitation programs.

CHAPTER 3

DEPENDENCY AND CORONARY HEART DISEASE

Price (1982) compared TABP to an iceberg of which only one-eighth can be seen above the water line, "one has to look below the surface to see psychological characteristics of TABP" (p.65). Dependency as a trait that predisposes men toward physical illness is a well-known idea in the psychosomatic literature; it is also supported by some empirical data (Greenberg et al., 1981). The term "dependency" is also common in psycho-cardiology literature; usually it is related to as a possible factor in the etiology of CHD. As a personality trait it has been dealt with in a much more speculative way than TABP. Dependence is viewed here as a personality trait that, for some patients, underlies the overt TABP. Interaction between dependency/independency and TABP determines the kind of adjustment that Type A patients will adopt in the post-MI situation.

Dependency as a Trait

The term "personality" has many definitions, but no single meaning is accepted universally (Mischel, 1971, p.1). Trait theories and psychodynamic or state theories present two approaches to the study of personality. According to the trait theory (Hilgard et al., 1971) it is possible to describe personality by several dimensions or scales, each of which relates to a specific trait. A chief aim of the

trait approach is to infer the underlying personality structure of individuals. It is assumed that the personality is made up of certain definite traits and that particular traits, common to many people, vary in amount; these traits can be inferred by measuring their behavioral indicators. Many personality theories have conceptualized traits as underlying characteristics, qualities or processes that do exist in the person and also are the causes of behavior (Mischel, 1968).

Allport's (1937) trait theory considers traits as a basic pattern of personality that causes the person to react in a typical way. Wallace (1966) stated that a trait is an assertion of the person's ability to behave in a certain way in a specific environmental condition. Cattell (1965) distinguished between "surface traits," which are behaviors with internal correlations between their components, and "source traits," which have an underlying influence that can be discovered by factor analysis. Whether traits are acquired or inborn dispositions is a major point of disagreement between different theoretical approaches (Price, 1982); both approaches relate to an enduring trait in contrast to a "state of behavior," which is an expression of behavior in particular conditions - patient dependency on the doctor while he is in hospital, for instance (Forgus & Shulman, 1979).

Psychodynamic theorists often object that trait theories, because of their concern for discrete, quantifiable traits, miss the dynamic, interactive aspects of personality. But although the names assigned to hypothesized states

> by dynamic theorists (id, ego, defense, internal conflicts, etc.) differ from the trait names preferred by psychometrically oriented theorists, both approaches share several key features. Both dynamic (state) and trait theories focus on responses as signs (indirect or direct) of pervasive underlying mental structures; both assume that these underlying inferred dispositions (whether called traits, states, processes, dynamics, motives, or labeled in other ways) exert generalized and enduring causal effects on behavior; and both have been devoted to a search for signs that serve as reliable indicators of these hypothesized underlying dispositions.
>
> (Mischel, 1968, p.8)

The term "trait" is used here in the sense of the overlap between the psychodynamic and trait approaches. Accordingly, a trait is a long-term personality characteristic that influences a person's behavior all along his life and most strongly in certain life conditions. Thus, dependency may be viewed as a stable and permanent factor of the personality that influences the way a person behaves. Dependency as a trait can be covert and may express itself openly and in a threatening way only after MI. Dependency determines the way that some Type A patients react and adjust to MI. An attempt will be made to prove this empirically.

Dependency Defined

Like many other personality concepts, the definition of interpersonal dependency is vague and more descriptive than empirical. The following definitions seem to be appropriate: Interpersonal dependency refers to "a complex of thought, beliefs, feelings and behaviors which revolve around the need to associate closely with, interact with and rely upon valued other people" (Hirschfeld et al., 1977, p.610); "Dependency is the sum of affiliative tendency and sensitivity to rejection" (Strümpfer, 1974, p.275); "An increase in deference to others, request for help and reassurance, sensitivity to approval and disapproval, social conformity and suggestibility and decrease in autonomy" (Forgus & Shulman, 1979, p.226). Interpersonal dependency denotes an affiliative need found in all individuals; as used here, however, it refers to an extreme tendency.

Unlike the literature on TABP, which is characterized by empirical and epidemiological studies, the literature on dependency relates to the theoretical conceptualization of personality and its development. Three theoretical frameworks are dealt with here: the social learning approach, the psychoanalytic approach, and the ethological approach. The three frameworks emphasize the development of dependency in early childhood and its influence on the whole life cycle of the individual. As the present study relates to dependency as conceptualized by these three theories, the relevant theoretical approaches will be reviewed in the light of the interaction between interpersonal dependency and TABP (or a behavior pattern similar to TABP).

The Social Learning Approach

This approach views dependency as a learned behavior that a person acquires through his experience. Dependency relates to a group of behaviors collected through early reliance on the mother. Later, the learned behaviors are generalized to all interpersonal relations. The basic need for dependency derives from the need for food (Dollard & Miller, 1950; Murray, 1938); from physical and interpersonal rewards or frustrating interactions with the mother (Beller, 1957); or from maternal over-protection (Stendler, 1954).

Social learning theory relates to dependency as a system of behaviors that increases contact among individuals with the aim of evoking attentive and nurturant responses (Maccoby, 1970). Behaviorally, a dependent response can take several forms: to achieve negative attention (through disturbing), to achieve reassurance, to have physical contact or proximity, or to prevent separation. Social learning studies have identified dependent behaviors but they are less clear as to their source, which may be a drive, a need, a signal, or a trait. Some argue that dependent or independent behavior is a function of reinforcement directions that the child receives. They suggest that dependency and independency are exclusive behaviors. Nevertheless, all agree that dependency is first acquired in relation to the mother, and later generalized to other figures (Gewirtz, 1969).

Most recent discussions of dependency have distinguished between dependency as a series of behaviors capable of eliciting

social responses in others, versus dependency as a drive or motive in service to some goal (Cohen, 1976). In determining the different response qualities that underly dependent behavior, researchers (Bandura & Walters, 1963; and others) have distinguished between task dependency and emotional dependency. Task dependency is a mechanism through which a person is helped by others to achieve mastery and finally, independence; emotional dependency, which is the focus of the present study, encourages continuous dependency on other persons.

Like the psychoanalytic approach, the social learning approach relates to interpersonal emotional dependency as a negative, undesired behavior, especially for men in Western civilization. Another aspect of the "negative" value of dependent behavior relates to the individual's permanent fear of losing those on whom he is dependent. Thus fear and anxiety become an integral part of dependency; isolation, anxiety and stress are recognized as factors that strengthen dependency (Beller, 1959).

With regard to the Thesis there are limitations to the social learning approach, which does not relate to the "inner structure" of the individual. [The Thesis - TABP is a heterogeneous behavior pattern that expresses different development patterns; interpersonal dependency is considered to be the personality trait that identifies and subdivides TABP into two groups of patients with different adjustment abilities in terms of their psychological development.] Instead, the social learning approach deals with the individual's responses to external stimuli. Many social learning researchers

suggest that the existence of a dependent pattern excludes the existence of an independent pattern. The present study, however, relates to a dynamic, simultaneous and conflictual functioning of over-dependency and over-independency.

Forgus and Shulman (1979) and Price (1982), have stated that according to cognitive social learning theory, social modeling, instruction and direct exposure to the consequences of one's actions are three major ways by which (alone and in combination) people acquire new behavior patterns. For example, in Western culture, the short-term positive consequences of TABP encourage the development of TABP. As TABP results from excessive reliance on outward signs of success for a sense of personal well-being, Type A persons are basically dependent. Accordingly, "Type A behaviors are in large part the action of persons seeking social acknowledgement of their success, such as the acclaimed admiration of others, the attainment of high status and power and the accumulation of material goods associated with the status. In short Type A persons are thought to be perpetually trying to prove themselves to themselves and to others," and that the "behavior pattern is largely a function of excessive reliance on the approval of other persons" (Price, 1982, p.81). Price elaborated her approach to dependency from "field dependency," as conceptualized and defined by Witkin (1950) and Witkin and Goodenough (1977). Price and other social behavior theory writers, have suggested just one interpretation for the meaning of TABP for all Type A persons. I argue that, for the dependent Type A persons, a psychodynamic theoretical approach is more efficient for the understanding and design of inter-

vention in the post-MI period; the social learning approach better serves the independent Type A group.

The Psychoanalytical Approach

The psychoanalytical approach emphasizes the attainment of instructional aims through interaction with social objects such as the mother (Freud, 1938). Object relationships occur in the first year of life and are essentially oral in nature. According to Freud the instinctual drive has a source, an aim, and an object through which the aim is achieved (1957 [1914], pp.122-213). Freud says that the mother's breast is the first object of love and that the sucking relationship is the prototype of all later love relations (1953 [1905], p.222). The Freudian argument for normal development is that the first erotic object is the mother's breast that nourishes the infant, and that love originates by the need to satisfy its hunger-search for nourishment. Because the child does not differentiate between the breast and himself, the original narcissistic libidinal cathexis is carried on to the breast as an outside object. Thus when the child does not need to be nourished any more he becomes independent (Bowlby, 1969). A child who is orally fixated in early life (i.e., one that did not go through the individuation process sucessfully), will be especially vulnerable to narcissistic injuries because of his extreme dependency on the object for the maintenance of his self-esteem (Bibring, 1968).

The prototypical object relations approach explained above is not, however, the only advocacy to the attainment of instinctual aims. Some psychoanalysts argue that object relations grow out of the early dependency relations with the mother (Ainsworth, 1969). Klein, Sullivan, and others, attach importance to interpersonal growth (Cohen et al., 1954). According to this approach, by the first six months of life the child has developed trust relationships with the mother on the foundation of gratifying experiences. The child can now try separation moves and develop trust toward the external world. If his experiences with his mother are negative and frustrating he can not develop adequate interpersonal relationships. One possible result of this situation is the development of extreme dependency in interpersonal relationships, a condition that Benporad (1971) called "pathological dependency."

Dependency is regarded here as a negative developmental situation derived from a disturbance in the early relationship of the child with its mother. The over-dependent person lives with an intensive need for love and attention. The loss of such attention causes him extreme anxiety; feelings of self-esteem depend to an inordinate degree on how others behave toward him. In order to cope with this pathological dependency, the individual might use "reaction formation" as a defense mechanism through which he suppresses and denies his need for dependency by developing perfectionistic attitudes, (e.g., by being proud and obsessive). Whenever their source of self-esteem is lost, such persons are in danger of withdrawing into depression (Fenichel, 1945). The concomitant result is a feeling of helplessness

and hopelessness, or a further extending of their rigid defense mechanism (Chodoff, 1970).

Rosenberg (1965) related to self-esteem as an individual's global level of self-acceptance or self-rejection. Bibring (1968) defined the defense mechanism against self-rejection as a need to attain mastery over the body: There is an oral need for being healthy, a perfectionist and strong, and the wish to successfully compete, to be admired and to be strong. These descriptions are often considered as attributions of the Type A behavior pattern, thus indicating that TABP may be a defensive mechanism against threats to self-esteem resulting from pathological over-dependency.

The Ethological (Attachment) Approach

Following Freud, two psychoanalytic schools emerged. The first school accepted Freud's approach that the infant acquires the mother as an object through his dependence on her for need- gratification. Additionally, it was argued that object relations are connected with ego development and depend on the further acquistion of cognitive structures (Benedek, 1952; Escalona, 1953; A. Freud, 1946, 1952,1965,1951; Greenacre, 1960; Hartman et al., 1949; Spitz, 1959). The second school developed what is known as "object relations theory." Balint (1949), Fairbairn (1956), Klein (1952) and Winnicott (1948,1953,1960) were the forerunners of this approach.

The psychoanalytical approach that advocated object relations rather than need gratification led to Bowlby's (1969,1979) ethological approach, which relates to the phylogenetic foundations in Freud's approach but perceives the object relations as primary relations and not as secondary acquisitions that developed on the basis of gratification of primary drives. Bowlby's theory relates to the individual's ability to create emotional relationships with specific people. It explains many forms of emotional stress and personality disturbances including anxiety, anger, depression, and emotional detachment. This psychological trend focuses on the development of attachment. It is concerned with what is inside the organism (i.e., what is there at any given point of development that can be transformed in the case of organism-environment interaction). The ethological approach postulates that behavioral systems have an inner organization as well as an outward manifestation, that is they have a context not only in terms of the environment but also in terms of the intraorganismic neurophysiological state (Ainsworth, 1969, p.977). The increased interest in the inner structure and functions was influenced by the biological sciences and mainly by the ethological approach of Lorenz (1957), which was later related to psychology by Hinde (1966).

The ethological approach blends both intrapsychic and behavioral aspects: Attachments are intrapsychic but lead to quite specific behavioral manifestations. Attachments are also enduring and specific. Bowlby argues that attachment is a universal trait among mammals and especially among non-human primates. He suggests that human attachment behavior is a form of instinctual behavior that

develops in early childhood with the goal of getting proximity to the mother figure. (In non-human primates the goal of this proximity is to protect them from predators.) Bowlby (1958) proposed that the attachment of the infant toward his mother begins with several independent behaviors such as smiling, crying, following, clinging, sucking; these interaction behaviors are related to being organized around the mother, who is considered the main object. In adulthood, this preliminary behavior is directed to other close persons. It becomes stronger when the person is ill or frightened, and is most manifest in crisis situations (Ainsworth, 1969).

Unlike dependency, which has a negative connotation, attachment is a positive factor in the social and emotional life of a person (Bowlby, 1979, p.87). Attachment represents the secure growth of the individual with the ability to establish intimate emotional contacts with other persons. It includes trust in the ability to provide support and to receive it, and to admit personal weakness with confidence that the relationship with the other significant person will not be harmed. Attachment, even in its unpopular form of asking for help, is a positive emotional mechanism that enables growth and development while ensuring self-integrity. It is a childhood experience the individual carries with him all his life. Attachment refers to the affectional bonds to another specific individual. These bonds are manifested by close contacts with the love object and by behavioral disruption if separation occurs (Cairns, 1972). As the goal of attachment is to keep contact, extreme attachment behavior is manifested if danger of loss arises. In a crisis situation the individual may attempt to

"hide" his true relationship with others, while at the same time presenting normal outward (social) manifestations of the relationship.

Normal Development

Bowlby distinguishes four main phases (which happen from birth to about the age of five years) in the development of attachment behavior:

Phase 1: Orientation and signal, without discrimination of the figure.

Phase 2: Orientation and signals directed toward one or more discriminated figures.

Phase 3: Maintenance of proximity to a discriminated figure by means of locomotion as well as by signals.

Phase 4: Formation of a reciprocal relationship.

(Ainsworth, 1969)

It is in the third phase that attachment behavior toward the mother can be clearly observed. The fourth phase relates to the interaction between mother and child and emphasizes the mutual responsibility for the development of healthy attachment.

The pattern that develops in early childhood continues along the whole life cycle. The "set goals" are always the maintenance of proximity, reducing distance, and engaging in social interaction. Thus

a person's attachment behavior is changed and controlled according to the reciprocal behavior of others. Attachment behavior, though giving the impression of dependency, is a positive behavior as it creates the possibility to form intimate interpersonal relationships.

The important variable in the child's development is the extent to which his parents provide him with a secure foundation and encourage him to explore the environment. Psychoanalytic literature recognizes these children as having a strong ego and as presenting "basic trust" (Erikson, 1963), "mature dependence" (Fairbairn, 1952), or having "introjected a good object" (Klein, 1948). In later life a "self-reliant personality is built, a person that can rely on other people, able to exchange roles, able to support others and to be supported by others" (Bowlby, 1973, p.359). Such a person is most likely going to have no difficulties in coping with crisis situations.

Sources of Problematic Development

Distress behaviors (anxiety, anger, depression, emotional detachment, etc.) are caused by the absence of a secure object in the critical phases of development, or when locomotive or environmental problems disturb the coordination between the child (say at the age of 2 years) and the secure object (mother). People who do not have encouraging interaction at an early age are often insecure, anxious, over-dependent or immature later on. Persons whose parents had a rejectory behavior toward them live in fear of losing their loved

figures and exhibit "anxious attachment," or "separation anxiety." Both terms represent a state of "overdependency" (Bowlby, 1980).

Bowlby (1969, p.322) has argued that insecurity in the availability of attachment figures is a major factor in the development of an anxious and insecure personality. The ensuing "detachment" is a defense mechanism against a rejecting mother, which can damage the ability for interpersonal interaction throughout a person's life cycle. The reaction that normally connects the child to the mother is defensively removed from consciousness; but it remains latent and ready to become extremely active again under certain circumstances.

Defense Mechanisms

Conflict is a normal and healthy situation in daily life. What characterizes psychologically problematic persons is their inability to satisfactorily regulate their conflicts. When they face a threatening situation, they develop defenses such as displacement, projection, or over-compensation. A situation then develops that hinders the conflict from being openly coped with: These mechanisms prevent coping efficiently with the threatening situation (Bowlby, 1979, pp.6-7).

The simultaneous existence of anxiety and hostility toward the attachment figure raises defense mechanisms such as displacement and projection, and results in a distorted approach toward the attach-

ment of close figures. Anxious development in early childhood thus sets the framework for attachment difficulties and to the creation of conflictual situations for which a defensive mechanism is developed (Bowlby, 1973).

Defense mechanisms are similar in description but different in explanation from the psychoanalytic approach. Attachment theory relates to the defensive exclusion of disturbing behavior. Bowlby (1969) stated that:

> Whenever information that would normally be accepted for further processing because of its significance to the individual is subjected to defensive exclusion for a prolonged period, the consequences are far reaching. Among them are most, perhaps all of the very diverse array of phenomena that at one time or another have been described in the psychoanalytic literature as being defence. (p.64)

Information that is defensively excluded is of the kind that causes inconvenience and suffering (like parents' rejection). When a behavior is defensively excluded, one or more other activities come to monopolize the person's time and attention, acting apparently as diversions.

The defense pattern develops in the first three years of life, but factors that activate it can reappear throughout the whole life cycle (Bowlby, 1980, p.27). Defensive processes once set in

motion are apt to stabilize and persist (p.153). One possible defense form is compulsive self-reliance. Bowlby (1979) has stated that a person who exhibits this pattern insists on doing everything for himself whatever the conditions. By inhibiting feelings of attachment they reject any form of emotional relations with a person who can supply love and care. They lack trust in intimacy and are terrified of relating to another person. But behind the proclaimed self-sufficiency there is a strong covert longing to be loved and cared for. Such behavior can be considered as an antecedent to TABP as a defensive pattern.

Over-Dependency

Researchers who deal with the inner structure of the individual agree that it is possible that, because of various developmental reasons such as separation, rejection, over-protection, or mother ambiguity (which are different according to any particular theory), the emotional connection between the child and his mother results in an extreme dependency that threatens the psychological existence of the person. This developmental tendency is perceived by psychoanalysts as a symbolic oral dependency; Bowlby perceives it as anxious attachment, which is viewed here as over-dependency. The over-dependent individual is threatened by possible dangers to his existence; he needs continuous interpersonal support in order to feel secure; he relies on others in order to satisfy his needs; he lives in potential fear of a constant threat of rejection, separation and loss

of self-integrity and self-esteem. In reality, the two traits of attachment and over-dependency are not exclusive - every person has both of them in different proportions.

Both psychoanalysis and attachment theories agree that over-dependency can be a threat to self-esteem and can cause withdrawal behavior or an over-compensating behavior similar to TABP. In crisis situations this kind of defensive behavior can break down, leading to helplessness and depression, or it can result in strengthening the TABP in a compulsive manner. Crisis behavior by over-dependent individuals is characterized by rigidity, overt emotional alienation, hyper-independency, competitiveness and hostility toward persons who might expose the problematic dependency trait, which in turn leads to emotional detachment.

The Psychodynamic Approach to the Coronary Personality (An Integrated Approach to Psychoanalysis and Bowlby's Ethological Theory)

Ainsworth (1969) has proposed an integrated approach of attachment theory and psychoanalysis to dependency:

> According to psychoanalytic theory, the infant develops mental representations of himself and important others (objects). As he matures these mental representations may

> represent internalizations of the objective attachment bonds. This intrapsychic process performs inordinately important functions in human infants. Due to their prolonged state of vital extrauterine dependency, they are highly vulnerable to the effects of separation (the opposite of attachment), and subsequent helplessness. Firmly developed internal representations provide reassurance of the existence of the bond to the mother or other important objects during periods of separation, thus reducing adverse emotional reactions to separation. The role these representations play remains central throughout the long emotional maturation process. They ultimately give meaning to objective reality, cue emotional responses to the environment and provide protection against the inevitable separation which occurs during life. (p.978)

Relating to the specific field of heart psychology, Flanders Dunbar (1943), one of the pioneers of psychosomatic medicine, significantly influenced the development of the idea of a coronary personality. After interviewing several hundred hospital patients, she concluded that various medical groups of patients varied distinctly in their personality characteristics. Twenty-two heart patients were described as a special personality group; she described these patients as restless, competitive people who struggle all their lives for achievement, which they frequently attain. Her descriptive model was used to help define TABP.

According to Arlow's (1945,1952) psychodynamic theory, the keystone of the coronary personality is an unsuccessful identification with the father whose image was exaggerated by childhood anxiety. Throughout adult life, such a person behaves as a youngster masquerading in his father's clothes. He imitates his imagined role in a compulsive, competitive way in order to convince the outer world and himself of his adulthood; he is constantly afraid that his weaknesses will be exposed. Arlow's theory suggests a formulation about the existence, among coronary subjects, of inconsistencies between overt hyperadult and covert infantile levels of personality (Dreyfuss et al., 1966; Keith, 1966; Rime & Bonami, 1979). This inconsistency is a constant source of inner tension and stress in the subject's relationship with the outer world.

The psychodynamic approach was further developed by a Dutch group led by Groen in the late 1940s. Groen (1965) suggested that frustrations in early childhood may be compensated for by overactivity, especially by compulsive overwork. Reactions to frustration and separation in early childhood are based on the detachment phase of the four phases of separation behavior described by Bowlby (1958) - protest, despair, detachment, and restoration patterns. The adult coronary patient exhibits a compulsive striving for overcoming early separation difficulties, of which overactivity is a common expression. Kits van Heijningen and Treurniet (1966), Valk and Groen (1967), and Bastiaans (1968), argued that the most striking trait of the coronary patient is the defense, in the form of excessive activity, against passive striving. The patient cannot tolerate feelings of dependence

or passivity; these feelings are experienced as childish, feminine and inferior. There is an urge for complete independence expressed by fantasies of omnipotence and excessive denial of normal dependence. The overt behavior is a compensation for a real deprivation in childhood. Kits van Heijningen and Treurniet (1966) stated that, "Deep down there is a yearning to be very small again, a strong desire to be allowed to be dependent, helpless and cherished." These wishes cause extreme anxiety. "It seems as if the coronary patient defends himself against his basic traumata by trying to be in absolute control of his objects, by magically safeguarding himself against desertion, by literally working and worrying himself to death on behalf of these objects" (p.371). The conflict expresses itself in family life, at work, and in social life and physical activities. The continuous conflict is an inadequate solution to the Oedipal situation. The psychodynamic formulation is: "When I am big and when I can make big products immediately, nothing can happen to me, everyone will love and admire me."

Bastiaans (1968) stated that:

> The coronary patient differs from the average population by a marked extroversion and by a compulsive and impulsive addiction to hard work. When under stress, the coronary patient regresses to a phallic-urethral streaming and rather aggressive activity, which switches into a brooding and passive masochistic attitude when stress increases. Intensive narcissistic traumatisation may lead to

> such an intensive mental deceleration that the arterial and coronary circulation may be influenced in a most harmful way. The working attitude which is marked by rapid acceleration and intensive deceleration may be based on a disharmonious training in some of the early functions of Bowlby's (1958) attachment behavior. (p.208)

The various psychodynamic schools relate to three major dimensions as relevant to the development of heart disease: the personality structure as described above, interpersonal dependency conflict, and the overt defensive behavior, which is similar to the well-described TABP. Hard work and aggressive over-active behavior are acceptable norms of Western civilization. Their social acceptability is sufficient to hide the underlying, hysteric origin of such behavior. Coronary patients compensate or sublimate their hysteric developmental tendencies into socially acceptable patterns (Bastiaans, 1968). The psycho-physiological stress that relates to the constant conflict situations that is inherent in such behavior, cause continuous damage to the cardio-vascular system and might ultimately be attributable to the pathological processes that result in MI.

This description of a defensive reaction to dependent fears is very similar to various descriptions of the Type A behavior pattern. The advancement of anxiety theory in case of a broken homeostasis suggests a link to the psychoanalytic theory, for in both theories defense processes (such as compulsive self-reliance) are aimed (in part) to maintain homeostasis (Parkes, 1973). The psychodynamic theory

is, of course, speculative. Nevertheless, dependency has been regarded as one of the major concepts in the psychodynamic understanding of the coronary personality.

Psychodynamic Studies on Dependency and CHD

General References to Psychodynamic Processes Underlying CHD

Inconsistent traits have been observed in the personality pattern of individuals suffering from coronary heart disease. Cady et al. (1961), for example, observed cyclothymic tendencies and tendencies toward inhibitions. Cleveland and Johnson (1962) observed activity and striving after success and depressive dysphoric tendencies. In his extensive review of the literature, Jenkins (1971) concluded that "excessive use of denial and repression as a defence mechanism has also been widely reported" p.315). Dreyfuss et al. (1966), using TAT with 15 coronary patients, found that they "Tend to view their environment as more conflictual" (p.14). Caffrey (1969), in assessing 867 monks (out of the original study population of 1400), concluded that "the results are in keeping with the general theory that some intra-personal conflict between emotional and rational elements may be important in the etiology of CHD" (p.102).

Hahn and Leisner (1970) tested 33 post-MI patients using MMPI and MPI. They explained the increased values for Neuroticism

found in the experimental group as "consequences of intra-psychic defence against basic depressive conflicts with overt obsessional behavior" (p.395). Vickers et al. (1981) studied 486 twins and concluded "that poor coping and high defensiveness may contribute to increased CHD risk" (p.396). Friedman (1979) dealt with the problem of patients' non-compliance with treatment. He wrote that "many of these patients long before they suffer their acute infarction, have harboured what has to be called a Freudian type of death wish" (p.556). Vickers et al. (1981), in a study of 238 fraternal twins (119 intact pairs) and 238 identical twins (119 intact pairs), aged 42-57, hypothesized that the overall TABP would be associated with higher defensiveness and that "high defensiveness may contribute to increased CHD risk" (p.394). They suggested that "further research is needed in order to acquire a more detailed understanding of the psychosocial dynamics of TABP" (p.381).

Clinical Studies

Addset and Bruhn (1968) observed 10 subjects undergoing psychotherapy. They concluded that "the patients also expressed deep feelings of loss of self-esteem and conflict over their need to be cured and the presence of their continuing need to be independent" (p.538). Karstens et al. (1970), working with 10 patients, noted that "Central conflict areas are the ambivalent identification with the father possibly as a defence against negative oedipal striving and the repression of massive oral dependency wishes" (p.258). Ohlmeier et al.

(1973), working with 6 patients, noted that the most important factor in group psychotherapy is increasing the oral- symbiotic needs for dependency. Kits van Heijningen and Treurniet (1966) studied 30 male post-MIs; they wrote that "Deep down there is a strong desire to be allowed to be dependent."

Empirical Studies

Rime and Bonami (1979) presented 30 heart patients with questionnaires relating to overt cognitive and covert emotional aspects of behavior. On the cognitively oriented questionnaires no difference was found between the experimental and control groups; in the questionnaires relating to less conscious aspects, a significant difference appeared. Rime and Bonami concluded that:

> These findings are in complete agreement with the results of former studies where the presence of contradictory traits was observed in the coronary personality (Cady et al., 1961; Cleveland & Johnson, 1962; Minc et al., 1963). The data are also consistent with Arlow's (1945) psychodynamic formulation of the coronary personality. In such a personality, traits of passivity, dependence and impulsiveness would interact with the adult, active autonomous and controlled appearance. From a psychodynamic point of view, one may speculate that the need to disguise unaccepted traits like passivity, dependence and impulsiveness leads

> the coronary subjects to display through their interpersonal contacts, the characteristic Type A behavior pattern (hard-driving effort, striving achievement, competitiveness...) so often mentioned among them. This Type A pattern has already been described as a defence against an underlying passivity (Kits van Heijningen & Treurniet, 1966, p.83).

Keegan et al. (1979) found significant differences between a healthy group and patients with CHD:

> The uncovering of greater aesthetic and passive interests is harder to understand, particularly when the A subjects' self-perception and our behavioral observations characterize them as active, vigorous people. However, it does fit with some of the literature, including that with psychoanalytic orientation (Brozek et al., 1966; Rime & Bonami, 1979; van der Valk & Groen, 1967). Certain analysts consider that people who are predisposed to CHD, use perpetual activity and pseudoindependence to defend themselves against fears of passivity and dependence. Since the activity of many of our A subjects did take on a driven, unnatural quality, its coping or defensive function is clearly a possibility. (p.727)

Philip et al. (1979) presented 65 post-MI patients with the 16 PF. They concluded that heart patients are more introverted and self-contained than healthy individuals in the community at large;

they also have a more cautious, reticent and submissive style of interpersonal behavior. Burke and Weir (1980) presented social and coping behavior questionnaires to 127 senior administrators who exhibited Type A personality and work values. They were found to be sensitive, dependent and hypochondrical (p.179), and had "stronger needs for social approval" (p.171).

Before discussing adjustment and rehabilitation in the post-MI period, it will be fruitful to summarize those arguments relating to the psychodynamic model. The psychodynamic theoretical model relates underlying personality factors to observed overt behavior that is similar to TABP. The psychodynamic argument is that unconscious conflicts and anxieties cause the development of TABP, the defensive character of which prevents it from being changed to a more adjusted behavior pattern.

Among various personality factors, dependency was emphasized as a major cause for anxiety - compensated for by hyper-independency - as exhibited by the overt TABP defensive pattern. Dependency has been related to the early inadequate development of the child and its conflictual expression in the interpersonal behavior of the adult. Clinical observations and some empirical studies tend to confirm the possibility that there is a dynamic process between the cognitive and rational aspects of the coronary personality and its emotional covert strata. The Thesis put forward here is that interpersonal dependency is considered to be the personality trait that underlies and subdivides TABP into two groups of patients with different adjustment

abilities in terms of their psychological development. For one group (the dependents), TABP is a defensive pattern that was adopted through a psychodynamic conflict. For the other group (the independents), it is the result of a cognitive social learning process.

CHAPTER 4

ADJUSTMENT AND REHABILITATION IN THE POST-MI PERIOD

Rehabilitation in Psychology

The uniqueness and importance of rehabilitation psychology was recognized publicly by at least three conferences supported by the APA (Lofquist, 1960; Neff, 1971; Wright, 1959). The psychological and social problems resulting from MI are distressing (Doehrman, 1977); such problems have unique characteristics that have to be related to. The International Society and Federation of Cardiology (ISFC) (1980) has stated that many post-MI patients do not get an appropriate follow-up, which could improve their rehabilitation and prognosis.

Rehabilitation psychology is distinguished from other branches in psychology by its goals and by its value system (Amer. Psy. Ass. Div. of Rehab. Psy., 1972; Amer. Psy. Ass. Exec. Comm., 1975; Dembo et al., 1973; Wright, 1972). "Rehabilitation psychology is concerned with life problems of persons who have suffered deprivation because of a value loss due to disability or other conditions such as old age and poverty" (Shontz, 1980, p.919). Von Beck (1973), in his work with the blind described the goal of rehabilitation psychology as follows: "There is nothing in the loss of sight itself that prevents an individual from doing anything but seeing" (p.8). Von Beck's point is that it is important to encourage the patient to return to normal or a near normal style of life and social functioning. Rehabilitation is concerned with all aspects of a patient's life including familial

and work aspects, as well as his personal and social adjustment. Active self-involvement of the patient with the rehabilitation program is essential; the program should be adjusted to the specific needs and conditions of every individual. The rehabilitation approach is different from the medical model, which perceives the patient as a passive acceptor of standard treatment to a given pathology (Diller, 1971; Shontz, 1980)

Rehabilitation of post-MI patients is different in many ways from regular rehabilitation. Unlike many other diseases, it is publicly known that a patient's behavior - related to such factors as smoking, diet, and emotional stress - caused the MI. This makes the patient feel that his behavior determines his fate, a situation that is regarded by humanistic psychologists as a possible source for deep anxiety (Wertheimer, 1978). The patient's anxiety state becomes stronger when he is exposed to various and sometimes ambiguous sources of information (ISFC, 1980). The anxiety might further increase due to the fact that many doctors themselves belong to the same pre-morbid TABP group; their biases and anxieties confuse the patient's perception of his condition and behavior (Blankenhorn et al., 1974; Friedman, 1979). A patient's intrapsychic experience and interaction with environmental reactions often causes damage to his quality of life that is not the result of his physical disability (Byrne et al., 1981; Mayou, 1979; Mayou, 1981). Psychological invalidism often prevents post-MI patients from leading a constructive way of life and from achieving emotional satisfaction in personal, family, social and occupational activities (Bellack & Haselkorn, 1956). In sum, the

post-MI patient faces a unique personal and environmental situation that often makes optimal readjustment difficult.

Post-MI rehabilitation and adjustment involves: (a) helping the patient to extend his life expectancy; (b) developing a constructive functional way of life that does not exaggerate regressive or denial trends in the way the patient relates to the medical and behavioral demands of the disease; (c) making sure that interpersonal interactions are not over-influenced by anxiety; and (d) helping the patient develop a realistic self-image and emotional state that enables him to achieve subjective satisfaction from his life. The patient's personality is the major factor in his adjustment. This factor is most usually independent of the severity of the actual physical disability and the environmental conditions (Gambaro & Rubin, 1969; Shontz, 1975). Because the psychological factor is considered to be the dominant one in the adjustment process, and as the outcome of adjustment is measured in psychological terms, psychology has to accept the main role in an interdisciplinary effort to cope with patients' ability to adjust themselves adequately to the post-MI situation.

Psychological factors related to adjustment after the MI are not necessarily the same as those that are related to the etiology of CHD. The post-MI adjustment process requires, therefore, its own particular focuses. For instance, in dealing with the psycho-etiological factors of MI it is important to relate to physiological mechanisms that might mediate between psychological factors and the clinical appearance of the disease. In discussing the psycho-

adjustment factor to MI, it is important to deal with factors relating to flexibility in modifying behaviors, cognitions and emotions. Confusion in conclusions and in empirical design over the distinction between etiology and adjustment is common in the available literature. The main reason for this confusion is due to the fact that post-MI patients are candidates for another MI. In addition to their adjustment, therefore, they are also subjects for etiological concern.

Despite intensive psychological work on the etiological aspects of CHD, only minor efforts have been made in the rehabilitation field. A few studies have inquired into typical behavior after MI, and methods of intervention with post-MI behavior in order to avoid another MI; even fewer studies have been directed toward improving patients' quality of life (for a review see McGill, 1975). Price (1982) mentioned that "up to 1982 Type A has been treated in the literature almost exclusively as a medical problem and more specifically as an object for cardiovascular research. The proposition of non medical outcomes of Type A behavior clearly requires exploration beyond these speculations" (p.162). Stumiloff (1984) wrote that "Major changes in cardiac rehabilitation programs are now taking place, with the emphasis moving away from prolongation of life toward improvement in the quality of life" (p.723). Investigations in this area are mostly observational and have not achieved the methodological and predictive standard of etiological studies.

Methods of Intervention

Various methods of intervention relating to different theoretical orientations have been used in order to help patients in their post-MI adjustment. Some methods relate to TABP, other methods relate to post-MI patients without specifying TABP (for example, Cay et al., 1976; Levi, 1981).

The therapeutic approach to TABP is presented in two major approaches: management and alteration.

The Management Approach

The aim of the management approach is not to change the TABP, but to help the individual to cope with the negative effects of this behavior pattern. Management approach methods use relaxation techniques such as muscle relaxation (Benson et al., 1975; Shoemaker & Taso, 1975), relaxation reaction (Wertheimer, 1978), yoga and transcendental meditation (Frew, 1977; Marcus, 1978), biofeedback (Johnson, 1978; Shapiro et al., 1974), and medications (Glass, 1977b; Gray, 1969; Sigg, 1974).

The Alteration Approach

The alteration approach divides itself into two major sub-methods. The first relates to the change of the whole TABP; the second focuses itself only on those factors in the TABP that are related to elevated risk for CHD or which damage specific aspects of the patient's lifestyle. The disadvantage of the first approach is that intervention might change those aspects of TABP that are not associated with CHD. It may even limit the patient's ability to cope with Western society's way of life, without reducing his risk for CHD (Mettlin, 1976; Zyzanski, 1978).

The second alteration approach promises to be much more efficient than the first. The major problem is that it depends on the existence of theory and empirical data for identifying the desired goal in the therapeutic intervention; future research should be directed to this end (Chesney & Rosenman, 1982; Suinn, 1982). The two alteration approaches include individual and group therapy, using mainly therapeutic techniques that tend to be of a behavioristic, cognitive, or an emotional support character.

The most distinguished work in this method is by Friedman et al. (1982), whose work was designed to check, empirically, ideas that were described by others (Friedman & Rosenman, 1974; Rosenman & Friedman, 1977). In Friedman's (1982) study, 1,035 post-MI patients were divided into three groups: (a) those needing cardiological guidance; (b) those needing psychological guidance in accordance with

the methods described by Friedman & Rosenman (1974), Friedman et al. (1981), and Friedman et al. (1979); and (c) a control group. The outcome criterion was designed to be the rate of mortality and morbidity over a period of 5 years. After one year, both experimental groups were lower in morbidity than the control group; the psychological group was lower than the other in fatal MI. The results were further supported by a recent follow-up study (Friedman et al., 1984). No effort was made to check quality of life factors.

The recommendation made in the present study is for a combination of management and alteration approaches for the improvement of quality of life in the post-MI period.

Some studies used clinical and empirical interventions (usually behavioristic or cognitive methods) in order to identify behavioral factors related to the adjustment-rehabilitation process, but most of the intervention literature relates to rehabilitation programs. The popularity that rehabilitation programs have achieved in Western as well as in Communist countries is indicative of the demand for intervention in order to help patients. Conclusions from clinical observations and empirical studies point out the promising potential of analyzing patients' behavior and developing intervention programs for improving their quality of life (Frank, 1978; Matthews, 1982).

The three major categories of intervention methods - those that relate to advocative descriptive, and clinical studies - are:

1. Group therapy for post-MI patient (long and short term).
2. Individual therapy.
3. Family therapy for the patient and his wife.

The intervention methods use a combination of the following therapeutic methods: (a) Physical exercises and relaxation, (b) cognitive guidance and counselling, (c) emotional support, (d) behavioral modification, (e) a psychodynamic approach. (References for intervention and therapeutic methods are given in Appendix I.)

Advocative, Descriptive, and Clinical Studies

In 1968, Croog et al. published a review of some 300 papers dealing with the post-MI period. Most of the papers were descriptive or advocated the use of one or other therapeutic method on the ground of speculative assumptions and theoretical concepts. Studies dealt with (a) stages of recovery from MI, (b) focus on patient's personality, physiology, cognition, perception, behavior, etc., (c) the doctor's role in rehabilitation, (d) the patient's family, (e) patient's occupation, and (f) the use of community medical services. Croog and Levine (1977) also published a follow-up study on patients one year after MI, and a follow-up on 348 heart patients 8 years after MI (1982). Their studies focused on issues such as health status, psychological status, work, family relationships, finances, use of community

services and cash benefit programs, and doctor-patient relationship (p.178).

There is striking lack of inquiry into the relevance of the psychodynamic approach to the adjustment process. Most of the psychodynamically oriented studies relate, retrospectively, to the premorbid personality. Few studies mention the effect of psychodynamic factors on the adjustment of the patient to MI and its influence on his quality of life, or his coping with another MI.

Adsett and Bruhn (1968) compared psycho-social and physiological reactions of psychotherapy given to 6 maladjusted male patients (and their wives) with the reactions of 6 well-adjusted post-MI patients (also with their wives). Their report was based on observation of the dependency/independency conflict. This conflict, along with other psychodynamic variables, was tackled in psychotherapy. As a result, patients "appeared to achieve improved psychosocial adaptation" (p.584). Ohlmeier et al. (1973), in an analytical discussion concerning the treatment of 6 post-MI patients, wrote: "Of course, we have to differentiate the myocardial infarction personality and the post myocardial psychic reaction to the illness. To some extent we can expect strong connections between these two subjects. The infarction personality will react to the illness in a specific manner" (p.248). Ohlmeier did not find it necessary to elaborate on the issue.

Hackett (1978) summarized various studies relating to group therapy for post-MI patients. He speculated that all clinicians in the field agreed with the observation that the wish of the male patient is to be mothered and given sympathy by his wife; simultaneously, the patient feels a need to be independent and manly. Hahn and Leisner (1970, p.299) noted that, "Even when the patient was ready to co-operate with the interviewer on the surface, [his] defences could be observed and were responsible for the failure of most psychotherapeutic attempts." Segev and Schlesinger (1981), in summarizing eight and a half years' group psychotherapy with 235 post-MI patients, found that "many patients faced a dependence-independence conflict in their relationship with their wives" (p.845). Croog's (1968) conclusion is still relevant in 1985 (see Runions, 1985). In summarizing the literature, Croog stated that it constituted "a fruitful source of information to guide investigation planning research on the recovery process and rehabilitation. However, it is obvious that the scientific study of those problems is still in its early stages" (p.155).

Empirical Studies

A summary of empirical studies can be found in Chesney et al. (1981), Doehrman (1977), Frank et al. (1979), The Review Panel (1981), Suinn (1982), and Wenger (1979). The following research descriptions relate to the major ideas in the field.

Novaco (1976) used a combination of relaxation and self-guidance methods to reduce anger; he achieved a consequent reduction in systolic and diastolic blood pressure. The study was based on small samples and lacked a control group.

Rahe et al. (1975), Rahe (1975), and Rahe et al. (1973) used a short-term group therapy with cognitive guidance and emotional support method on 40 subjects. An 18-month follow-up reported less re-hospitalization and changes in Type A related behaviors, such as rushing to meet deadlines. On a 3-4 year follow-up study, Rahe et al. (1979) reported a reduced rate of mortality compared to the control group. Rahe did not, however, use a direct measurement for Type A nor did he compare different intervention methods.

Roskies et al. (1978) divided 39 subjects into two groups. The first group was exposed to dynamic psychotherapy, the second received behavioral therapy for stress reduction. After 14 weeks of therapy both groups showed a reduction in cholesterol, systolic blood pressure and self-reported reduction of undesirable behavior such as time pressure. The study suffers from a small sample, lack of a control group, and no placebo treatment. Changes in TABP were not measured. Roskies (1979), using behavior therapy on 6 patients, reported changes in time pressure.

Suinn's (1982) work focused on behavior modification methods. His basic assumption was that TABP is a learned pattern that exposes itself in stress conditions and can therefore be exchanged for

more adequate behavior. Suinn developed a program known as Cardiac Stress Management Training (CSMT), which is based on Anxiety Management Training (AMT) and Visuo-Motor Behavior Rehearsal (VMBR), with the goal of encouraging individuals to stay on with productive behavior without the risk for CHD. Using these modification methods, Suinn (1975) and Suinn et al. (1965) found changes in life-style and reduction in cholesterol and triglycerides (however, TABP was not measured). In a 1978 study, with 14 subjects (7 & 7 control), Suinn and Bloom measured TABP, but could not show a significant change in cholesterol and triglycerides. In another study, Suinn (1977) reported on reducing JAS scores in the competitive/hard driving and speed/impatience sub-tests. Other studies (Southern & Smith, 1982; Hart, 1980) that used Suinn's method had similar results. Comparing his method to a control group doing physical exercise, Suinn found changes in JAS only in the group that did physical training (compared to a group that did no physical exercise). Generally, his results provide limited support for the assumption that TABP can be changed by intervention.

Jenni and Wollershein (1979), in a study with 10 subjects, compared stress management training to cognitive therapy. They reported changes in anxiety behavior and cholesterol, especially in the cognitive group. However, the small number of subjects and the use of the same instrument for before and after measurements was not an ideal methodology.

Curtis (1974), using cognitive therapy with 12 subjects, reported on changes in cholesterol and triglycerides. Ibrahim et al.

(1974), with 113 subjects, used dynamic therapy relating to concrete topics such as leisure-time activities, job responsibility, etc.; they reported on changes in mortality and lifestyle measurements. Yarian (1976) and Girdano and Girdano (1977) reported changes in JAS scores using Biofeedback; no control group was used. Levenkron et al. (1982) used multiple behavior therapy on one group and psychotherapy on another. A control group was exposed to a lecture on the importance of change. There were more changes in the behavior group than in the psychotherapy group. Both groups presented significant changes compared to the control group. Langosch (1982) reported on improvement in TABP by the use of stress management training (N=32) and relaxation training (N=30) compared to a control group (N=30). Friedman et al.'s (1982, 1984) comprehensive Recurrent Coronary Prevention Project and its positive results in changing TABP was mentioned earlier.

Critiques of Methodological Issues

Much of the literature dealing with intervention and rehabilitation is of an advocative or descriptive nature. Although it is difficult to compare scientific conclusions with impressions, if the underlying assumption is that there is a place for continuous dialogue among research and field psychologists, the descriptive studies can be regarded as having a potential value for further future systematic research. The problem is that without systematic research it is difficult to come to general and reliable conclusions. It seems that many studies succeed in reducing the emotional stress of the patient

and his family. But there is still a need to establish the most effective intervention for different groups of patients. Several studies recommend that the physician should be the one to assist the patient in his rehabilitation (Bruhn, 1973; The President's Comm., 1975; Croog, 1975; National Institute of Health, 1974) without checking if the physician really has the capability or what variables are involved in his intervention (Doehrman, 1977). The efficiency of secondary prevention of another MI is inconclusive (Wenger, 1979); the main justification for intervention lies with the argument that it improves the patient's lifestyle (The Lancet, editorial, 1977). Social and psychological benefits of physical activity, group therapy, and individual counseling have never been exclusively validated. This is due to the high dropout rate of patients with specific characteristics and the special selection of subjects who were, in many cases, an unrepresentative sample (Rahe et al., 1979); or to not using a broad range of outcome measurements (Frank et al., 1979). Many studies lacked a control group exposed to active psychotherapy, or did not use a reliable instrument to measure TABP or reliable methods for evaluating the outcome, or both (Suinn, 1977).

Other critiques on the intervention studies are: (a) The absence of validated post treatment measures of changes in TABP; (b) the duration of the investigated intervention programs have been unreasonably short (from a few meetings to several weeks); (c) most programs have focused on stress management without adequate attention to other aspects of patients' life; and (d) the studies are usually behaviorally oriented but in many cases they do not refer clearly to

any theoretical framework for the design or for the analysis of the results. The most methodical treatment study published so far is probably the Recurrent Coronary Prevention Project, where Friedman et al. (1982,1984) related to cognitive social learning theory as a framework for their study.

There is an obvious gap between clinical enthusiasm for rehabilitation programs and any systematic evaluation of these programs. Despite methodological limitations, many studies noted improvement in the physical and psychological health of patients, including a reduction of mortality and morbidity (Frank et al., 1979; Friedman et al., 1982; Friedman et al., 1984). Studies dealing with TABP indicated that this pattern could be changed (Chesney et al., 1981; Friedman et al., 1984). Although it is generally accepted that program results have only a tentative value (Matteson & Ivancevich, 1980; Suinn, 1975,1977; The Review Panel, 1981), there is, nevertheless, enough initial data to justify support for further studies dealing with various aspects of the post-MI period, including intervention goals, psychological mechanisms involved in the intervention, and different methods of intervention (The Review Panel, 1981).

Patients' Compliance with Intervention

Because psycho-behavioral factors present a major risk factor for CHD it is reasonable to assume that Type A persons, especially those after an acute MI, will cooperate with intervention programs aimed to improve their life expectancy. However, this is not the case. Zisook and Gammon (1981) mentioned that one month after hospitalization the compliance rate for taking medication was 92% percent but only 25% in avoiding stress and strain. Both rates decreased over time (p.293). Croog and Levine (1982), in their 8 year follow-up of the behavior of 206 (they started with 348) post-MI patients, concluded that "On many items of physician advice, half or more of the patients who received such advice reported partial or total noncompliance ... it appears likely that actual compliance behavior was even less than many patients indicated" (p.253).

Strümpfer (1978), Matthews et al. (1977), Radley (1982), and Price (1982) investigated the resistance of Type A persons to change their pre-morbid behavior to a more adequate one. It is commonly reported that even when they try to change their behavior they become anxious about their work responsibilities and find themselves back in the TABP. This points to the possibility that non-cognitive factors may have a dominant influence on some persons' Type A behavior. Systematic intervention studies with (pre-MI) Type A persons are often plagued by difficulties in locating volunteers (Roskies et al., 1978; Curtis, 1974; Levenkron et al., 1982; Yarian, 1976; Hart, 1980); when volunteers are found there is a high drop-out. After MI, cooperation

is better (Friedman, 1978), but even then it is limited. Suinn (1978) complains that Type As do not tend to change their behavior, even after MI. Friedman (1979) mentioned that post-MI Type A patients cooperate only if they are aware of the disturbance in their personality. The behavior of most post-MI Type A persons, especially those who are young or those who exhibit high levels of hostility, is difficult to change (Friedman, 1979; Friedman et al., 1981). Roskies (1975) observed that though the general drop-out percentage was low, a large number were absent from many therapeutic meetings. Irregular attendance was also noticed by Robinson (1983).

So far no method has established its relative efficiency in changing the Type A behavior pattern (Suinn, 1982), or in improving the quality of a patient's life (Chesney et al., 1981b; Doehrman, 1977; Matteson & Ivancevich, 1980; Wenger, 1979). The current tentative conclusion is that all methods gain better results than the control group, and that behavioral, cognitive and supportive methods are more efficient than psychodynamic orientated intervention methods (Doehrman, 1977; Frank et al., 1979; Friedman et al., 1982; Hacket, 1978; Suinn, 1982). The impression is that heart patients reject therapy that encourages insight. It is also argued that psychotherapy tends to raise anxiety (Frank et al., 1979). Ibrahim et al. (1974), for instance, reacting to their patients' behavior in therapy, had to change their approach from psychodynamic to counselling. Undoubtedly, there is a gap between the cognitive readiness to be guided and the individual's ability to accept guidance. It seems to be so at least for one subgroup of post-MI Type A persons - those who are under more

emotional strain than others. Because these findings might prevent future efforts in psychodynamic intervention, it is important to emphasize that:

1. The whole field of psychodynamic intervention suffers from a lack of well-designed studies.

2. Very few studies report on the psychodynamic approach.

3. It is possible that anxiety and rejection are induced by the therapists themselves (Hackett, 1978). A therapist's anxiety may be derived by identification with the patient (being himself a Type A person, of the same sex, age and social group of the patient), or concern for the delicate health condition of the patient being projected to the patients. These kinds of dynamics take place more in classic psychotherapy programs than in rehabilitation ones, which concentrate on guidance and other behavioral techniques.

The issue of compliance has become a major one in general medicine (Ruod, 1979). The present study suggests to cope with lack of compliance by inquiring into its causes. The Thesis argues that sub-groups of post-MI patients, with different personality characteristics, have specific psychological mechanisms that result in different adjustment patterns. It is argued here that an intervention program that relates to the specific needs of different subgroups of post-MI patients will achieve a better compliance from them. Dealing

appropriately with the specific stress factors of each subgroup will help to avoid drop-out due to anxiety. The study offers different methods of intervention to achieve different goals for different subgroups of post-MI patients. The general ultimate goal, however, is improvement of the quality of life of all post-MI patients.

Family Adjustment

In summarizing 8 years follow-up study on 206 post-MI patients, Croog and Levine (1982) related to family interactions as a major factor in the "armory of resources" that enable the patients to adjust better to the post-MI period. Other studies (Bensworth & Melon, 1982; Croog & Fitzgerald 1978; Dracun et al., 1984; Hentinen, 1983; Mayou et al., 1978; Segev & Schlesinger, 1981; Skelton et al., 1973) also emphasized the stressogenic influence of MI on patients' wives and advocated systematic counselling for wives as part of the rehabilitation program; this counselling involves providing wives with adequate information and support that will help them to understand the typical personal and family dynamics in the post-MI situation.

Family adjustment is a major area for the investigation of post-MI quality of life. Structural changes in family life, the division of power, emotional interactions, patterns of communication, sexual behavior, and the wife's personal feelings and behavior are

some of the issues that are considered here as indicating the quality of family life after MI.

Criteria for Rehabilitation and Adjustment Outcomes

Established criteria for adjustment and rehabilitation outcomes are essential for understanding the post-MI period, and for comparing the relevance and efficiency of various methods of intervention and rehabilitation. Defined outcomes will also assist the development of therapy methods, which can then relate to the outcome as a goal (Benfari et al., 1981). However, definite, satisfactory outcome criteria have not yet been established. The following review of outcomes highlights the main approaches.

Morbidity and Mortality

The International Society and Federation of Cardiology (ISFC, 1980) has emphasized that secondary prevention is more important than primary prevention because in the former case patients are in a higher risk situation. Many studies consider a reduction of death or morbidity rates as a valid criterion for rehabilitation and for

intervention programs (Benfari et al., 1981; Friedman et al., 1982, 1984; Kornitzer et al., 1983, and others*).

Morbidity and mortality are an over-simplified method for evaluating post-MI adjustment processes. Death is clearly an unsatisfactory result of post-MI rehabilitation and so is life that is severely limited by the acute episode. Staying alive is a necessary condition for satisfactory adjustment, but it is not a sufficient condition for a good outcome (Philip et al., 1981). Despite evidence that a reduction in mortality can be achieved (Friedman et al., 1982, 1984), (a) the limited knowledge of the pathophysiology of atherosclerosis and (b) unsuccessful attempts to validate and to compare psychological interventions relating to this particular outcome (Mayou, 1981; Wenger, 1979), justify the conclusion of the American National Heart, Lung and Blood Institute (NHLBI) that "studies using CHD incidence or other morbidity or mortality end-points appear to be premature" (The Review Panel, 1981, p.1213). In any case, morbidity or mortality cannot serve as exclusive criteria for post-MI rehabilitation outcomes.

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* Bartle & Bishop, 1974; Bruhn et al., 1969; Croog et al., 1973; Frank et al., 1968; Friedman, 1979; Garrity et al., 1975; Geismar et al., 1973; Groden et al., 1972; Hrubec et al., 1971; Ibrahim et al., 1974; Moss et al., 1974; Mullcahy et al., 1975; Multiple Risk Factor Intervention Trail (MARFIT), 1976,1977; Nye et al., 1974; Peel et al., 1962; Philip et al., 1981; Rahe et al., 1975; Rahe et al., 1979; Shanoff et al., 1970; Shapiro et al., 1970; Shapiro et al., 1965; Sukel et al., 1979; Weinblatt et al., 1968,1978; Wolf, 1968, 1967; Woodhouse et al., 1969.

Changes in Risk Factors

Many studies relate to changes in standard risk factors as representative criteria for post-MI adjustment. Behavioral risk factors considered to be relevant are (a) cigarette smoking, (b) overweight, (c) physical activity, (d) compliance with doctor's advice. Physiological risk factors considered to be relevant are (a) high systolic and diastolic blood pressure, (b) triglycerides in serum, (c) cholesterol in serum. (A sample of studies that relate to behavioral and physiological risk factors as criteria for post-MI rehabilitation is listed in Appendix II.)

Two points have to be kept in mind with regard to risk factors as outcome criteria:

1. As long as the underlying physiological mechanism for atherosclerosis is not known, it is impossible to specify a particular physiological mechanism as a relevant outcome.

2. As the ability to prevent a second MI has never been established, the major justification for post-MI rehabilitation is the argument that it can improve the morale and lifestyle of the patient (Mayou, 1981; The Lancet, editorial, 1977).

Outcome criteria should therefore be related to lifestyle aspects as well as to the secondary prevention aspects of the post-MI

period; social and psychological factors should also be viewed as representative criteria for post-MI adjustment.

Changes in TABP

The fact that TABP is related to both the life expectancy of patients and to their quality of life caused many studies to consider changes in TABP as a major criterion for adjustment. This approach, however, has limitations:

1. It has not been proven that changes in TABP are related to morbidity and mortality (Case et al., 1985; Friedman et al., 1984, do, however, indicate a possible association).

2. Direct instruments measuring changes in TABP are not yet available. Measurements such as SI and JAS are not intended to measure changes in TABP and in adjustment. Furthermore, as each measurement relates to different aspects of TABP, JAS and SI cannot be used alternately as a "before and after" technique.

Focus on the change of Type A behavior as an ultimate goal also raises some difficulties concerning the very character of the pattern: The adjustment of post-MI patients is a multi-dimensional process, it includes functional and emotional aspects of life. The final goal of adjustment and the criteria for its quality should be

measured directly through various aspects of life-style and not by the change of TABP, which is a construct that describes people who are at high risk to get CHD. Although TABP does have elements of an inadequate style of life, it was not intended to and it cannot serve as a criterion for quality of life or for psycho-social adjustment to MI.

Return to Work

Conveniently, many studies relate to the well-defined variable "return to work" as a representative outcome of adjustment. (Some 40 such studies are noted by Croog, 1968.) The return to work variable is affected by issues such as self-image, economic pressure and social expectations; it is not, therefore, a representative measurement for other aspects of adjustment (Mayou et al., 1978). Patients who return to work as a result of those factors might be maladjusted in other aspects of daily life. Furthermore, to relate "return to work" as a positive adjustment factor is questionable because of the special connection between occupational activities and TABP (Croog et al., 1971; Heinzelmann, 1973; Howard et al., 1977; Nixon, 1972a; Weinstock & Haft, 1974). For many patients, return to work means a return to their previous TABP.

Multi-dimensional Outcome Criteria

The difficulties in identifying a representative and measurable outcome have resulted in efforts to develop psycho-social, multi-dimensional outcome criteria relating to different aspects of the patient's life. The multidimensional criteria considered in the literature as relevant to post-MI adjustment are (a) occupational adjustment; (b) emotional and general psychological adjustment, including factors such as depression, anxiety, hysteria, regression, denial, personal self-satisfaction; (c) life-style, including factors such as illness behavior, leisure-time activities, social relations, family, marital and sex relationships; and (d) connections with doctors and medical services. Attempts were made to gather, in various combinations, these factors into a representative cluster for post-MI adjustment. (A sample of studies that relate to changes in psycho-social aspects of patients' life as criteria for post-MI adjustment is listed in Appendix III.)

It seems that the general idea of multi-dimensional outcome criteria is that it best serves the measurement of life-style. This idea is adopted here. A set of 32 dimensions relating to five major aspects of adjustment is proposed: adjustment to occupational life, compliance with adequate medical instructions, daily activities and social life, emotional state, and family relationships. These categories are further subdivided into 27 dimensions (Table 5). A method to empirically test these dimensions is proposed.

Differential Intervention for Psychological Subgroups

The trends that relate to patients' characteristics as the focus of intervention can be classified into those that concentrate on selective groups of patients and those that concentrate on selective aspects of patients' behavior. The first approach limits intervention only to a selected, chosen group of patients considered to have a chance to benefit from extensive intervention. It is assumed that the others will adjust themselves adequately or that the chances for their change are so low that it is not worthwhile to make the necessary effort. Some of these studies try to identify appropriate patients immediately after the MI (Doehrman, 1977; Gentry & Suinn, 1978; Suinn, 1982). The criteria for locating the "right" patients include neuroticism, depression, sick-role behavior in hospital, and patient's motivation (Cohen, 1978; Naismith et al., 1979).

The other selective approaches propose that different therapeutic methods be applied to different phenomenological goals selected by the specific investigator. For instance, cognitive reconstruction should be applied to change cognitive behavior (Meichenbaum, 1977). In order to modify overt behavior, behavioral methods such as modeling or contingency construction should be used. If the target is emotional (fear, anxiety), anxiety management training is appropriate (Suinn, 1980). If the goals are physiological, techniques such as biofeedback will be found to be useful. The different methods for a "different goals" approach thus limits itself to one chosen aspect of behavior of persons after MI.

A therapeutic program that identifies and relates to personality trends that underly differential adjustment has the potential to help most post-MI patients to cope and improve a wide spectrum of their quality of life aspects. Such a program is proposed here (chapter 9).

The Place of Theory in Post-MI Adjustment

An important element in discussing rehabilitation is the place of theory in directing research to identifying underlying factors of overt behavior as targets for efficient intervention.

In studying the etiology of CHD there comes a stage when it is necessary to conceptualize the underlying qualities relating to TABP (Mathews, 1982; Matteson & Ivancevich, 1980). Although the study of post-MI behavior is not as developed as is the study of the etiology of CHD, some studies mention the need to <u>understand</u> the psychological factors relevant to the adjustment of post-MI patients. Researchers have used several approaches to achieve this goal. Croog and Levine (1982) classified meaningful social and psychological factors to adjustment on the basis of 8 years of systematic follow-up observation of post-MI patients.

A second approach argues that conducting many intervention trials makes it possible to come to a better conceptual understanding

of the psychological components in the post-MI adjustment. This approach also helps in understanding underlying psychological factors related to post-MI Type A behavior (Chesney et al., 1981; Gentry, 1978; The Review Panel, 1981; Suinn, 1978). This inductive approach is supported by a similar development in the understanding of depression: The reaction of patients to different drugs assists in the understanding of depression as a heterogenic overt phenomenon influenced by three covert dynamics - unipolar, bipolar, and schizophrenic depression. In a similar way, the inductive approach hopes to come to a theoretical understanding on the basis of accumulated empirical findings.

A third, deductive, approach argues the need to develop psycho-social rehabilitation theories prior to the design of empirical studies (Doehrman, 1977). Radley (1982) stated that theory is a significant contribution to further development of the understanding of TABP. "The important distinction to be made is that where theory may be used for predictions on the basis of its explanation, empiricism can claim explanation only if it controls or can manage events" (p.109). Price (1982) stated that "Failure to develop a concept of Type A grounded in contemporary psychological theory seems to be responsible for a rather slow accumulation of generalizable and replicable empirical findings in Type A research" (p.xiii). It is not suprising, therefore, to find that the theoretical approach is used in the study of the etiology of MI; several theories were developed in order to understand the pre-morbid personality (see Chapter 2). Social learning theories dominate the post-MI rehabilitation field. The

various theories advocate unlearning procedures for TABP and the relearning of new and more appropriate behavior through behavioral, cognitive and emotional manipulation methods. (Many of the studies in this field are presented by Suinn (1974,1975,1977,1978,1980,1982; Suinn et al., 1975).

The need to understand the psychological dynamics that mediate between TABP and different adjustment patterns presents a challenge for the development of other theories as well. There is scope to use available psychological theories for understanding the mediating process or to develop new specific theories for a better understanding of post-MI adjustment.

The theoretical framework outlined here focuses on the influence of specific and identified personality factors on adjustment to the specific conditions of the post-MI situation. The theory makes use of psychoanalytical, ethological and social learning models for the understanding of different developmental processes as relevant to the differential adjustment of post-MI patients. The approach adopted here receives indirect support from Friedman (1979), who presented an interesting insight into the homogeneity issue by suggesting different interpretations of the behavior of two groups of priests. He suggested that for one group of priests, Type A behavior resulted from a disturbed learning process; for the other group, Type A behavior pattern presented a neurotic syndrome. Through this finding, Friedman acknowledges the heterogeneity of the underlying sources for the overt pattern. Matteson and Ivancevich (1980), in their review on TABP

literature, concluded that relating to underlying personality dimensions will prove to be more fruitful than relating to the overt behavior pattern. It seems safe to suggest that the development of theories relating to post-MI adjustment will encourage and direct appropriate research projects and intervention methods.

CHAPTER 5

INTEGRATED CRISIS AND DEVELOPMENTAL THEORY FOR THE DIFFERENTIAL ADJUSTMENT OF POST-MI PATIENTS

The present chapter offers a theoretical interpretation for the differential adjustment of patients exhibiting TABP and TBBP. The developmental theory focuses on the patient's personality and its development as the cause for the differential reaction to the post-MI crisis. The plan of the chapter is as follows. First, crisis theory will be proposed as a model for conceptualizing the adjustment period after MI. Second, the major characteristics of MI patients' behavior as it relates to the crisis will be outlined and explained in relation to the different developmental processes of the four subgroups of post-MI patients - AD, AI, BD and BI.

Theoretical understanding of observed processes is considered to be a problematic issue in psychology. Psychological processes that are observed in a systematic and controlled way are usually accepted as valid observations; their understanding and their implications, however, are usually speculative. In spite of this, psychology values theoretical models. They are regarded as a useful method for the development of new ideas and for the design of systematic research. The common approach in studying the post-MI situation is to use practical experience gained with rehabilitation programs. Additionally, there is a place for theoretical models to serve as conceptual frameworks for a systematic interpretation of the adjustment process to MI. The idea is that the theory would be formulated in a way that

is helpful in the efficient design of intervention programs and comparative studies.

Price (1982) summarized the advantages of the development of theories for a better understanding of TABP: (a) A research that is grounded in a theoretical framework can make it possible to know where to focus attention and what to focus it on while analyzing research data, (b) it makes it possible to determine key concepts and underlying themes to TABP, (c) it makes it possible to shed light on how TABP and TBBP were acquired. Theories can suggest personal and environmental factors that encourage or discourage the maintenance of TABP. The identification and understanding of the dynamics of these factors make it easier to develop an efficient intervention program for a better adjustment of post-MI patients. Another advantage is that it makes it possible to make predictions about what has not yet been observed. The predictions can then be tested through empirical research derived from the proposed theoretical framework.

> A limitation of the scientific process is that logically valid conclusions about theories can be drawn only when the predictions are refuted. A person may predict that if a particular theory is true, he will observe X. If he does <u>not</u> observe X, he can conclude that the theory is <u>not</u> true. However, if he <u>does</u> observe X, he can not conclude that the theory is true. Concluding that a theory is true

> because the predictions are supported is called "affirming the consequent" and is logically invalid.
>
> (Price, 1982, p.63)

The present study offers a theoretical framework for the differential adjustment of post-MI patients, especially TABP patients. The prediction that patients with TABP subdivide into two identifiable groups with different adjustment patterns does not prove that the suggested theory is the only way to explain the results, or that the theory is confirmed. In addition to possible supportive results of the research conducted here, the theory can be judged by "how well it integrates available knowledge and how well it suggests further research" (Price, 1982, p.63). The present study suggests an integration of developmental and crisis theory for the understanding of the adjustment behavior of post-MI patients. It postulates that different developmental processes result in different adjustment behavior to the post-MI crisis situation. Accordingly, the Thesis predicts a different spontaneous adjustment of two subgoups of post-MI Type A patients (and also the adjustment pattern of Type B patients). Further, a rehabilitation program, derived from the same theoretical model, is proposed.

Crisis Theory

There are many legitimate ways in which to conceptualize the post-MI adjustment process. One way is to consider adjustment as a reaction to a crisis in the life of the individual (Croog et al., 1968). The unexpected realization of MI and the accompanying death threat usually causes a crisis in the life situation of the post-MI patient (Aguilera & Messick, 1978). Hollender (1958) noted that even the most emotionally stable person finds himself in an acute anxiety situation after MI. The threat of death, physical disability, and feelings of vulnerability result in feelings of helplessness and crisis.

The approach adopted here is that the individual is capable of growing and developing during his life cycle. Erikson's (1963) approach is that the crisis presents a challenge of reorganizing the individual's life-style so as to reach a stage of equilibrium. The crisis will continue for a long time when personality factors, structured by a disturbed developmental process, prevent adequate reorganization. Well-planned, systematic intervention may help the individual to cope with the personality factors that interfere with readjustment and with expected growth, and thus lead to a new homeostasis.

Crisis theory can serve for the systematic description of differential adjustment to MI. The understanding of the effect of the crisis situation can be achieved through a developmental theory derived from a combination of the psychodynamic approach, the etholo-

gical approach (as presented by Bowlby), and social learning theory. The crisis theory and the developmental theory are integrated into one theoretical unit.

Sigmund Freud was the first to propose that people are capable of self-discovery and change (Hoff, 1978). He emphasized the influence of early childhood on adult development and suggested that people can solve their conflicts derived from traumatic events in childhood and thereby live a fuller and happier life. His conclusions derived mainly from the study of the disturbed and abnormal personality. The emphasis on the normal aspect of development was mainly developed by Allport (1961), Maslow (1970), and Erikson (1963) in laying the foundation for crisis theory. They emphasized the individual's capability to learn and the individual's psychological growth throughout his life. Their approach is an appropriate one for the understanding of the readjustment of post-MI patients where psychopathology is not a typical or usual development.

A person in crisis faces a problem he cannot readily solve by using the coping mechanisms that have worked for him before. Caplan (1964) has stated that in a crisis situation "there is a rise in inner tension and signs of anxiety and [an] inability to function in extended periods of emotional upset" (p.18). Although a theoretical framework for the definition of a crisis situation has yet to be proposed, it is useful to distinguish between developmental and situational crisis situations. Erikson (1963) has identified the normal developmental stages along the human life span. At each transitional stage

the individual is subject to unique stresses. Failure to overcome them interferes with the growth and maturity of the personality. Most people can usually cope with growth challenge from one transitional stage to other, and in this sense an individual's developmental crisis is considered normal. However, situational factors might interfere with the growth and extend an existing developmental crisis. A situational crisis might occur as a result of an unexpected (and thus uncontrolled) traumatic event (Hoff, 1978). Whether such an event leads to a crisis situation depends on the individual personality (Caplan 1964).

The use of a crisis theory for describing adjustment to the traumatic MI has several advantages (Aguilera & Messick, 1978; Croog et al., 1968). 1. This approach causes attention to be focused on adaptive and non-adaptive mechanisms that patients use for coping with their disease. 2. Observing responses to MI as a problem of coping with a crisis situation makes it possible to use concepts and formulations that were developed for other crisis situations (e.g., a crisis situation in illness is perceived as an opportunity for further growth and not as an opportunity for withdrawal and deterioration). 3. People in crisis are not perceived in psychopathological terms. They are accepted as basically normal, capable of helping themselves, and capable of further growth with a little help from supportive, environmental agencies, whether formal or informal. Other advantages for use of crisis theory are presented by Strümpfer (1979):

> It should also be remembered that the emotional crisis provides a point of entry for interventions to stimulate psychological growth. "Crisis theory" suggests that when a system is in disarray it is much more amenable to change than when it is in a state of peak performance ... Crisis intervention of brief psychotherapy directed at the focal crisis "may frequently set into motion a process of growth by enabling the individual to utilize the healthy elements in his personality" ... At the same time, the very severity of the crisis may increase the likelihood of change; since there are indications that the more stressful an experience is, the more positively it will be evaluated ... and the more patients' search for ways of coping and their search for meaning will increase their therapeutic readiness. (p.72)

A common trend in studies that deal with recovery from a heart disease crisis situation is the adoption of the stages method (Stuchman, 1965). A World Health Organization report (WHO, Technical Report, 1966) discusses recovery from MI in terms of time and roles. It divides recovery into several acute stages, of which the last stage (3-6 months post-MI) is defined by a gradual return to the occupational world. Other classifications of post-heart disease stages are according to: treatment schedule (Benton & Rusk, 1953); doctor-patient relationships (Lee & Bryner, 1961); significant interpersonal relationships with the doctor, family, and employer (Hellerstein & Goldston, 1954); occupational stages (Kaufman & Becker, 1955); stages

in organizing personality defenses (Bellak & Haselkorn, 1956); and the emotional development of the patient (Nemiah, 1964) with the goal of "independent, unsupported, competitive life" (Kubie, 1955). Although the stages method is a popular method for describing recovery, there is little or no agreement on the identification of the stages, nor about the actual mechanism that the individual uses in each stage, or the differential outcome of each mechanism (Croog et al., 1968). It is not in the scope of the present study to inquire into such problems. The relevant point is that all methods relate to a crisis as a transitional condition; readjustment eventually occurs unless a disturbance in the process interferes. Interferences may be of different kinds. The present study is interested in the difficulties that patients have in using their personal resources - acquired through their personal development - for adjustment. To this end the study relates to post-MI adjustment (i.e., emotional development) in terms of two phases: individual trauma and the subsequent organization of defenses (as suggested by Bellak & Haselkorn, 1956).

A useful approach for the adjustment of people in crisis is the homeostatic model, the thesis of which is that people in crisis are in a state of disequilibrium; equilibrium can be regained through several mechanisms - a realistic perception of the event, adequate situational support, and adequate coping mechanisms (Aguilera & Messick, 1978). The homeostatic function of people was previously proposed by Menninger et al., (1963), and Caplan (1964). It was criticized by Taplin (1971), and Bartolucci and Clavin (1973) as being over-simplistic. Criticism was directed to the idea that crises can be

resolved by mechanistically reducing tension, while other psychological mechanisms were ignored. Despite this criticism, the homeostatic model is relevant in the broad psychological context of the crisis situation. Equilibrium is not regained automatically by reducing tension, but by giving environmental support and the adequate use of personal resources and coping mechanisms (Hoff, 1978).

If the recovery process is viewed as a response to a crisis situation, the psychological mechanisms used by the patient have a special value for recovery. In the terms used by Jacobson et al. (1968), the post-MI crisis is a combination of general characteristics (typical to any crisis) and individual characteristics (interpersonal and intrapsychic processes). According to this approach, the MI is perceived as a crisis with specific psychological and environmental characteristics that affect the adjustment of post-MI patients. Those patients with particular personality characteristics (TABP) find it more difficult than others to readjust to a new, adequate and subjectively satisfactory equilibrium. The observed inadequate adjustment of post-MI patients can be classified into two major continuum patterns: exaggeration of the sick role to psychological cripplement, and denial of the disease and ignoring any possible change in life-style. These two reaction patterns result in an inadequate way of life that is also related to the patient's physical condition. The interaction between personality factors (TABP and interpersonal dependency) and the way they developed, and the particular psycho-social characteristics of the post-MI crisis situation, is the source of the differential adjustment.

Characteristics of the Post-MI Period

The post-MI period may be characterized by a number of factors that can be easily perceived as a crisis situation. The traumatic experience is so obvious that probably all patients can take advantage of professional help in securing a reasonable level of functioning, and in some cases even to change a tendency of "flight into death" into a "flight into health" (Mone, 1970).

In the post-MI period, task dependency becomes a way of life: The patient will always need help in moving heavy furniture, heavy garden work, etc. At the same time, the weakness of the patient is expressed in various emotional and behavioral ways, and this weakness might lead to emotional dependency. The post-MI patient is often somebody in the middle of intensive life activities. Then, without warning, the individual faces an existential traumatic experience with the prospect of another MI, which might end in death. This possibility has an impact on familial, social and occupational dimensions of a patient's life. Other difficulties derive from the belief that the patient, through his own behavior, can determine the occurrence of another MI. The information for "proper" behavior is provided in a confused and conflicting way by doctors, family, friends, and media. The combination of personal responsibility in addition to confused information sources causes a high level of anxiety that interferes with adequate adjustment. The tendency of friends, family and people at work to provide emotional support to the post-MI patient derives from several psychological sources: It is an expression of real care

for a close person, but it is also an expression of anxiety resulting from identification. It is also an expression of the guilt that people close to the patient may feel for their possible part in the occurrence of the disease. Feelings of guilt may also be derived from covert aggression from family members who may feel that the disease endangers their future security and their social status; similarly, people at work might feel guilty of taking advantage of the disease to advance their own careers. The compensation for such covert motives is expressed by ambivalent emotional support and personal interest in the patient's health condition.

Another typical characteristic is that the patient uses his past emotional, behavioral and social patterns as a foundation for recovery and as a model for desired future behavior. For the Type A post-MI patient, TABP is considered to be a risk factor for another MI and therefore cannot serve as the goal for rehabilitation. The patient is thus expected to give up a behavior pattern with which he had previously identified for many years, without an alternative behavior pattern that can provide self-esteem or a reference framework for decision making. The combination of the need to give up a familiar hyper-independent life-style (TABP) and exposure to the environmental supportive behaviors, might present, for some patients, a potentional danger to their self-integrity. Other patients, with TBBP or even with TABP, will accept the environmental support as an encouraging factor in the rehabilitation process. The different adjustment dynamics of subgroups of post-MI patients are described in Figure 1. According to

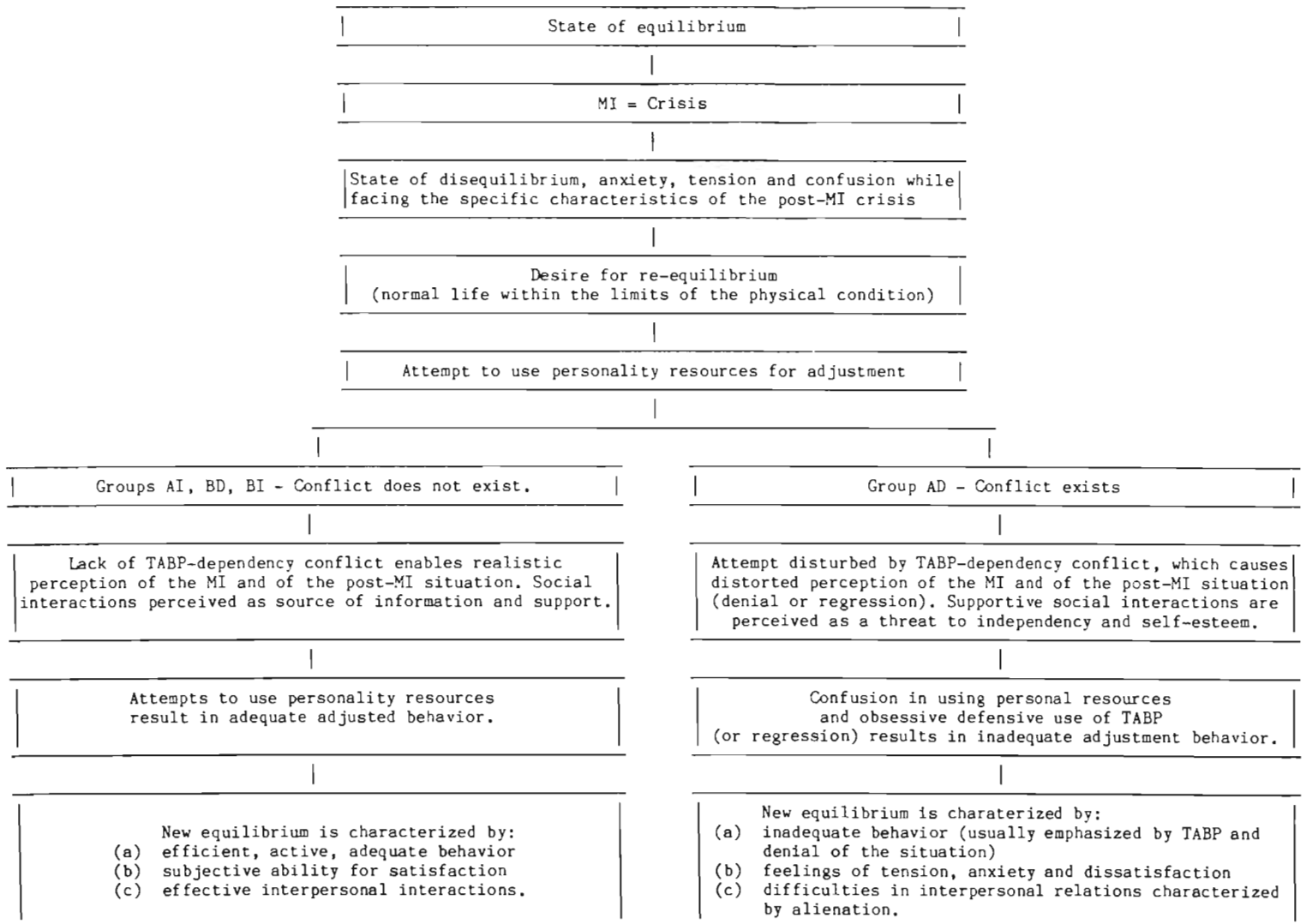
the Thesis, the TABP-Dependent conflict does not exist for the ID, BD, and BI groups, but does exist for the AD group.

Coping With the Post-MI Crisis

A basic assumption in the interpretation of the differential adjustment of different personality groups of post-MI patients to their particular psychological situations in the post-MI period is that post-MI adjustment should not be related to psychopathological concepts. It is assumed that prior to their MI, patients had the ability to funtion reasonably well in the various dimensions of their life. The post-MI crisis disturbs the existing equilibrium and brings tension and confusion. The inconvenience of the crisis situation pressures the patient to strive for a new satisfactory equilibrium. The goal is to achieve a reasonable quality of life within the confines of their medical situation. In order to reorganize themselves adequately, patients have to use their personality resources.

The special characteristics of the post-MI crisis prevent a major group of post-MI patients (the AD group) from readjusting adequately. For this group, the conflictual situation between the hyper-independent TABP and covert dependency is an obstacle in their readjustment. The underlying conflict causes distortion in reality testing. For instance, the support of close persons is perceived as a threat to independency and to the patient's self-esteem. The distorted

Figure 1: Effect of TABP-Dependency Conflict on Adjustment of Post-MI Patients



perception might result in feelings of helplessness and exaggerated sick-role behavior, or in denying the threat and reacting in an obsessive exaggeration of Type A behavior. Whatever the result - anxiety, regression, or denial - the perceptual distortion prevents the use of personality resources for adequate readjustment to the emotional, interpersonal, occupational, and other dimensions of life after MI. Other groups of patients, who do not possess the underlying dependent-independent conflict (groups AI, BI, and BD), can adjust better and more easily than the conflictual group. The AI, BD and BI patients are not subject to these perceptual distortions. As a result they can judge post-MI processes adequately and behave accordingly; they are able to achieve a new and better equilibrium than the conflictual group (group AD).

Having described the difference between the two subgroups of the TABP group according to the crisis theory, it still remains to inquire into <u>why</u> those two groups (as well as those exhibiting TBBP) react differently to a crisis situation. The importance of the inquiry and its relation to understanding patient personality was emphasized in several studies and overviews dealing with the psychology of heart patients (Matthews, 1982; Matteson & Ivancevich, 1980). The idea is that the understanding of the personality components relevant to a patient's behavior will be a meaningful instrument for directing intervention programs as to the causes of behavior and not only to the overt <u>expressions</u> of the patient's behavior. Matteson and Ivancevich (1980) asked "To what extent is the behavior pattern (TABP) an expression of an underlying personality dimension"? "Is it possible to learn

as much (or more) about the CPBP by increasing our knowledge of its personality correlate than it is by studying the behavior pattern indirectly? The entire area of the possible mediation role of personality variables on the CPBP bears much further examination" (p.345).

The Developmental Theory

The differential adjustment to the post-MI crisis will be discussed here in terms of differences in the personality development of patients.

The developmental theory relates to the differential personality development of different groups of patients as a dominant factor in their differential readjustment to an adequate way of life after the MI. It interprets the development of the different subgroups of TABP and TBBP in terms of psychodynamic conflict (psychoanalytic theory), attachment and over dependency (Bowlby's ethological theory), and cognitive-behavioral learning processes (social learning theory). It is argued that TABP, which characterizes most post-MI patients (Friedman et al., 1982), is a representative behavior of two different underlying developmental processes. For the AD group, for which TABP is a defensive pattern for underlying and unacceptable over dependency, the psychodynamic process interacting with the specific characteristics of the MI crisis results in specific perceptual distortions. The use of personality resources for adequate readjustment is dis-

turbed by perceptual distortion and results in a continued crisis situation. For the AI group, TABP was learned in terms of the behaviors on which Western culture is based. Because there is no psychodynamic conflict involved, AI patients judge more adequately the post-MI situation and adjust accordingly. Unlike the AD group, they are able to take advantage of informative and supportive rehabilitation programs. Patients with TBBP are also free from the dependent-independent conflict and, accordingly, can adjust more adequately. Developmental differences between the BI and BD groups have, however, some relevance to adjustment and to a differential rehabilitation program. The developmental theory presented here offers a systematic interpretation of some of the major ideas of the Thesis: The patient is the focus of study; the importance of personality factors for adjustment; the reaction of some characteristics of the personality to the crisis as a factor for adjustment; and the need for differential intervention programs according to individual personality characteristics and patterns of development. The speculative configuration relating to adjustment of the different subgroups is further elaborated below.

The AD Group

One of the main goals of the present study is to indicate that the group of post-MI patients exhibiting TABP is a heterogeneous group. It is suggested that the TABP group be subdivided by a personality factor (dependency) into two groups that are different in their psychological development and also in the way they adjust to the post-

MI crisis situation. The Thesis is that the developmental process of the interaction between TABP and dependency is the factor according to which patients adjust to the particular characteristics of the post-MI crisis. The focus of the differential development theory is on the two subgroups of post-MI patients who exhibit overt TABP. One of the two subgroups (group AD) is expected to have significantly more adjustment difficulties than the second subgroup (group AI). Accordingly, the AD group needs greater efforts directed toward systematic intervention in the post-MI period than the AI group.

The psychodynamic ideas that lie behind the analysis of the behavior of the AD group are based, in part, on Arlow's (1945,1952) preliminary work on the psychodynamic analysis of heart patients, and the further development of his ideas by other researchers (Karstens et al., 1970; Kits Van Heijningen & Treurniet, 1966; Van Der Valk & Groen et al., 1967).

Analysis of the AD group is as follows (see Figure 1). Dependency as a part of attachment can be accepted as an integral part of a person's body image. The AD group is characterized by over dependency as an expression of anxious attachment. Over dependency is not accepted as a legitimate part of the person's self-image, rather, it is perceived as a threat to self-esteem, individuality, and to the integrity of the personality. As a result it becomes a source for free-floating anxiety. The AD individual tends to repress (or exclude) the threatened trait and develop behaviors that cover and take the place of the threatening trait. In order to cope with the threat they

develop a defense mechanism that is a reaction formation by nature. The contradictory hyper-independent behavior, recognized as TABP, serves this purpose. Such individuals live under the constant pressure of a psychodynamic conflict between a basic underlying, covert and unconscious trend for dependency and the overt hyper-independent TABP.

TABP also serves some other needs of AD group patients. A patient who has detachment problems often believes that power and materialistic achievements are means for gaining respect, attention and care from close, significant others. Such a patient uses TABP as an instrument to help himself avoid emotional contact with those close to him. TABP is also used to gain control over the environment. Giving up TABP is accepted as a sign of weakness that might expose the covert dependency. Because TABP represents the only secure behavior accepted by the value system of Western civilization, it becomes (for the AD patient) a self-accepted model for self-identity and self-esteem. The particular characteristics of the post-MI crisis challenge this developmental structure and cause the AD patient to face an existential danger to his personality balance.

Change of TABP in order to prevent another MI endangers the benefits that the behavioral pattern represents for those patients. Additionally, the typical characteristics of the post-MI period: physical weakness, the need for medical care, strengthening of emotional and task dependency on close figures such as the spouse and employer, and the tendency of close persons to exhibit support and emotional closeness encourage the surfacing of covert threatening

dependency. Thus, a psychodynamic conflict that manages to maintain equilibrium up to the MI has to face a severe challenge in the post-MI situation. Anxiety derived from the extended conflictual situation causes distorted perception of environmental events, which may result in an emotional condition whereby positive attachment behavior will be perceived as a threatening dependency. Friendly interest in their situation or gestures of emotional support are perceived as a threat to the exposure of dependency and result in anxiety; hence, such interactions are therefore avoided. Another distortion in perception is presented by patients' reaction to behavioral change. They fear to lose their self-integrity by the change of TABP. In some cases the extended conflict situation results in feelings of helplessness (Seligman, 1975), which are manifested by giving up the struggle and maintaining a way of life of chronic invalidism or a permanent depressive mood, or both; in most cases though, the patient reacts in terms of a more rigid, compulsive defense system against the imaginary damage of exposure to over dependency. The maintaining of the exaggerated TABP is possible by denying the meaning or even the existence of the disease, and in this way denying the need for any changes in behavior or in interpersonal relations.

The new exaggerated conflictual situation, which also endangers the future health of the patient (re-occurrence of MI), only increases anxiety level. A high anxiety level interacting with perceptual distortions prevents the patient from using personal resources to overcome the post-MI crisis situation. The result is a continued

crisis situation that prevents adequate adjustment to an optimal possible quality of life.

Any rehabilitation program for this group of patients that concentrates on management or alteration of TABP and that adopts a supportive or a guidance approach, will raise patients' anxieties and their rejection of the program. The same effect will be caused by a "stress reduction" intervention program that ignores the psychodynamic sources of the observed stress. The immediate danger to the integrity of the personality appears to be more dominant than the future prospects for life expectancy and the possibility of improving quality of life. Friedman (1979) described a group of patients rejecting change as influenced by a "death wish" in the Freudian sense. An appropriate intervention program should be directed to cope with the personality factors and dynamics relevant to adjustment of this particular group. Post-MI patients who do not have to cope with the above described conflict should be exposed to a different intervention approach that relates to their particular needs, which are elaborated upon below.

The AI Group

It must be emphasized that TABP can be a defensive behavior, but that not all TABPs are defensive behaviors. TABP can also be a learned behavior in the Western civilization: For post-MI patients who are independent (the AI group), TABP is a socially learned pattern.

Analysis of the AI group is as follows (see Figure 1). Without relating to the different approaches of different theories in regard to the early development of dependency and independency (discussed earlier), it is suggested that the AI individuals had an adequate early development in those issues relevant to dependency (or attachment). Their adequate and normal development enabled the processes of individuation, self-esteem, self-reliance, and feelings of security to take place in the context of relations to significant persons for support and interaction. In Bowlby's terms, healthy attachment relationships were developed and were always available. These characteristics relate to an adequate personality development. It can be assumed, therefore, that in a crisis situation these people have the inner security and stability that enables the adequate use of personal resources in order to cope with the crisis and regain homeostasis. The particular crisis of the post-MI situation is characterized by sudden change in health, self-image, and by trends that encourage dependency on close figures (a wife or employer). The AI group is provided with the following mechanisms to cope with this particular crisis: (a) Patients have the general ability to cope with crisis situations; (b) they are not involved in a conflict that may cause them to feel threatened by the post-MI dependency dynamics, and as a result they are not in an anxiety state that might cause distortion in reality testing; and (c) the secure individuation, self-esteem and the ability for attachment and equal social interaction enable those patients to perceive the post-MI social interaction in a way that reassures them of their good social relationships.

In sum, then, their self-esteem and feeling of the positive form of their interaction with close and significant figures is strengthened. According to this way of thinking, the same post-MI special circumstances that were threatening and destructive for the AD group, and which resulted in disturbances of judgment and adjustment, are a source for self-reassurance and secure foundation to adjust adequately to the new situation for the AI group. The TABP was developed here in a different way (through social learning processes and from sources independent from dependency as a personality trait) than occurred among the AD group. As a result, it has a different impact on the inner structure of the personality and on adjustment to the post-MI situation.

TABP is an exaggerated expression of a model of behavior that is accepted and admired in Western civilization. It is possible, therefore, that ambitious parents, teachers, and similar others, or even the subjective and perception of the young individual himself of the way to succeed and to gain social status, are the primary cause for the adoption of a cluster of behaviors known as TABP. The cluster, by gaining reinforcement from social, occupational and even familial agencies, continues to exert its influence along the various stages of the life cycle. Over time, an individual's self-image is established in relation to this developmental behavioral trend. With the absence of any other familiar, satisfactory pattern of behavior, the person goes on with TABP even after the occurrence of the MI. At this stage of his life he has already established around him social, occupational and marital environments that expect him to become "normal" again,

which, in this particular circumstance, means to behave in TABP. So it happens that even if it is against his cognitive judgment, the AI patient is "caught" in TABP.

The main goal of a rehabilitation program for post-MI patients is to help them to achieve an optimal possible quality of life. For the AI group the program should concern itself with the relearning and change of those aspects of TABP that are superfluous for successful adjustment in Western society and which endanger his coronary situation. The expectations are that AI patients who are not disturbed by psychodynamic conflictual problems will cooperate with and advance through a program based on guidance, and supportive and stress reduction techniques. The focus of the rehabilitation and the method itself are different from the rehabilitation that is expected to be effective for the AD group.

The BD Group

The Thesis proposed here considers persons with TBBP to have a better potential adjustment process than those with TABP. Analysis of the AD group is as follows (see Figure 1). Because initial interpersonal interactions of these patients was not problematic, they do not have a psychodynamic problem that disturbs their development. The dependent Type B group are patients who are dependent, but can accept their dependency and have learned to live with it adequately and in a rewarding way.

According to Bowlby's approach, and to the approach advocated by social psychologists, the processes that started in infancy continue to develop. It is possible that the over-dependent person will accept (cognitively or by social encouragement) the fact that he is a dependent person. He might develop a system of interpersonal interactions that will surround him with persons who are willing to accept his dependency or might even need it for their own personality needs (like dominant wife, boss). In doing so, the BD patient builds a supportive environmental system that provides him with existential security. A continuous life history of such interactions might supply him with confidence and probably also satisfaction and reinforcement to his dependent state. This person can develop a stable self-esteem based on dependent relationships with the environment. He feels relatively secure in his dependency and does not experience a continuous anxiety state; he can survive well in a crisis situation if he is surrounded by significant figures on whom he can depend.

Various factors can be identified in relation to the personality resources of the BD group relevant to the specific characteristics of the post-MI crisis:

1. There is an absence of conflict (and related anxiety), which causes the person to feel threatened by positive attachment behavior that occurs in the post-MI period.

2. The tendency of the social environment to take care of the patient is well accepted by the patient. It serves to

strengthen his personal security, his self-esteem, as well improve his positive feelings concerning his social interactions. In this sense, then, it serves to encourage and improve attachments.

3. The coping method of the BD patient is founded on self-acceptance, on the dependent self-reliance aspect of his personality. The patient has not used mechanisms such as withdrawal or denial. The coping method of accepting reality and coming to terms with a particular way of living serves the patient in the post-MI crisis. In this situation he is able to accept reality and to find ways to adjust. Although patients in this group have a problematical, early development in attachment, the line of adaptation, which was adopted through their life, prepares them for a relatively adequate, emotional and interpersonal adjustment to the post-MI situation. The speculated expectation is that a rehabilitation program which aims to change behaviors in order to improve quality of life will better succeed with a supportive and authoritative counsellor.

The BI Group

Analysis of the BI group is as follows (see Figure 1). The BI group are independent patients who learned TBBP as an adequate behavior pattern. This group experienced a rewarding attachment

development. They do not face a conflict related to over-dependency and do not present TABP, with its disadvantages for heart patients. The expectation is that, like AI patients, BI (and BD) patients should be able to take advantage of a rehabilitation program that provides them with adequate information, guidance, emotional support, and stress reduction techniques.

To sum up, it is argued that all post-MI patients can improve their adjustment to the post-MI crisis, their quality of life, and possibly their life span, by being exposed to an adequate rehabilitation program. The success of the program depends on its ability to relate to the specific needs of different patients. The developmental theory proposed here provides a model for the different needs of post-MI patients, with emphasis on subgroups of Type A patients, with the aim of designing a differential rehabilitation program.

CHAPTER 6

METHOD

Subjects

The study sample consisted of 79 white urban South African males aged 30-60 with at least 10 years of formal education from a wide range of socioeconomic backgrounds. The study took place 4-24 months after clinical symptomatic MI with hospitalization in a coronary care unit (CCU) and general ward. The patients did not suffer from any other significant disease for at least 7 years before the MI.

The subject population were citizens of Durban, an industrial city in South Africa. Durban is considered ~~here~~ a Western industrial environment - an environment that characterizes the social values and psychological structure that have been found to be connected to TABP and CHD (see Chapters 1 & 2). City residents include White (mostly English speaking), Blacks (mostly from the Zulu tribe), and Indians. The Blacks and Indians have their own special internal culture. Because the present study related in particular to characteristics of the Western value system it was decided, after consulting psychologists and physicians of the various ethnic groups, to focus only on White post-MI patients.

Only patients with at least ten years of formal education were engaged in the study. The reasons for the educational criterion were, firstly, to "catch" the person who internalizes more than others

the value systems of the Western culture, and secondly, the involvement in the research demanded a certain amount of sophistication.

The study dealt with males aged between 30 and 60. The reason underlying this particular age/sex selection is that: (a) Epidemiological studies indicate very few incidences of CHD in women under 60 (Bengtsson, 1973, Weinblatt et al., 1973); (b) the MI occurs most often to men in the prime of their personal and social functioning, as represented by the 30-60 years age range; and (c) men in this age group have different familial, occupational and social characteristics than geriatric post-MI patients (Croog & Levine, 1982); (d) different psychological and sociocultural characteristics that TABP males and females have to face in the post-MI period indicate the need to design different studies for inquiry into the different sexes (Burke, 1982); (e) the multi-dimensional criteria for adjustment covers the style of life of such persons; and finally (f) the JAS was validated for this age group for the identification of the TABP person (Jenkins et al., 1979a).

One hundred and four patients were selected from hospital files. Sometimes a telephone call was made to the patient's home in order to clarify certain details before selection. Patients were chosen from three hospitals, which serve different socioeconomic strata of the population: Addington - a public hospital, St. Augustine's - a private hospital, and Wentworth - a public hospital that specializes in heart patients and serves a wide range of patients from different socioeconomic levels. Out of the range of symptoms

recognized as coronary heart disease (MI, AP, atherosclerosis), the study selected only patients with uncomplicated clinical symptomatic appearance of MI, which included hospitalization and was backed by ECG and enzyme indicators (it does not include "silent MI"). The population sample of patients have undergone the MI traumatic experience and the post-MI crisis.

The final number of patients that took part in the study was 79, of whom 66 were after first MI, 9 with more than one MI, and 4 patients who had also undergone coronary artery bypass surgery (CBPS), which like the MI, is an acute coronary event (Dracun et al., 1984).

As was mentioned in chapter 6, the author's clinical experience in rehabilitation of post-MI patients indicates that patients with one MI as well as those with more than one MI or even after CBPS, are exposed to typical post-MI environmental and personal pressures. A review of the available literature indicates that although some rehabilitation studies did specify that their sample includes patients after one MI, other studies did not bother to specify this point at all (Byrne, 1981; Naismith et al., 1979; Philip et al., 1979; Stern et al., 1977). Other studies relate clearly to patients who have had <u>at least</u> one clinical MI (Adsett & Bruhn, 1968; Brown et al., 1969; Bruhn et al., 1971; Klottke et al., 1980). This approach is also adopted by M. Friedman (Friedman et al., 1982 & 1984) who is undoubtedly one of the leading figures in the study of TABP in the pre- and post-MI periods.

Accordingly the number of MI's or even MI + CBPS are considered here as variants of the same basic situation. In order to control this variable, the effect of the heterogeneity of the sample on the adjustment pattern, is reported in chapter 7. None of the subjects suffered from any other major illness or physical disability; their heart condition was such that it enabled them to manage "normal" lives with only limited restrictions.

Interviews took place four months to two years after the last traumatic MI event. This range was selected in order to give patients enough time to recover from the preliminary, acute stage of the trauma and to try to develop adjustment techniques while facing a life situation that characterizes the post-MI environment. The two-year limit avoided the stage where the patient had already adopted a chronic, rigid adjustment pattern. Reviews of the literature indicate that some studies (Cay et al., 1973; Stern et al., 1977; Weinblatt et al., 1973; Wynn, 1967), report an improvement in indices of adjustment (return to work, sexual functioning, smoking, weight control, anxiety) within the first to the fourth year after the last MI. Brown et al. (1969) in an 8 year follow-up reported a deterioration in quality of life with time. Other studies (Croog & Levine, 1982; Byrne et al., 1981; Kottke et al., 1980; Mayou et al., 1978b; Naismith et al., 1979; Rahe et al., 1979 and many others) relate changes in adjustment of post-MI patients to psychosocial factors rather than to the time duration from the onset of the MI. Doehrman (1977) in a review of the literature concluded that "it remains for future research to isolate specific social and psychological factors related to long term maladjustment" (p.206).

Accordingly the two year duration limit from the onset of the last MI to the assessment of the adjustment pattern seems to be quite adequate. In order to control this variable, the effect of time duration on the adjustment pattern of the study's sample, is reported in chapter 7.

Tables 1-4 present sociodemographic information, the time interval from the occurrence of the last MI and return to work, and the interval from the last MI to the test of the subjects.

Table 1
Age and Education (in Years)

	N	Range	M	SD
Age	79	30-60	49.5	7.5
Education	79	10-15	11.9	1.6

Table 2
Marital and Occupational Status

	No.	%
Marital Status		
Married	72	91.1
Divorced	3	3.8
Separated	0	
Widowers	2	2.5
Bachelors	2	2.5
Occupational Status		
Employed managers	49	62.0
Employed non-managers	12	15.2
Self-employed	18	22.8

The study population comprised mostly high school educated patients, most of whom are married, and most of whom (84.8%) have formal work responsibilities as managers or as self-employed persons.

Table 3
Return to Work after Last MI (in Months)

Time Interval	No. of Patients	Percentage	Percentile
1	24	30.4	30.4
2	31	39.2	69.6
3	9	11.4	81.0
4	6	7.5	88.5
5	3	3.8	92.3
6	1	1.3	93.6
+6	1	1.3	94.9
do not work	4	5.1	100.0

Only 5.1% of the whole sample did not return to work; most patients (69.6%) returned to work within two months after the onset of the MI.

Table 4
MI-Test Interval (in Months)

N	Range	M	SD
79	4-24	12	6

Pilot Trials

Various aspects of the pilot experiment were not repeated in the main study for a number of reasons. Appointments with interviewees were first made by letter. When only 13 out of 25 interviewees turned up, the technique was changed and appointments were made by letter and telephone confirmation.

The original plan was to interview the patient and his wife. However, most wives did not accompany their husbands and those who did come tended to be reserved in their reactions and tried to relate to and support their spouse's expectations and self-image. Croog et al. (1976) have made a similar observation. Furthermore, the interviewer's impression was that the interviews conducted in the presence of both spouses were somewhat stereotypic. Accordingly, the participation of wives was discontinued.

Attempts were made to take blood samples for cholesterol readings. The patient had to come again for this particular test; few turned up. The practice was discontinued. The interviewees strongly rejected being tested with projective tests (TAT, Rorschach). The practice was therefore discontinued. A possible explanation to the patients' negative approach to projective tests is that for many dependent Type A patients these tests are perceived as childish games that interfere with their hyper "adult image." The questionnaires and the interview, on the other hand, were perceived as a serious effort to understand the heart patient; consequently, patients cooperated.

Procedure

A letter was sent for a tentative appointment at Addington Hospital, a large public hospital in Durban. A telephone call confirmed the appointment. Time and place were changed according to the convenience of the patient. This technique resulted in about 90% cooperation. Some of the patients who came to the meeting were rejected as it was found that they did not meet certain criteria of the study. In one case, the interview recording was later found to be unclear; the interviewee was excluded from the study.

Most of the interviews (N=61) were conducted at Addington Hospital. The room in which the study took place was on the same floor where the CCU and a general ward were located. The room was located in a quiet corridor, remote from the patients' rooms. The size of the room was about 20 sq. meters. The room was furnished with a desk, which was used for the questionnaires and blood pressure measurements. The clinical interview was conducted around a table with two arm chairs; the tape recorder was on the table between the interviewer and the interviewee. For those patients who insisted on being tested at the University (N=15), or at home (N=3), an effort was made to create conditions as similar as possible to the hospital arrangment.

The patients were tested between May 1982 and January 1983, between 08.00 and 18.00 hours. The patients were invited at a fixed time and accepted individually. The whole procedure was conducted by one interviewer - the author of the present study - who is an autho-

rized clinical psychologist in Israel and South Africa. In Israel he is an authorized Supervisor in Psychodiagnosis and Psychotherapy. He is a Chief Clinical Psychologist in a general hospital in Israel and since 1973 has been engaged in individual and group therapy of post-MI patients. The interviewer introduced himself as an Israeli psychologist conducting research in South Africa. He explained to the patients that the study included questionnaires, a recorded interview, and blood pressure measurement. The presented aim of the study was to use the patient's experience after MI in order to design an efficient rehabilitation program. The treatment of participants was in accordance with the ethical standards of the APA (American Psychological Association, 1981). All the patients seemed willing to cooperate; most did so with some enthusiasm.

The session with each patient lasted ±2 hours. The instruments were presented in the following order: the personal information form (see Appendix IV), the JAS and the IDI. Systolic and dystolic blood pressure were measured followed by a 45-minute semi-structured interview and another 15 minutes of structured interviewing. Blood pressure was taken again and finally, the IPAT (anxiety scale questionnaire) and MAT were conducted. The IPAT was conducted after the interview in order to reflect, also, the emotional influence of the interview; the MAT was conducted after the interview in order to avoid cognitive structuring of family life before the interview.

Within the clinical interview, an attempt was made to direct the patient's flow of speech according to the pre-arranged outlines

(Table 5), but the atmosphere was relaxed and flexible in order to enable the subject to reflect his feelings, thoughts and experiences in his own way. When the patient came up with personal questions, he was told that the interviewer would discuss them at a later stage. After the end of the formal study procedure, about another 10 minutes were spent dealing with the patient's personal questions, with the aim of giving the patient the feeling that he had gained something out of the situation and was not just being used for the sake of future patients. It also enabled the interviewer to gain better control of the clinical interview by suggesting a later reference to irrelevant issues brought up by the subject.

It is important to mention that while conducting the clinical interview it was impossible to avoid "guessing" whether a patient is A or B, however, as the JAS and the IDI were not scored at this stage, the interviewer could not know or even guess to which of the hypothesized study's groups (Dependent Type A (AD), Independent Type A (AI), Dependent Type B (BD) or Independent Type B (BI)), each patient belonged. As the interviewer was, in fact, blind to the composition of the sample it is possible to rule out interviewer bias influencing the information extracted during the clinical interview.

Instruments

A combination of quantitative and qualitative methods of assessment were used in order to test the relationships between personality factors and the adjustment to various aspects of life in the post-MI period. Personality factors (see below), as well as some specific dimensions of adjustment, were measured by quantitative instruments. Most of the adjustment dimensions, however, were assessed through a qualitative method that can be repeated and validated by further studies.

The two major personality factors used were TABP and interpersonal dependency. TABP was measured by the Type A scale of the Jenkins Activity Survey (JAS). Interpersonal dependency was measured by the Interpersonal Dependency Inventory (IDI) which, like the JAS, is a self-rating questionnaire.

The classification of the patients according to TABP/TBBP and Dependency/Independency yields four subgroups:

AD - Dependent Type A patients

AI - Independent Type A patients

BD - Dependent Type B patients

BI - Independent Type B patients.

The dependent variable is the adjustment scoring to various dimensions of post-MI emotional and behavioral life. It relates to

post-MI daily behaviors, general emotional state, family life, occupational and social life, medical compliance, and health self-image.

The major instrument for the assessment of adjustment was a semi-structured interview, supported by a structured interview and complimented by some quantitative instruments: (a) Cattell's IPAT anxiety scale questionnaire; (b) changes in systolic blood pressure before and after the clinical interview (CSBP); and (c) the Lock-Wallace Marital Adjustment Test (MAT). The combination of the interview analysis and the additional instruments provided a broad range of measures of different life situations. The combination was viewed as a multi-dimensional criterion for adjustment. Through the combined use of this assessment instrument, the patients were rated on 32 dimensions of adjustment (5 major categories and 27 sub-categories (Table 5).

The Quantitative Instruments

The advantage of quantitative instruments is in their ability to offer numerical results that can easily be used for mathematical analysis. Such instruments can be selected for their known reliability and validity. The disadvantage is that the quantitative instruments are limited in measuring complicated human phenomena. Descriptions or impressions, which often describe a psychological situation, can not be quantitatively tested. A possible solution to

this dilemma is to use a combination of qualitative and quantitative methods. The idea is to measure specific factors in a quantitative way and more complicated psycho-social situations with controlled qualitative methods. This follows Matthews' (1982) conclusion that "researchers should design their studies to permit qualitative as well as quantitative differences between A's and B's to emerge" (p.316).

In the present study the quantitative instruments that measure personality types are the JAS and the IDI, and those measure adjustment are the IPAT, MAT and changes in systolic blood pressure (CSBP). The fact that South African norms were not available was not a major problem in this study since the study related to the behavior of a typical group of the Western urban industrial society. All the test norms were taken from samples that represent that culture.

Jenkins Activity Survey (JAS)

The Jenkins et al. (1979b) Activity Survey (JAS) Form C, which is a self-reporting, multiple choice questionnaire of 52 items designed to measure the Type A behavior pattern, was used here. Form C is the fifth edition of the JAS, but the first to be published for the scientific community. It was developed to duplicate the clinical assessment of Type A behavior (through Rosenman's Structured Interview technique) by the use of standard psychometric procedures. The JAS is recommended for use with employed persons between the ages of 25-65. The survey is scored on four scales: the Type A scale, which assesses

the multi-factorial clinical construct of the TABP, and three factorial independent components of this broader construction - speed and impatience, job involvement, hard driving and competitiveness. (For a detailed description of these three factors, see Jenkins et al., 1979a, or Strümpfer, 1983, p.9.) Only 21 of the 52 items in the JAS contribute substantially to the Type A score and are described as "Type A scale" (Jenkins & Zyzanski, 1982). Scoring can be made through a computerised scoring service, it can also be done by hand. The present study used the hand scoring system according to instructions provided in the manual (Jenkins et al., 1979b). Like Caffrey (1978), Francis (1981), and others, the present study uses only the Type A scale of the JAS. The three-factor analytically derived scales of the JAS (speed and impatience, job involvement, and hard driving and competitiveness) were not dealt with here and will not be considered in the following reports on reliability and validity.

Reliability.

The JAS was administered to more than 2,800 subjects participating in the Western Collaborative Group Study (WCGS). Test-retest reliability on the Type A scale is 0.65 correlation between testing occasions, with no significant differences between one-year and four-year intervals (Dembroski 1978, p.96). Ninety percent of over 2,000 subjects of the four-year interval between tests (1965-1969) had less than a 10 point difference in their A-B scores (Jenkins et al., 1974). These repeatability levels compare well with personality measures such as the MMPI, intelligence measures, and physiological

measures of such variables as blood pressure and serum cholesterol (Matteson & Ivancevich, 1980). The internal consistency reliability coefficients calculated by different methods are 0.83 and 0.85 for the Type A scale (Jenkins & Zyzanski, 1982).

Validity.

The criterion validity of the JAS (e.g., agreement between JAS and the SI) in the WCGS (N=2,800) was 65-70%; in extreme Type A and Type B groups the agreement was 90% (Dembroski, 1978). In the Belgian multi-factorial preventive project (Kornitzer et al., 1981), 70% agreement was observed between the two. The moderate agreement was explained later by Matthews (1982) who argued that both had a high predictive value for the occurrence of MI, but relate to different aspects of TABP. Discriminative power between healthy persons and heart patients was shown to be highly significant in several studies (Caffrey, 1978; Hiland, 1978; Jenkins, 1971; Kenigsberg et al., 1974).

It was found (in the WCGS) that men scoring in the top third of the Type A distribution had 1.7 times more incidence of CHD than those who were scored in the lowest third (Caffrey, 1978; Jenkins, 1976). Jenkins (1976) reported that the Type A score was found to be the strongest single predictor of re-occurrence of CHD. The valid relationship between Type A and CHD was replicated in other countries. In a Belgian study, Kornitzer et al. (1981) compared 5,434 healthy subjects with 678 CHD cases; significant differences were found in the

Type A scale. In Holland, Veragen et al. (1979) used a version of JAS and found the Type A scale significantly discriminative between CHD patients and non-CHD patients. In Poland, Zyzanski et al. (1979) found significant differences on the Type A scale between MI rehabilitation cases, patients suffering from rheumatic disease, and healthy persons (Strümpfer, 1983).

Jenkins et al. (1971b) concluded that the JAS Type A scale "is often able to discriminate groups of recent cases and potentially recurrent cases of CHD from a population of employed men of similar ages and occupational levels" (p.611). Jenkins' statement makes the test useful for the present study, which used the test for discriminating TABP men in their post-MI period. The high validity in seven different countries led the National Heart, Lung and Blood Institute (NHLBI) to use the Type A scale of the JAS as an operative definition for TABP and a recognized method for its measurement (The Review Panel, 1981).

Interpersonal Dependency Inventory (IDI)

Fiske (1975) has stated that "unlike other, more advanced sciences, the science of personality has not involved sufficient interaction between concepts and empirical finds. In part, it is a consequence of the large gap between the general abstractions in personality theory and the concrete observations in the research that it is difficult to derive testable propositions from most theoretical

discussions of personality" (p.13). "Conceptualisation and empirical research have been too remote from each other to interact for their mutual gain" (p.15).

Interpersonal dependency, like many other personality variables, is conceptualized and measured with great difficulty. (For a review on the concept of Interpersonal dependency, see Hirschfeld et al., 1976.) Despite its clinical and theoretical importance, few self-report measures for its assessment are available (Berg, 1974; Berg et al., 1973; Edwards, 1959; Gough, 1969; Navran, 1954). Dependency as a sub-scale for different psychological themes has been suggested by Zuckerman and Eisen (1962), and others. The question arose of whether it was possible to find a questionnaire that defined dependency in such a way that could enable the present study to use it. Can a self-rating questionnaire penetrate the overt Type A behavior pattern and expose covert dependency?

Zuckerman et al. (1961) compared projective and direct measures for dependency and concluded that questionnaires demonstrate a greater validity than the projective tests. Allport (1953) has suggested that direct measures are more effective with normal subjects and that projective techniques may be more useful in assessing the maladjusted. In the pilot stage of the present study, projective tests were rejected by the patients. Jenkins (1971), Mordkoff and Parsons (1967), and Syme (1968) reported on negative and contradictory findings relating to questionnaires or interview techniques that concentrate on the overt, hyper-adult aspect (TABP) of coronary subjects.

Rime and and Bonami (1979) have shown that covert dependency can be explored through an appropriately designed questionnaire.

The Interpersonal Dependency Inventory (IDI), a questionnaire that measures dependency as a covert psychodynamic concept, was designed by the research branch of the American National Institute of Mental Health (NIMH), by R.M.A. Hirschfeld from the NIMH, G.L. Klerman from Harvard Medical School, H.G. Gough from the University of California, Berkeley, J. Barrett from the Boston University School of Medicine, S.J. Korchin from the University of California, Berkeley, and P. Chodoff from the George Washington Medical School.

The IDI approach to dependency is that "interpersonal dependency refers to a complex of thoughts, beliefs, feelings and behaviors which revolve around the need to associate closely with, interact with and rely upon valued other people" (Hirschfeld et al., 1977, p.610). The concept relates to three theoretical sources: (a) The psychoanalytic theory of object relations; (b) social learning theories of dependency; and (c) the ethological theory of attachment as presented by Bowlby (1969).

The IDI is composed of 48 statements, each of which is graded by the subject in accordance with the degree that the statement characterizes the subject. The results are sub-categorized into three subscales: (a) Emotional reliance on another person; (b) lack of social self-confidence; and (c) assertion of autonomy. A detailed description of the test can be found in Hirschfeld et al. (1977). The

inventory was presented (and scored) in the present study according to the manual's instructions, obtained from the NIMH, Bethesda MD, USA. As it was considered a meaningful advantage to use an instrument that shares the same conceptual framework as the present study, the IDI was used here in spite of the limited empirical data.

Reliability.

The inventory was administered to two research samples (Hirschfeld et al., 1977), which were related to as the developmental samples. The first sample was of 220 normal subjects; the second was 180 psychiatric patients of different diagnoses. Scores on the three scales of the IDI were computed for all subjects. Corrected split half reliabilities were 87, 78, and 72 respectively. Intercorrelations among the three scales were as follows: between Emotional Reliance on Another Person and Lack of Social Self-Confidence +0.42; between Emotional Reliance on Another Person and Assertion of Autonomy -0.23; between Lack of Social Self-Confidence and Assertion of Autonomy -0.08. For cross-validation and scale consistency another study was conducted where the inventory was administered to two new samples: 121 normal subjects and 66 psychiatric patients. In these samples, split half reliabilities on the three scales, and also interactions among the three scales, were similar to those obtained in the first sample.

The consistency of the factor structure was tested using FMATCH, a computer program that computes factorial invariance and coefficients of congruence (Derogatis et al., 1971). The obtained

cross-sample consistency of the factor structure and cross-validation of the factor to scale relationship provides strong evidence that the scale composition represents a stable phenomenon (Hirschfeld et al., 1977).

Validity.

In a comparison of psychiatric patients to normal subjects in both the developmental samples and the cross validation samples the psychiatric patients scored significantly higher (at $p<.05$ or beyond) than normals. The underlying validity assumption was that psychiatric patients are more dependent than normals (Hirschfeld et al., 1977), an idea further inquired into and reported in Hirschfeld et al. (1982).

Social desirability.

The Interpersonal Sensitivity scales of the Symptom Check List (SCL-90) (Derogatis et al., 1971) and the 39-item MMPI social desirability scale (Edwards, 1953) were administered to the developmental samples. The coefficients were all statistically significant (at $p<0.5$) and indicate that the need to describe oneself in a favorable way is reflected, to some extent, in the scale.

Cattell's IPAT (Anxiety Test)

The IPAT anxiety scale is also known as the Anxiety Scale Questionnaire (ASQ). The IPAT is a self-rating questionnaire designed to measure the manifested free-floating anxiety level, whether situationally determined or relatively independent of the immediate situation and as distinct from general neurosis or psychosis (Cohen, 1965). According to the Sixth Mental Measurements Yearbook (Cohen, 1965), the scale has no peer for quick measure of anxiety level in the literate adult. The 40 items of the test were derived from large-scale factor-analytic research. The test is an immediate outgrowth of a series of 14 replicated researches with the longer IPAT 16 PF test. The 40 items of the test are subdivided to five anxiety components, and also to covert and overt anxiety. Because of the low reliability of these components only the total anxiety score is used here. The test was first published in 1957. In 1976, items in the test were carefully updated for language changes that had taken place in the interval since initial publication (Krug et al., 1976).

A South African adaptation provides norms for males and females between the ages of 15-18 (Cattell et al., 1968). The basic form of age trend in anxiety is a U-shaped curve. Very high levels of anxiety occur in adolescence, after this there is general decline in level until around the age of sixty. For most uses of the test, age corrections, beyond those already provided by means of separate norms for teenagers, college students and adults, are unnecessary (Krug et al., 1976). Because in the South African adaptation norms were not

provided for adults, the American norms are used here. Raw scores were converted by tables into stens and percentile scores. The average sten score for the general unselected population is 5.5. The total raw score mean for adults (935 males aged 18-50, mean 30) is 25.7 (SD ±11.2). Krug et al. (1976) described several studies that found that males with CHD were significantly higher than controls on total anxiety levels. Bakker and Levenson (1967) found that the average sten score for MI patients is 6.2 (27 raw score). As the influence of age on total anxiety level is minimal on the ages 20-60, the IPAT score did not have to be corrected for age in the present study.

Reliability.

Krug et al. (1976) reported the following total score test-retest coefficients: .93 for one-week interval and 0.82 for four-week interval. The reported interval consistency reliability (split half, corrected) for adult subjects was found to be .84 - .92.

Validity.

Krug et al. (1976) reported the following data: (a) Correlation of scale scores with the pure anxiety factor it was designed to measure, .84 - .94; (b) correlation scale scores with clinical rating of anxiety, .17 - .35; (c) correlation with other questionnaire measures of anxiety, .54 - .79.

The validity of the ASQ has been approached in three independent ways. The evidence from a number of factor analytic investigations, from studies of clinically assessed anxiety, and from other questionnaire measures of anxiety converges to the conclusion that the validity of the ASQ - the extent to which it measures the central core of the anxiety concept - approaches .90. (p.29)

Social desirability.

The test correlates (about -.60) with the Edwards (1959) Social Desirability Scale. Regarding the high reliability and validity of the total score as compared with the sub-score, the present study related only to the total score. The administration and scoring were done according to the manual instructions (Krug et al., 1976).

The Marital Adjustment Test (MAT)

The MAT was devised in 1959 by H.J. Locke and K.W. Wallace in an attempt to develop a short but reliable and valid marital-adjustment test. Marital adjustment is defined as "accommodation of husband and wife to each other at a given time" (Shybut, 1968, p.257). From previous studies conducted by others, Locke and Wallace (1959) selected the 15 items they judged to be most basic and discriminating (Hunt, 1978). The possible scores for the adjustment test range from 1-158 points. The sample (Locke & Wallace, 1959) represented 236

marriages (118 M and 118 F). The subjects were a predominantly young, White, Protestant, white-collar and professional urban group; the mean time of marriage was about 5 years. The MAT is a commonly used self-report questionnaire that distinguishes marriages in crises from healthy marriages.

Reliability.

The reliability coefficient as indicated by the split-half technique and collected by the Spearman-Brown formula was .90 (Locke & Wallace, 1959).

Validity.

Forty-eight maladjusted subjects were matched for age and sex with 48 persons who were known as exceptionally well-adjusted (Locke & Wallace, 1959). The mean adjustment score for the adjusted group was 135.9, and for the maladjusted group only 71.1. Only 17% of the maladjusted group had more than a score of 100; 96% of the adjusted group had a score of more than 100. The results indicate that the MAT differentiated between adjusted and maladjusted marriages and measured marital adjustment.

Social desirability.

Edmonds' (1967) Marital Conventionalisation Scale correlated 0.63 with the MAT, which means that the MAT is contaminated by conventionality. This outcome indicates the tendency of subjects to report that their marriages are better than they "really" are. It seems, therefore, that the MAT can be useful as a brief, inexpensive approximation of some of the assessments of the marital dyad (Hunt, 1978).

Systolic Blood Pressure

Siegel et al. (1983), and Dembroski et al. (1979), have indicated that while adult Type As do not typically differ from Type Bs in static measures of systolic blood pressure, they do differ in dynamic measures before and after an administered quiz interview.

Systolic blood pressure was measured in order to determine whether the blood pressure variability is different between the two subgroups of Type A patients when they were exposed to an interview. For dependent, Type A patients the interview was assumed to be more threatening and stressful than for independent Type A patients or for Type B patients. As such, systolic blood pressure indicates the emotional state heterogeneity of TABP. Blood pressure was measured in a seated position before and after the clinical interview (both the semi-structured and the structured), that is over an interval of about 60 minutes. The procedure used was similar to the one used by

Dembroski et al. (1979), and Sime et al. (1980). Dembroski et al. (1978), Manuck and Garland (1979), and Goldband (1980) found that Type As show greater elevation in systolic but usually not diastolic blood pressure when challenged by a difficult and frustrating task (see Mathews, 1982). Accordingly, the present study used only systolic blood pressure to determine the differences between subgroups of Type A patients.

The Qualitative Instruments

Strümpfer (1981) discussed the importance of qualitative methods, and mixed qualitative and quantitative methods, for a closer and more reliable description of psychological phenomena. Matthews (1982) concluded from a research review on TABP that, "researchers should design their studies to permit qualitative as well as quantitative differences between A's and B's to emerge" (p.316). It is relatively easy to define and measure concrete variables for post-MI adjustment, such as MI survival, re-occurrence of MI, or return to work after MI. The inefficiency of the use of a single behavior as a criterion for adjustment (Lorr et al., 1960) was discussed in chapter 5. It is much more difficult, however, to find a measurement that covers and assesses the quality of life of the post-MI patient. One possible way to do this is to follow a broad range of the patient's behaviors and to consider the observations as multi-dimensional criteria for adjustment. This approach was advocated by Mayou et al.

(1978b;c) and Winefield and Martin (1982) and is further elaborated in the present study.

A major dilemma that had to be faced in the present study was how to measure adjustment as reflected through the patient's feelings and daily life patterns. The direct report of the patient was considered inefficient; this is especially the case with patients exhibiting TABP who are recognized as having insight difficulties and a tendency to deny difficulties. The report of patients' wives was also not considered a satisfactory method because of their biases resulting from their special interaction with the post-MI patient. For the purpose of the present study the most efficient instrument was considered an interview that relates to various aspects of a patient's life. A trained professional observer evaluated and scored the information along pre-arranged criteria, in a way that made it possible to repeat the procedure. Combination scores were obtained by combining the assessments of the semi-structured (open) and structured interview to each item of the multi-dimensional criteria for adjustment. For some specific dimensions, quantitative measures were used to complete the picture.

Empirical control of the scoring of the interview was achieved by a well-defined classification of the different categories of the multi-dimensional categories in a way that enabled different raters, who agreed on the conceptual framework of adjustment processes, to come to the same conclusions and by that to verify the rating.

The content analysis technique was adopted by clinical psychology from other social sciences. Over a period of many years Gottschalk (1977) coped with the problem of designing a content analysis technique that would express the "subject's subjective experiences and the relative magnitude of these psychological states and conflicts" (p.73). He concluded that "A content analysis method could never supplant the broad perspectives of a clinician nor the clinician's ability to synthesise many different points of view in listening to a variety of forces occurring in the interview process" (p.79).

Russel and Stiles (1979), in dealing with the same dilemma of measuring subjective experiences, compared classical content analysis with pragmatic content analysis, about which they stated that "Coders make inferences about psychological process ... These inferences may or may not be based on specified behaviors ... Thus the pragmatic strategy permits complex contextual judgements that may be impossible to specify completely, but it obscures the relationships between behaviors and inferred characteristics of the communicator" (p.405).

A significant contribution to the comprehensive approach utilized in the present study is Kernberg's (1975) work. Kernberg tried to differentiate among neurotic, borderlines, and psychotics. His clinical interview focused on the intrapsychic structural characteristics of the patients; the interviewer attempted to assess the patient's ability for reality testing, self-identity, and the level of

defenses as expressed in the interview. Kernberg mentioned that, in addition to the formal criteria for assessment, there is place for other factors such as clinical intrusion and clinical wisdom. In order to achieve the desired effect the interviewer has to evoke the behaviors and issues that he wants to assess. He must do this in such a way that the content will be so clearly defined that another rater, who will rate a typescript of the interview and will be blind to the theoretical expectations, will be able to rate the typescript and achieve a general assessment of the patient according to Kernberg's three categories.

This approach, in addition to Mayou's approach, which will be discussed in relation to the quality of the semi-structured (open) interview, was the foundation for the content analysis approach developed for the present study. This method promotes reliability through the defined categories which, by being typed, can be rated by other psychologists. The "professional freedom" given to the rater permits flexibility and ability for reflection of the patient situation in the various aspects of his life. The suggested approach is to understand the patient's behavior, his emotional experiences and his interpersonal interactions, within a controlled framework. In classic content analysis the rater is expert in analyzing accurately through a systematic technique, the typed interview. In the approach developed here, the rater is the instrument. His professional clinical experience and knowledge are the "real" instrument for assessment; the patient's verbal comments as presented on the typescripts are only a means and trigger for the activation of the interviewer as an instrument.

The idea is to relate to expressions like "I am very sad" or "I have a wonderful wife" in their clinical meaning. For instance, the rater has to judge whether the expression "My wife is wonderful" presents a genuine positive evaluation of his wife or an expression of covert aggression. In addition to "clinical" evaluations, changes in pre- and post-MI behaviors were also rated. The approach is that some changes are significant in the understanding of the adjustment, but the meaning of the significance has to be assessed by the rater. For instance, under certain circumstances, divorce can be considered as a "positive" step in post-MI adjustment. In addition to the clinical evaluation, and to changes in patients' life-style, compliance with medical instructions for heart patients, cardiac diet, etc., were also considered as factors in the multi-dimensional criteria for adjustment.

Adjustment is perceived differently according to the role of the judge in any specific situation. For instance, occupational adjustment can be perceived from at least six different angles: the employer approach (efficiency), the family approach (care, income, status), the general society approach (contribution to society), the physician's approach (health risk), the patient's declared approach, and the way the psychologist as the patient's advocate sees what is good for the patient in terms of post-MI quality of life (subjective satisfaction, stress, advancement and competition, etc.). The present study chose, as most clinical psychologists and other health professionals do when assessing patients' behaviors, to look at adjustment

from the point of view of the "best psychological interest" of the patient, as judged by the psychologist.

To sum up: adjustment can be measured by a controlled qualitative interview; the data is analyzed from a typescript in order to allow for control; clear, clinical categories and criteria have to be devised for the analysis of the typescript data; the aim of the rater is to get a clinical impression of the patient's adjustment in each defined category; the interviewer, by using his clinical judgment as a professional psychologist, is considered to be the professional instrument that assesses the patient's adjustment; the psychologist judges adjustment from the angle of the best psychological interest of the patient.

The Structured Interview

A combined interview structure was used in order to obtain a broad range of information on the patient's behavior in the post-MI period. The structured interview was presented to the subjects after the conclusion of the semi-structured (open) interview (see the following section). The main goal of the structured interview was to compensate for incomplete information obtained in the first (open) interview. The open interview related more to the subjective experiences of the subject. By establishing a relationship and a sense of cooperation in the open interview, the interviewer could look for

important factual information in the structured interview that might well have been omitted in the first interview.

The structured interview related to a broad range of adjustment items. Some items were adopted from Mayou et al. (1978b;1978c); other items were adopted from the author's clinical experience. The format of the structured interview is presented in Appendix V. The items were classified in terms of the following categories by two independent raters (clinical psychologists), with 95% agreement.

I Adjustment to occupational life (items 1,2)

II Medical behavior (items 3,4,5,6,14)

III Quality of life behaviour (items 7,8,10,13,17,20,21)

IV Emotional state (items 9,11,15,18,19)

V Family relationships (items 7,16).

Each item was presented orally to the patients in strict order, as presented in the typed form. After discussing each item, the behavior of the patient was rated by the interviewer on one of four behavioral levels, the adequacy of the behavior was then rated on one of three levels according to its compliance with medical advice (Appencix V). For the final rating of each item of the post-MI adjustment criteria, the results were integrated with the information received in the semi-structured (open) interview.

The Semi-Structured (Open) Interview

As mentioned earlier, the purpose of the semi-structured interview was to cover broad and complicated patterns of post-MI way of life. An attempt was made to direct and provoke the subject's flow of speech according to the prearranged outlines of the multi-dimensional criteria for adjustment, but the atmosphere was relaxed and flexible in order to enable the subject to reflect his feelings, thoughts and experiences in his own way. (The multi-dimensional criteria are presented in the following section.)

Each semi-structured interview lasted for about 45 minutes. All interviews were tape-recorded to allow independent control rating by another rater. As the typescripts were analyzed several months after conducting the interviews, and because of the change of form from speech to typescript, the assessments were based on the typescripts and were not biased by personal impressions from the interview. Following the technique of Hawton et al. (1982), 13 (16%) typescripts out of the 79 tape-recorded interviews were rated by a second person. The second rater was an MA graduate student in counselling psychology without any experience in work with heart patients; he was thus "blind" to the purpose and theoretical approach of the study. The criteria for the typescript analysis were explained to the second rater and one test was discussed between the two raters to ensure mutual understanding and expectations. All other interviews were analyzed independently by both raters without any further discussion

or coordination. The technical approach for the categories of the interview data was elaborated from Brown (1965) and Mayou (1979).

As each rater did not always succeed to identify all the items of the multi-dimensional criteria for adjustment, the agreed percentage between raters was calculated by using the formula proposed by Hawton et al. (1982):

$$\% \text{ agreements} = \frac{\text{number of agreements}}{0.5\ (n_1 + n_2)} \times 100$$

where n_1 and n_2 represent, respectively, the number of times each rater related to items of the multi-criteria for adjustment and $0.5(n_1+n_2)$ represents the mean of the raters' choice. Eighty-three percent agreement was achieved in the rating of the main categories (occupational adjustment, medical behavior, quality of life, emotional state, family adjustment); 85.6% agreement was achieved on the rating of the sub-categories (see Table 5). The degree of agreement is sufficient for this kind of interview (Hawton et al., 1982; Mayou et al., 1978c).

Multi-Dimensional Criteria for Adjustment

Five major aspects of the life of post-MI patients are described by 32 categories, which present the multi-dimensional criteria for adjustment to the post-MI crisis situation (Table 5). The dimensions of the criteria for post-MI adjustment were subdivided to five general categories (occupational life, medical behavior, quality of life behavior, emotional state, and family relationships) and to 27 sub-categories. The rating of each general category represented the general impression of the rater of the patient's adjustment to this particular dimension. The rating of each sub-category of the adjustment criteria relates to the results that were obtained on the open interview, and on the structured interview (three items were scored according to the results of quantitative tests - IPAT, changes in systolic blood pressure, and MAT). When the structured and the open interview ratings yielded different results the rater made the decision which represented better the patient's behavior.

Table 5

Multi-Dimensional Criteria for Adjustment

I Adjustment to Occupational Life

- i Return to work
- ii Change in work habits
- iii Attitude toward promotion
- iv Satisfaction at work.

II Medical Behavior

- i Smoking
- ii Weight control
- iii Cardiac diet
- iv Physical exercise
- v Medical follow-up
- vi Consumption of medication
- vii Openess to medical and behavioral information.

III Personal life-style

- i Social life
- ii Leisure-time activities
- iii Activity style
- iv Self health-image
- v Realistic cognitive attitude.

IV Emotional State

- i Mood - adequacy vs. tension
- ii Emotional approach to the disease
- iii IPAT anxiety scale
- iv Systolic blood pressure.

V Family Relationships

- i Structural changes
- ii Interpersonal atmosphere
- iii Intimacy
- iv Power struggle

v Personal use of the disease to manipulate the family

vi Sexual adjustment

vii Marital Adjustment Test (MAT).

With the exception of the quantitative instruments (IPAT, MAT, and Systolic blood pressure) the patients were rated on each dimension as presenting a reasonable adjustment behavior (+) or maladjusted behavior (-). Prior to presenting a detailed guideline for rating each dimension, the following general comment seems to be in place. Three methods of coping mechanisms (adjustment patterns) were recorded in various studies: denial, regression, and adequate adjustment. Cognitive denial of the significance of the disease involves denying future dangers and the refusal to adopt preventative measures. The use of denial as a defense mechanism against a threatening situation has been suggested by many researchers (Engel, 1962; Fenichel, 1945; A. Freud, 1937; White, 1964). Its damaging effect, if maintained beyond the acute stage of the disease, was noted by Sullivan and Hackett (1963) and by Redlich and Freedman (1966). Patients who deny, rarely comply with medical advice and participate in activities that cause health deterioration, or an exaggeration of TABP. Distortion of reality through the inadequate denial pattern results in irrational medical, occupational, and social behavior. The obsessive character of this mechanism prevents fruitful, cognitive communication for changing behavior. Being an inadequate defense, it masks a high anxiety level, which damages quality of life. Regression, expressed by underactivity, overtly expressed anxiety, and emphasis of the disease in many aspects of the patient's life, has been observed among post-MI

patients, but mainly among the TABP group (see chapters 2 & 3). The term "psychological crippleness" can be used to describe this kind of maladjustment coping mechanism. Again, the distortion of reality results in irrational medical, occupational, and social behavior. The third coping mechanism is the adequate cognitive and emotional pattern. It is expressed by rational health behavior, backed by an adequate emotional response pattern, which enables subjective gratification from different activities in daily life situations.

Adequate adjustment was the coping mechanism used in the interview analysis as an adequate behavior; the other two coping mechanisms - denial and regression - were considered destructive in terms of secondary prevention and the ability to develop a satisfactory life-style.

I Adjustment to Occupational Life

The score for the general category represents the general adjustment of the patient to his occupational life. The scores for the sub-categories of occupational adjustment were rated as follows:

i Return to work. Patient who works as instructed by his doctor (+); other than instructed (-).

ii Changes in work habits. Cutting out long hours and weekend work and changing to a less stressful job (+); not moderating "damaging" work habits or adding more work, or unreasonable reduction of work load or work activities (-).

iii Attitude toward promotion. When the patient is satisfied in giving up career advancement or when the possible advancement is a "natural" process, and when the impression is that the patient can cope easily in his new role (+); ambition for more responsibility, or competitive attitude that seems to be difficult for the patient, or when the patient expresses fear or ambivalent feelings of his new role, or when the rater observes a regressive and unreasonable renouncement of roles (-).

iv Satisfaction at work. When the rater feels that the subject expresses satisfaction on various aspects of work (technical aspects, role, status, interpersonal relationships, peace of mind) (+); when the rater feels that there is dissatisfaction, frustration and unpleasant feelings in at least two aspects of work (-).

II Medical Behavior

This category relates to the patient's ability to accept adequately his disease and to cooperate with the doctor in order

to prevent another MI. Non-compliance with doctor's recommendations presents a health risk factor and also interferes with personal quality of life as the patient is aware (consciously or unconsciously) of the inadequacy of his behavior.

The general score represents the patient's approach to the disease, including compliance with his doctor's advice. The scores for the sub-categories of the medical behavior were rated as follows:

i Smoking. Stops smoking after MI (+); continues to smoke or reduces amount of smoking or changes to pipe smoking (-). This sub-category must also be marked for whether the patient never smoked or stopped smoking before MI.

ii Weight control. Patient of reasonable weight (+); overweight or patient reported gaining weight after MI (-).

iii Cardiac diet. Reasonable compliance with cardiac diet such as: low cholesterol, unsaturated fats, lean meat, moderate meals (+); disrespect to cardiac diet (-).

iv Physical exercise. Reasonable systematic physical activity (+); lack of any systematic physical activity, or unreasonable reduction of physical activity, or exaggeration in physical activity, such as playing squash (-).

v Medical follow-up. Complies with doctor's instructions (+); does not turn up for doctor's appointment, or visits doctor more than invited (-).

vi Consumption of medication. According to doctor's instructions (+); disrespects doctor's instructions (-).

vii Openness to medical and behavioral information. Shows interest in information provided by his doctor, magazines, TV, other patients, and other sources of information that help him to understand his disease and to behave in a proper post-MI way (+); rejects any information related to heart disease, obsessive about obtaining information from any possible source (-).

III Personal Life-style

This category relates to personal everyday life. More than any other category it represents the person's ability to relate to himself as an individual and not as an instrument for the fulfillment of social norms. The score for the general category represents the patient's ability to develop a reasonable and satisfactory quality of life after the MI. The scores for the subcategories for quality of life behavior were rated as follows:

i Social life. Having satisfactory social relations with an emphasis on feelings of "belonging" (+); reducing social life and/or feeling of alienation and remoteness because of being "different," or demanding special social interest or care (-).

ii Leisure-time activities. The rater has to distinguish between activities that are done as a family responsibility or social expectation, and activities that are really for leisure. Having adequate enjoyable leisure-time activities (+); lack of leisure-time activities or unreasonable reduction or exaggeration of activities in order to prove to himself and others that "nothing happened" and that "business is as usual" (-).

iii Activity style. Active style of life in a way that meets adequately the needs of the patient, his family, his work, friends, etc. (+); over-passivity or over-activity in an inadequate manner compared to his pre-morbid behavior and his health situation (-).

iv Self health-image. When the patient has developed a health and general self-image that recognizes the implications of his disease but does not allow this recognition to affect his self-esteem (+); when the patient is not able to do this, but instead denies the existence of his disease or

adopts the "sick role" as the main aspect of his personality (-).

v Realistic cognitive attitude. Logical and realistic attitude toward environmental variables in the post-MI situation (+); misjudgment of environmental processes (-).

IV Emotional State

The emotional state of the patient, possibly more than any other criterion, affects the subjective feelings of adequacy and adjustment. It reflects whether he is in a crisis or manages to overcome the crisis situation. Because of its importance and the difficulties involved in assessing it, the study used, in addition to the interview, two other instruments - the IPAT and blood pressure measurements. The score for the general category represents the rater's general judgment of the patient's emotional state. The scores for the sub-categories for emotional state were rated as follows:

i General mood. The patient is relatively relaxed and in a reasonable mood (+); the subject suffers from exaggerated tension, anxiety, depression or euphoria (-).

ii Emotional approach to the disease. Realistic emotional responses and approach to the disease (+); exaggerated regression or denial of the disease (-).

iii IPAT Anxiety Scale.

iv Systolic blood pressure.

V Family Relationships

In the present study the concept of family is concerned mainly with the interaction between the spouses. The score for the general category represents adequate interactions and expectations. The scores for the sub-categories of family relationships were rated as follows:

i Structural change. No change in family structure (unless rater feels that separation is a positive solution in a particular case) (+); separation, divorce, or suicide of spouse were considered as indicating family maladjustment (-). This sub-category must also be marked for when the patient is unmarried or changed his marital status just before the MI.

ii Interpersonal atmosphere. Relaxed general atmoshpere (+); when criticism, negativeness, dissatisfaction are the

dominant feelings (-). Emotional atmosphere is not the only indicator for the family's emotional state. In some cases, a family achieves a "positive" atmosphere after giving up hope of achieving intimacy in their relationship; accordingly intimacy was rated separately.

iii Intimacy. Positive feelings of trust, respect, partnership and overt methods of communication (+); when covert interactions and messages are observed or the relationship reflects feelings of alienation and separate co-existence, or when extreme feelings of distrust or disrespect are recorded (-).

iv Power struggle. Cooperation, acceptance and lack of a power struggle, a general understanding and agreement between the spouses as for division of roles and responsibilities (+); the husband or the wife tends to gain power and controls the other's behavior. Power gained directly by the wife who feels that she can dominate the "sick" husband or by the husband who tries to prove that he is still the "boss." Power gained indirectly by the wife through overcare of the sick husband or by the husband who uses his weakness to gain privileges (-).

v Personal use of the disease to manipulate the family. Lack of covert manipulations due to the disease (+); manipulating

sickness behavior in order to achieve various personal goals within the family (-).

vi Sexual adjustment. Subject expresses satisfaction with present sex life (+); subject expresses dissatisfaction or reports feelings of tension, fear or unreasonable reduction in sex activity (-).

vii Marital adjustment test (MAT).

CHAPTER 7

RESULTS

The results will be presented in three sections. The first section presents the relationships of behavioral styles (TABP/TBBP) and dependency, and the distribution of the sample's patients according to these two variables. The second section deals with the adjustment variables. Factor analysis of the qualitative instrument is presented first. After that correlations among the different adjustment variables: the factors of the qualitative instrument, anxiety (IPAT), marital adjustment questionnaire (MAT) and changes in systolic blood pressure during the clinical interview (CSBP) are presented. The third section relates to the hypotheses about the relationships between the behavioral styles (TABP/TBBP) and dependency, and the adjustment variables.

Prevalence of Post-MI Patients

The prevalences were tested according to TABP/TBBP and D/I. First, the patients were subdivided into two groups according to their behavioral style as measured by the JAS. The same patients were subdivided into two additional groups according to their dependency tendencies as measured by the IDI. The normative mean score as presented in the original manual of each test, was used as a cut-off point for these classifications. Accordingly the score 0 on the JAS is the cut-

off point between Type A's and B's (0 and over are A's). On the IDI the total score of 176 is considered here as a cut-off point between dependent and independent patient. (176 and over are dependent).

The first hypothesis states that patients exhibiting TABP and dependency will be the largest group among post MI patients. The distribution of post MI patients according to the behavioral styles and dependency is presented in Table 6.

Table 6

Classification of Post-MI Patients According to Behavioral Styles and Dependency

Behavioral Styles		Dependency		
		Dependent	Independent	Total
Type A	N	42	12	54
	Raw percent	78%	22%	-
	Total percent	53%	15%	68%
Type B	N	13	12	25
	Raw percent	58%	48%	-
	Total percent	17%	15%	32%
Total	N	55	24	79
	percent	70%	30%	100

Table 6 shows that more patients presented TABP (68%) than TBBP (32%), and more patients were dependent (70%) than independent (30%). Cross

tabulation of the two variables indicated that most patients (53%) are dependent Type A's while the rest of the patients are equally distributed in the other cells (15%-17%).

A Chi^2 test applied to the cross tabulation revealed significant interdependency between the behavioral styles and dependency, (χ^2=5.32, df=1, P<.05). In the Type A group there are more dependent patients (78%) than independent patients (22%). In the Type B group the percentage of the dependent patients (52%) is similar to the independent patients (48%). These results confirmed Hypothesis #1, which states that the largest group among post-MI patients will be dependent Type A patients.

Measures of Adjustment

This section contains two parts. The first deals with the factor analysis of the qualitative instrument for the measurment of adjustment and the second with the relationship between all measures of adjustment (factors of the qualitative instrument, IPAT, CSBP, and MAT).

Factor Analysis of the Qualitative Adjustment Instrument

The qualitative adjustment instrument consisted of 29 dichotomised items that relate to various aspects of post MI adjustment. A principal component factor analysis with oblique rotation yielded three factors with Eigenvalue > 1. These factors explain 56.7% of the total variance. For five items the factor loading was lower than 0.40. These five items (smoking, openness to information, return to work, sexual adjustment, and attitude towards promotion) were excluded from the factor analysis. Factor analysis of the remaining 24 items yielded three factors with Eigenvalue > 1. These factors explain 62.3% of the total variance. Table 7 presents the factor loading of the 24 items on the three factors.

Table 7

Pattern Factor Matrix for 24 Items of the Qualitative Adjustment Instrument

I t e m	Factor 1	Factor 2	Factor 3
Emotional state (general evaluation)	.85	-.03	.02
Emotional approach to the disease (adequacy vs. regression or denial)	.84	-.06	.07
Mood (adequacy vs. tension)	.83	-.00	.00
Satisfaction at work	.81	-.04	-.11
Activity style	.80	-.03	.13
Social life	.77	.00	-.03
Personal life-style (general evaluation)	.76	.11	.17
Leisure-time activities	.74	.04	.07
Personal use of MI to manipulate the family	.71	.31	-.34
Power struggle within the family	.67	.39	-.24
Adjustment to work (general evaluation)	.66	-.12	.23
Physical exercise	.62	.09	.23
Change in work habits	.57	-.19	.27
Self-health image	.54	.11	.34
Structural changes in the family (divorce, separation)	-.17	.72	-.07
Interpersonal atmosphere in the family	.32	.70	.25
Intimacy within the family	.33	.70	.18
Family adjustment (general evaluation)	.40	.69	.18
Cardiac diet	-.04	.21	.72
Realistic cognitive attitude	.22	-.12	.61
Medical behavior (general evaluation)	.40	.21	.55
Medical follow-up	.15	-.07	.52
Consumption of medications	.13	.00	.47
Weight control	.22	.17	.47

Factor 1 consists of 14 items relating to 3 categories - emotional state, adjustment to work and personal life style - that commonly relate to the subjective emotional ability of patients to adjust to various aspects of life after MI. This factor is labeled as: "Emotional adjustment".

Factor 2 consists of 4 items which relate to various aspects of family adjustment (general adjustment to family life, changes in family structure, interpersonal atmosphere within the family and intimacy in the family). This factor is labeled as: "Family adjustment".

Six items are included in the third factor (cardiac diet, realistic cognitive attitude, medical behavior, medical follow up, consumption of medication, weight control). These items show the connection between various aspects of medical behavior as they relate to the disease itself and to preventing behaviors. This factor is labled as: "Medical behavior".

On the basis of these factors three standardized factor scores were calculated for each patient by means of the regression method.

Relationship Between Measures of Adjustment

In addition to the qualitative adjustment instrument the subjects responded to two quantitative questionnaires - an anxiety test (IPAT) and a marital adjustment test (MAT). In addition before and after the interview systolic blood pressure was measured. The difference between these two measurements expresses physiologically emotional stability while being exposed to an external stressogenic experience. The change in the systolic blood pressure will be labeled CSBP.

These three variables together with the three factors are considered here as indications of adjustment (see chapter 6). Table 8 presents the correlations between the six indicators of adjustment. It can be seen from the table that among the three factors there is a significant correlation between Emotional adjustment and the two other factors, while there is no significant correlation between Family adjustment and Medical behavior. These findings suggest that Family adjustment and Medical behavior are independent aspects of adjustment, but they both contribute to Emotional adjustment, with the contribution of Medical behavior being slightly higher (r=.39) than that of Family adjustment (r=.24).

Table 8

Pearson Correlation Between the Six Indices of Adjustment

		Emotional adjustment	Family adjustment	Medical behavior	IPAT	CSBP	MAT
Emotional adjustment	r	1.00					
	p	.00					
Family adjustment	r	.24	1.00				
	p	.02	.00				
Medical behavior	r	.39	.00	1.00			
	p	.00	.50	.00			
IPAT	r	-.66	.11	.07	1.00		
	p	.00	.17	.28	.00		
CSBP	r	-.35	-.05	-.14	.35	1.00	
	p	.001	.34	.11	.00	.00	
*MAT	r	.10	.45	.13	-.29	-.42	1.00
	p	.21	.00	.14	.01	.37	.00

* Only 66 married patients responded to the MAT while the others indices concern 79 patients.

There are significant negative correlations between Emotional adjustment and the anxiety test (r=-.66) and the CSBP (r=-.35). The better the emotional adjustment of the patients, the less they experience anxiety and CSBP. As a matter of fact there is a positive correlation between CSBP and anxiety (r=.35).

Marital adjustment is correlated positively with family adjustment (r=.45) and negatively with anxiety (r=-.29) and with CSBP (r=-.42). These results suggest that the quality of marital life as self reported on the MAT relates to the Family adjustment of the

patients as evaluated by the interviewer. The MAT indicate that the better the quality of family life the less anxiety and CSBP are experienced.

Adjustment as Related to

Behavioral Styles (TABP/TBBP) and Dependency (D/I)

Hypotheses #2-4 deal with the interactional effect of behavioral styles (TABP/TBBP) x dependency on adjustment. Adjustment as a dependent variable was determined by multi-dimensional criteria: the three factors of the qualitative adjustment instrument, the level of anxiety (TPAT), changes in systolic blood pressure during the interview (CSBP) and the Marital Adjustment Test (MAT).

A 2x2 MANOVA with Wilks' criterion was conducted to test the hypotheses concerning the effect of behavioral styles and dependency of the five aspects of adjustment. MAT was excluded from this analysis because only 66 of the married patients responded to this questionnaire. The MANOVA yielded significant main effects of behavioral styles ($F(5,71)=6.77$; $P<.001$) and dependency ($F(5,71)=4.96$; $P<.001$) and on interaction effect of behavioral styles x dependency ($F(5,71)=5.25$; $P<.001$).

Univariate 2x2 ANOVA was conducted in order to ascertain from which aspect of adjustment these effects stem. Table 9 presents

the means and standard deviation of TABP/TBBP on the five aspects of adjustment.

Table 9

Means and SD of TABP/TBBP on Five Indices of Adjustment

Groups		Emotional adjustment	Family adjustment	Medical behavior	Anxiety (IPAT)	Changes in systolic blood pressure (CSBP)
Type A (N=54)	M	-.34	.05	-.13	32.72	17.61
	SD	1.22	.98	1.26	11.05	12.40
Type B (N=25)	M	.74	-.10	.29	20.72	10.36
	SD	.79	1.19	.85	6.60	11.11
F(1,75)		11.47*	1.73	1.34	14.13*	1.51

* P<.001

Significant differences between the two groups were revealed in emotional adjustment (F(1,75)=11.47; P<.001) and the anxiety test (F(1,75)=14.13; P<.001). In emotional adjustment Type A patients adjusted less well (M=-.34) than Type B patients (M=.74). On the anxiety test Type A patients show higher anxiety (M=32.72) than Type B's (M=20.72). These findings suggest that after MI, Type B patients adjust better than Type A's on the emotional and anxiety indices of adjustment.

Table 10 presents the means and standard deviation of dependent and independent patients for the five indices of adjustment.

Table 10

Means and SD of Dependency on Five Indices of Adjustment

Groups		Emotional adjustment	Family adjustment	Medical behavior	Anxiety (IPAT)	Changes in systolic blood pressure (CSBP)
Dependency (N=55)	M	-.25	-.03	-.16	31.65	17.64
	SD	1.19	.96	1.17	11.76	12.39
Independency (N=24)	M	.58	.08	.36	22.67	10.00
	SD	1.04	1.25	1.07	7.09	10.93
F(1,75)		5.26*	0.62	1.41	4.58*	2.34

* P<.05

As for the behavioral styles, the univariate ANOVA indicated significant effects of IDI on emotional adjustment (F(1,75)=5.26; P<.05) and on IPAT (F(1,75)=4.58; P<.05). Dependent patients adjusted less well on the emotional adjustment criterion (M=-.25) than independent patients (M=.58). On the other hand the dependent patients show higher anxiety (M=31.65) than independent patients (M=22.67).

Table 11 presents the means and standard deviation for the interaction effect of behavioral styles x dependency.

Table 11

The Interaction Effect of Behavioral Styles and Dependency on Five Indices of Adjustment

Groups		Emotional adjustment	Family adjustment	Medical behavior	Anxiety (IPAT)	Changes in systolic blood pressure (CSBP)
Type A						
Dependent (N=43)	M	-.58	-.07	-.23	35.12	20.50
	S	1.10	.93	1.25	10.59	11.89
Independent (N=12)	M	.49	.45	.20	24.33	7.50
	S	1.27	1.11	1.32	8.41	8.39
Type B						
Dependent (N=13)	M	.79	.07	.08	20.46	8.38
	S	.81	1.08	.89	7.81	9.27
Independent (N=12)	M	.67	-.29	.51	21.00	12.50
	S	.79	1.32	.76	5.33	12.88
F(1,75)		7.93**	1.68	0.02	5.60*	8.72**

* P<.05.

** P<.01.

Univariate ANOVAS yielded significant interaction effects of behavioral styles x dependency on emotional adjustment (F(1,75)=7.93; P<.01), IPAT (F(1,75)=5.60; P<.05) and CSBP (F(1,75)=8.82; P<01)). Figure 2 presents the interaction effect on emotional adjustment.

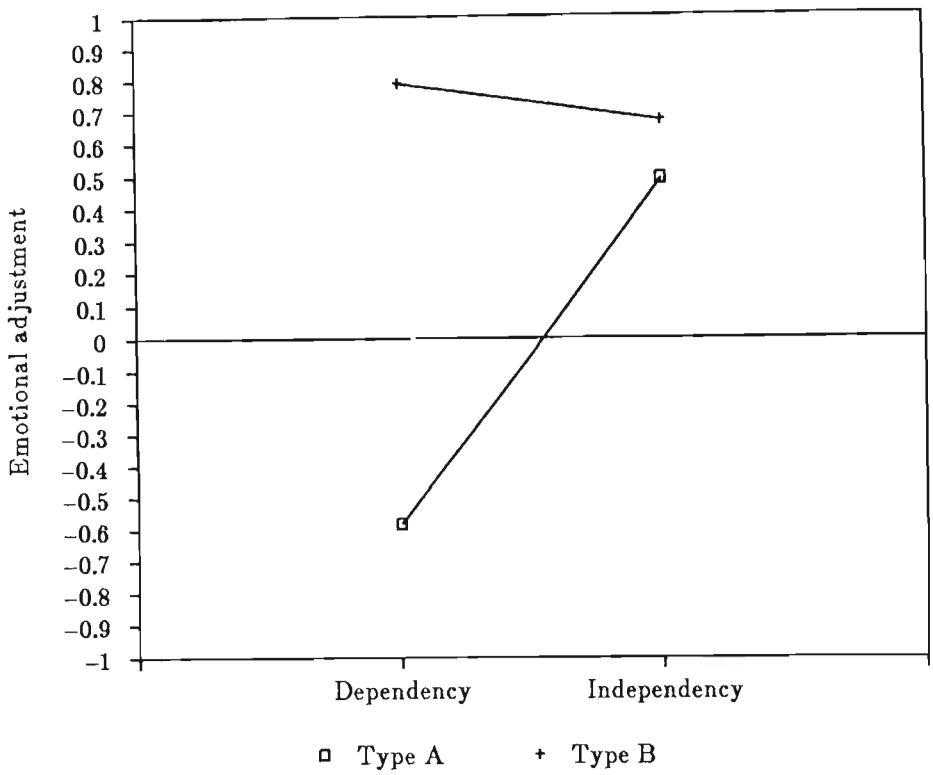


Figure 2. Effect of TABP/TBBP by D/I Interaction on Emotional Adjustment Scores.

It can be seen from Figure 2 that while there are no differences between dependent and independent patients among the Type B patients (Hypothesis #4), the independent patients among the Type A group show higher emotional adjustment than the dependent patients of this group. In accordance with hypotheses #2 and #3, two contrasts were performed. One for the difference between dependent and independent among Type A's and the second for the differences between Type A and Type B among the dependent patients. Significant differences were found according to the first contrast ($t=-2.86$; $P<.001$) and also according to the second contrast ($t=4.15$; $P<.001$). It is obvious that

Type A dependent patients have lower adjustment scores than all the other groups.

Figures 3 and 4 present the interactional effect of behavioral styles x dependency on IPAT and CSBP. In both figures the dependent patients of Type A differ from the other groups. They have higher anxiety and CSBP scores than the other groups.

Contrast tests yielded significant differences between the dependent and independent patients among Type A's - in the IPAT ($t=3.24$; $P<.001$) and the CSBP ($t=3.58$; $P<.001$). The contrast tests between Type A and Type B among the dependent patients yielded significant differences on IPAT ($t=4.60$; $P<.001$) and CSBP ($t=3.36$; $P<.001$). As a matter of fact the main significant effect of behavioral style and dependency found on Emotional adjustment stem chiefly from the lower means of the dependent Type A groups. In IPAT and CSBP it comes mainly from the higher means of the dependent Type A groups which in these indices indicate a lower adjustment ability.

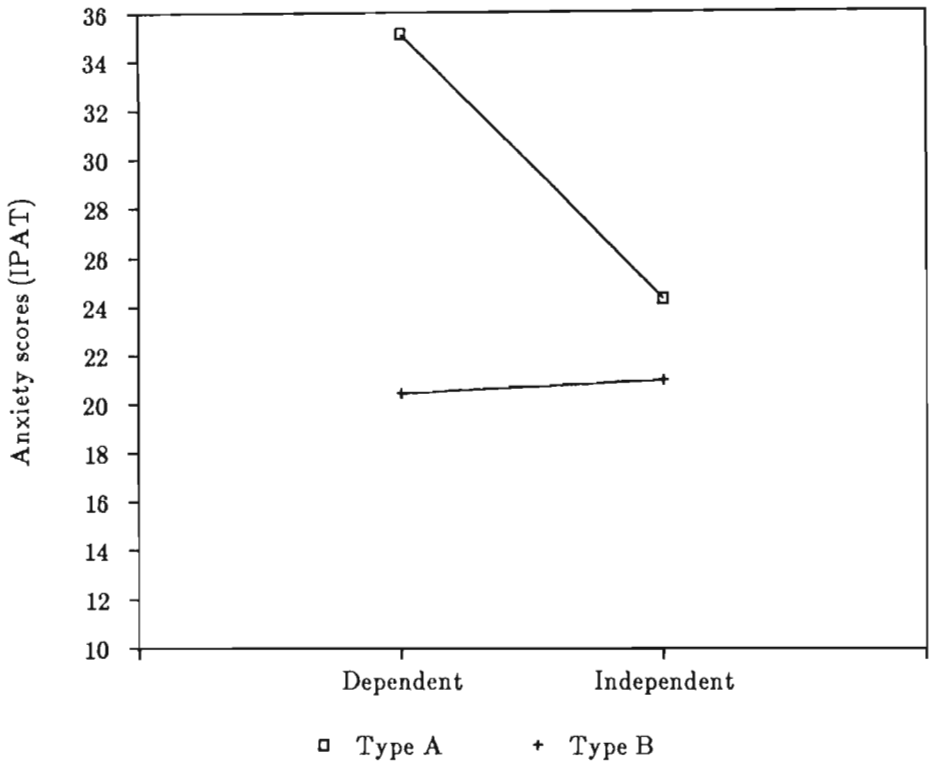


Figure 3. Effect of TABP/TBBP by D/I Interaction on Anxiety Scores.

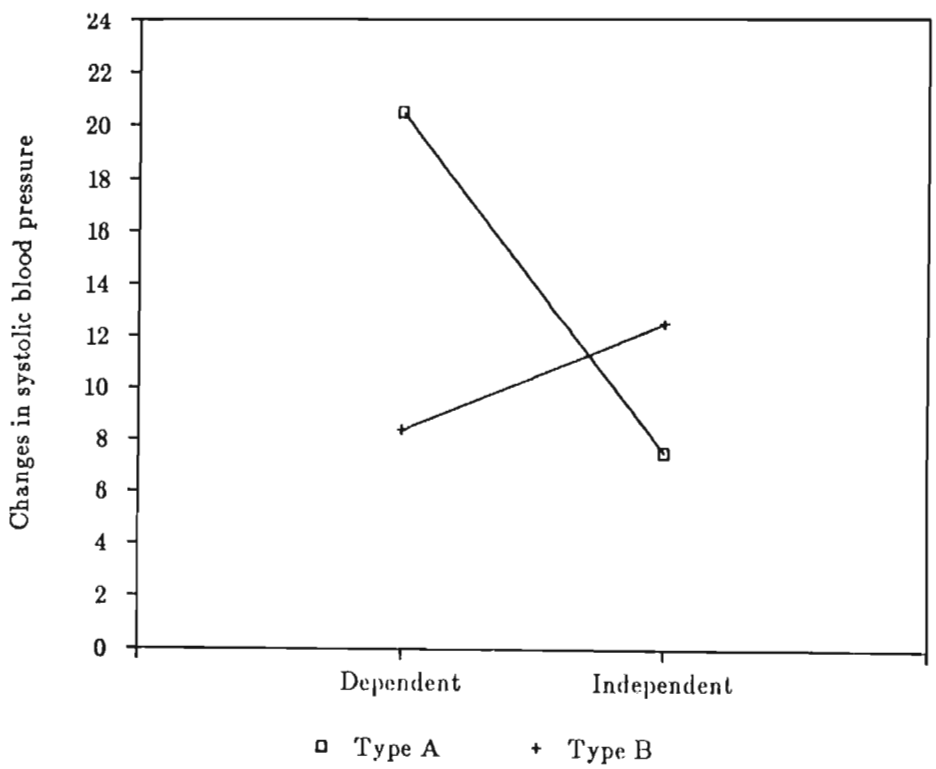


Figure 4. Effect of TABP/TBBP by D/I Interaction on Changes in Systolic Blood Pressure Scores.

These findings confirmed Hypotheses #2-4 which state that dependent Type A patients will obtain lower adjustment scores than independent Type A patients (Hypothesis #2), and that dependent Type A's will obtain lower adjustment scores than dependent and independent Type B patients (Hypothesis #3), and that dependent and independent Type B patients will obtain similar adjustment scores (Hypothesis #4).

For the 66 married patients the effects of behavioral styles and dependency can be evaluated also on the MAT. Table 12 presents the means and standard deviations of the 4 groups on MAT.

Table 12

Means and SD of the Four Groups (AD,AI,BD,BI) on the Marital Adjustment Test

		Dependent	Independent	Total
	M	10.56	115.27	104.91
Type A	N	34	11	45
	SD	29.83	21.91	28.10
	M	134.08	106.11	122.10
Type B	N	12	9	21
	SD	20.66	28.18	31.66
	M	110.04	111.15	
Total	N	46	20	
	SD	32.80	24.68	

A 2x2 ANOVA carried on the MAT yielded a significant interaction effect on behavioral styles x dependency ($F(1,62)=6.82$; $P<.01$). No main effect of behavioral styles ($F(1,62)=2.14$; $P>.05$) or dependency ($F(1,62)=0.79$) were found. Figure 5 illustrates the interaction effect of behavioral styles x dependency on MAT.

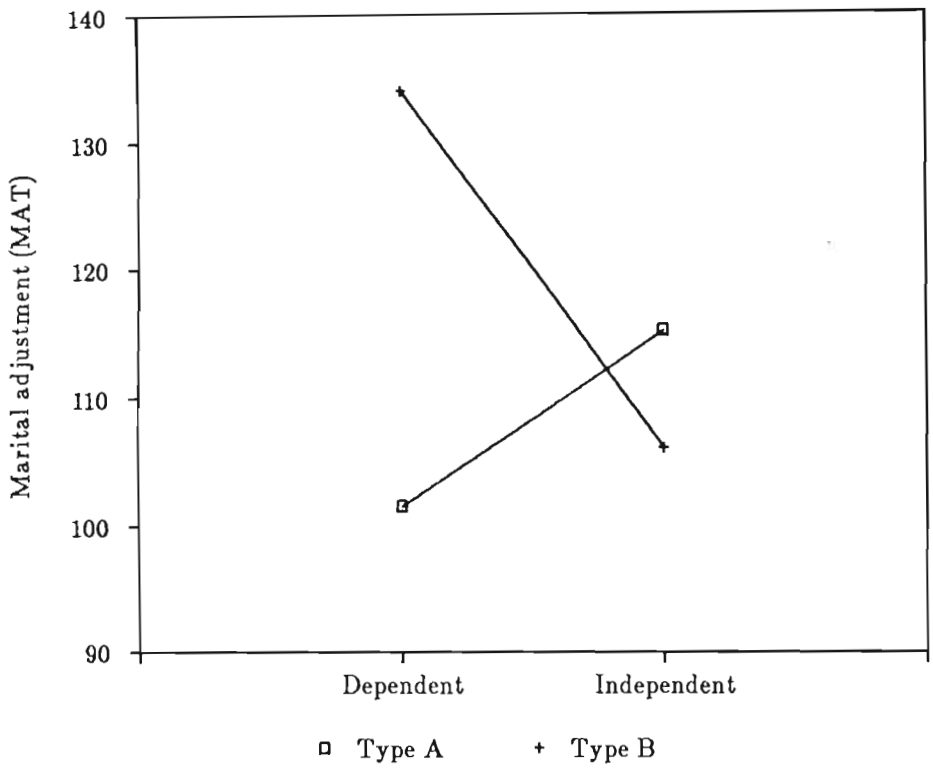


Figure 5. Effect of TABP/TBBP by D/I Interaction on Marital Adjustment Test Scores.

Contrast tests yielded significant differences between the dependent Type A group with the lowest mean score and the dependent Type B group ($t=3.25$; $P<.01$). Among the Type B group there was a significant difference between dependent and independent patients ($t=2.18$; $P<.05$). The findings related to MAT are different from those yielded on

Emotional adjustment, IPAT and CSBP. The dependent Type A group shows lower adjustment scores than the other groups. This group is significantly different only from the dependent Type B group. On the other three indices of adjustment (Emotional adjustment, IPAT AND CSBP) this group is different from all other groups.

The results derived from the MAT, partly support Hypothesis #3 which states that dependent Type A patients will obtain lower adjustment scores than Type B patients. Only the difference between dependent Type A and dependent Type B is significant. Hypothesis #2 which states that dependent Type A patients will obtain lower adjustment scores than independent Type A was not supported. Hypothesis #4 about the similarity between dependent and independent Type B patients was not confirmed. In fact, dependent Type B patients obtained significantly higher adjustment scores than independent Type B patients.

Adjustment as Related to the Number of MI's and to Duration of Time

13 patients out of 79 underwent more than one MI (including 4 with coronory bypass surgery). In order to see if there are differences between patients with one MI and those with more than one MI, one way MANOVA on the five indices (Emotional adjustment, Family adjustment, Medical behavior, IPAT, CSBP) of adjustment was carried out. No significant differences between the two groups were yielded ($F(5,73)=1.48$; $P>.05$). In addition, one way ANOVA for MAT did not

yield any significant difference between the groups ($F(1,64)=0.18$) (see Appendix VI). Nevertheless a 2x2 (behavioral styles x dependency) MANOVA for 66 patients was performed on the five indices of adjustment. In addition a 2x2 ANOVA was performed on the MAT. These analysis yielded the same significant effects as on the previous analysis that was carried out on the whole sample (N=79) (see Appendix VII).

One of the variables that can effect adjustment is the duration between the occurrence of the MI and the assessment of the adjustment pattern. In order to examine this possibility 2x2 MANCOVA (multiple analysis of covariance) for the five indices of adjustment and 2x2 ANCOVA (Analysis of covariance) for MAT were carried out. The covariate was the number of months between the MI and the assessment of the adjustment pattern.

The MANCOVA analysis yielded significant effect within cells regression ($F(5,70)=3.64$; $P<.01$). Table 13 presents the univariate effect of the covariate variable (duration between MI and assessment).

Table 13

Univariate Covariate (Duration) on Five Indices of Adjustment.

Variables	Beta	t value	Sig. of
Emotional adjustment	0.2	.21	.84
Family adjustment	-.14	-1.24	.22
Medical behavior	-.05	-.46	.65
IPAT	-.34	-3.07	.003
CSBP	.19	1.68	.09

As can be seen from the table only the effect of duration on IPAT was found to be significant ($t=-3.07$; $P<.01$). Beta coefficient for the regression of duration on IPAT was: Beta=-0.34. The level of anxiety becomes lower with time.

However the introducing of the covariant into the analysis did not add any effect to the results found in the MANOVA and ANOVA. These findings stem from the fact that there are no differences between the groups in the duration of time after the MI. (The mean of the duration for the entire sample is 12.00 months and the S.D. is 6.05). (see Appendix VIII).

Adjustment as Related to the Supplementary Items

As previously mentioned five dichotomic items were excluded from the factor analysis (smoking, openness to information, return to work, sexual adjustment and attitude towards promotion). In order to see if there are effects of behavioral styles (TABP/TBBP) and dependency (D/I) on these items, 2x2 loglinear analysis for categorial data were carried out. This analysis enables to examine interaction where the dependent variables are not continual. These analyses yielded a significant effect of behavior styles on "Attitude toward promotion" (Chi^2=5.46; df=1; P<.05). The following table presents the cross tabulation of behavioral styles and attitude toward promotion.

Table 14

Cross Tabulation of Behavioral Styles (TABP/TBBP) and Adjustment to "Attitude Toward Promotion"

Behavioral styles		Unadjusted	Adjusted	Total
Type A	N	27	24	58
	%	52.9	47.1	68
Type B	N	1	23	24
	%	4.2	95.8	32
Total	N	28	47	
	%	37.3	62.7	

The table shows that among Type A patients the percent of adjusted to "Attitude toward promotion" (52.9%) and the percent of nonadjusted (47.1%) are close. Contrary to this, among Type B patients the majority (95.8%) adjusted to "Attitude toward promotion" as compared to only 4.2% who did not adjust to "Attitude toward promotion".

A significant effect of dependency on "openness to behavioral and medical information" was also yielded in the loglinear analysis (Chi^2=6.51; df=1; P<.05). The next table shows a crosstabulation of dependency and "Openness to behavioral and medical information".

Table 15

CrossTabulation of Dependency and Adjustment to "Openness to Behavioral and Medical Information"

Dependency		Unadjusted	Adjusted	Total
Dependent	N	19	19	38
	%	50	50	64
Independent	N	1	20	21
	%	4.8	95.2	35.6
Total	N	20	39	
	%	33.9	66.1	

Among dependent patients the percent of adjusted is equal to the percent of unadjusted (50%). Among the independent only one is unadjusted and the majority (95.2%) are adjusted.

In summation, the analysis of the supplementary items, which were not included in any of the adjustment factors, did not show a consistent pattern. Only openness to medical and behavioral information and attitude toward promotion yielded significant results, concurring partly with the hypotheses. The remaining three items (smoking, sexual adjustment, and return to work) did not reach acceptable significance.

Multiple Regression of Behavioral Styles and Dependency on Indices of Adjustment

In the previous sections behavioral styles (Type A/Type B) and dependency were used as dichotomic variables. Another way to treat these variables is as a continuum. The score of Type A/Type B has a range from low Type A (Type B) to extremely high Type A. The dependency score ranges from independency to dependency. The interaction of Type A x Dependency is expressed by multiplication of the two variables. The correlation matrix between the independent variables and the indices of adjustment are presented in the next table.

Table 16

Correlation Matrix Between the Independent Variables and Adjustment

	Emotional adjustment	Family adjustment	Medical behavior	IPAT	CSBP	MAT
Type A Behavior pattern	-.43***	.09	.03	.46***	.13	-.25*
Dependency	-.25*	-.04	-.24*	.39**	.23*	-.07
Interaction	-.05	-.09	-.06	.19*	.27*	-.12

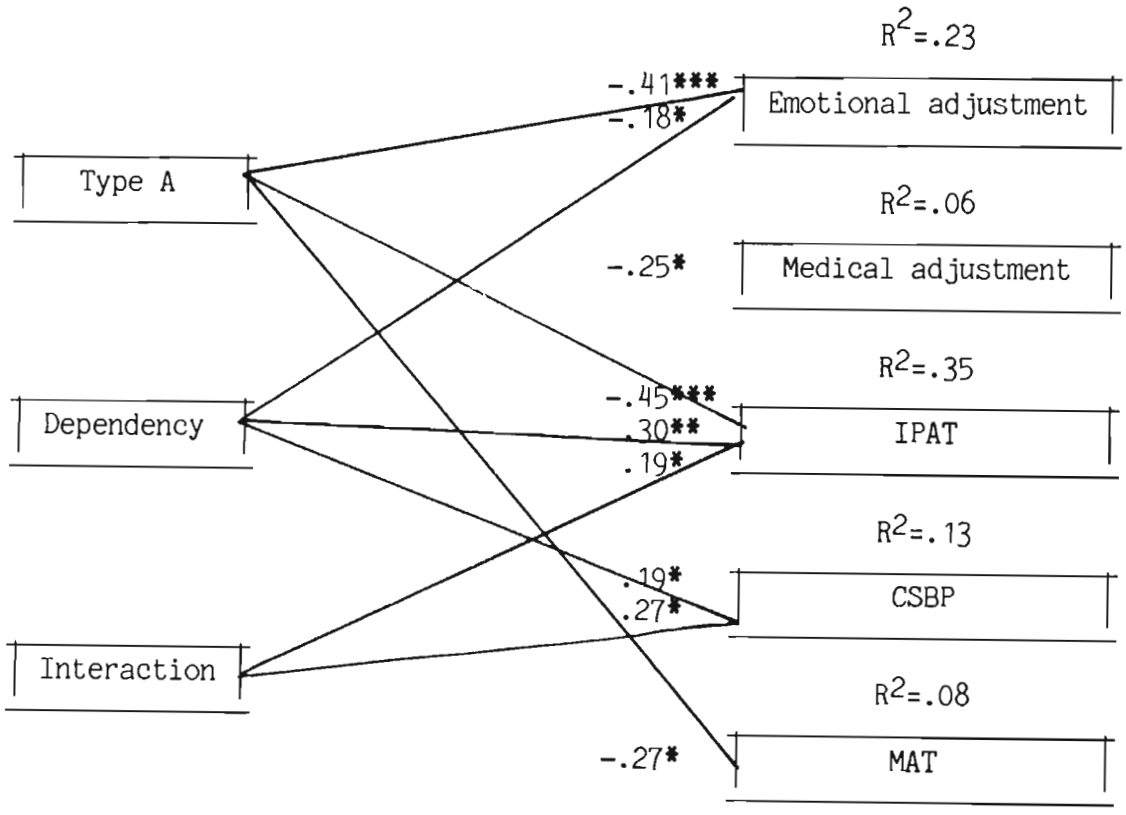
* P<.05
** P<.01
** P<.001

Type A is negatively correlated with Emotional adjustment (r=-.43) and with MAT (r=-25) and positively with IPAT (r=.46). Patients with high Type A score show low emotional and marital adjustment and high anxiety.

Dependency is correlated negatively with Emotional adjustment (r=-.25) and Medical behavior (r=-.24) and positively with IPAT (r=.39) and CSBP (r=.23). Patients with higher scores of dependency show lower emotional and medical adjustment and high anxiety and changes in systolic blood pressure.

The Type A x Dependency interaction is correlated positively with IPAT (r=.19) and with CSBP (r=.27). Patients with high scores in the Type A and in the dependency scales tend to show higher anxiety

and more changes in systolic blood pressure during the interview. In order to test the hypotheses about the effect of the continuum Type A and Dependency on the measurement of adjustment, multiple regression analyses were carried out. The next figure presents the Beta coefficients of the significant effects found in these analyses.



* P<.05
** P<.01
*** P<.001

Figure 6. The Effect of the Continuum Type A and Dependency on the measurements of Adjustment.

The figure shows that Emotional adjustment and IPAT can be predicted from the independent variables. The percent of variance explained in IPAT is 35%. Three independent variables contribute

to the explanation: Type A has the greatest contribution (Beta=.45); Patients with high Type A scores tend to have higher anxiety scores. The next contribution comes from Dependency (Beta=.30); patients with high dependency exhibit high anxiety. Finally comes the contribution of the interaction effect (Beta=.19) which indicates that patients with high Type A and high Dependency scores tend to show high anxiety.

The percent of variance explained in Emotional adjustment is 23%. Most of it comes from the contribution of Type A (Beta=-.41); Patients with high Type A score exhibit less emotional adjustment. The next contribution comes from Dependency (Beta=-.18); patients with high dependency scores exhibit less emotional adjustment. Only 13% of the variance of CSBP is explained by the interaction effect of Type A x Dependency (Beta=.27); Patients with high Type A and high Dependency scores tend to show more changes in systolic blood pressure during the interview. The next contribution comes from Dependency (Beta=.19) which indicate that patients with high dependency scores tend to exhibit more CSBP.

The percent of variance explained in MAT is 8%. Most of it derived from the Type A effect (Beta=-.27); Patients with high Type A scores tend to have low MAT scores. Six percent of Medical behavior is explained, mostly by dependency (Beta=-.25). Patients with high scores of dependency tend to show low medical adjustment. None of the independent variables predict Family adjustment.

The findings obtained by these analyses generally agree with those of the analysis of variance approach. There are three main differences between the two approaches: (1) In the multiple regression a significant effect of Dependency on Medical behavior was indicated; (2) In the analysis of variance approach, a significant effect of dependency and interaction on Emotional adjustment were found; (3) The ANOVA approach yielded a significant effect of interaction on MAT while the multiple regression approach revealed only a Type A effect.

CHAPTER 8

DISCUSSION

The results as analysed by the ANOVA approach confirmed the hypothesis (#1) that the dependent Type A (AD) group was the largest among the four subgroups of post-MI patients classified by the interaction between TABP/TBBP and D/I. The results indicated that, as hypothesized (#2), in regard to post-MI adjustment, Type A patients presented a heterogeneous group. Dependent Type A patients adjusted more poorly than independent Type A patients to 16 out of 32 indices of the proposed multi-dimensional criteria for adjustment. The heterogeneity of TABP was further supported by the confirmation of the hypothesis (#3) that for the same 16 indices, among TABP patients, only dependent Type A patients adjusted less well than TBBP patients, who were not expected to exhibit different adjustment patterns when subdivided by dependency and behaved as expected (#4). The hypothesis (#5) that no differential tendencies were expected among the various tested factors of adjustment was not supported by the results. It can be concluded that as the effect of the interaction TABP/TBPP by D/I on adjustment was supported by the adjustment to 16 indices of adjustment, the relevancy of the proposed personality structure to adjustment cannot be rejected. The same data analysed by the multiple regression approach yielded the same tendencies but with less favourable outcomes to the studies hypotheses. The results of the two approaches are discussed with the conclusion that the thesis can not be rejected, but further research is required to clarify the issue. The discussion deals first with the prevalence of post-MI patients as Type A's and Type B's fol-

lowed by a discussion on the results and the hypotheses of the study. Following is the discussion of the theoretical interpretation for an understanding of the adjustment process of indices that correspond with hypotheses 2-4. The next section deals with the adjustment indices that did not adhere with hypotheses 2-4. Finally the contribution of the two statistical approaches (ANOVA and multiple regression) to the understanding of the data is discussed.

Prevalence of Post-MI Patients as Type A's and Type B's

Certain points should be noted at the outset of this discussion. 1) Since the comparison of the adjustment of 66 patients with one MI to 13 patients with more than one MI yielded no significant differences, the discussion (as well as the analyses in the previous chapter) relate the study's hypotheses to the adjustment of 79 post-MI patients who underwent at least one MI. Due to lack of supportive literature (see chapter 6) it is possible to exlude patients with CBPS in future studies. 2) It can be argued that the two years which lapsed between the onset of the MI and the assessment of adjustment might be a significant variable that determines the adjustment pattern. A 2x2 ANCOVA , however, yielded no significant effect of time on adjustment, in a manner which interferes with the study's hypotheses, thus indicating that the range of 4-24 months after the last MI is an adequate period for the purposes of the present study.

TABP undoubtedly represents the larger behavior pattern among post-MI patients. Table 17 compares the classification of TABP and TBBP in the present study with the WCGS (see Chapters 2 & 4).

Table 17

Distribution of TABP/TBBP in the WCGS and in the Present Study

Source of Data	N	TABP	TBBP
WCGS*	257	69%	31%
Present Study	79	68%	32%

* Calculated from Rosenman et al. (1975, p.875).

The similarity of the distribution is rather striking. This may indicate similarity between the two populations. Studies on CHD and TABP in different Western societies are discussed in Chapters 1-4. It can be concluded, generally, that these cultures present a similar pattern of CHD and TABP. This approach is also supported by Strümpfer (1983, p.21), who views White South African executives as comparable to executives of similar standing in other industrial cultures.

For the purpose of better understanding of post-MI adjustment, the present study emphasized the importance of the classification of TABP into subgroups, with special emphasis on the AD group.

Hypothesis #1: The results indicate that the group of patients exhibitng TABP and dependency (the AD group) is the largest group among the whole post-MI study sample (53%), and the largest group (78%) among the general group of patients exhibiting TABP (Tables 6). The size of this group not only justifies further inquiry of the psychological mechanisms that indicate the adjustment of these patients, but also indicates a possible explanation for the tendency of many researches of the psychodynamic approach (as well as behaviorally-oriented studies) to describe the whole group of Type A persons in terms of the behavior pattern of the Dependent Type A group. As suggested in Chapter 2, recognition of the heterogeneity of the TABP group in terms of underlying personality factors is one possible process for a better understanding of the post-MI adjustment and, accordingly, for the design of a rehabilitation program that can relate to the different needs of the two Type A subgroups.

The classification of Type B patients into dependent-TBBP and independent-TBBP, in almost equal proportions (52% and 48% respectively), suggests the need to inquire into the adjustment of this group, also, and the possible influence of the different underlying personality factors to TBBP. But this latter classification has only a secondary meaning for the goals of the present study, which focuses on TABP patients.

The Multi-Dimensional Criteria for Adjustment

The criterion for adjustment reflects various aspects of the way of life after MI. Thirty-two items were selected to measure adjustment to various life situations. Of them factor analysis classified 24 qualitative items into three factors: Emotional Adjustment (14 items), Family Adjustment (4 items), and Medical Behavior (6 items). Five qualitative items were excluded from the three factors because of low loading (smoking, sexual adjustment, openness to information, return to work and attitude toward promotion). Three quantitative measures (IPAT, MAT, CSBP) were considered separate indices of adjustment.

Emotional Adjustment

Emotional adjustment includes 14 out of the 24 items of the qualitative criterion for adjustment as classified by the factor analysis. These items were classified into four categories (emotional state, adjustment to work, personal life-style and power struggle within the family).

The emotional state items were found to have the highest loading on the emotional factor (m=.84). Adjustment to work as a criterion for post-MI adjustment was viewed from the patient's standpoint. (Obviously, the organization that employs the patient may relate to efficiency at work, for example, as a criterion for adjust-

ment.) In this way, the criteria for adjustment to work were changes in work habits (decisions and actual activities concerning roles and responsibilities related to working after hours and weekends), and personal satisfaction (job role, interpersonal relations, status, and peace of mind). Factor analysis revealed a high loading on the general emotional factor of these behaviors (M = .81).

Personal life style (loading of .67) includes leisure-time activity, social life, activity style, self-health image and physical exercise.

The absence of leisure-time activities by persons exhibiting TABP is indicative of their obsessive approach to work. Self-satisfying leisure-time activities, more than many other activities. In western civilization, are elective activities. Their existence is an indication for relaxation ability, which is an integral part of an adequate style of life after MI.

Social life adjustment, another criterion for quality of life, was determined by actual changes in social activity and emotional distance. The clinical experience of the author suggests that social alienation can be related to the subjective feeling of the patient that friends are ignoring or over-emphasizing his medical condition. It is usually, but not necessarily, connected with actual changes in social activities.

A realistic self-health image seems to be related to the emotional factor. Patients under stress will tend to either exaggerate their crippleness or deny their medical situation. A typical response is a patient's declaration in the interview that: "I am healthier-more than ever before."

Activity style was originally designed as an aspect of the life style of the patients. Physical activity, however, was considered to be an aspect of Medical behavior, but the Factor analysis found it to be loaded on the emotional factor. It's high loading on the Emotional factor (.62) instead of the Medical factor suggests that the well-recognized problem of the compliance of post-MI patients with their doctor's advice to participate in long-term systematic physical activity program, is related to their general activity style and to their emotional state.

Other surprising results are the loading of two "family" items - Personal use of MI to manipulate the family (.71) and Power struggle within the family (.67) - on the emotional adjustment factor. A power struggle can be a permanent situation in a family, but it can also be triggered by the MI. The traumatic experience can cause the patient to start, or to extend an overt or covert struggle for power. The struggle can be focused on division of roles, division of responsibilities, or on the decision-making process. A power struggle takes on a special meaning when the disease itself becomes an instrument to achieve an individual's goals. The disease can be used by the patient to control the household environment by claiming certain privileges.

This description indicates clearly that these two items represent the competitive, aggressive and hostile aspects of the patient's behavior within the family. The classification of these qualities on the Emotional adjustment factor can be related to the fact that most (68%) patients in the sample are Type A's. Aggressiveness has long been considered a central characteristic of Type A persons who are noticeably more aggressive and competitive than Type B persons (Van Egeren, 1979). Price (1982 pp.96 and 221) has mentioned that "Habitual competitiveness may lead to an increasing lack of ability to discriminate the appropriateness of behaving competitively in a particular situation... It seems that the Type A persons with their competitive, aggressive and hostile characteristics can hardly develop and maintain close and peaceful interpersonal relationships". Accordingly, a possible explanation for the results is that the aggressive behavior in the family, as observed in the clinical interview, represents a general personal and emotional characteristic of Type A patients. As such it correlates with other personal and emotional aspects of post-MI patients as classified in the Emotional adjustment factor more than with the particular characteristic of family life that was classified on the family adjustment factor. Another surprising result was the exclusion, due to low loading, of two items, Return to work and Attitude towards promotion - from the occupational category of the Emotional Adjustment factor as well as from the other two qualitative factors of adjustment. The adjustment to these items will be discussed later on in the section on supplementary items.

Family Adjustment

The factor items and their loadings are presented in Table 7. Family Adjustment includes 4 out of the 24 items of the multi-dimensional criteria for adjustment as classified by the factor analysis. These items were categorized to just one category - family adjustment: three dimensions of family life are discussed: Changes in family structure, interpersonal atmosphere and intimacy in the family. Changes in family structure relate to divorce and separation. Interpersonal atmosphere relates to feelings of tension and stress. Interpersonal atmosphere can be overtly relaxed and the interaction smooth and efficient, yet alienation can characterize the relationship between the spouses. Intimacy relates to the trust, respect, partnership and openness in communication between the spouses. It enables overt and direct communication on various aspects of the patient's situation, and in this way helps to regulate expectations, needs, feelings of guilt, and anxieties. A surprising outcome of the factor analysis is the exclusion of three items from the family adjustment factor; power struggle in the family, personal use of the MI to manipulate the family and sexual adjustment. The first two items were discussed in the section on Emotional adjustment where they were highly loaded. Sexual adjustment that was loaded low on all three factors will be discussed in the section on supplementary items.

Medical Behavior

The factor items and their loading on the general factor are presented in Table 7. The medical behavior factor includes 6 of the 24 items of the multi-dimensional criteria for adjustment as classified by the factor analysis. A surprising outcome of the Factor analysis is the exclusion of three items from the medical behavior factor. Physical activity which was highly loaded on the emotional adjustment factor was discussed above. Two other items, "Openness to medical and behavioral information" and "smoking" that were excluded because of low loading on all three factors will be discussed in the section on supplementary items.

Changes in systolic blood pressure (CSBP), anxiety as measured by the IPAT questionnaire, and marital adjustment as measured by the MAT are three quantitative indices of adjustment that were part of the multi-dimensional criteria for adjustment. The effect of the behavioral styles (TABP/TBBP) and dependency on the adjustment to these indices as well as to the adjustment to the qualitative indices, will be discussed in the next section.

Emotional Adjustment as Related to Behavioral Styles (TABP/TBBP) and Dependency (D/I)

This section discusses the effect of behavioral styles and dependency on the adjustment pattern as measured by indices that relate to the emotional and personal aspects of the patients' behavior. These measures include two quantitative indices of adjustment; changes in systolic blood pressure during the interview which is a physiological measurement and anxiety as measured by the IPAT. Another measurement that is included in this section is the qualitative Emotional Adjustment factor that present 14 items of adjustment to various aspects of life after MI. The adjustment to these indices correspond with the studies' hypotheses #2-4.

Changes in Systolic Blood Pressure

Changes in Systolic Blood Pressure was found to be in negative correlation with Emotional Adjustment (r=-.35) Medical Behavior (r=-.14) and MAT (r=-.35) and in positive correlation with anxiety as measured by IPAT (r=.35). These correlations indicate that extreme changes in Systolic Blood Pressure during the interview are related to low Emotional, Marital and Medical adjustment and to high anxiety level. CSBP while related to behavioral styles (TABP/TBBP) and dependency (D/I) confirm hypotheses #2-4.

The meaning of this outcome can be understood in the following manner: Psychosocial factors act indirectly upon the cardiovascular system by triggering neuroendocrine mechanisms. "The sympathetic-adrenal-medullary system is activated when a person perceives an event to be a stressor. Thus, it is a consequence of both cognitive and environmental factors. Activation of this system involves the release of various neurohormones and among them norepinephrine which raises pressure" (Price, 1982 p.144). Laboratory studies have shown that in response to challenging situations Type A's but not Type B's, exhibit elevations in systolic blood pressure. (Dembroski et al., 1977; Dembroski et al., 1979; Glass et al., 1980; Manuck et al., 1978; Manuck & Garland, 1979). Other studies, however, failed to find differences between A's and B's in blood pressure reactivity under challenging conditions (Lott & Gatchel, 1978; Manuck, Corse & Winkelman, 1979; Price & Clark, 1978; Waldron et al., 1980).

Sime et al., (1980) conducted a study where blood pressure measurements were obtained while cardiac patients and a control group responded to a structured interview and during personal history quiz. He concluded that the significant high changes in Type A patients compared to other patients and to the control group suggest that Type A's can be considered more "labile" than the other subjects of this study. All these studies relate to Type A patients as one homogeneous group. The results of the present study indicate that Type A Behavior Pattern (TABP) represents two different subgroups. As hypothesized (#2-4) dependent-Type A patients react with a significant ($P<.05$) increase of systolic blood pressure as compared to

independent-Type A patients and Type B patients. The emotional "lability" of the dependent-Type A subgroup suggests difficulties in psychosocio-physiological adjustment. The correlations between CSBP and emotional adjustment and anxiety that were mentioned earlier suggest that the CSBP indicate the physiological aspect to emotional adjustment as measured by qualitative indices and by the quantitative measure of anxiety by the IPAT.

Anxiety as Measured by IPAT

Adult males tend to mention anxiety as a major likely cause of heart troubles (Price, 1982, p.10). While Type A behavior pattern is not considered to be a reflection of anxiety (Jenkins, 1978b), Type A patients do react with high anxiety to environmental pressures (Francis, 1981). Croog & Levine (1982) report that among 205 post-MI patients, anxiety was "one of the most prominent reported symptoms" (p.48). They also found that "patients who describe themselves as emotionally labile, stressed and anxious at year 1 tend to display the same patterns at year 8" (p.228). The results of the present study indicate that Type A's have higher anxiety levels than Type B's ($P<.001$) and that dependent patients have higher anxiety levels than independent patients ($P<.05$). These results corresponded with general existing knowledge (see chapters 2 & 3). As the majority (78%) of Type A's in the studies sample are dependent-Type A patients, these results do not reject the study's hypothesis on the heterogeneity of TABP (#2). In fact, the hypothesis is supported by the results that

yielded a significant interaction effect of behavioral styles x dependency on the IPAT ($P<.05$). Contrast tests indicate that the significant main effect of this interaction stem mainly from the higher means of the dependent-Type A group. As reported in chapter 7, the results confirmed hypothesis #2-4. The positive correlation between IPAT and CSPT ($r=.35$) and the negative correlation with the qualitatively measured emotional adjustment ($r=-.66$), suggest that they all describe different aspects of the same phenomenon. IPAT relates to the self-reported anxiety state, CSBP relates to emotional lability, and Emotional Adjustment relates to the qualitative evaluation of several aspects of life after MI. It seems that all three indices indicate poor emotional adjustment of the dependent-Type A patients.

Emotional Adjustment

The results indicated that Type A patients adjust more poorly ($P<.001$) than Type B patients, and dependent patients adjust less well ($P<.05$) than independent patients. Difficulties in adjustment of Type A's as well as dependent persons is continuously reported in the literature (see chapter 2 & 3). As the Type A group include 78% of dependent patients the result may stem from this effect, and not indicating the TABP is an homogenous group. This argument is supported by the interaction effect of behavioral styles (TABP/TBBP) and dependency (D/I) on emotional adjustment. The outcomes indicate a significant effect of the interaction on emotional adjustment ($P<.01$).

Contrast tests indicate that this outcome stems mainly from the low scores of the dependent-Type A group. These results confirmed hypotheses 2 & 3. Lack of differences between dependent and independent Type B patients confirmed hypothesis #4.

The results that were discussed so far confirmed hypotheses 2-4 for 16 out of 32 dimensions of adjustment. These 16 indices of adjustment include 14 qualitative measurements of various aspects of life after MI, one quantitative measurement of anxiety and one quantitative physiological response to an environmental stimulus.

In general, the results support the assumption that TABP represents, in the post-MI period, a heterogeneous group with different spontaneous adjustment abilities in its subgroups. It was shown that TABP is subdivided into two adjustment groups by dependency (Hypothesis #2). The hypothesis (#1) that dependent Type A patients (group AD) is the largest group among the whole post-MI study population and among the general groups of patients exhibiting TABP is confirmed.

The behavior of Type B patients was as predicted in Hypothesis #4: dependent and independent Type B patients did not obtain different adjustment scores on these indices of adjustment. As predicted in Hypothesis #3, Type B patients tended to adjust better than dependent Type A patients.

This result agrees with the argument concerning the heterogeneity of TABP and the relevancy of better understanding the underlying personality factors that relate to this heterogeneity.

An unexpected result is the finding that there are possible differential tendencies among the various tested factors of adjustment (Hypothesis #5). The adjustment to three principle indices of the adjustment criteria - the Emotional CSBP & IPAT - was as expected. This was not the case in adjustment to the Medical factor, the Family Factor, the MAT and the supplementary items. The outcomes of these indices of adjustment will be discussed below.

The following stage of the discussion will attempt to relate the results of the study to the theoretical background by integrating the empirical findings and the proposed theoretical interpretation of the findings.

Theoretical Analysis of the Emotional Adjustment Pattern

> The way in which a crisis is handled emotionally may significantly influence the eventual outcome ... in terms of the extent of recovery and the degree of rehabilitation achieved.
>
> (Wright, 1959)

A practical benefit of the interpretation of the results according to the proposed integrated crisis and developmental theory, (presented in Chapter 5) is the ability to provide a systematic approach to the analysis of the results, a logical format for the description of the differential adjustment to MI, and a conceptual framework for empirical studies. The theory also provides a conceptual framework for a differential rehabilitation program, which will relate to differences in patients' personality structure and needs. This approach increases the chances for a better quality of life after MI.

The following discussion relates to the theory described in Chapter 5. It discusses the adjustment of the four subgroups of post-MI patients (AD, AI, BD, BI) in terms of the effect of the specific personal developmental pattern of each group on the way it copes with the post-MI crisis. The adjustment to six indices of emotional adjustment-emotional state (including CSBP and IPAT), occupational adjustments, personal life style and power struggle - are described here.

The Dependent Type A Patients (AD)

Emotional state.

Theoretically, the most complicated psychodynamic processes, and those which a rehabilitation program should be directed at, happen to the AD group. The present study has shown that, as expected, the AD group in comparison to the other group of post-MI patients exhibiting TABP (AI group) - have significantly more difficulties in developing an adequate emotional state. These difficulties are expressed through tension (depressive or euphoric mood), denial (or regression), a high anxiety level on IPAT, and emotional instability as expressed by changes in systolic blood pressure during the clinical interview.

High levels of tension, anxiety and emotional lability can be expected when dependency is perceived as threatening the personal, psychological integrity of an individual. This threat is defended by an inadequate replacing behavior. Pressure on emotional stability becomes even stronger when the patient faces the post-MI crisis which, by its special characteristics (see Chapter 5), extends the potential threat and causes either a feeling of helplessness, withdrawal and depression or, the more characteristic behavior of strengthening TABP as a defense, as well as denying the disease. Both potential behavioral developments (regression or denial) result in perceptual distortion, which in turn increases tension, free-floating anxiety, and emotional lability.

Occupational adjustment.

From the AD patient's viewpoint, his occupational adjustment involves two interrelated aspects: his place in the organization and changes in occupational interpersonal interactions resulting from the MI. The first aspect is concerned with flexibility regarding the Type A pattern, such as less competitiveness and less working hours. Flexibility in TABP is seen as a threat to the defensive pattern, but keeping on with the pattern is associated with another MI. The result is tension and a feeling of confusion and dissatisfaction at work. In addition to being a system for financial and personal security and for self-esteem, an individual's occupational work also involves a complicated interpersonal system. The return to work of the post-MI patient has an impact on the workplace's social atmosphere and interactions. It presents an opportunity for the advance of other workers at the patient's expense. It also causes the reaction of empathy, sympathy, and anxious personal identification. The anxiety of workmates, as a result of identification with the patient, is projected to the patient and increases his own anxiety. As a result, the atmosphere at work becomes more sensitive and tense.

Anxieties that result from structural and interpersonal processes trigger a more extreme TABP. This in turn causes difficulties in interpersonal interactions at work. Patients in the AD group might perceive supportive interactions as a threat to their independence. This threat is all the more strong depending on the degree of their ambivalence and conflict to the dependency issue. Because of

their difficulty in adequately judging social interactions, they respond inadequately and feel inadequate.

Personal life style.

The inadequate approach of the patient to social interaction at work occurs also in other social activities. Their response of social alienation (or detachment) results in a general feeling of inadequacy in dealing with the environmental and personal dynamics of the disease. It distorts interpretation of the disease and influences their general activity style and their ability to enjoy leisure-time activites. One aspect of distorted perception is an inadequate health self-image, which may promote denial, and an obsessive strengthening of TABP that results in over-activity (one patient built a yacht without allowing his children to help him). There may also occur an unrealistic reduction of activity. In both cases, feelings of inadequacy, anxiety, and dissatisfaction can be observed.

Power Struggle

As was mentioned in the first section of this chapter the classification of family power struggle on the emotional adjustment factor may relate to the general tendency of Type A patients to be aggressive, competitive, alienated and hostile in their interpersonal relationships. Accordingly the theoretical discussion on the power

struggle within the family can represent other life circumstances that unfortunately were not taken into consideration in this study.

Post-MI family dynamics relating to the power struggle as exhibited by the AD group can be interpreted in terms of crisis and developmental theory. As MI most often brings changes in division of roles and changes in feelings of strength in the marital dyad, these changes are elements of the ambiguous post-MI situation and part of the post-MI crisis experience. The patient and his wife, as individuals and as elements in a family structure, try to gain a new power equilibrium. Unbalanced and unacceptable accumulation of power by one of the spouses is a source for family maladjustment and malfunction. In addition to a patient's Type A tendency to control the environment and his ambiguous approach to the post-MI situation, the AD patient also has to cope with a possible change of roles within the family. For example, his spouse might gain power when she assumes some of her husband's traditional roles in the family and by her taking care of her husband's health requirements. The difficulties of coping with a new, ambiguous, and not always conscious process, result in overt or covert (or both) expressions of frustration, tension and aggravation by the AD patient.

The power struggle expresses itself in two possible ways. Both were observed during the interviews: (a) the patient uses various opportunities to gain control in the family; (b) he also uses the disease to gain control of the behavior of other members of the family. This latter process is expressed by the husband's various

manipulations in order to gain attention and care. Controlling his wife's and children's behavior by using a sick-role, provides the patient with a feeling of independence, while at the same time he enjoys dependency. The husband's covert and confusing communication system, together with the wife's own needs for independency and self-integrity, result in a continuous power struggle. The power struggle can be observed, but it can also be disguised by alienation and sometimes by over-care and over-attention.

The Independent Type A Patients (AI)

The significant adjustment gap between the AD group and the AI group confirms the hypothesis (#2) that adjustment is dependent on the interaction of TABP and dependency as personality factors. The proposed interpretation for the emotional adjustment of the AI group is that there is no conflict between the Type A pattern and independency as a personality trait. AI patients can face external challenges with internal integrity. In addition, the AI group, by being independent, is not subjectively influenced (or even exposed) by the internal and social pressures that are influential in the adjustment of the AD group. That is, they are not threatened by the emotional support given to post-MI patients. They do not need to use TABP as defensive behavior. Adequate development of attachment in infancy results in feelings of self-reliance and ability to use personal resources to cope with crisis situations. The special characteristics of the post-MI situation do not present a special threat or difficulty for this

group. TABP as a social learned behavior has different implications for the emotional state of the patient than when TABP is a defense mechanism. According to the suggested theory, absence of perceptual distortions derived from developmental stress processes makes it possible to use personality resources for a better and more realistic adjustment. The different adjustment of the AI group emphasizes the heterogeneous character of TABP and its relevance to adjustment.

Type B patients (BD & BI)

By definition, individuals exhibiting TBBP are more able to adjust adequately to various life challenges than Type A individuals. The results suggest that with TBBP kept as a constant variable, dependency or independency are not relevant factors to the emotional adjustment of post-MI patients. Both Type B subgroups present a similar level of emotional adjustment in the post-acute stage of the post-MI period. The adjustment of Type B patients is similar to the adjustment of the AI group and significantly better than the AD group. In terms of the theory put forward here these results may be understood in terms of the lack of dependency conflict in Type B patients.

In terms of the developmental theory (see Figure 1), the basic personality balance enables the BD, BI and AI groups to use their personality resources constructively and adequately. Emotional stability, realistic perception of the post-MI situation, and lack of social conflict seem to be mediators of emotional and personal adjust-

ment. There are, however, some variations in the adjustment of the two TBBP subgroups. The independent personality traits of the BI group are a result of their adequate attachment development. The post-MI dynamics are perceived in an appropriate way, and not in terms of a problematic attachment behavior. Adequate reality testing enables them to cope well with the multi-dimensional aspects of emotional and personal adjustment. The BD group regards dependency as a legitimate personality trait throughout their lives, including the post-MI period. The combination of (a) their lack of a disturbing developmental conflict and (b) environmental support, helps these patients to adjust in a positive manner. The differences in personality style of TBBP subgroups might have some implication to the use of a differential rehabilitation approach. This point is elaborated on in Chapter 9. The next two sections will deal with the indices of adjustment that did not fully support hypotheses #2-4.

Family Adjustment as Related to Behavioral styles (TABP/TBBP) and Dependency (D/I)

The qualitative measurment of Family Adjustment is positively correlated with the Marital Adjustment Test (MAT), (r=.45). This section will first discuss family adjustment and then the MAT.

The results indicate the family adjustment does not relate to the behavioral styles and dependency as proposed by hypothesis #

2-4. Unexpectedly these results also do not correspond with the generally accepted phenomenon that Type A's have more adjustment difficulties than Type B's and that dependent patients adjust less well than independent patients.

A possible explanation for these peculiar results is that there is a discrepency between the hypotheses and the measurment method. While the hypotheses relate to the personal adjustment of post-MI patients, the measurment relates to adjustment within the family; the family is percieved as a complicated structure that includes also the adjustment of the patient's wife and children to the new situation and also the adequacy of the interaction among all these persons. An elaboration of the complicated family environment as measured here might illustrate this argument for the unexpected results.

The present study deals with males between the ages of 30 to 60 (mean 49.5 years). At this stage of family life, children, occupational status, housing, and basic social milieu are already set. The spouses, as a team, have already fulfilled family developmental tasks relating to external and internal expectations. As founders of a family in Western culture, they are in a stage where the main focus is on the interaction between themselves as individuals. For the family as a unit, the MI crisis of one of its members exposes the whole family to the situation of a "sick" family. There is also the traumatic experience of the closeness of death and its potential meaning to the structure and the future security of surviving family members. These prospects are a source for overt and covert anxiety for the spouses. They

are also a source for reconsideration of family norms and behaviors. The traumatic experience might challenge established patterns of division of roles, responsibilities, and habits of communication between the spouses. The questioning of a structure that was established through years of mutual adjustment efforts is undoubtedly a source for crisis feelings. In the special circumstances of the post-MI period, the patient might find himself in a conflict by his wish to be dependent, but at the same time maintain his role as an independent man and pater familias. The family itself might encourage the conflict by over-caring, and at the same time expressing expectations for the patient to revert to his old and familiar role. The adoption, simultaneously, of these two roles, creates a structure of interpersonal relations that is difficult for all family members to handle.

In addition to the husband, it is the wife who faces a most acute crisis about the need to restructure family roles, her future, her expectations of herself and her husband, and her possible feelings of guilt. Typically, a wife of post-MI patient experiences feelings of guilt, a wish to look after and protect her husband, a need to prepare herself for an independent future and, finally, a tendency to focus her maternal feelings and behaviors on her sick husband, especially when the children are no longer around. The wife hesitates to openly express her dissatisfaction at her husband's ambiguous reaction to her maternal behavior because of her feelings of guilt and responsibility for her husband's well-being. She reacts inadequately through overt or covert alienation, guilt, accusation, aggravation, and overprotection (Mayou et al., 1978; Segev & Schlesinger, 1981; Dracun et al., 1984).

Wives' feelings and responses contribute to the covert indirect communication between the spouses, which results in continuous tension and a non-relaxed family atmosphere. Stern and Pascal (1979) reported that problematic post-MI patients have suffering and problematic wives and Burke et al., (1979) found that Type A patients have problematic marital lives and problematic wives.

Those children who are still at home are exposed to fears concerning their future and security. They may experience guilt and aggression toward their father, who has exposed them to this frightening situation. The individual feelings and conflicts that are projected on to family relations by its members add to the feelings of a crisis situation in family life.

The results of the Marital Adjustment Test (MAT) correspond only in part with hypotheses # 2-4. The two dependent groups react as expected: high adjustment level of the dependent-Type B group and low adjustment level of the dependent-Type A patients ($P<.01$). It is the two groups of independent patients (AI and BI) that adjust less than well than expected. These results raise questions about the possible destructive role of extreme personal independency in family relationship in a crisis situation. The constructive role of dependency (when not combined with TABP) to family adjustment, can be theoretically understood as follows: Patients in the BD group accept dependency as a legitimate part of their personality. Familial emotional support is accepted without conflict. In the BD group the wife's tendency to provide emotional and functional support, and her husband's need for

dependency, compliment each other and serve to strengthen family relations. The post-MI condition is a legitimation for the wife to gain power and for the husband to give up power positions. The clinically observed pattern is like a parent-child relationship both partners are happy with. MI often occurs at an age when the children have become independent. The post-MI situation makes it possible for the wife to play, once again, the maternal role. This is accepted willingly by the husband. Post-MI family support is well accepted and may even cause an increase of feelings of intimacy and emotional closeness. Theoretically the low adjustment scores of the AD group can be related to their adjustment conflicts as elaborated in chapter 5. Rehabilitation intervention for the family aspects of adjustment has to take into consideration these personal and family dynamics.

Medical Behavior as Related to Behavioral styles (TABP/TBBP) and Dependency (D/I)

The items gathered as Medical Behavior by factor analysis are characterized by being directly related to the patient's personal health behavior. The adjustment outcomes to medical behavior rejected hypotheses #2-5. A possible explanation for this discouraging result may lay in the qualitative difference between Medical Behavior and Emotional Adjustment. While most of the items on medical behavior are recognized risk factors for re-occurrence of MI and concerns with life expectancy, the items on emotional adjustment emphasize the quality of

life. The positive correlation (r=.39) between these two factors of the qualitative measurement of adjustment suggest that these are not completely independent indices of adjustment. It is obvious for instance that non-compliance with the doctor's advice on matters such as smoking, weight control and cardiac diet interact with the patients emotional state and with his approach to various aspects of his quality of life. Nevertheless, Emotional adjustment represents quality of life dimensions more than the Medical factor does. This distinction supports one of the underlying arguments of the Thesis: that there is a difference between the psychological mechanisms that mediate between TABP and morbidity, and those that mediate between TABP and quality of life. Consequently, the Medical factor results indicate the need to study the psychological factors that relate to the quality of life independently from the study of behavioral factors, which are related to secondary prevention of MI.

Supplementary Items

2x2 loglinear analyses for categorical data were carried out on the supplementary adjustment items (smoking, openness to behavioral and medical information, return to work, sexual adjustment and attitude towards promotion). The only significant outcomes that concur partly with the hypotheses, were that Type A's have more difficulties than Type B's in "openness to information" and in attitude towards promotion" (Hypothesis #4). It is interesting to mention, that previous studies (Cay et al., 1973; Stem et al., 1977; and Weinblatt

et al., 1973) have found that return to work, sexual functioning and smoking tend to improve spontaneously within the first to the fourth year after MI. These results are different from the outcome of other studies that relate to other criteria for adjustment as well as to the results of the present study for the effect of time duration on six indices of adjustment (Emotion~~s~~, family, medical, IPAT, CSBP, MAT); The effect of time duration on these three items might be the cause for the insignificant effect of the study's hypotheses. In addition, smoking is a typical item in Medical behavior and was exluded from this factor mainly because of missing adjustment values, due to the fact that many patients were not smokers at the time of the MI. Accordingly it is not surprising that the outcome concurred with that of the Medical behavior. The insignificant outcome of "return to work" is clearly related to the fact that 95% of the patients were back at work at the time of the study (Table 3). This facilitated the illusion that past MI patients readjust well and therefore do not need systematic help. Return to work is considered by many studies as the only criterion for post-MI adjustment. The results here support the argument that this variable is not a reliable criterion for comprehensive adjustment and certainly not an indicator of satisfactory emotional adjustment to work.

Sexual adjustment, unlike other items of family adjustment might be dependent on time duration since the MI. Nevertheless sexual adjustment is a typical item in family adjustment and as such, it is not surprising that the results, as well as their possible explanation corresponds with those of Family adjustment. As expected (Hypothesis #

4) Type `A patients are less open than Types 'B to information about medical and behavioral issues. This outcome should be investigated further by studies concerned with complaince with doctor's advice. "Attitude towards promotion" may also correspond with hypothesis # 4 and might be related to the aggressive aspect of Type A's personality that dominate their behavior and interferes with the adjustment of the independent as well as of the dependent Type A post-MI patients.

Treatment of the Behavioral styles (TABP/TBBP) and Dependency (D/I) as Continuous Variables (The Multiple Regression approach)

A major controversy in the literature is whether Type A behavior pattern and Type B behavior pattern are two different types of behavior or just two poles of a continuum. As elaborated in chapter 2, the present study follows the typological approach to Types A and B as advocated by Matthews (1982), Chesney and Rosenman (1982) and Pittner and Houston (1980). The thesis as presented in chapters 3-5 adopts the approach that dependent and independent persons do have different adjustment patterns to daily life and to crisis situations. Following this approach the study sample was subdivided into four groups (AI, BI, AD, BD). The hypotheses were formulated according to the typological approach and the outcomes were treated statistically in a way that emphasizes these typologies. The ANOVA and MANOVA were found to be the most appropriate methods because they dichotomi~~ely~~ously

treat the independent variables while the dependent variables are treated as a continuum.

The findings yielded by these two approaches were generally consistent (see chapter 7), however hypotheses 2-4 are better supported by the ANOVA approach where the interaction between the behavioral styles (TABP/TBBP) and dependency predict, in addition to anxiety level and CSBP, also Emotional adjustment, and the scores of the MAT. An interesting outcome in the multiple regression analysis is that high dependency relates to low compliance with medical behavior. This result supports the increasing interest in medical psychology to inquire in depth into the complicated issue of compliance of patients with their doctor's instructions.

Summary

It seems appropriate to conclude this chapter with a comment from Leventhal et al. (1980): "An explanation exists when we have a model or set of propositions that tells us how something takes place, explanatory concepts underlie observations ... An explanatory model can direct us toward effective intervention by pinpointing causal processes which are amenable to change, but it will be foolish to expect an explanatory model to account for all the variance observed in an applied problem" (p.9). The discussion above indicates that the understanding of the spontaneous differential adjustment to MI can be

advanced by an inquiry into personality factors. The theoretical framework suggests causal explanation to the study results. The division of TABP by interpersonal dependency was explained by a theory that integrated ideas and concepts from psychodynamic, attachment, and social learning theories for the understanding of the adjustment of different groups of post-MI patients. The theory postulates that dependency is a covert basic personality trait that, for some patients, underlies the overt TABP. In the post-MI crisis circumstances the psychodynamic process between dependency and TABP causes a different adjustment pattern than the process that results from independency and TABP, or from TBBP. The suggested theory is not rejected by the results of the study. Accordingly, it will be possible to offer a differential program that will present different therapeutic solutions to different groups of post-MI patients as well as to different aspects of life in the post-MI situation. There is still a long way to go to prove the relevancy of the suggested theory. Nevertheless, on the basis of the results and theoretical interpretations presented here, it is justified to offer a differential rehabilitation program.

The following chapter describes a proposed rehabilitation program and explains the way the program derives in part from the present study. Testing the efficiency of the program in terms of the improvement of the quality of life and appropriate medical behavior is a project for another study.

CHAPTER 9

A SYSTEMATIC DIFFERENTIAL REHABILITATION PROGRAM FOR POST-MI PATIENTS

The following rehabilitation program relates to the studies results and their theoretical interpretation as well as to the author's own clinical experience.

The 1980 report of The International Society and Federation of Cardiology (ISFC) on atherosclerosis points out that, "particularly among survivors of MI, patients often receive inadequate follow-up after recovery and that planned and sustained care can substantially improve their rehabilitation and prognosis" (p.216a).

It has been emphasized in the present study that psychological processes related to the etiology of MI should be distinguished from those related to adjustment and rehabilitation in the post-MI period. Accordingly, a distinction should be made between the psychological factors that make TABP an etiological risk factor and those that are related to the post-MI adjustment of persons exhibiting TABP. The practical implication of the present study is in its contribution to the development of a systematic pre-planned and goal-oriented rehabilitation program based on empirical findings and a theoretical formulation.

The goal of the rehabilitation program is to enable different personality groups of post-MI patients to change and grow adequately in their new life situation. The goal is thus to improve

their quality of life and if possible to extend their life. The optimal post-MI situation is perceived as an efficient, active, and subjectively satisfying way of life with a realistic approach to the medical condition. The post-MI patient is expected to alter some of his daily behaviors, especially those aspects of TABP that are both a risk factor for re-occurence of MI and an obstacle in achieving a good quality of life (for instance, the Type A's exaggeration of time urgency and hostility). The patient is also expected to manage to live better with his unchangeable TABP behaviors by using management techniques such as those described in Chapter 4. In order to come up with an efficient systematic rehabilitation that uses alteration and management techniques, it is essential to offer treatment that focuses closely on the way the psychological mechanisms that mediate between TABP and adjustment are conceptualized.

The special characteristics of the post-MI crisis interfere in different ways and degrees with the optimal adjustment of patients. The theoretical framework relates to personality developmental processes in early childhood and to the influence of their interaction with the characteristics of the post-MI crisis on the adjustment of post-MI patients. It was found practical to relate to the different development of subgroups of Type A post-MI patients in terms of social learning theory for one group, and in terms of psychodynamics (an integration of psychoanalytic and attachment approaches) to a second group. The understanding of the adjustment of Type B patients is also analyzed according to this theoretical framework. The theoretical approach adopted here, by relating to different needs and anxieties,

can assist in the design of a differential rehabilitation program that will improve the adjustment of most post-MI patients.

Major Focuses in the Suggested Rehabilitation Program

The empirical results of the study, and their theoretical interpretation, make it possible to suggest a rehabilitation program with defined goals, focuses, and intervention techniques. By creating a standard conceptual framework it is possible to compare it with other rehabilitation studies. The major focuses in the rehabilitation program are the personality of the patients, differential intervention, and the acute and long-term crisis situation.

Personality of the Patients

The personality of the patient is considered here to be the major factor that determines his ability to cope with crisis and to adjust adequately to the post-MI situation. The basic approach is that the individual has the ability to make use of his personality resources for development, growth, and for change in accordance with his life circumstances, including crisis situations. Intrapsychic disturbances might be an obstacle to this process. The rehabilitation program therefore emphasizes the potential for growth and change, tries to encourage an optimal occurrence of growth and adequate

change, and attempts to cope with personality trends that interfere with the potential ability for growth and change. According to this systematic approach, any rehabilitation program that focuses on environmental manipulations (Billings, 1981), or on stress management (Meichenbaum, 1977; Novaco, 1976; Suinn, 1980), or on a technical change of TABP (Friedman, 1979; Friedman et al., 1982), or any other method that does not relate to the specific personality traits of the patients, ignores the source of differential adjustment and can only achieve limited success.

A theoretical framework that indicates the personality traits relevant to rehabilitation, and practical methods to deal with them in order to improve post-MI adjustment, is a vital factor in an efficient program. By relating to the significant correlation between the conflictual interaction of overdependency as a personality trait, and TABP, it can be shown how the psychodynamic intrapsychic process influences the way the individual relates to the environment. Further, the patient's ability (or difficulty) to use his personality resources to cope with reality, which is perceived in a distorted manner, is revealed.

The major argument of the present study is that the differential personality development of patients who exhibit TABP results in different adjustment patterns to post-MI life. Early psychodynamic developmental processes related to dependency can help with the understanding of the maladjustment of one major group of post-MI patients (the AD group). The lack of those psychodynamic processes and a dif-

ferent early developmental process help in understanding, through social learning theory, the personality factors that are relevant to the adjustment process of other post-MI Type A patients. The information achieved by inquiring into the spontaneous adjustment of post-MI patients is used here to design a systematic rehabilitation program.

Differential Intervention

In order to help patients use their personal resources for a better adjustment to the post-MI way of life, it is essential that a rehabilitation program provide them with information about the MI, their medical condition, the typical family and social reactions to the MI, and appropriate post-MI life-style. Stress reduction techniques, social modeling, instruction on how to cope with difficulties, and other reinforcements and supports are all useful techniques in a rehabilitation program. If, however, psychodynamic personal factors prevent patients taking advantage of those methods or if they perceive some or all of these methods as a threat to their personal integrity and as a cause for free-floating anxiety, the rehabilitation will not be efficient.

Systematic intervention programs tend to ignore differences in personality characteristics, in needs, or in the significance of the crisis for different patients. As a result, homogeneous interven-

tion progams have been proposed* that are supposed to help all post-MI patients or all TABP patients. Observed difficulties in existing programs prompted various studies to adopt a more pragmatic approach. These studies suggest that therapy be administered to a limited number of patients: to those who are considered able to benefit from the program (Naismith, et al., 1979), or to those who are considered to be more problematic patients (Cay et al., 1972; Mone, 1970).

The success of rehabilitation to all post-MI patients depends a great deal on the patient's motivation to cooperate (Friedman, 1979; Friedman et al., 1982). In order to gain cooperation it is essential that patients do not feel threatened by the rehabilitation process and that they feel that the program content relates to their needs in various life situations. Homogeneous therapy to all post-MI patients will not meet the needs of many patients. Furthermore, homogeneous therapy will, in all likelihood, present a threat to the AD group.

Hackett (1978) suggested that future research focus on differential rehabilitation methods - giving psychotherapy to individuals with psycho-social problems after MI and a limited program of education and information for others. Hackett did not elaborate on this general statement. I propose a method to distinguish between groups according to personality and behavioral dimensions, and suggest

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* Friedman (1979); Friedman et al. (1982); Jenni & Wollershein (1979); Levenkron et al. (1982); Mone (1970); Rahe et al. (1973,1979); Roskies et al. (1978); Segev & Schlesinger (1981). Suinn (1975); Suinn (1978).

a systematic differential intervention program in terms of the different characteristics and needs of each group. Especially emphasized is the coping with those personality factors that prevent many patients from benefiting from guidance and supportive intervention approaches.

The present study indicates that post-MI patients with TABP are not a homogeneous group. The AD group is significantly more problematic in post-MI adjustment than the AI group of post-MI patients exhibiting TABP. Patients exhibiting TBBP also have different personality trends connected with adjustment. Different dimensions of adjustment are related to different personality trends: the Emotional adjustment, IPAT, CSBP and MT, are related to the interaction between D/I and TABP/TBBP; the Medical behavior and Family adjustment were not. An efficient rehabilitation program has to relate to this variability.

Acute and Long-term Crises

In working with post-MI patients since 1973, I have observed that, after the MI, patients experience three different crisis phases. The acute phase takes place immediately after the occurrence of the MI, usually while the patient is in hospital. The psychological state of the patients at this phase is reported in several studies: Cassem and Hackett (1973); Ell et al. (1983); Garrity and Klein (1975); Houser (1973); McGrath and Robinson (1973); Wishnie (1971); and others. Then comes the second phase, when the immediate death threat

is over and the patient begins to adjust to a new self-image and interpersonal interactions (this phase takes place about two weeks to two months after the onset of the MI, at a time when the patient lives in a close, protected environment). The third phase is the long-term crisis situation, which relates to the interaction between the patient and his real post-MI environment. Intervention practices in the form of four phases are described below and presented in Figure 7.

Phase I. Individual meetings with patient (and spouse) in the CCU and in the mediating ward. At this stage the focus is on (a) a supportive approach to the immediate trauma of the MI, the hospitalization, self-image and self-esteem; (b) providing information about the disease and guidance for the immediate future. Hospitalization is a clear-cut sickness situation, consequently even the AD group can more easily accept support without being threatened. However, if the therapist faces rejecting or aggressive behavior he should discontinue the supportive approach.

Phase II. Five or six weekly group meetings for patients and spouses, starting 3 weeks after the onset of the MI. The focus is on providing information and guidance, and sharing first post-hospital adjustment experiences.

Phase III. This is the long-term adjustment phase, which is the focus of the present study. Intervention, which begins 4-6 months after the patient is released from hospital, relates to the actual confrontation with daily life situations. It is not possible to solve

long-term problems in the acute state because (a) the patient is too preoccupied with the immediate trauma he is facing concerning survival anxieties and changes in health and self-image; (b) personality requirements and dynamics are different in the two stages and therefore have to be dealt with separately (for instance, denial in the acute stage seems to be an adequate reaction (Soloff, 1977), but the same personality reaction in the long run is destructive); (c) the patient is not familiar with the post-MI situation, discussing it with him would not at this stage be productive. Only later, when the therapeutic process accompanies actual life experiences, can patients meaningfully relate to behavioral and emotional changes that take place as a result of rehabilitation. By sharing experiences with those in a similar medical and psychological situation, through identification and group dynamics, patients can gain feedback, reinforcement and insight into their behavior to direct, correct and change it accordingly.

Phase IV. A multi-year follow-up (about three meetings a year) to provide guidance for all patients and spouses; advice to be given on cardiac risk factors, daily life activities, family and occupational interaction issues.

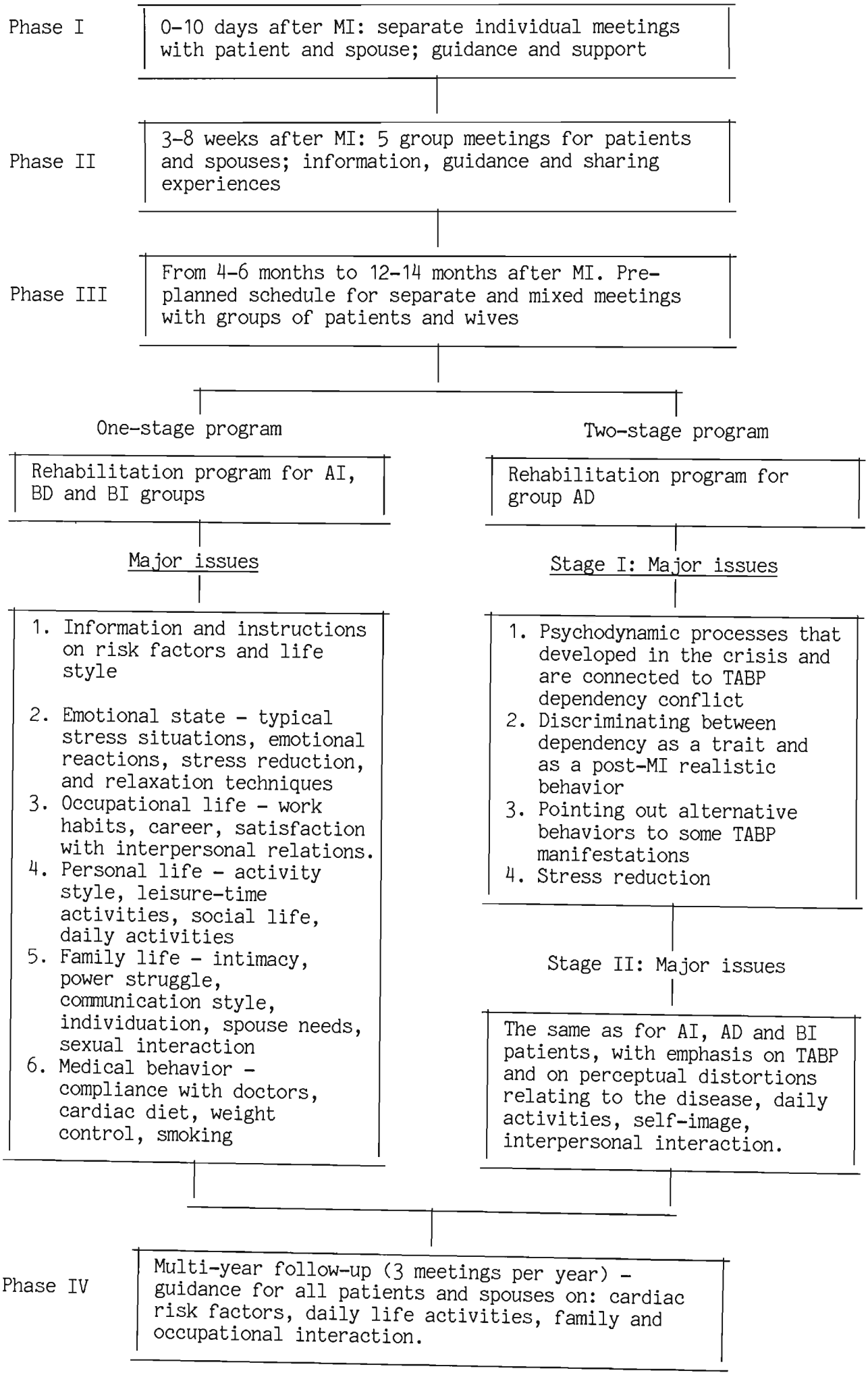
The major practical implication of the theoretical framework presented here concerns the third phase of the crisis. At this stage (4-6 months after the onset of the MI), post-MI patients can be subdivided into two main groups: In both groups the emphasis is not on psychopathology, but on the effort to achieve a better quality of

life. For this stage, which is the focus of the present study, a multi-method psychological approach is recommended. However, a single-method approach may also be appropriate.

1. For the AD patients, who present significant adjustment problems and who are characterized by an over-dependent/ hyper-independent personality conflict, TABP serves as an inadequate defense; the post-MI crisis strengthens the defense and causes distortions in reality testing, which result in adjustment difficulties.

2. The AI, BI, and BD patients, though different in their personality characteristics and adjustment needs, can be gathered into one rehabilitation group. The lack of a threat to the integrity of their personality and their self-esteem enables the design of a common program, without the fear that some of the progam's components that relate to the particular needs of one of the subgroups will be perceived as an existential threat by members of another subgroup.

Figure 7: Differential Psychological Rehabilitation Program for Post-MI Patients



Long-term Rehabilitation Program for the AD Group

The Adjustment Process

As already pointed out, in their early childhood AD post-MI patients experience developmental difficulties related to overdependency. As a result, processes of independency, individuation or attachment are disturbed. Consequently, overdependency is perceived as a threat to self-esteem and self-integrity, and can not be accepted as a legitimate trait of their personality. TABP, a hyper-independent behavior pattern, thus develops as a defensive reaction formation mechanism that helps them to cover from themselves and from others the psychodynamic, conflictual interaction (that is always there) between the basic covert trait and the overt defensive behavior. After years of being used as a defense mechanism, and through reinforcement that TABP receives in industrial Western culture, it becomes the pattern for self-identification. TABP is also perceived by the patients as a pattern through which they are identified and appreciated by other persons. As a result of the problematic early development regarding dependency, patients also have problems in emotional relations with significant others. They "believe" that the only way they can achieve recognition, affection and love is by instrumental success, which they feel can be achieved only through exhibiting TABP. In sum, then, TABP serves three different functions: (a) It is a defense mechanism against the exposure of dependency; (b) it is a model of self-identification acceptable and appreciated in Western civilization; and (c) it is an instrument to achieve emotional acceptance and love by

significant others. All three are a result of inadequate interpretation of reality.

During years of experiencing TABP and its influences on various aspects of life (social, family, occupational), the patient comes to some personal equilibrium that was accepted and even appreciated in their social environment. All this at the personal price of maintaining a pattern that contributed to the development of his CHD. The MI crisis disturbs the previous equilibrium and prevents an adequate readjustment to life after MI due to several factors: (a) The traumatic experience and the realization of a possible connection between their way of life and the occurrence of the MI triggers a re-evaluation of TABP, but no alternative is available; (b) the tendency of other persons, especially family members, to show personal interest in the patient and the patient's ambivalent reaction to this intent, triggers the dependency conflict and raises anxiety about the exposure and dominance of his dependency; (c) the possible need to change the TABP presents a danger for its value as a defense (i.e., the consequent loss of self-identity, self-esteem and self-reliance, and the possible loss of others' affection, love, and emotional commitment).

The typical reaction of patients is to strengthen their TABP as a defensive mechanism. The psychodynamic process and the over-strengthening of an inadequate defense is connected with high stress and free-floating anxiety, all of which results in distortion in the perception of the disease (by denying it or by "playing" a sick role),

and in the distortion of interpersonal interaction (which is perceived as a threat). The result is adjustment difficulties in various life dimensions.

It must be emphasized that the intervention program does not deal with the early psychodynamic difficulties themselves. The wide demand for rehabilitation makes the psychoanalytic therapy impractical. Furthermore, the dependency conflict is mainly a primary, pre-verbal process and as such, a psychoanalytic therapeutic approach would not be appropriate. The recommended approach is to encourage dissociation between the post-MI adjustment processes and the primary dependency conflict. Thus the focus is on the present crisis situation, using the knowledge of the personality developmental characteristics as an essential instrument for understanding and dealing with present processes. This goal is achieved by helping the patient to discriminate between his basic developmental dependency problem and his attachment experiences in post-MI situations. Such discrimination, which isolates the basic psychodynamic difficulties, enables the patient to relate to the post-MI processes in his own terms. By not confusing post-MI processes with developmental psychodynamic difficulties, a patient can relate more realistically to present experiences and use their personal resources in a more adequate manner to cope with the post-MI crisis. The particular therapeutic technique in achieving this discrimination can be flexible and varied as long as the therapist keeps in mind the underlying developmental psychodynamic process and its effect on the patients' reactions to the post-MI crisis situation. This approach does not, however, oppose the right of

interested individuals to look for psychotherapy for their basic developmental problems.

The differential psychological rehabilitation program, which is set out in Figure 7, is, for methodological convenience, divided into two stages. Stage I relates to the psychodynamic processes that developed in the crisis situation, and that are connected to the nature of the crisis and to the personality of the patient. Stage II relates to the effect of those processes on the patient's reactions to the crisis in terms of distortions, stress, and behavior difficulties. It can be argued that a successful therapeutic intervention in Stage I will automatically result in a change in the inadequate processes derived from it. Although this reasoning might be logically correct, it is clinically meaningless. Clinically, the perceptual distortion and the various adjustment behaviors of the patient have developed an independent identity - they fulfill new needs and are maintained by independent reinforcements and dynamic processes.

Post-MI systematic intervention has to cope separately with the basic psychodynamic interactions in the post-MI crisis and with the various behavioral, emotional and cognitive results of this basic process. The resulting behaviors should not present a major psychotherapeutic problem. For one thing, they are new and have not yet been established in the personality make-up nor should they yet involve complicated dynamics. Secondly, a successful therapy in Stage I makes it easier for the person to make use of personality resources for a more realistic approach to these issues. In other words, therapeutic

intervention with the dynamics of the crisis (Stage I) is necessary but not sufficient. The Stage II processes can not be faced without dealing first with the process that activated them, but would not disappear by the mere dealing with the Stage I dynamics.

Stage I: The Psychodynamic Process as a Focus for Therapy

As proposed earlier, an efficient design should apply the psychodynamic knowledge to a more practical approach. Accordingly, the targets of Stage I are:

1. Dealing with psychodynamic processes that developed in the post-MI crisis and that are connected to the TABP-dependency conflict. Discriminating between interpersonal interaction after MI and the fundamental dependency anxiety.
2. Suggesting alternative patterns to TABP.
3. Reducing stress, which is caused by the dependency anxiety and the defensive TABP.

Dependency as a target.

The two major therapeutic approaches will be discussed here: psychoanalytically-oriented group discussion, and cognitive, emotionally-oriented group discussion. By using group dynamics, the therapist can help patients achieve insight into intragroup dynamics and the processes that characterize their own reactions to the post-MI

situation; patients would learn to make the best use of their personality resources to discriminate between their basic dependency problems and interpersonal interactions. Eventually, they might be able to accept emotional support as an attachment behavior that will preserve their sense of independency (and will not present a threat to it).

Several researchers (Frank et al., 1979; Hackett, 1978; Ibrahim et al., 1974) have argued that the psychodynamic psychotherapeutic approach, which aims for the patient to achieve insight into his condition, is impractical for post-MI patients. They have stated that post-MI patients exposed to psychodynamic therapy are preoccupied with fears of being considered mentally ill, have too strong defenses, and are only interested in guidance on medical and daily behaviors. Apart from the points raised by these researchers, the failure to use psychodynamically-oriented psychotherapy was probably the result of a number of causes. First, unlike neurotic patients, post-MI patients do not feel the relevancy of treatment to psychodynamic problems they think they do not possess. Second, the therapists themselves might be afraid that the psychodynamic approach might cause heart problems, including another MI. The patients might react to the therapist's ambivalent behavior with anxiety, rejection, and withdrawal from the program or by directing it to safer ground, that is to practical guidance. Third, some of the successful and ambitious therapists are Type As themselves. A psychodynamic approach threatens their own personal security by a counter-transference process. Lastly, the general use of psychodynamic therapy without reference to a theoretical framework that relates specifically to the special dynamics of heart

patients can be perceived as irrelevant by both patients and therapists, with destructive results.

Further research on the efficient use of psychodynamic intervention methods should be encouraged. By presenting a pre-planned therapy, which is derived from a theory that relates to a selected group (the AD), these difficulties might be overcome. Although psychodynamic therapy is not considered here as a practical way to cope with the wide demands for rehabilitation of post-MI patients. In the approach suggested here the therapist does not strive to enable his patients to achieve insight into their unconscious personality dynamics, but, instead, uses his or her knowledge of the psychodynamic development of the patients in order to manipulate them through the group discussion sessions. The therapy process (a) discriminates between ongoing interpersonal processes and basic developmental fears of dependency, (b) isolates task dependency from emotional dependency, and (c) reinforces feelings of independency by providing a legitimation and support to use independent behavior as a defense against the fundamental dependency problem. This method is based on establishing a relaxed and permissive group atmosphere. It enables experiences, emotions, and thoughts regarding practical daily events in the patient's life to be referred to in the context of group discussion. The goal of this method of psychotherapeutic intervention is to help the patient to discriminate between his basic anxiety of dependency and present interpersonal interaction (attachment processes). Achievement of this goal will prevent deep anxiety and the need for a stronger defensive TABP. The success in the discrimination between present

processes and the fundamental developmental problem will result in a reduction of dependent anxiety and consequent better reality testing.

TABP as a target.

For the AD group, TABP is a defensive pattern resulting from a basic over-dependency anxiety. It is also a pattern through which the patient identifies his self-values and his social status. Because of the lack of an alternative known pattern that can answer to the same personal and social needs, TABP continues to manifest itself throughout the post-MI period. One of the "services" that the TABP provides for the AD group is a legitimate excuse to be remote from his family. This behavior is rationalized by the need to provide the family with financial support and social status. The real purpose of the compulsive occupational commitment, however, might be the need to avoid emotionally intimate relationships, which are associated by the patients with the danger of dependency.

The purpose of the systematic intervention in Stage I is to provide an alternative behavior pattern that will serve as an appropriate model for self and social acceptance, but which also serves as a defensive system (though a more adequate one) to the basic dependency conflict. Alteration vs. management of TABP has already been discussed in Chapter 4. As far as rehabilitation in concerned, it seems that a combination of alteration and management is best. Legitimizing some of the TABP behaviors and teaching the patient how to live with them will help the patient to change those aspects of behavior

that interfere most with an adequate quality of life. Examples of those aspects are over-competitiveness and hostility.

Friedman's (1979; Friedman et al., 1982,1984) method to change TABP seems to be the most sophisticated. It can be used in full or in part. Discrimination of the AD group will take care of the motivational problems mentioned by Friedman, and will enable the patient to establish unthreatened emotional relations with significant others, thereby reducing the need for TABP as an excuse for emotional alienation.

Stress as a target.

Treatment of stress reaction in the post-MI situation has been recognized by many studies, which used it as a part of their intervention program (Segev et al., 1975; Segev & Schlesinger, 1981; Suinn, 1974; Suinn & Bloom, 1978). Anxiety Management Training (AMT), suggested by Suinn (1974,1978), is a five-meeting program based on systematic imaginary thoughts to cope with stress, relaxation exercises, and instructions for recognizing typical stress situations in the post-MI period. In a later study Suinn (1982) suggested that supportive group therapy might be more efficient for TABP persons. Supportive methods were also suggested by Mayou et al. (1979,1981) and Mayou et al. (1976). Relaxation techniques have been suggested by Billing (1981), Fielding (1980), and others. The rationale for the various techniques is that stress is a major factor that prevents

change in TABP; consequently, its reduction will help in TABP therapy.

The reduction of stress while ignoring its causes can only have a limited and short-term effect on behavior. At the same time, altering the causes of stressful behavior will not reduce stress automatically, for the stress anxiety develops a reciprocal dynamic in the form of extending TABP. Stress must therefore be dealt with as a separate issue. Systematic therapeutic treatment of stress should begin when success can be observed in the discrimination process between present interpersonal interactions and the original developmental dependency problem. Starting anti-stress treatment at an earlier stage is not recommended because of the possible raising of dynamic anxieties which, as stated, will give a negative reinforcement to the anti-stress treatment. Starting too late with the anti-stress program might result in a process in which free-floating anxiety in search of concrete issues to express itself through, might interfere with the discrimination process between actual present events and post- developmental problems and anxieties. It might also interfere with the possible change of TABP, which will be needed as a defense against free-floating anxiety. Group discussion relating to concrete life events, which is the focus of Stage II, is more likely to succeed when there is less potential for exaggerated perceptual and emotional distortions, less free-floating anxiety, and less need for compulsive use of TABP.

Stage II: Behavior as a Focus for Therapy

In Stage II of the long-term rehabilitation program the focus is on group discussion of the issues described in the multi-dimensional criteria for adjustment. The goal of the group meetings is to share experiences, to clarify perceptual distortions, and to consider alternative ways for behaviors, interpersonal interactions, and cognitive structures.

The therapist should keep in mind that issues related to the Emotional adjustment should be handled differently to those related to the Medical and Family adjustment. Items from Emotional adjustment are related to the psychodynamic interaction between TABP and dependency. Issues related to Emotional adjustment should be tackled in the Stage I process. Items relevant to the Medical and Family adjustment should be dealt with, along with other environmental issues, in Stage II.

In Stage II the therapist has to promote a group atmosphere that encourages free expression of thoughts, feelings, and experiences. The various issues should be dealt with in a pre-arranged order. The therapist will be more directive than in usual group therapy. The intervention technique can be one or a combination of several techniques, such as cognitive restructuring, behavior modification, emotion management, psychodynamic interpretation for gain of insight, or an informative guidance approach. Friedman et al. (1982), Levenkron et al. (1982), and Southern and Smith (1982), used a multi-modal strategy that includes stress management, cognitive attitude change,

and problem-solving methods. Others used a single method strategy, such as cognitive restructuring of applied relaxation. According to Suinn (1982) the multi-modal strategy has a better chance to cause changes, but it is difficult to identify the therapeutic factor that causes any particular change. The single modal strategy is more accurate but requires a theoretical or empirical foundation. My own experience with group rehabilitation of post-MI patients is that a multi-modal strategy is the more efficient one. For the purpose of this study it is less important to prove which intervention factor caused a particular change than to prove the general rehabilitation results in a systematic, pre-planned and goal-oriented program based on a theoretical framework.

Long-term Rehabilitation Program for the AI, BI, and BD Groups

The previous section outlined a rehabilitation program for the AD group, according to the theoretical interpretation of adjustment difficulties for that group. The second group of patients with TABP (the AI group) adjusted significantly better to most issues of the study's rehabilitation criteria. In terms of the theoretical framework this difference in adjustment results from a different personality development of those patients. It indicates that TABP in this group answers to different needs of the patients than the same pattern in the AD group. In compliance with these two arguments, a

different rehabilitation program is suggested in order to meet the characteristics and needs of the AI group.

In spite of different personality characteristics of the patients from groups AI, BI, and BD, a common discussion group is recommended. The recommended therapeutic orientation is cognitive informative. Techniques such as emotional relaxation, behavior modification, modeling, and various information techniques and occasionally psychodynamic insight, can also be used. AI, BD and BI groups do not experience dependency conflicts that interfere with their ability to deal with the post-MI reality and with their ability to gain from others' experiences and reactions to the disease. As the threatening, defensive psychodynamic process is not relevant to these patients, the therapist does not have to be as careful as with the AD group in relating to different life aspects. The lack of the threat enables patients to be open to other approaches to life as presented by fellow group members. Accordingly they are thus able to reconsider their own approaches to different life aspects. Lack of anxiety and threat caused by the psychodynamic conflict, and the resulting ability to gain from experience, are the two main reasons for proposing a common therapeutic group for the AI, BI, and BD groups.

The therapist can make use of the heterogeneous character of the groups in order to suggest alternative behaviors for the Type A patients and also to deal with dependency, which interferes in the adjustment of the BD group. The suggested rehabilitation framework is group meetings concentrated on discussions of actual experiences that

the patients went through in the hospital, at home, at work, and within themselves; reliable information given by the professional staff; and stress management techniques. The goals of the group meeting are: (a) to provide the patients with knowledge of the nature of the disease, and appropriate behavior; (b) to assist in understanding personal and interpersonal processes; (c) to share experiences, and to understand personal conflicts and environmental interactions that are connected with the MI; (d) to provide the means for problem solving; and (e) to provide the means to cope with emotional stress.

The ultimate goal of group discussion is to help the patients to use, efficiently and as close to the optimum as possible, their personal resources for adequate adjustment. The therapeutic assumption is that these groups can achieve a certain degree of spontaneous adjustment for most aspects of the post-MI life situation. Systematic intervention will help them to get closer to an optimal adjustment for their own personal benefit and for the benefit of their family and society in general.

Involvement of Patients' Wives in the Rehabilitation Program

Most rehabilitation programs ignore the possible involvement of patients' wives in the rehabilitation program. Other studies vary in their approach to wife involvement. Mayou et al. (1978a) and Sobel (1969) suggested mixed groups for patients and wives. Anderson (1973) suggested mixed groups for male and female patients, but not with

their spouses. Adsett and Bruhn (1968), Rahe et al. (1979), and Segev and Schlesinger (1981), suggested that wives participate in only a few of the meetings, usually the informative meetings. The main reasons for separating the patients and wives are: (a) the patients feel less inhibited when not with their wives (Adsett & Bruhn, 1968; Hackett, 1978); and (b) wives have their own special problems - they are exposed to different dynamic process, and are therefore entitled to separate treatment (Segev & Schlesinger, 1981).

It is important to remember that heart attacks happen physiologically only to one person (in the case of the present study, to the husband). But in psycho-social terms the MI happens to the whole family. The family (the wife and children) is also exposed to a crisis situation (Bensworth and Melon, 1982). The wife, who should be perceived as an individual, has the right to be supplied with psychological instruments that will help her to cope with the post-MI crisis situation and to gain a new and satisfactory equilibrium. In addition to the legitimacy of her individuality, she also plays an important part in family dynamics. From the patient's standpoint, therefore, it is unwise to ignore her while designing an efficient rehabilitation program.

In order to help her to use her personal resources for an adequate adjustment, the wife has to be provided with: (a) information on the disease and its significance for the future of the family structure and behavior; (b) information on desirable and undesirable behaviors of herself and her husband; (c) knowledge (perhaps even in-

sight) into the intrapsychic and interpersonal process she is experiencing and how the disease influences her interactions with her husband and children; (d) advice about her individuality as a person, and not only as the patient's wife; and (e) stress management procedures.

It is possible that wives and husbands will be able to share experiences in common groups. The author's experience, however, indicates that wives attending joint groups tend to concentrate on the sick husband; they feel guilt and uneasiness in relating to themselves as the focus of the group meetings. There is also uneasiness in discussing things concerning cultural sensitiveness, like sex or the division of roles in the family. It is suggested, therefore, that some separate meetings be held for husbands and wives.

Special attention should be given to the needs of children who still live in the household of all groups of post-MI patients. If necessary, individual and family meetings should be available for this purpose.

General Characteristics of a Comprehensive Intervention Program

The rehabilitation program is directed toward males who come from urban Western cultures, and have at least 10 years of education. Rehabilitation programs for other populations - such as women, and men and women from rural, non-Western or low socioeconomic class or

education - should be developed after evaluating the special characteristics of these groups and the particular dynamics that are involved in their post-MI situation. Segev and Schlesinger (1981) have suggested a special program for low socioeconomic Eastern Jews that relate to the social and psychological characteristics of this group.

Group meetings should be pre-planned, and should be used for education, discussions, relaxation, and physical exercises. Separate and joint meetings should be offered for patients and wives. Individual or family intervention should be available when necessary. The four suggested intervention phases were already outlined in the Acute and Long Term Crises section (see also Figure 7).

There should be an interdisciplinary team effort to promote the quality of life of post-MI patients and possibly to extend their life span. The multi-disciplinary team should include psychologists, cardiologists, nurses, dieticians, and physiotherapists. The cardiologist is in charge of the rehabilitation team. He also handles medical follow-up. The psychologist directs the group meetings and guides the medical team on the understanding of the psychological aspects of the post-MI situation. The nurse provides behavioral information. The dietician has special group meetings with the spouses. The physiotherapist leads physical training sessions that should take place at least twice a week. He or she also teaches relaxation techniques.

The suggested program is thus multi-disciplinary from the professional standpoint, multi-modal from the aspect of intervention

methods, and multi-dimensional in terms of the criteria for adjustment and rehabilitation. As the rehabilitation program is designed to meet the needs of the different groups of post-MI patients, the optimal expectation is that the average level of adjustment will be elevated in all groups.

Suggestions for Further Research

Possible future focuses on the psycho-social mechanisms that mediate between TABP and post-MI adjustment are suggested here.

1. TABP. TABP as measured by the JAS should be farther analyzed in order to come up with a coronary adjustment pattern (CAP). This new pattern is expected to be more helpful in inquiring into the effect of personality on post-MI adjustment.

2. Causation. The thesis assumes that TABP and dependency are developmental factors that effect patient adjustment to the MI crisis situation. The possibility that TABP and/or dependency as assessed 4-24 months after the MI were developed after the MI should be further researched by comparing these variables on high-risk patients before and after MI.

3. Adjustment. Further research should test more comprehensive multi-dimensional criteria for adjustment. It can also test improved methods of measurement in line with the quantitative-qualitative orientation suggested here. Quantitatively, there is a place to test other questionnaires for the measurement of specific elements of adjustment. It would also be relevant to improve physiological measurements. For example, in addition to changes in systolic blood pressure as an indication for emotional lability, other changes in cardiac function could be measured (e.g., Holmes et al., (1982) measured heart rate). Qualitatively different methods to rate the interview can be tested. Instead of manuscript analysis, the interview could be independently rated by two interviewers attending the session. Further research should include more behavioral data while assessing post-MI adjustment.

   Also the rejection of hypothesis #5 calls for further study of the differences in adjustment to the various aspects of life after MI.

4. Compliance. There is a place to study possible differences in the interaction between the patient and his doctor. This line of inquiry may contribute to an improved understanding of compliance with doctors' instructions, a subject which is a major issue in medical psychology.

5. Personality. The present study pointed out the effect of dependency as an underlying personality trait to TABP on adjustment. Because of the vague definitions of personality concepts, including dependency, further research should repeat the study with different measurements of dependency, conceptually related to the suggested theory. Identification of other possible personality factors that mediate between TABP and adjustment should also be made (e.g., patients' cognitive expectations). There is also a place for research that focuses on the personality factors that affect adjustment in its four different phases of adjustment. This line of research should also try to identify the typical psychosocial elements that characterize the crisis situation at each phase.

6. Theory. The crisis and developmental theory can be further tested by anamnestic inquiries. The relevant question is whether the AD group has a different development pattern of attachment, or of TABP, than the AI group or than Type B post-MI patients. It is also relevant to study whether the post-MI crisis has different meanings (as suggested by the theory proposed here) to the various groups.

The theory suggested here does not pretend to be exclusive. The vital point is that theories should be formulated in order to direct further studies and to compare rehabilitation programs. Accordingly, it would be desirable to formu-

late other testable theories leading to a better understanding of post-MI adjustment processes. These theories can either be new, or variations of those already known.

7. Rehabilitation. In order to test the thesis, the suggested rehabilitation program should be carried out and tested for its efficiency as compared with other programs and with spontaneous adjustment. Answers to the following questions should be determined:

(a) Will the suggested differential program yield a better outcome than a random classification of post-MI patients to the two suggested rehabilitation processes?

(b) Will the AD group, if exposed to the suggested program stages yield better adjustment outcomes than a control AD group exposed to a one-stage program or mixed with members of the other three groups?

(c) Will AI, BI, and BD patients have different adjustment outcomes if rehabilitated in separate groups, as opposed to in one group?

(d) What are the optimal therapeutical techniques to cope with the dependent-independent conflict of the AD group, and with different aspects of adjustment methods - psychodynamic, cognitive, behavioral, etc.?

8. TBBP. A further study of the TBBP should be undertaken. There is a need to inquire into the personality factors that can predict differential adjustment of Type B patients.

9. Family. The adjustment of the family as a complicated interpersonal structure according to the present study's hypotheses should be studied.

10. Power Struggle of Type A's. The discussion suggests that the issue of power struggle of Type A's within the family, represents their attitude to other aspects of their life style. This idea requires further investigation.

11. Medical Condition and Medications. Further research should deal with the effect of the patients' medical condition and the medications they received, on their adjustment patterns.

12. Other Diseases. It is important to ascertain whether the studies, ideas, and outcomes presented here can be generalized for other chronic diseases such as cancer, hemodialysis, diabetes and back problems, and accordingly to design and test rehabilitation programs for these patients.

13. Spouses. Further research should be directed to understanding the effect of wives' personality on the rehabilitation of the patient and the family.

14. Population. The present study dealt with Western males. Future studies should investigate adjustment processes of post-MI women and members of other ethnic groups.

Some of the above mentioned issues for further research are derived from conceptual and methodological limitations of the present study. Other issues are brought forward with the intent of validating the findings and theoretical assumptions of the present study, or even to open new horizons for the understanding of the personality processes that are involved in the improvement of quality of life of the post-MI patient.

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APPENDIX I

Descriptive and Empirically-Oriented Studies on Typical Intervention and Therapeutic Methods

There are three intervention methods: group therapy for post-MI patients, individual therapy or case studies, and family therapy for the patient and his wife.

Researchers who advocate Group Therapy include Bilodeau and Hackett (1971); Friedman (1979,1982); Hackett (1978); Hart (1980); Ibrahim et al. (1974); Levenkron et al. (1982); Navaco (1976); Rahe (1975); Rahe et al. (1973,1975,1979); Robinson (1983); Rosenman et al. (1977); Roskies (1979); Roskies et al. (1978); Segev et al. (1975); Segev and Schlezinger (1981); Southern and Smith (1982); Suinn (1974,1975,1977); Suinn et al. (1965).

Researcher who advocate Individual Therapy include Baile and Bruce et al. (1963); Engel (1978); Girdano and Girdano (1977); Gruen (1975); Hellerstein and Ford (1957); Kentala (1972); Opitz (1978); Suinn et al. (1965); Tirrell and Hart (1980); Wenger (1978).

Researchers who advocate Family Therapy (patients and wives) include Anderson (1973); Baden (1972); Mayou (1981); Segev and Schlezinger (1981).

The intervention methods use a combination of the following therapeutic methods:

1. Physical exercise and relaxation
2. Cognitive guidance and counselling
3. Emotional support
4. Stress management programs
5. Behavior modification
6. Psychodynamic approach

1. Physical exercises and relaxation: Baile and Engel (1978); Bruce et al. (1963,1976); Cassem and Hackett (1973); Clausen (1976); Girdano and Girdano (1977); Gottheimer (1968); Hellerstein and Ford (1957); Kentala (1972); Mayou (1981); Mitchell (1975); Opitz (1978); Redwood et al. (1972); Tirrell and Hart (1980); Wenger (1978).

2. Cognitive guidance and counselling: Baile and Engel (1978); Billings (1981); Friedman (1979); Friedman and Rosenman (1974); Friedman et al. (1982,1984); Mayou (1981); Rahe (1975); Rahe et al. (1975,1979); Suinn (1974,1975); Suinn et al. (1965,1978).

3. Emotional support: Anderson (1973); Friedman (1979); Friedman et al. (1982); Gruen (1975); Rahe (1975); Rahe et al. (1973,1975); Suinn (1974,1975); Suinn et al. (1965,1978).

4. Stress management programs: Naismith et al. (1979); Suinn (1974,1975,1977,1978,1980,1982); Suinn et al. (1965); Wenger (1978).

5. Behavior modification: Anderson (1973); Friedman (1982); Hart (1980); Levenkron et al. (1982); Southerns and Smith (1982); Suinn (1974,1975,1977); Suinn et al. (1965,1978); Rahe et al. (1975); Roskies (1979); Roskies et al. (1978).

6. Psychodynamic approach: Ibrahim et al. (1974); Levenkron et al. (1982); Rosenman and Friedman (1977); Roskies et al. (1978).

APPENDIX II

Studies that Relate to Changes in Coronary Risk Factors as a Criterion for Post-MI Adjustment

Studies include those of American Heart Association Report (1960); Bruce (1974); DeBacker et al. (1974); Hackett and Cassem (1978); Heinzelmann (1973); Hellerstein (1968); Herd (1981); Kannel (1976); Kavanagh and Shephard (1973); Kavanagh et al. (1970); Kellerman (1975); Mayou (1979,1981); Mayou et al. (1978); Naughton (1975); Opitz (1978); Rechnitzer et al. (1972); Rigner and Wilhelmson (1970); Wenger (1977,1979).

APPENDIX III

Studies that Relate to Changes in Psycho-social Aspects in the Life of Post-MI Patients as a Criterion for Rehabilitation

Studies include those of Anderson and Shiller (1974); Billings (1981); Bruhn et al. (1971); Byrne (1982); Byrne et al. (1981); Cay et al. (1972,1973); Croog et al. (1971); Doehrman (1977); Fisher (1970); Frank et al. (1979); Garrity (1973); Hay et al. (1970,1973); Kellerman et al. (1968); Mayou (1979,1981); Mayou et al. (1976,1978); Monterio (1972,1973); Moss et al. (1974); Mulcahy et al. (1972); Naismith et al. (1979); Philip et al. (1981); Schiller (1972); Shapiro et al. (1972); Steger and Chisholm (1977); Stern et al. (1976,1977); The Review Panel of the NIHLB (1981); Theorell and Rahe (1972); Thocloth et al. (1973); Tobis (1974); Winefield and Martin (1981); Wrzesniewski (1980).

APPENDIX IV

Personal Information Form

Name _____ Age _____ Date of Birth _____

Education _____ Occupation _____

Status at work _____

Diagnosis _____

Date of MI _____

Other significant diseases (and dates):

_____

Medical follow-up by Dr. _____ Tel. _____

Date returned to work _____

Date returned to work on full time terms _____

Married: yes no Children: No. _____ Ages _____

Adress _____

Tel. _____

Date _____

APPENDIX V

Medical Information Check List for Post-MI Patients

					Compliance with medical advice* 1 = yes 2 = more or less 3 = no
1. Status at work	improved	no change	worse	much worse	1 2 3
2. Physical activity at work	increased	no change	decrease	substantial decrease	1 2 3
3. Body weight	increased	no change	decrease	substantial decrease	1 2 3
4. Cardiac diet	meticulous	occasional lapses	partial	little or none	1 2 3
5. Smoking	stopped	reduced	no change	increased	1 2 3
6. Consumption of medication	meticulous	occasional lapses	erratic	nil	1 2 3
7. Sexual intercourse	increased	no change	decrease	substantial decrease	1 2 3
8. Leisure activities	increased	no change	decrease	substantial decrease	1 2 3
9. Satisfaction with leisure activities	improved	no change	worse	much worse	1 2 3
10. Physical activity	increased	no change	decrease	substantial decrease	1 2 3
11. Mood (tension, anxiety, depression)	improved	no change	moderate decrease	substantial increase	1 2 3
12. Exposure to stress situations	increase	no change	decrease	substantial decrease	1 2 3

* The rating system is explained in Chapter 6 - "The structured interview".

13.	Visits to doctor's office	more times than invited	follows appoint-ments	occasion-al lapses	no follow-up visits	1 2 3
14.	Considers his health situation as	improved	no change	worse	much worse	1 2 3
15.	Participation in domestic chores and responsibility	increased	no change	slight decrease	consider-able decrease	1 2 3
16.	Style of life	too active	generally active	generally passive	too passive	1 2 3
17.	Approach to diagnosis	denies diagnosis	denies severity of diagnosis	accept diagnosis	exaggerate severity of diagnosis	1 2 3
18.	Facing the future	optimistic	apathetic	pessi-mistic	depressive	1 2 3
19.	Self-image	healthier than before MI	healthy	slightly sick	severly sick	1 2 3
20.	Social relationships	improved	no change	worse	much worse	1 2 3

APPENDIX VI

Differences Between Patients with one MI and Patients with More Than one MI

Table 18

Means and SD of Patients with One MI and Patients with More than One MI on Five Indices of Adjustment

Groups		Emotional adjustment	Family adjustment	Medical behavior	IPAT	CSBP
One MI (N=66)	M	0.09	0.07	-0.04	27.88	15.06
	SD	1.12	1.05	1.12	10.90	12.80
More than one MI (N=13)	M	-0.47	-0.36	0.21	34.23	16.61
	SD	1.06	0.91	0.93	12.33	10.57

Table 19

Means and SD of Patients with One MI and Patients with More than One MI on MAT

Groups	N	Marital adjustment
One MI (N=55)	M	111.09
	SD	29.76
More than one MI (N=11)	M	106.82
	SD	34.65

Table 20

Univariate Test of Significance with (1,77) DF for Five Indices of Adjustment

Variables	Hypoth. SS	Error SS	Hypoth MS	Error MS	F	Sig. of F
Emotional adjustment	3.65	109.30	3.65	1.42	2.57	.113
Family adjustment	1.97	83.56	1.97	1.08	1.81	.181
Medical behavior	.65	104.20	.65	1.35	.48	.490
IPAT	438.20	9535.34	438.20	123.83	3.54	.064
CSBP	26.25	11982.83	26.25	155.62	.17	.682

APPENDIX VII

2x2 MANOVA (Behavioral Styles x Dependency) on Five Indices of Adjustment for 66 patients with One MI

Table 21

Multivariate Test of Significance with (5,58) DF on Five Indices of Adjustment

Source	Wilks'	Approx. F	Sig. of F
Behavioral styles x dependency	.74	4.03	.003
Behavioral styles	.67	5.64	.000
Dependency	.72	4.61	.001

Table 22

Univariate F-Test with (1,62) DF for Interaction Effect of Behavioral Styles and Dependency

Variables	Hypoth. SS	Error SS	Hypoth MS	Error MS	F	Sig. of F
Emotional adjustment	3.79	54.06	3.79	0.87	4.34	.041
Family adjustment	1.42	64.47	1.42	1.04	1.36	.247
Medical behavior	0.05	79.08	0.05	1.28	0.04	.850
IPAT	291.12	5124.62	291.12	82.65	3.52	.065
CSBP	1525.77	7882.26	1525.77	127.13	12.00	.001

Table 23

Univariate F-Test with (1,62) DF for The Effect of Behavioral Styles

Variables	Hypoth. SS	Error SS	Hypoth MS	Error MS	F	Sig. of F
Emotional adjustment	8.42	54.06	8.42	0.87	9.66	.003
Family adjustment	0.15	64.47	0.15	1.04	0.14	.705
Medical behavior	0.74	97.08	0.74	1.27	0.58	.449
IPAT	829.15	5124.62	829.15	82.65	10.03	.002
CSBP	136.53	7882.26	136.53	127.13	1.07	.304

Table 24

Univariate F-Test with (1,62) DF for the Effect of Dependency

Variables	Hypoth. SS	Error SS	Hypoth MS	Error MS	F	Sig. of F
Emotional adjustment	4.69	54.06	4.69	0.87	5.38	.024
Family adjustment	0.30	64.47	0.30	1.04	0.29	.593
Medical behavior	1.33	79.08	1.33	1.27	1.04	.312
IPAT	439.86	5124.62	439.88	82.65	5.32	.024
CSBP	168.70	7882.26	168.70	127.13	1.33	.254

Table 25

2x2 ANOVA for Behavioral Styles x Dependency on MAT

Sources of variation	Sum of squares	DF	Mean square	F	Sig. of F
Within cells	50186.37	62	809.46		
Constant	663582.55	1	663582.55	819.79	.000
Type A/Type B (A/B)	1734.07	1	1734.07	2.14	.148
Dependency/ Independency (D/I)	645.88	1	645.88	.80	.375
A/B by D/I	5520.72	1	5520.73	6.82	.011

APPENDIX VIII

2x2 MANCOVA for Five Indices on Adjustment

Table 26

Multivariant Test of Significance with (5,70) DF for Five Indices of Adjustment After Covariation

Source	Wilks'	Approx. F	Sig. of F
Behavioral styles x dependency	.73	5.08	.00
Behavioral styles	.68	6.45	.00
Dependency	.75	4.78	.00

Table 27

Univariate F-Test with (1,74) DF Between Behavioral Styles x Dependency Interaction after Covariation

Variables	Hypoth. SS	Error SS	Hypoth MS	Error MS	F	Sig. of F
Emotional adjustment	6.64	62.46	6.64	0.84	7.87	.006
Family adjustment	1.55	77.93	1.55	1.05	1.47	.229
Medical behavior	0.03	88.28	0.03	1.19	0.03	.870
IPAT	561.91	5697.06	561.91	76.99	7.30	.009
CSBP	1007.37	9081.90	1007.37	122.73	8.21	.005

Table 28

Univariate F-Test with (1,74) DF for Behavioral Styles Effect after Covariation

Variables	Hypoth. SS	Error SS	Hypoth MS	Error MS	F	Sig. of F
Emotional adjustment	9.26	62.46	9.26	.84	10.97	.001
Family adjustment	1.41	77.93	1.41	1.05	1.33	.251
Medical behavior	1.71	88.28	1.71	1.19	1.43	.235
IPAT	969.85	5697.06	969.85	76.99	12.60	.001
CSBP	255.32	9081.91	255.32	122.73	2.08	.153

Table 29

2x2 ANCOVA for Behavioral Styles x Dependency with the Duration Between MI and Assessment of Adjustment as Covariate for MAT

Sources of variation	Sum of squares	DF	Mean square	F	Sig. of F
Within cells	50168.95	61	822.44		
Regression	17.41	1	17.41	.02	.885
Constant	168247.74	1	168247.74	204.57	.000
Behavioral styles (Type A/Type B)	1743.32	1	1743.32	2.12	.151
Dependency/ (D/I)	654.56	1	654.56	.79	.376
Behavioral styles x Dependency	5326.64	1	5326.64	6.48	.013

APPENDIX IX

Raw scores for the quantitative Measurements

Patient No.	JAS	IDI	IPAT	MAT	CSBP
1	5.8	259	40	101	28
2	-1.5	190	18	87	5
3	14.6	136	25	88	10
4	-7.7	124	24	100	10
5	6.0	179	32	54	27
6	13.5	179	40	137	2
7	5.5	247	38	122	30
8	2.1	186	20	114	22
9	16.6	224	42	-	25
10	8.8	186	52	85	32
11	11	174	18	78	5
12	5.8	236	44	22	22
13	18.7	227	49	145	35
14	13.5	229	38	122	-5
15	16.7	125	25	103	5
16	-13.4	157	22	94	0
17	10.6	213	18	143	2
18	15.3	260	49	79	20
19	16	184	38	143	27

Patient No.	JAS	IDI	IPAT	MAT	CSBP
20	-2	203	12	109	0
21	-9	212	23	150	13
22	9.8	180	22	131	25
23	11.8	213	41	53	30
24	-1.9	186	31	93	10
25	-5.2	155	17	130	25
26	-13.7	140	25	-	35
27	-2.8	143	11	152	-10
28	-7.1	163	20	131	30
29	15.0	210	21	-	20
30	7.0	178	30	102	25
31	0.0	183	41	115	25
32	9.8	179	9	-	25
33	-2	181	32	-	0
34	-1.4	218	22	140	5
35	14.6	250	48	81	30
36	14.8	199	45	116	30
37	-7.1	194	13	152	10
38	9.71	150	44	119	10
39	13.1	185	38	89	40
40	18.8	216	42	91	0
41	15.3	128	25	-	10
42	6.6	249	30	68	20

Patient No.	JAS	IDI	IPAT	MAT	CSBP
43	-3.0	187	11	145	10
44	-7.0	165	30	89	0
45	-3.6	180	38	128	10
46	9.6	214	35	110	27
47	6.3	181	18	82	0
48	-0.5	186	18	144	26
49	8.7	227	49	-	24
50	-7	171	14	-	0
51	-17	212	23	-	25
52	3.8	203	30	-	22
53	10.8	182	38	119	25
54	-2.9	162	22	65	10
55	7.0	203	35	66	35
56	14.6	246	22	109	30
57	15.3	136	25	112	0
58	8.7	206	31	113	25
59	-2.6	133	23	116	25
60	12.5	208	40	104	21
61	12.6	168	22	81	0
62	12.9	223	45	-	0
63	-10.3	188	13	192	0
64	5.5	167	17	140	25
65	18.7	191	48	53	10

Patient No.	JAS	IDI	IPAT	MAT	CSBP
66	10.4	156	24	120	10
67	2.2	214	35	107	30
68	5.1	205	46	106	20
69	10.0	135	17	110	0
70	3.5	343	39	110	10
71	-1.4	282	20	156	-5
72	2.1	159	17	144	10
73	12.6	200	18	-	10
74	3.1	182	22	113	0
75	-16.8	210	24	113	0
76	8.8	237	25	148	35
77	14.1	154	15	103	0
78	-5.0	160	26	-	0
79	9.0	132	36	148	20

APPENDIX X

Raw Scores for the Qualitive Measurements

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1	Adjustment to occupational life	-	-	•	•	-	-	-	-	-	-	•	-	-	•	•	•	•	-	•	•
2	Return to work	•	•	•	•	-	•	•	•	-	•	•	•	•	•	•	•	•	•	•	•
3	Changes in work habits	-	-	•	•	-	-	-	-	-	-	•	-	-	-	•	•	-	-	-	•
4	Attitude toward promotion	-	-	•	•	-	-	-	o	-	-	•	-	-	•	•	•	•	•	•	•
5	Satisfaction at work	-	•	•	•	-	-	-	-	-	-	•	-	-	•	•	•	•	-	•	•
6	Medical behavior	-	•	•	•	-	-	-	-	•	•	•	-	-	-	•	•	•	-	•	•
7	Smoking	-	-	•	-	o	•	•	-	o	•	-	-	-	•	-	•	-	•	o	•
8	Weight control	-	•	•	•	•	-	•	-	•	•	•	-	-	-	•	•	•	-	•	-
9	Cardiac diet	-	•	•	-	-	-	-	-	-	•	•	-	•	-	•	•	•	-	•	•
10	Physical exercise	-	•	•	•	-	-	-	-	•	-	•	-	-	-	-	•	-	-	•	•
11	Medical follow-up	-	•	•	•	-	•	•	•	•	-	•	-	•	•	•	•	•	•	•	•
12	Consumption of medications	•	•	•	•	-	•	-	•	-	•	•	-	-	•	•	•	•	•	•	•
13	Openess to information	-	•	•	•	o	-	-	o	•	o	•	o	-	o	•	o	-	o	-	o
14	Personal life style	-	•	•	•	-	-	-	-	•	-	•	-	-	•	•	•	•	-	•	•
15	Social life	-	•	•	•	-	-	•	-	•	-	-	-	-	•	•	•	•	•	-	•
16	Leisure-time activities	-	•	•	•	-	•	-	-	•	-	•	-	-	•	-	•	•	-	-	•
17	Activity style	-	•	•	•	-	-	-	-	•	-	•	-	-	-	•	•	•	-	•	•
18	Self health image	-	-	•	•	-	-	-	-	•	-	•	-	-	•	•	•	-	-	•	•
19	Realistic attitude to MI	•	-	•	•	-	-	-	-	•	-	•	-	-	-	•	•	-	•	•	•
20	Emotional state	-	•	•	•	-	-	-	-	-	-	•	-	-	-	•	•	-	-	-	•
21	Mood	-	•	•	•	-	-	-	-	-	-	•	-	-	-	•	•	-	-	-	•
22	Emotional approach to MI	-	•	•	•	-	-	-	-	-	-	•	-	-	•	•	•	-	-	-	•
23	Family relations	-	-	•	•	-	-	•	-	o	-	•	-	-	•	•	•	•	-	•	•
24	Structural changes	•	-	•	•	-	•	•	•	o	•	•	•	•	•	•	•	•	•	•	•
25	Interpersonal atmosphere	-	-	•	•	-	-	•	-	o	-	•	-	-	•	•	•	•	-	•	•
26	Intimacy	-	-	•	•	-	-	•	-	o	-	•	-	-	•	•	•	•	-	•	-
27	Power struggle	-	-	•	•	-	-	•	-	o	-	-	-	-	-	•	•	-	-	-	•
28	Family manipulations	-	-	•	•	-	-	-	-	o	-	•	-	-	-	-	•	-	-	-	•
29	Sexual adjustment	-	•	-	•	-	-	-	-	o	-	•	-	•	•	•	•	•	-	•	•

		21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
1	Adjustment to occupational life	•	-	-	•	•	•	•	•	•	-	-	•	-	•	-	-	•	-	-	-
2	Return to work	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-
3	Changes in work habits	•	-	-	•	•	•	•	•	•	-	-	•	-	•	-	-	•	-	-	•
4	Attitude toward promotion	•	o	-	•	•	•	•	•	•	-	-	•	-	•	•	•	•	•	-	-
5	Satisfaction at work	•	•	•	•	•	•	•	•	-	-	-	•	-	•	-	-	•	-	-	-
6	Medical behavior	•	•	-	•	•	•	•	•	-	-	-	•	•	•	•	•	•	•	-	-
7	Smoking	•	•	-	-	-	o	-	•	-	-	-	•	•	•	•	o	•	•	•	-
8	Weight control	•	•	-	•	•	•	•	•	-	-	-	•	-	•	•	•	•	•	-	-
9	Cardiac diet	-	•	-	•	•	•	•	-	-	-	-	•	-	-	•	•	•	•	-	-
10	Physical exercise	•	•	-	•	•	•	•	•	•	-	-	-	•	•	-	-	•	•	-	-
11	Medical follow-up	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	-	•
12	Consumption of medications	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
13	Openess to information	o	o	•	•	•	•	•	•	o	o	-	•	•	•	o	-	•	•	-	-
14	Personal life style	•	•	-	•	•	•	•	•	-	-	-	•	•	•	-	-	•	-	-	-
15	Social life	•	•	-	•	•	•	•	•	•	-	-	•	•	•	-	-	•	•	-	-
16	Leisure-time activities	•	•	•	•	•	•	•	•	-	-	-	•	•	•	-	-	•	-	-	-
17	Activity style	•	•	-	•	•	•	•	•	•	-	-	•	•	•	-	-	•	-	-	•
18	Self health image	-	•	-	•	•	•	•	•	-	-	-	•	•	•	-	•	•	-	-	-
19	Realistic attitude to MI	-	•	•	•	•	•	•	•	•	•	-	•	•	•	-	•	•	•	-	•
20	Emotional state	•	-	-	•	•	•	•	•	-	-	-	-	-	•	-	-	•	-	-	-
21	Mood	•	-	-	•	•	•	•	•	-	-	-	-	-	•	-	-	•	-	-	-
22	Emotional approach to MI	•	-	-	•	•	•	-	•	•	-	-	•	•	•	-	-	•	-	-	-
23	Family relations	•	•	-	•	•	-	•	•	-	-	-	-	•	•	-	-	•	•	-	-
24	Structural changes	•	•	•	•	•	o	•	•	-	•	•	-	•	•	•	•	•	•	•	•
25	Interpersonal atmosphere	•	•	-	•	•	o	•	•	-	-	-	-	•	•	-	•	•	•	-	-
26	Intimacy	•	•	-	•	•	o	•	•	-	-	-	-	•	•	-	-	•	•	-	-
27	Power struggle	•	-	-	•	•	o	-	•	-	-	-	-	-	-	-	-	-	-	-	-
28	Family manipulations	•	-	-	•	•	o	-	•	-	-	-	-	-	-	-	-	-	-	-	-
29	Sexual adjustment	-	-	•	-	-	o	•	•	•	-	•	-	•	•	-	-	•	-	-	•

		41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
1	Adjustment to occupational life	•	-	•	•	•	-	•	-	-	-	•	•	-	•	•	-	-	-	•	-
2	Return to work	•	•	-	•	•	•	•	•	-	-	•	•	•	•	•	•	•	•	•	•
3	Changes in work habits	•	-	•	•	•	-	•	•	•	•	•	-	-	•	•	-	-	-	•	-
4	Attitude toward promotion	•	-	•	-	•	-	•	•	•	o	•	•	•	•	•	-	-	-	•	-
5	Satisfaction at work	-	-	•	-	•	-	•	-	-	o	•	•	-	-	•	•	•	•	•	-
6	Medical behavior	•	-	•	•	•	-	-	-	-	•	•	-	•	•	-	-	•	•	•	-
7	Smoking	-	-	-	•	-	-	-	-	-	-	•	•	o	-	-	-	o	•	•	-
8	Weight control	•	-	•	-	•	-	-	-	•	•	•	-	•	•	-	•	•	•	•	-
9	Cardiac diet	•	-	•	-	-	-	-	-	-	•	-	-	•	•	-	-	-	-	•	-
10	Physical exercise	•	-	•	•	-	-	•	-	-	•	-	-	-	•	-	-	•	•	-	-
11	Medical follow-up	•	•	•	•	•	•	•	-	•	•	•	•	•	•	•	-	•	•	•	•
12	Consumption of medications	•	•	•	•	•	-	-	•	•	•	•	•	•	•	•	-	•	•	•	-
13	Openess to information	•	-	•	•	•	•	•	-	o	•	•	•	•	-	-	-	•	•	•	-
14	Personal life style	•	-	•	-	•	-	•	•	-	•	•	-	-	•	-	-	•	•	•	•
15	Social life	•	-	•	•	•	-	•	•	-	•	•	-	-	•	•	-	•	•	•	•
16	Leisure-time activities	•	-	•	-	o	-	•	•	-	•	•	-	-	•	-	-	•	•	•	-
17	Activity style	•	-	•	-	•	-	•	•	-	•	•	-	-	•	-	-	•	•	•	•
18	Self health image	•	-	•	-	-	•	-	-	-	•	•	-	-	•	-	•	•	•	•	•
19	Realistic attitude to MI	•	-	•	•	•	•	•	-	•	•	•	•	•	•	-	-	•	•	•	•
20	Emotional state	-	-	•	-	-	-	-	-	-	•	•	-	-	•	-	-	•	•	•	-
21	Mood	-	-	•	-	-	-	-	-	-	•	•	-	-	•	-	-	•	•	•	-
22	Emotional approach to MI	-	-	•	-	-	-	-	-	-	•	•	-	-	•	-	-	•	•	-	-
23	Family relations	o	-	•	-	•	-	-	•	-	-	-	-	•	-	-	-	•	•	•	-
24	Structural changes	o	•	•	•	•	•	•	•	-	•	-	-	•	•	•	•	•	•	•	•
25	Interpersonal atmosphere	o	-	•	-	•	•	-	•	-	-	-	-	•	-	-	-	•	•	•	-
26	Intimacy	o	-	•	-	•	-	-	•	-	-	-	-	•	-	-	-	•	•	•	-
27	Power struggle	o	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	•	•	-
28	Family manipulations	o	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	•	•	•	-
29	Sexual adjustment	o	-	-	•	-	-	•	•	-	-	o	•	•	•	-	-	•	-	•	-

		61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79
1	Adjustment to occupational life	•	-	•	•	-	•	-	-	•	-	•	•	-	-	•	-	•	•	•
2	Return to work	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
3	Changes in work habits	•	-	•	-	-	•	-	-	-	-	•	-	-	-	•	-	-	•	•
4	Attitude toward promotion	•	-	•	•	-	•	-	•	•	-	•	•	-	-	•	-	•	•	•
5	Satisfaction at work	•	•	•	•	-	•	-	-	•	-	•	•	•	•	•	•	•	•	•
6	Medical behavior	•	•	•	•	-	•	-	•	•	•	•	•	-	-	•	-	•	•	•
7	Smoking	•	o	-	•	-	•	•	•	o	•	•	•	-	-	o	o	-	o	-
8	Weight control	-	•	•	-	-	•	-	•	•	-	•	•	-	•	-	-	•	•	•
9	Cardiac diet	-	•	•	-	•	•	-	-	-	-	•	•	-	-	•	-	-	•	•
10	Physical exercise	•	•	•	•	-	•	-	•	•	•	•	•	-	-	•	-	•	•	•
11	Medical follow-up	•	•	•	•	•	•	-	-	•	•	•	-	•	-	•	-	•	•	•
12	Consumption of medications	•	•	•	•	•	•	-	•	•	•	•	•	•	-	•	•	•	•	•
13	Openess to information	o	•	•	•	-	•	-	o	o	o	o	•	-	-	•	•	•	•	•
14	Personal life style	•	•	•	•	-	•	-	•	•	-	•	•	-	-	•	-	•	•	•
15	Social life	•	•	•	•	-	•	-	•	•	-	•	•	•	•	•	•	•	•	•
16	Leisure-time activities	•	•	•	-	-	•	-	•	•	-	•	•	-	•	•	-	•	•	•
17	Activity style	•	•	•	•	-	•	-	•	•	-	•	•	•	-	•	•	•	•	•
18	Self health image	•	•	•	-	-	•	-	-	•	-	•	•	-	-	•	-	•	•	•
19	Realistic attitude to MI	•	•	•	-	•	•	-	-	•	•	•	•	•	-	•	-	•	•	•
20	Emotional state	•	•	•	•	-	-	-	-	•	-	•	•	•	-	•	-	•	•	-
21	Mood	•	•	•	•	-	-	-	-	•	-	•	•	•	-	•	-	•	-	-
22	Emotional approach to MI	•	•	•	•	-	•	-	-	•	-	•	•	-	-	•	-	•	•	•
23	Family relations	•	•	•	•	-	•	-	-	•	-	•	•	-	-	•	-	-	o	•
24	Structural changes	•	•	•	•	•	•	•	•	•	•	•	•	-	•	•	•	•	o	•
25	Interpersonal atmosphere	•	•	•	•	-	•	-	-	•	-	•	•	-	-	•	-	-	o	•
26	Intimacy	•	•	•	•	•	•	-	-	•	-	•	•	-	-	•	•	-	o	•
27	Power struggle	•	•	•	•	-	•	-	-	•	-	-	-	-	-	•	-	-	o	•
28	Family manipulations	•	•	•	•	-	•	-	-	•	-	-	-	-	-	•	-	-	o	•
29	Sexual adjustment	-	•	•	•	-	-	•	•	•	-	-	•	-	-	•	-	•	•	•

- maladjusted
• adequately adjusted
o missing values