To the Graduate Council:

I am submitting herewith a dissertation written by Peter Watrous entitled "Life Events and Resistance to Disease: An Uncontrolled Clinical Study." I have examined the final copy of this dissertation for form and content and recommend that it be accepted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, with a major in Psychology.

Leonard Handler, Major Professor

We have read this dissertation
and recommend its acceptance:

Accepted for the Council:

Vice Chancellor
Graduate Studies and Research

LIFE EVENTS AND RESISTANCE TO DISEASE:

AN UNCONTROLLED CLINICAL STUDY

A Dissertation

Presented for the

Doctor of Philosophy

Degree

The University of Tennessee, Knoxville

Peter Watrous

March 1983

ACKNOWLEDGMENTS

I am indebted to the members of my Doctoral Committee, Leonard Handler (Chairman), Harold Fine, Kenneth Newton, and Francis Trusty for their assistance in helping me to complete this difficult task. I have learned from the teachings of each of these men, and if not more wise and mature as the result of my experiences with them, I am at least more enriched with unforgettable memories. To Len Handler, who stood behind me throughout my training and assisted me through the passages of becoming a psychologist and psychotherapist, I am especially grateful.

Pam Walker, had it not been for your love, patience, support, and nimble typing, God knows I never would have finished.

ABSTRACT

The purpose of this study was to gather information about persons who have experienced extremely high levels of life change without attendant health decline. Following an extensive literature review, six domains of mediating variables in the life event-illness pathway were established. These domains were labeled psychosocial adaptation, perception of life events, personality, physical status, health care orientation, and coping. Data representing each domain were collected on a sample of 10 well-educated adult volunteers. The group included five males and five females. Criteria for selection required a Social Readjustment Rating Scale score above 300 for a recent 12 month period together with freedom from significant illness in the year prior to the study.

Data concerning the six domains of moderator variables were collected by means of interviews, a rating procedure for assessing the personal impact of life events, the MMPI, and the Interpersonal Adjective Check List. The Leary method was also applied to the MMPI and IACL results.

Findings from the study emphasized the preeminence of life event perception as a mediating variable. Where Ss appeared to be unique was at the level where life event perceptions were integrated with self-perceptions and broader attitudes about life in general. Ss consistently emphasized personal strength, self-reliance, and self-confidence in their self-views, and in their outlooks on life, they generally shared an attitude of optimism and acceptance.

MMPI correlates of the Ss' optimistic and relativistic world views were equivocal, and the discovery that half of the Ss had experienced some form of stress-related health problems in earlier years argued against the primacy of intrinsic biological or personality factors in the formulation of the Ss' good health. Data concerning the Ss' health histories, self-care habits, and coping styles were also collected and discussed.

TABLE OF CONTENTS

CHAPTER PAGE

LIST OF TABLES

LIST OF FIGURES

INTRODUCTION

Disenchantment with health care theory and practice has been increasingly evident in this country during the past two decades. The skyrocketing number of medical malpractice suits speaks to the public's disgruntlement, while the recent appearance of so many holistic health publications reflects the professional world's dissatisfaction with the present health care model. Medicine, which dictates for the most part the prevailing health care orientation, has repeatedly been faced with the charge that in its passion for specificity--specific pathogens and specific cures--it has taken too narrow-minded an approach to understanding human illness. Complaints that medicine is too preoccupied with pathology and not enough concerned with health maintenance and disease prevention have also been echoed and reechoed. What reformers are demanding is that health care become guided by a more holistic philosophy in which social, psychological, and behavioral aspects of health and illness become more figural.

The reform effort has not been without effect. Health care delivery is increasingly coming to be a multidisciplinary effort in which psychologists, social workers, and others join the ranks of physicians and nurses in providing health care services. Health researchers, meanwhile, have been more active in studying the roles which psychosocial factors play in influencing health status. Nowhere has this been more apparent than in the work relating stress and

disease, particularly in the great many studies relating life changes and disease. These latter studies have involved comparisons of subjects' recent life event histories with their subsequent health status, and as a result of this work, there is now abundant evidence linking life changes with illness experience. Not only does the evidence suggest that the probability of illness increases as life change magnitude increases, but also that the seriousness of illness is likely to increase with increasing levels of life change.

Although the relationship between life change and illness has now been widely documented, charting of the social, psychological, and physiological contingencies which influence health outcome where life change is elevated remains very much incomplete. Preliminary models of the life event-illness pathway and its mediating variables have been tendered by life event researchers, but thus far there has been little research directed towards validating and articulating these models. Unfortunately, the lack of theoretical development in this area has left researchers rather muddled in their attempts to detail the particulars of the life event-illness relationship. Especially problematic is the repeated finding that significant proportions (20%-30%) of very high life change populations do not seem to experience increased morbidity. The life event-illness literature contains numberous suggestions concerning factors that might account for the remarkable resistance which these individuals show to illness, but as yet there is insufficient empirical evidence to corroborate speculation.

Studies of individuals who remain healthy despite life situations which are predictive of illness capture the spirit of the holistic health movement and offer tremendous promise for preventive health care. As the means by which these individuals maintain their good health become clear, it may be possible to apply this knowledge toward helping other high-risk individuals remain healthy. Such studies will also contribute to theoretical understanding of the life event-illness relationship by helping to identify the more significant intervening variables in the life event-illness pathway. The purpose of the present study, therefore, is to explore how it is that some people do not become ill under conditions of extremely high life change.

CHAPTER I

REVIEW OF THE LITERATURE

Early Life Event-Illness Research

Although the recent popularity of life event-illness research might suggest that it is an entirely modern pursuit, studies relating life events and illness have a distinctive lineage dating back at least as far as the period of the American psychosomatic movement. As the movement took form during the 1930's, it came to be characterized by three opposing divisions (Powell, 1977). The first of these, under the leadership of psychoanalyst Franz Alexander, concentrated almost exclusively on complex psychodynamics and unconscious psychic content in its attempts to track the origins of specific psychosomatic disorders. A second group, led by Helen Flanders Dunbar, became known for its attempts to link psychosomatic illnesses and personality patterns. The third group emphasized the somatic aspects of psychosomatic illness and consequently focused on physiology, tissue function, and homeostatic mechanisms.

Having a major influence on the somatically-oriented group was the Candian, Hans Selye, whose discovery of the "general adaptation syndrome" (1936) paved the way to the first concept of stress. Selye's definition of stress as "the nonspecific response of the body to any demand" (1956) and his emphasis on physiological mechanisms clearly indicated that to Selye, stress was a somatic, and not a psychologic, event. As the term gained familiarity, however, it soon

began to carry psychological connotations, especially for those researchers interested in psychological and social aspects of the disease process. A group began forming in which the primary research interest was the relationship between physical illness and the psychosocial milieu, and to these researchers, "stress" was a more general term which included both psychological and physiological elements. Indicative of its more organismic frame of reference, the group began referring to "life stress" in place of "stress," and life stress came to be seen as having major etiologic significance for a multitude of physical disorders. In the life stress-illness formulation, stress-induced changes in emotional state were seen to enhance illness susceptibility by causing disturbances in physiological homeostasis. Unfortunately, life stress researchers tended to ignore distinctions between stress and stressors, so that the already global notion of life stress became even further ill-defined.

The seminal philosophy of life stress-illness reserach proceeded largely from Adolf Meyer's teachings in psychobiology during the 1930's. Meyer's (1951) development of the "life chart" for making psychosomatic diagnoses was especially important. Although physicians had long assumed a relationship between life events and the courses of diseases such as peptic ulcer, hypertension, asthma, and angina pectoris, the life chart provided the first systematic means of gathering retrospective life event information for further understanding contemporary illnesses. In addition to such dramatic events as the death of a family member, the life chart was also to include more mundane events, reflecting the point of view that life events need

not be catastrophic in order to be pathogenic. As seen in the correlational, organismic approach, as well as in the mutual inclusion of both the psychologic and physiologic, the guiding theory of life stress-illness researchers was to some degree holistic.

Although psychoanalysis dominated the psychosomatic forum during the 1940's, life stress-illness research continued to take hold during this period. By 1949, Harold Wolff (1950) had called for the first symposium to review studies in which the relationship between life stress and various physical diseases had been studied. During the conference, a total of 69 papers was presented, covering a remarkable range of diseases, including disorders of growth, development, and metabolism; diseases of the eye; diseases of the airways; headache; diseases of the stomach; diseases of the colon; diseases of the muscles, joints, and periarticular structures; cardiovascular diseases; diseases of the skin; and genital disorders. Research into these areas continued into the fifties, with expansion into other disorders also beginning to take place. Holmes, Treuting, and Wolff (1951) continued to investigate the role of stressful life situations in nasal disease and concluded that a life setting engendering conflict and anxiety was significant in the etiology of hay fever. Similar findings were reported from an investigation of the relationship between stressful life events and bronchial asthma (Treuting & Ripley, 1948). Psychogenic backache was reported to be associated with life situations which threatened security and which created anxiety, apprehension, and conflict (Holmes & Wolff, 1952). A research group studying the relationship between life stress and

acne found that sebum secretion (which is associated with worsening of this condition) increased during stressful interviews, leading the team to hypothesize that stressful events in daily life were associated with the pathogenesis of acne (Lorenz, Graham, & Wolf, 1953).

A frontier which had been opened in the forties was extended as investigators continued to examine the role of stressful life situations in the development of diabetes mellitus, with results indicating a positive relationship (Hinkle & Wolf, 1952; Treuting, 1962). A relatively new area of investigation which began during this period concerned lymphomas and leukemias and their probable association with psychological factors (Green, 1954; Green, Young, & Swisher, 1956). Tuberculosis also came to be suspect as a stress-related disease, and investigations into this possibility yielded results which did link tuberculosis onset with psychosocial crises (Hawkins, Davies, & Holmes, 1957). Reviewing the early literature on object loss and pursuant physical disease, Schmale (1958) cited studies indicating correlations between real or threatened object loss and cancer, thyrotoxicosis, asthma, tuberculosis, ulcerative colitis, obesity, leukemia and lymphoma, rheumatoid arthritis, congestive heart failure, disseminated lupus erythematosus, Raynaud's Disease, infectious hepatitis, functional urine bleeding, and diabetes mellitus.

Despite the budding interest in the notion of stress as a factor in both the traditional psychosomatic diseases and also in diseases not typically regarded as psychosomatic, differential

treatment of the stress concept among physiologists and social scientists began to grow increasingly evident. While physiologists focused on physiological processes during stress, social scientists pursued the social and psychological correlates of stress. Each group tended to look upon stress differently and to define stress in terms of its own respective interests. Adding to the confusion raised by discrepant definitions of stress was the fact that the most familiar meaning of stress came from physics and referred to the force of an external agent upon an object. In contrast, as defined by Selye, stress referred to the individual's response to external pressures. As the result of different professional interests and the confounding of stress and stressors, the clarity of the stress concept left much to be desired. Disagreement among researchers contributed to the widening bifurcation of physiologists and social scientists, and further division of these two groups added in turn to the ambiguities surrounding the term "stress."

The disjunction of physiologists and social scientists in stress research has proceeded to such a point in modern times that some authors feel that stress research itself is in a state of crisis (Rose & Levin, 1979). Mason (1975) noted that "chaotic disagreement" has marked the history of the stress concept, and Hinkle (1974a) has gone so far as to suggest that the concept has outlived its usefulness. Even within the two major divisions of stress research, i.e., the physiological and psychosocial, very divergent interests and points of view are evident. Social scientists are polarized into those concerned with the psychological operations involved in stress and

those attempting to clarify the pathological dimensions of life events. In the course of its evolution, life stress-illness research has increasingly come to embody the latter interest.

In keeping with the theoretical parsimony which characterized the early roots of the school, and probably out of a wish to avoid the growing confusion associated with the stress concept, researchers taking the life stress approach to illness began redefining "life stress" in terms of "life change" during the early 1960's. This transition took place under the influence of Thomas Holmes and Richard Rahe, the second and third generation descendants of the Wolff tradition. Throughout the sixties, Holmes and Rahe shied away from the use of intervening variables and explanatory concepts in linking life events and health changes, instead falling back on cautious use of the principle of adaptation for a theoretical platform. Their position was that what made life events "stressful" was the amount of adaptational adjustment which the events required, and they argued, therefore, that it was the sheer magnitude of life change that was most predictive of changes in health status. This formulation excluded the need for intervening psychological factors, and the thrust of life event research become to simply correlate life changes and health changes. Research issuing from the Holmes-Rahe philosophy has consequently been epidemiological in nature, aimed at documenting beyond reasonable doubt that a relationship between life changes and illness does in fact exist. As the result of Holmes and Rahe's impact, not only has the term "stress" become less frequent in life event-illness research, but attempts to theoretically

incorporate psychological factors in the life change-illness relationship have also become uncommon.

Recent Life Event-Illness Research

The 1960's and 1970's witnessed a tremendous burgeoning of life event-illness research. Of major importance in the field was the rapid popularization of the Schedule of Recent Experience (SRE) following its application by Rahe, Meyer, Smith, Kjaer, and Holmes (1964). This 43 item inventory of life events was originally introduced in 1957 by Hawkins, Davies, and Holmes in their research on the development of tuberculosis among employees at the Firland Sanitarium in Seattle, but the instrument did not gain widespread attention until its usage by Rahe et al. in the following decade. Although it was admittedly a crude instrument, what made the SRE so attractive was that it allowed the researcher to make a rapid standardized assessment of the subject's premorbid psychosocial milieu. The SRE did not indicate the relative psychosocial significance of the life events it listed, but it did provide for a quick estimation of the overall magnitude of psychosocial change which had occurred in an individual's life. This was accomplished by simply counting the number of events checked off. The investigator determined the premorbid time period to be considered, and in early SRE studies, intervals typically ranged from 6 months to 2 years.

Soon after Rahe et al.'s reintroduction of the SRE, an attempt was made to derive standard weights for denoting the social readjustment requirement of each event (Holmes & Rahe, 1968). Values were

established via the creative use of a psychophysical scaling method. In the resulting Social Readjustment Rating Scale (SRRS), the weights which were assigned to SRE items were entitled Life Change Units (LCU's) and were regarded as additive. The reliability of the ranking of SRRS items was then demonstrated in a number of different American populations, as well as in several non-American groups (Harmon, Masuda, & Holmes, 1970; Holmes & Masuda, 1974; Komaroff, Masuda, & Holmes, 1968; Masuda & Holmes, 1967b; Miller, Bentz, Aponte, & Brogan, 1974; Rahe, 1969; Ruch & Holmes, 1971; Woon, Masuda, Wagner & Holmes, 1971). It should be pointed out, however, that in some of the populations studied, the mean values which subjects assigned to individual teams were significantly different from one another, indicating that the SRRS might not be equally applicable to all populations.

In pilot work with the SRRS (described by Holmes & Masuda, 1974; Rahe, 1975), Holmes and Rahe obtained LCU scores in a population of 200 resident physicians and then compared these scores with the incidence of self-reported illness. The period under study spanned the 10 preceding years. Results from this work showed a strong positive relationship between annual LCU score magnitude and the risk of illness in the following year, with the LCU value of 150 appearing to differentiate low-risk subjects from high-risk subjects. Almost all (93%) of the major health changes which the physicians reported were associated temporally (within 2 years) with a clustering of life change events whose values summed to at least 150 LCU's. The majority of subjects recording less than 150 LCU's in a given year reported good health for the following year, while illness was

reported in about half the cases where subjects recorded 150-300 LCU's in the previous year. Subjects registering more than 300 LCU's in a given year experienced illness at the rate of about 80% in the succeeding year. On the basis of these data, a "mild life crisis" was defined by LCU values between 150 and 199, a "moderate life crisis" by LCU values between 200 and 299, and a "major life crisis" by LCU values of 300 and more.

Subsequent research with the SRRS confirmed a relationship between rising LCU values and an increased probability of illness and continued to suggest that annual LCU scores of 150 and above marked pathogenic levels of life change. In a study of 2500 Navy officers and enlisted men, Rahe and Arthur (1968) compared LCU scores and illness data representing a 4 year period. The data were arranged according to 6 month intervals, with the interval containing the illness episode being designated the "illness period." The results of the study showed an increase in mean LCU totals from 100 to 125 in the 2 month periods immediately prior to an episode of illness, while the mean LCU magnitude during the illness period itself was 174. In contrast, the overall mean 6 month LCU total for subjects reporting good health for the 4 year period was 85.

In a retrospective study in which LCU values were calculated for individuals suffering illnesses rated for severity, Rahe, McKean, and Arthur (1967) found that the mean LCU value for the year preceding major illnesses was 164, while the mean LCU value for the year preceding minor illnesses was 130. These values were clearly elevated over the baseline LCU value of 72. Not only did this study complement

other work indicating that an LCU value around 150 might serve as a cutoff in predicting health changes, but it also substantiated the notion that increasing life change was associated with increased seriousness of illness. Indications to this effect had been present in the early pilot studies with the SRE (Rahe, 1975), and later research using the Seriousness of Illness Rating Scale provided further evidence that illnesses were more likely to be serious when life change magnitude was elevated (Wyler, Masuda, & Holmes, 1971).

With the SRE, SRRS, and several derivatives creating new enthusiasm for life event-illness research, previous investigations into specific disease syndromes were reopened using the new instruments. In the landmark study that popularized the SRE, Rahe et al. (1964) examined seven patient samples representing four distinct disease syndromes and found significant positive correlations between mounting life change in the last 2 premorbid years and the onset of all four syndromes. The correlations held true for tuberculosis, cardiac disease, newly acquired skin disease, and inguinal hernia, as well as for married and unmarried females experiencing pregnancy. Two control groups showed no such massing of life change units. Utilizing a derivative of the SRE called the Life Change Index, another research team was able to show a statistically significant difference between the life change scores of 29 male college students who developed upper respiratory infections and 29 male controls who did not (Jacobs, Spilken, & Norman, 1969). Heisel (1972) used an adaptation of the SRE called the Life Event Record to show a clustering of LCU's prior to the onset of juvenile rheumatoid arthritis, and in

a single case study utilizing the SRRS, the onset of transient diabetes mellitus was seen to follow the massing of some 440 LCU's in the year prior to illness (Hong & Holmes, 1973).

Heart disease also came to be a favorite target for life event research in the sixties and seventies. In an investigation of 226 Swedes suffering sudden cardiac death, Rahe and Lind (1971) found a significant increase in the number of life change events in the 6 months prior to death, and the magnitude of premorbid life change for these individuals was three times that reported for 279 individuals who survived myocardial infarctions. Other studies of myocardial infarction in both inpatient and outpatient settings have also shown a premorbid buildup of life change events among myocardial infarction patients with no previous history of heart disease (Rahe & Paasikivi, 1971; Theorell & Rahe, 1971). DeFaire (1975) compared death discordant twins in a study of ischaemic heart disease and found that for monozygotic twins, there were significant between-twin LCU score differences in the 4 years prior to death, with the difference being in the expected direction. These results were interpreted as indicating a greater importance of life change magnitude over genetic factors in precipitating cardiac catastrophe, particularly where life changes focused on the work situation.

The most recent decade has also seen use of the SRE in studies concerned with topics other than psychosocial contingencies preceding the onset of illness. Stevenson, Nabseth, Masuda, and Holmes (1979) evaluated the relationship between life change magnitude and post-operative recovery and found that in a population of duodenal ulcer

patients, not only was surgery necessitated more often following an increase of life events, but also that the postoperative magnitude of life change was strongly associated with postoperative gastrointestinal symptoms. Research into abnormalities of pregnancy showed that elevations in life change during the second and third trimesters were positively correlated with abnormalities of pregnancy, parturition, and infant status in a group of 118 low income mothers (Gorsuch & Key, 1974). An earlier SRE study into the prognosis of pregnancy had determined that when LCU values were high both before and during pregnancy, low income women with low psychosocial assets had twice the number of complications as when LCU values were not elevated (Nuckolls, Cassel, & Kaplan, 1972). Using the Life Experience Survey, which distinguishes between desirable and undesirable life changes, Siegel, Johnson, and Sarason (1979) studied the role of life changes in contributing to menstrual discomfort and concluded that menstrual discomfort and undesirable life change events were, in fact, positively related.

Recent SRE studies have even indicated that the SRE may contribute to understanding forms of maladaptation outside physical areas. Beginning with Holmes' 1970 investigation of the relationship between life change magnitude and the probability of injury to football players (as reported by Holmes & Masuda, 1973), there has developed an interest in the association between life change and accidents in general. Holmes' initial finding that the likelihood of injury increased proportionately as life change magnitude increased was supported by a later study (Bramwell, Masuda, Wagner, & Holmes,

1975), and similar results were also obtained in a more recent study of football injuries and life events (Coddington & Troxell, 1980). Selzer (1974) used an adapted form of the SRRS to examine the relationship between life events, subjective stress, and traffic accidents and found that both LCU magnitude and current subjective stress were related to the occasion of accidents, with these variables having greater significance than demographic, personality, or social adjustment factors. Masuda and Cutler (1978) looked into the life event histories of prisoners and discovered a massing of life change events reaching crisis proportions in the year prior to incarceration. Lloyd, Alexander, Rice, and Greenfield (1980) investigated the relationship between life change magnitude and academic standing among university students and found elevated life change scores to be significantly predictive of lower academic performance.

Psychiatric syndromes have also been identified as important areas of study for life event researchers. Rahe (1979) has reviewed studies linking life events and mental illness and reached the conclusion that in mental illness, as well as in physical illness, life events play a major role in determining the time of onset. When life event records were collected on a group of 185 patients experiencing depression, it was found that in comparison to a control group, the depressed individuals had an excess of life events in the 6 premorbid months (Paykel, Meyers, Dienelt, Klerman, Lindenthal, & Pepper, 1969). Life events which were undesirable or which involved losses were seen as especially relevant to the pathogenesis. Paykel, Prusoff, and Myers (1974) then investigated the relationship between

suicide attempts and recent life events and discovered that there were four times as many life change events reported by suicide attempters as were reported by non-attempters. These researchers further noted that there were one and a half times as many life change events among suicide attempters as among depressed patients who did not attempt suicide, and peaking of life change magnitude in the month prior to an attempt was also evident. Hudgens (1974) followed a group of 22 depressed adolescents who had been hospitalized for non-psychiatric reasons and found that in nearly all cases the onset of depression had been preceded by objectively severe and personally significant life changes.

In an evaluation of life event backgrounds in a population of mixed psychiatric outpatients, Ulenhuth and Paykel (1973) found that not only did patients report more life events than did their well relatives, but also that the severity of symptoms increased with the nagnitude of life change. A similar finding was reported by Webb, Snodgrass, and Thagard (1978), whose study revealed that 75% of a sample of 90 psychiatric outpatients had elevated LCU scores (greater than 200) for the 1 year period prior to seeking treatment. Markush and Favero (1974) looked at life change scores in a very large, diagnostically variegated sample as part of a community mental health assessment project and reported that there was a significant correspondence between LCU scores and psychophysiological symptom scores, as well as between LCU scores and depression. This finding was in agreement with the results of a study by B. S. Dohrenwend (1974), who also reported a positive association between LCU scores and

psychophysiological symptoms. In addition to research linking LCU scores with mood and psychophysiological disorders, there is also evidence from life event studies indicating that life crises frequently precipitate the acute onset, relapse, and exacerbation of schizophrenic states (Birley & Brown, 1970; Brown & Birley, 1968). Neurotic discorders too have been found to be precipitated by excessive life change (Cooper & Sylph, 1973; Andrews, Tennant, Hewson, & Vaillant, 1978).

While most SRE studies have been retrospective, a number of prospective studies have also emerged in the past 12 years. In a large-scale prospective study involving Naval personnel (N = 2664), Rahe, Mahan, and Arthur (1970) used life change magnitude to predict illness reports during 6 to 8 month cruises and found a low order linear relationship between the two variables. Other studies have attempted to improve the ability of SRE scores to predict illness onset in Naval personnel (Rubin, Gunderson, & Arthur, 1969, 1971). In a study designed to measure the relationship between daily life change and everyday health changes, Holmes and Holmes (1970) found that minor health changes were more likely to occur on days of greater than average life change. Cline and Chosey (1972) employed the SRE and Life Change Unit Scale in a prospective study of 134 cadets enrolled in an officer training program. Health status information was gathered daily and compared with life change data. Results from the study showed significant positive correlations between life changes and health changes for the first 2 weeks of the training program, as well as for the succeeding 4 month and 8 month periods. The study also provided evidence indicating that recall

ability or a tendency to overendorse items did not account for the obtained correlations.

All of the studies surveyed in this section have made use of the SRE, SRRS, or very similar instruments in exploring associations between life events and illness, and it is this methodology which has been the most popular in life event research. From adjacent areas of research, as well as from interview-based life event-illness studies, there is a great deal of additional evidence to further demonstrate the impact which life events can have on health. While review of these studies is beyond the scope of this paper, some mention of the work relating object loss to illness is called for, since many of the events listed in life change inventories can be seen to involve losses, particularly the most critical item, death of a spouse.

There is persuasive evidence that illness often follows on the heels of object losses and separations from significant others, and this finding has been accounted for in terms of psychological "giving up" (Engel, 1968; Greene, 1965; Schmale, 1972). As in the case of life change-illness studies, most of the work relating object loss and separation to illness has been retrospective, although prospective work concerning object loss and illness has also indicated that persons experiencing more acute feelings of helplessness-hopelessness in response to separations become ill more frequently than do others (Parens, McConville, & Kaplan, 1966). Actuarial data compiled on widowers have shown a 40% increase in mortality over base rate during the first 6 months after bereavement, with the

greatest increase in death being due to degenerative heart disease (Parkes, Benjamin, & Fitzgerald, 1969; Young, Benhamin, & Wallace, 1963). Although similar data compiled on widows following bereavement did not show a significant increase in mortality (Cox & Ford, 1964), a large-scale comparison of bereaved and non-bereaved women did show substantially more health deterioration among the bereaved (Maddison & Viola, 1968). Among bereaved close relatives, mortality rates have been found to be seven times higher than among non-bereaved controls, though again the probability of death among the bereaved is greater for men than for women (Rees & Lutkins, 1967).

Criticisms of Life Event-Illness Research

Despite the enthusiasm for life event-illness research and the consensus in some quarters that a causal relationship between elevated life change and dealth deterioration has now been demonstrated, a number of incisive criticisms have come to be leveled at life event-illness studies. Both outside evaluators and researchers within the life event-illness area itself have reviewed the progress of the research and found it lacking in several critical respects. Wershow and Reinhart (1974) have perhaps been the most disapproving, concluding that SRE research has added nothing to what was already known about psychosomatic medicine in the fifties, and even suggesting that a moratorium be placed on further SRE research. While the critics agree that a change in direction must be made if life event research is to progress fruitfully, most are more temperate. There does seem

to be agreement, however, that life event-illness research has yet to demonstrate conclusively that there is a causal relationship between life changes and health changes, despite an abundance of circumstantial evidence to this effect. It also remains clear that among physiologists there are still some skeptics who decry any notion that health status is affected by either life changes or emotional states (Rose & Levin, 1979).

Some of the most frequent criticisms of life event-illness research pertain to the adequacy of the SRE and similar inventories as measuring instruments. The universal opinion of the critics is that these instruments are crude and overly simplistic, and the sentiment has been expressed that life change inventories have continued to be used more for the sake of convenience than because they adequately addressed the issues being studied (Mechanic, 1974). Criticisms of the instruments have tended to focus on the SRE itself, contesting both its validity and reliability. It has been pointed out in several places that there have been very few studies on the SRE's reliability, and the reliability coefficients which have been reported have generally been below the standard commonly accepted as denoting adequate reliability (i.e., $r \geq .80$).

The greater part of the barrage of criticisms leveled at the SRE, however, has involved its validity. Brown (1974) and others (Sarason, de Monchaux, & Hunt, 1975) have argued that the SRE is too vague and open-ended in specifying life events, thereby allowing too much variation in individual interpretation. They hold that as a consequence, responses are highly susceptible to

response sets, making the SRE as much a measure of mood or personality as it is a measure of life change. Sarason and his group further believe that inadequate attention has been paid to experimenter influence in assessment situations, particularly in military situations, where the status differential between experimenters and subjects and the secondary gain motivation which could be expected to be present might very well influence item endorsement. This point is particularly cogent in view of the fact that the SRE is self-administered and is rarely ever checked for accuracy after being completed. Sarason's group has also complained that the composition of the SRE and its lack of specificity make completion of the inventory a complex task which is better suited to more sophisticated populations than many of those in which the SRE has been applied.

Virtually all critics have pointed out that because most life event-illness research is retrospective in nature, it necessarily suffers from the inherent ills of the retrospective design. Of primary concern is the accuracy of the subject's recall, especially in situations calling for information dating back more than 6 months. The frequent failure of investigators to cross-validate the obtained information does nothing to allay this concern. A further drawback of the retrospective design results from what Brown (1974) calls "effort after meaning," the individual's ex post facto attempts to find relationships and meaning in events previously unrelated. Where the measuring instrument is imprecise, the accuracy of data is unverified, and experimenter effects go unchecked, there is certainly good reason to question validity. Efforts to correct these problems

are apparent in the several prospective studies which have been carried out, but the results from prospective studies have not been as impressive as those from retrospective studies, although the correlations have generally remained statistically significant. To date no experimental designs involving manipulation of the independent variable have been applied in this field of research, nor is it likely that such designs will be applied in the future due to the risk of harm to subjects.

In his review of the progress of life event-illness research, Hudgens (1974) noted that although the 43 SRE items were regarded as precipitants of illness, 29 of the items were also possible consequences of illness. Wershow and Reinhart (1974) expressed dissatisfaction with the lack of agreement over what constitutes a high LCU score, and as Rabkin and Streuning (1975) have noted, the failure to reach consensus over a scoring method has left some investigators continuing to simply count the number of life events while other researchers use a weighting technique. Along with other critics, B. P. Dohrenwend (1974) has suggested that life event checklists selectively emphasize events of young adulthood, undesirable events, and subjectively evaluated events, and Mechanic (1974) contends that checklists include few, if any, exclusively positive events. Researchers in the field remain divided over which life events should and should not be included on checklists, and the factorial structures of checklists continue to go relative unexplored (Rabkin & Streuning, 1975).

Differences of opinion over checklist composition are reflective of the oft-repeated criticism that life event-illness research has too impoverished a theory base to provide more than superficial explanations of positive findings. In the absence of a comprehensive model, even workers who accept the hypothesis that excessive life change is pathogenic take rather divergent pathways in explaining the nature of the causal link. These theoretical differences naturally come to be manifested in the make-up of data-gathering instruments. Workers in the area of mental health have tended to emphasize the etiological significance of the undesirability or social loss characteristics of life events (Brown & Harris, 1980; Gersten, Langner, Eisenberg, & Orzeck, 1974; Myers, Lindenthal, & Pepper, 1974; Meyers, Lindenthal, Pepper, & Ostrander, 1972; Paykel, 1974; Paykel et al., 1969; Vinokur & Selzer, 1975), although dissidents are also evident. B. S. Dohrenwend (1973a), for example, compared the roles of desirable and undesirable life events in generating symptoms of psychological impairment and concluded that change alone was more closely associated with psychological impairment than was undesirability.

Others have emphasized the importance of distinguishing between objective events and subjective events (Thurlow, 1971), as well as between events over which the individual has control and those over which he does not have control (Brown, Harris, & Peto, 1973; B. S. Dohrenwend, 1973b; Johnson & Sarason, 1978). After categorizing events along dimensions of controllability, desirability, and overlap of dependent and independent variables, Fairbank & Hough

reanalyzed Theorell's (1976) data and asserted that the events which were most closely associated with illness were those classified as undesirable and within the individual's control. B. P. Dohrenwend (1974), however, has argued that it is not whether life events represent gain or loss, the number involved, or the amount of change which the events entail that determines their etiological significance, but rather that what is crucial is whether the events involve physical illness or injury and whether their occurrence is outside the person's control. Still other researchers insist that it is the personal meaning of the event that is the major factor in determining its effect (Antonovsky, 1974; Brown, 1974; Roskies, Iida-Miranda, & Strobell, 1977).

Rahe (1979; Rahe & Arthur, 1978), on the other hand, has recently reiterated his position that it is change alone, regardless of its nature, that is etiological where physical illness is concerned, and he offers a dim prognosis for future studies attempting to further differentiate life events along dimensions of subjectivity, desirability, or controllability. Rahe believes that such dimensions are not intrinsic properties of life events, but rather that they are established via individual acts of perception. In other words, controllability, desirability, etc., are in the eye of the beholder and are not characteristics of life events themselves. Supporting Rahe's argument that seemingly positive events may be just as pathogenic as "negative" events is sn epidemiological study which found that rapid upward economic trends are closely followed by increased incidence of illness (Brenner, 1978).

As in his earlier work with Holmes, Rahe continues to adhere to a formula in which increasing life change is seen to enhance the potential for illness due to homeostatic disturbance and pursuant reductions in bodily resistance. He maintains that it is the magnitude of required changes, as measured by simply adding the number of life events, that is the most predictive of illness probability. A multidimensional analysis of the life change concept by means of a scaling procedure yielded results which generally substantiated this point of view (Ruch, 1977). Although the analysis showed life change to be composed of three major dimensions--the degree of change which an event evokes in a person's life (quantitative), the nature of the change (qualitative), and the life area in which the change occurs (qualitative)--it indicated that the primary dimension was the one involving the magnitude of personal change which life events necessitate.

Because of their theoretical differences, life event researchers have made use of life change inventories which are not identical, thereby undercutting standardization. Although most of the inventories are SRE-based and include the basic SRE "package," there have been quite a number of these modified forms, each with somewhat different items and different numbers of items. There have been at least two inventories which did not result as derivations of the SRE (B. S. Dohrenwend et al., 1978; Myers, Lindenthal, & Pepper, 1971; Paykel, Prusoff, & Ulenhuth, 1971). Regardless of the point of origin, virtually all life event inventories have been compiled either on the basis of common sense or else on the basis of patient histories

taken in hospitals or clinics. Both methods expose the inventories to questions of content validity, since they rely on retrospective accounts. Despite the variations from one inventory to the next, most are still based on the implicit assumption that there is one basic population of significant life events. Such an assumption obscures the fact that different events are differentially specific, meaningful, and stressful to different populations (B. P. Dohrenwend, 1974; Kellam, 1974). Kellam (1974) has specifically criticized life event researchers for not assuming that the impact of different life events would vary as a function of the stage of life of persons being assessed.

In addition to these many criticisms of life event inventories and the methods used to collect life event data, there have also been a number of questions raised about the measures and techniques commonly used to assess health status. In many studies, particularly those employing large numbers of subjects, health deterioration has been determined by job absenteeism, number of reports to sick bay, or self-reports of illness. These are, of course, indirect measures of illness and may be accounted for by factors other than illness itself. Mechanic (1972, 1974) contends that self-reports of illness can be especially misleading because most patients do not separate mental and physical illness the way health professionals do, and also because perceptions of health are influenced by current levels of psychological distress. After a good deal of research in this area, Mechanic's (1974) point of view is that self-reported illness is a global outcome measure in which medical history, life changes,

psychological distress, and illness behavior all play interacting roles.

Other critics agree that the use of indirect measures of illness, including the use of illness checklists, has led to a serious confounding of actual illness with illness-reporting behavior. Wershow and Reinhart (1974) have been particularly critical of illness checklists, charging that these measures are too global and do not distinguish between major and minor illnesses. A number of critics have also pointed out that, as is true in the case of answers provided on life event inventories, the morbidity information provided on health questionnaires is seldom checked for accuracy. In view of research showing that only one-third of individuals with serious physical symptoms actually seek medical treatment (White, Williams, & Greenberg, 1961), it has been argued that life changes act more as motivating factors which lead people to seek medical attention than as causal factors in the pathogenesis of disease (Mechanic, 1974). Spilken and Jacobs (1971) found that in a population of college students there was a significant correlation between life event data and treatment-seeking behavior during a 1 year interval in which actual illness was not found to be related to life events. Results of this nature support Mechanic's argument that the measures of illness which have been used in life event studies should more properly be regarded as indices of illness behavior rather than as indices of illness per se.

Some of the sharpest criticism of life event research has been aimed at the treatment of data. Data analysis in life event

studies has typically been unsophisticated, often relying on such rudimentary statistics as percentages. The design of virtually all life event studies is correlational, so that interpretations of the results are always haunted by the possibility that correlations between the two experimental variables obtain as the function of independent correlations with a third, unseen variable. This, of course, is the nemesis of all correlational studies which stop with the calculation of the correlation coefficient and do not go on to validate findings through further analysis. As Rabkin and Streuning (1976) have made clear, thorough analysis of correlational data is conspicuously absent in life event studies.

Authors who emphasize the statistical shortcomings of life event studies have also been quick to point out that although most of the correlations which have been reported have been statistically significant, they are usually low, often below .30. Consequently, they can account for only a small percentage of the total variance. As standard deviations in life event studies are often high, in some cases as much as three or four times the value of the mean, the argument that statistical analysis fails to impart meaning to the results carries some substance. The argument is particularly compelling when considered alongside criticisms made of the measuring instruments. Critics have also charged that despite high standard deviations, life event researchers have ignored within-group variation and focused doggedly on comparisons of group means. Wershow and Reinhart (1974) have complained that life event researchers commonly fail to separate disparate experimental populations, and the elevated standard

deviations which are frequently seen in life event studies tend to corroborate this contention.

In addition to these impugnments of their methodologies, life event researchers have also been confronted by empirical findings which have sometimes been equivocal, and occasionally even contrary, to predictions based upon the life event-illness hypothesis. Wershow and Reinhart (1974) proclaimed themselves heretics to the life event-illness philosophy following their study of Veterans Administration patients hospitalized with a variety of chronic disease syndromes. Although the results of the study did show a statistically significant increase in LCU's in the 6 months prior to hospitalization, the standard deviation was so high (S.D. = 70) as to render this finding virtually meaningless. It was also discovered that the mean and median LCU scores of these patients were surprisingly low, well below those reported in the Holmes and Rahe studies, creating further doubt that life changes had figured significantly in the hospitalizations of most of these individuals.

Rundall's (1978) investigation into the significance of life change magnitude for postoperative recovery also resulted in findings which provided at best only weak support for the life change-illness hypothesis. Using an SRE-like checklist to review the 3 month premorbid life event histories of 5858 surgical patients, Rundall predicted that the quality of postoperative recovery would be correlated with the number of premorbid life events. Six different disease syndromes and six corresponding surgical procedures were studied. In only two of the six categories, however, was the speed of recovery found to be related to premorbid life change

experiences. Morrissey and Schuckit (1978) explored the possibility of a relationship between life stress magnitude and the onset of alcohol abuse problems in women, but their results showed no significant relationship. They did note, however, that there was a greater tendency toward this relationship in women of lower SES levels.

Other research findings running counter to expectations based upon a life change-illness formulation have been reported by Jones (1978), as well as by Roskies, Iida-Miranda, and Strobell (1977). In an attempt at predicting pregnancy complications, Jones used the SRE to garner life event information on a sample of hospitalized, full-term, lower SES pregnant women. The results did show the SRE to be a moderately reliable instrument for predicting labor complications, but prediction was in the opposite direction expected. A lower magnitude of life change was correlated with an increased probability of labor complications, and vice versa. Attempting to explain this finding, Jones suggested that stressful life events may sometimes help to prepare the individual for subsequent stressful situations.

Roskies, Iida-Miranda, and Strobell studied life changes as predictors of illness in Portuguese immigrants to Canada and also obtained some unexpected results. While there was a significant positive correlation between increasing LCU scores and disease reports for the female immigrants, there was no correlation between these variables for the males. Further data analysis showed that in two sub-samples of the men--those between ages 35 and 45 and those in the highest education category--the statistically significant correlations which were obtained were in the negative direction.

Findings of this nature not only provide an empirical backbone to charges that life event research has overgeneralized from incompletely analyzed studies, they also suggest that in some situations, major psychosocial changes may prompt superior physical functioning in some individuals.

Life Events and Resistance to Disease

Above the sea of criticisms, Rahe and Arthur (1978) speak for most life event researchers in reiterating the opinion that a positive relationship between the magnitude of life change and the probability of near-future illness has now been conclusively demonstrated across broad groups of people. They point out that most life event research has been epidemiological in character, thereby exposing it to the pitfalls normally associated with epidemiological research. Rahe (Rahe & Arthur, 1978; Rose & Levine, 1979) has expressed the view that life event research is just now progressing from the epidemiological stage to the stage in which mediating factors in the life event-illness process come to be identified and explored. Consequently, he has called for a change in the direction of life event-illness studies, indicating that "as the evidence for the validity of the general concept has mounted, it has also become necessary to think in terms of the complexity of the social, psychological, and physiological variables involved" (Rahe & Arthur, 1978, p. 13). Rahe and Arthur have also indicated their disapproval of further life event-illness studies which simply correlate life events and illness episodes, instead directing researchers toward the

development of a comprehensive model to encompass the many psychosocial and somatic variables which seem to influence individual response to life change.

Although the new direction continues to focus on the relationship between life events and disease, as opposed to the relationship between life events and health, with the development of a meta-model comes the opportunity to compare those contingencies which result in disease with those contingencies which do not. It is well known among life event researchers that in all the large-scale life event studies, significant proportions of the subjects reporting very substantial levels of life change have apparently not experienced attendant health decline. Rahe and Arthur (1978), for example, have noted that in the early Seattle studies, approximately 30% of the high risk subjects did not experience elevated illness rates, and, as mentioned earlier, there are suggestions from other life event studies that, for some individuals, elevated life change may act as a spur to superior physical functioning. Despite this knowledge, relatively little attention has been given to the subject of disease resistance under conditions of major life change, even though tribute is ever more frequently paid to the need for this type of work. In view of Rahe's call for a new direction in life event research, studies in this area would seem especially apropos.

Although delineation of the mediating factors in the life event-illness pathway remains in elementary stages, two models depicting series of intervening variables have been published (Cobb, 1974; Cobb, Brooks, Kasl, & Connelly, 1966; Rahe, 1974;

Rahe & Arthur, 1978). Recognizing that a distinction must be made between illness experience and illness behavior (Kasl & Cobb, 1966a, 1966b; Mechanic, 1972, 1974; Mechanic & Volkart, 1961), the authors of these models place either illness behavior or illness measurement (diagnosis at a treatment facility) as the final step in the life event-illness process.

As seen in Figure 1, the Rahe model shows five intervening factors which act as filters between the occurrence of life events and the eventuation of a diagnosed illness. The individual's perceptive set, which is influenced by his early life experiences, his previous exposures to particular life events, and his contemporary level of social support, acts as the first moderating variable. Ego defense mechanisms, particularly denial, constitute the second filter. The third filter in the model represents differential psychophysiological responses. Genetic, constitutional, and current health status factors may all come into play at this point in the pathway. When the individual's psychophysiological response pattern includes responses of which he or she is consciously aware, response management practices can then be brought to bear on reducing bodily symptoms. This occurs at the fourth filter, where coping is defined as a deliberate effort to control physiological activation through strategies such as relaxation training, physical exercise, cognitive strategies, or the use of medication. The fifth filter pertains to whether or not an individual focuses attention on persistent symptoms and begins to adopt a "sick role" (Kasl & Cobb, 1966a, 1966b). The final step in the model

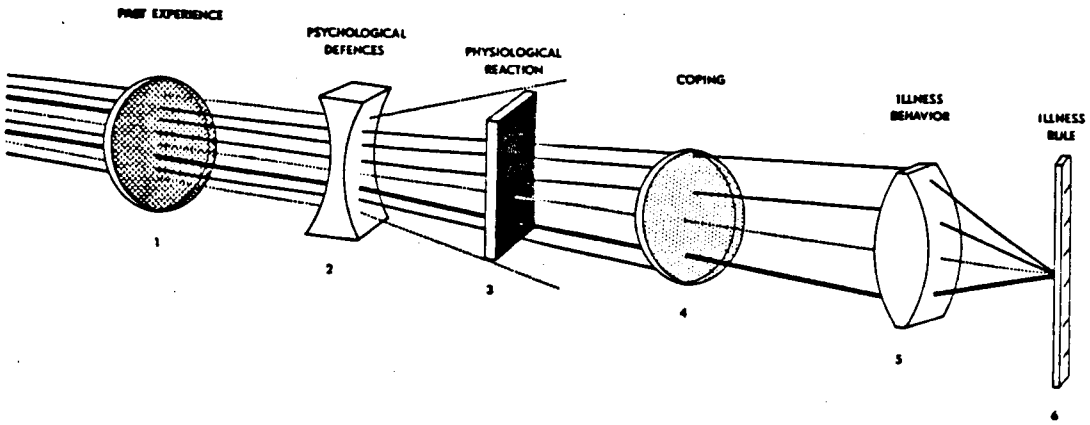


Figure 1. Rahe's model of the life event-illness pathway.

Source: R. H. Rahe, The pathway between subjects' recent life changes and their near-future illness reports: Representative results and methodological issues. In B. S. Dohrenwend & B. P. Dohrenwend (Eds.), Stressful Life Events: Their Nature and Effects. New York: Wiley, 1974.

occurs when illness behavior and the sick role lead to contact with a health professional.

The Cobb model, which in many ways is similar to the Rahe model, grew out of the work of French and Kahn (1962). Reproduced in Figure 2, the model is divided into six panels--life event, objective stress, subjective stress, (physical) strain, illness, and illness behavior--which are separated by the five variables which affect passage from one panel to the next. The intervening variables fall into two categories: those pertaining to the individual's personal characteristics and those pertaining to his or her current social situation. Personal characteristics include psychological defenses and coping efforts, which are seen to affect the degree to which life events generate objective stress. Defenses and coping are also seen as mediating factors in the process whereby objective stress leads to subjective stress. The amount of subjective stress which develops is further influenced by the degree of role ambiguity and future uncertainty which are created, as well as by changes which a life event effects in an individual's responsibilities, workload, and object attachments. Between the panels of subjective stress and strain, the personal characteristics which come into play involve individual abilities and needs, while genetic predispositions and past illness experiences are seen as personal characteristics which affect whether or not strain will result in illness symptoms.

Social situation factors incorporated into the Cobb model include the general quality of the individual's current life situation, the availability of social supports, and the attitudes of peers with

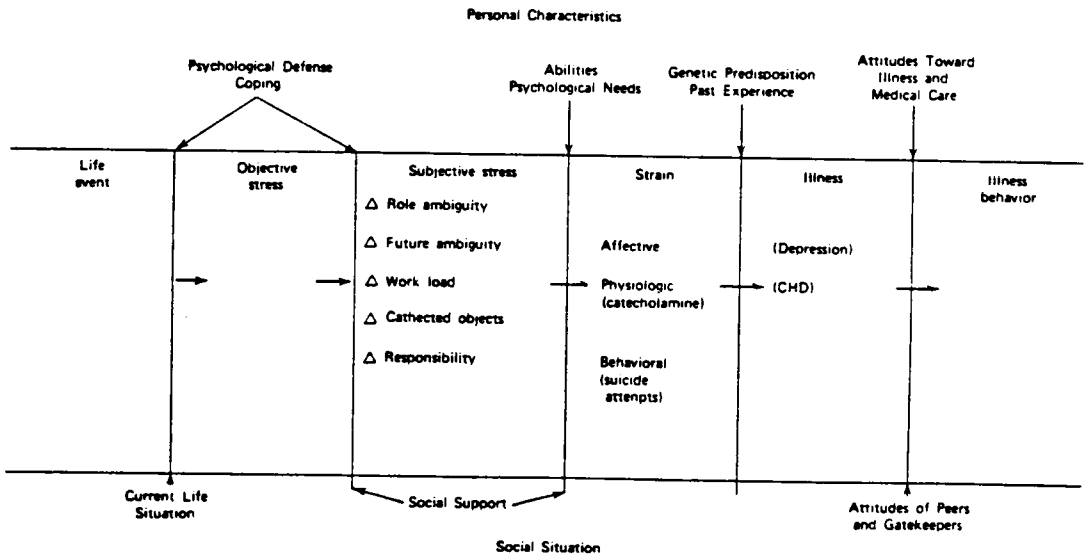


Figure 2. Cobb's model of the life event-illness pathway.

Source: S. Cobb, A model for life events and their consequences. In B. S. Dohrenwend & B. P. Dohrenwend (Eds.), Stressful Life Events: Their Nature and Effects. New York: Wiley, 1974.

regard to illness. The individual's present life situation is seen to affect the extent to which life events generate objective stress, with social support acting to mitigate the subjective experience of objective stresses. The final determination of whether illness symptoms lead to illness behavior and treatment seeking becomes largely a reflection of the attitudes which gatekeepers, peers, and the individual himself have regarding illness and medical care.

One of the few long-time life event-illness researchers who early on took an interest in the subject of disease resistance was Laurence Hinkle. Beginning in 1952, Hinkle and his colleagues in the Division of Human Ecology at Cornell University initiated a series of studies concerning the effect which cultural, social, and interpersonal changes had on health. Their studies were originally directed at two populations whose members shared similar and relatively stable social environments. The first group was represented by a large sample of career telephone operators in New York City (Hinkle & Plummer, 1951; Hinkle, Plummer, Metraux, Richter, Gittinger, Thetford, Ostfeld, Kane, Goldberger, Mitchell, Leichter, Pinsky, Goebel, Bross, & Wolff, 1957), and the second group was made up of skilled workmen employed by the telephone company (Hinkle, Pinsky, Bross, & Plummer, 1956; Hinkle, Plummer, et al., 1957). Both samples were composed of individuals who had been on the job steadily for at least 20 years. A review of the health records of these employees showed that in both sample a small proportion of the individuals had experienced the greater proportion of sickness disability and illness episodes. At the same time, there was a small proportion of the employees who

had had very few health problems, while the majority fell into the "moderately healthy" category. In short, the frequency of illness episodes and disability conformed to a negative binomial distribution.

The 20 subjects best representing the most healthy and most unhealthy subgroups were then segregated from the samples, and the histories and social situations of these subjects were examined in detail. The results indicated that for the frequently ill, illness episodes tended to cluster around periods of psychosocial and interpersonal pressure. It was also discovered that individuals in the unhealthy subgroup often came from backgrounds which were incongruous with their blue-collar employment, and in interviews these individuals were more often rated as being bored with their jobs and unhappy with their families, associates, and communities. In contrast, the healthy employees were more often found to be from social backgrounds compatible with their employment, and they were consistently rated as being more content with their overall life situations.

Hinkle noted, however, that while the life histories of the healthy employees were generally more benign than the histories of the unhealthy employees, the information obtained from some of the healthy subjects indicated that they had endured major social and interpersonal demands during the 20 year observation period without becoming ill. As an example, Hinkle cited a telephone operator who was the daughter of an alcoholic longshoreman and a teenage immigrant mother. Four of her nine siblings had died from malnutrition or infection, and her childhood had been marked by turmoil, poverty, and neglect. Her father had deserted the family when she was 3, and

at age 5 she had been placed in an orphanage due to maternal neglect. After 8 years in the orphanage, she was put out to work as a servant. There followed a period of transience and casual sexual attachments, which continued up until the time she began working for the telephone company at age 23. She had married a chronically ill plumber's helper whom she had supported financially until he had died of a gastric hemorrhage when the operator was 44 years old. Despite these hardships, the employee had had only two occasions of sickness disability in 31 years, and the only significant illnesses she apparently had experienced were a few colds (Hinkle, 1974b).

Other similar examples were found in both Hinkle's healthy subsamples. In fact, roughly one-third of the employees in the healthy subsamples were found to have experienced major psychosocial and interpersonal changes without illness occurring. In his early formulation of the reasons for the resistance which these individuals showed to disease, Hinkle suggested that a frequent characteristic of the healthy subjects was emotional insulation from the effects of life changes--"a capacity to experience social change and personal deprivation without a profound emotional or psychological response" (Hinkle, 1974b, p. 24).

Following these studies of individuals in relatively unchanging environments, Hinkle and his colleagues proceeded to study the health characteristics of people who had experienced major sociocultural changes. The target groups included Chinese-born professional level trainees who had been stranded in the United States due to political changes in China during their absence (Hinkle, Gittinger,

Goldberger, Ostfeld, Metraux, Richter, & Wolff, 1957; Hinkle, Plummer, et al., 1957; Hinkle & Wolff, 1958); refugees from the Hungarian Revolution of 1956 (Hinkle, Kane, Christenson, & Wolff, 1959); and American prisoners of war who had experienced severe psychological and physical trauma during the Korean War (Hinkle, 1961; Hinkle & Wolff, 1956). A prospective study comparing social and interpersonal changes with the development of acute respiratory and gastrointestinal illnesses was also carried out (as described by Hinkle, 1974b). The results from these studies were virtually identical to those obtained in the studies of phone company employees in stable sociocultural environments. In each case, the same skewed distribution of illness episodes was evident, and persons experiencing the least amount of illness were repeatedly described as "emotionally insulated" by different teams of investigators.

Summarizing his findings, Hinkle (1974b) concluded that in populations of similar people sharing comparable experiences over comparable periods of time, a small proportion will experience a disproportionately large amount of disabling illness, some will have a moderate amount, the majority will have relatively little, and a few will have virtually no serious illness at all. He attributed this pattern in large part to differences in congenital or acquired predispositions, with changes in social or interpersonal milieu being seen as precipitants of illness where predispositions were already present. Hinkle also emphasized that the effect of social or interpersonal changes on the individual is not determined solely by the nature of the change itself, but rather that the effect of

such changes depends upon the physical and psychological characteristics of the person undergoing the change, as well as upon the circumstances under which chages are encountered. Hinkle felt that persons who remained free of illness in the face of major life changes had psychological traits which served to insulate them from the injurious effects of such changes. He described these individuals as having a distinct awareness of their own limitations and bodily needs, being avoidant of situations that created demands, and behaving as if their own well-being were their primary concern. He indicated that they had shallow attachments to people and to goals, and he even suggested that there was a "sociopathic flavor" to some of them.

Aaron Antonovsky is another life event researcher who has taken an interest in resistance to disease following major life changes. In 1971 Antonovsky and his colleagues reviewed a group of middle-aged Israeli women who had been in concentration camps during World War II and compared them with matched controls who had not been in concentration camps. The purpose of the study was to see whether the adaptive resourcefulness of women who had survived the trauma of concentration camps had been affected by their experiences such that they differed from controls in their ability to adjust to menopause. Several different adaptation measures which tapped both physical and mental health status were used in the study. The results indicated that overall, camp survivors were less well adjusted than controls in terms of both physical and mental health. The more noteworthy finding, however, was that a significant number of

the concentration camp survivors were found to be well adjusted on each of the measures. Of the survivors, 9% were rated by a physician to be in excellent health, and 31% were rated as having "quite good" health. With regard to mental health, 29% of the survivors were rated by physicians as symptom free, and 31% of the survivors rated themselves as being at or above the eighth step on a 10-step ladder of well-being. On other subjective measures, about 25% of the subjects who had been in concentration camps showed relative freedom from various worries.

It is interesting to note that these figures cluster around the 30% figure cited by Rahe and Arthur (1978) as describing the number of subjects in the early Seattle studies who remained healthy despite many recent life changes. These percentages also compare very favorably to the similar proportion of high life change subjects who were found to remain healthy in the Hinkle studies. Unfortunately, it is not clear from Antonovsky et al.'s presentation of the data whether it is a single subgroup which is proving healthy across all the comparison variables, or whether different subgroups are proving to be comparably healthy on different measures.

Antonovsky's group originally explained the healthy subjects' resistance to disease in terms of "an underlying strength, a subsequent environment which provided opportunities to reestablish a satisfying and meaningful existence, and a 'hardening' process which allowed the survivor to view current stresses with some equanimity" (Antonovsky, Maoz, Dowty, & Wijsenbeek, 1971, p. 193). Antonovsky (1974) later went on to elaborate more fully on potential sources

of disease resistance during times of psychosocial upheaval. He described three basic resources: "homeostatic flexibility," ties to others, and community ties. As defined by Antonovsky, "homeostatic flexibility" is a personality attribute which refers to the individual's ability to accept alternatives and not persist doggedly with ineffective solutions. Tolerance for the values of others and "the capacity to recover one's balance quickly . . . without necessarily being blunted emotionally" are both seen by Antonovsky as being indicative of this quality. The second source of resistance, ties to others, refers very simply to the quality and quantity of one's interpersonal involvements. Antonovsky's position is that the more one is involved with others, the more adequately he or she is able to adapt to external demands. Ties to the community are seen as a separate resistance resource, and here Antonovsky is referring to one's sense of belonging and group membership in the community in which he or she lives.

Garrity, Somes, and Marx (1977) have also considered the role which personality factors may play in resistance to disease. In a correlational study involving SRE scores, health status measures, and Omnibus Personality Inventory (OPI) scores obtained in a population of college students, this group found that each of three personality dimensions which had been reduced by factor analysis of OPI scores was significantly correlated with the health status data. These correlations obtained independent of a highly significant correlation between health status and life change scores. The three personality dimensions which factored out were labeled "social

conformity, " "liberal intellectualism," and "emotional sensitivity." The dimension interpreted as "social conformity" resulted from loadings on scales tapping social adjustment, desire to create good impressions, low anxiety level, and the tendency to affiliate and establish giving relationships with others. This dimension alone correlated negatively with declining health status, indicating a possible association with disease desease resistance. "Liberal intellectualism" was constituted by loadings on scales measuring interest in cognitive, academic, and intellectual issues, intellectual flexibility, tolerance of individual differences and different points of view, scientific thinking, and skepticism about traditional religious beliefs. The third dimension, "emotional sensitivity," reflected scales tapping artistic and aesthetic interests, emotional awareness, and willingness to express feelings and admit to adjustment problems. Both of these latter dimensions correlated positively with negative health change, indicating possible links between these personality traits and increased disease susceptibility.

These results are reminiscent of the earlier work of Byrne, Steinberg, and Schwartz (1968), who found that persons tending to be more intellectualized, ruminative, and alert to environmental stimuli ("sensitizers") reported a greater frequency and/or severity of illness than more naive, conventional, anxiety-avoidant individuals ("repressors"). However, in studies of this nature it is important to consider the possibility that responses to health questionnaires are biased by response sets. The health information given by persons scoring high on social conformity or repression scales would

predictably be conservative in the sense that socially undesirable material (i.e., illnesses and health problems) would be underreported. "Sensitizers" or more expressive individuals, on the other hand, would tend to overreport difficulties. Such response sets could lead to the types of data configurations seen in the Garrity and Byrne studies, and where these biases were not accounted for, conclusions linking health status and personality characteristics could be entirely specious. Liberty, Lunneborg, and Atkinson (1964) have made this point in reference to Byrne and his colleagues' work, and the argument bears repeating in relation to the Garrity, Somes, and Marx study.

When subjects in the Garrity study were stratified into three subgroups on the basis of SRE scores and correlations between the three personality dimensions and health status were recalculated, the original trends were no longer evident. In neither the low nor the high life change subgroups were any of the three personality dimensions significantly correlated with health status, and in the medium life change subgroup, only "liberal intellectualism" proved significantly predictive of health change. It is also noteworthy that the Garrity group's results appear to contradict Antonovsky's findings. Whereas Antonovsky (1974) indicated that "homeostatic flexibility" (personal flexibility, ability to accommodate, and tolerance for the values of others) was a primary source of disease resistance during periods of major psychosocial change, Garrity et al. found "liberal intellectualism" (non-authoritarianism, liberalism, flexibility, and acceptance of individual differences)

to be positively correlated with increased disease susceptibility for subjects unstratified on the basis of SRE scores, and nonsignificantly correlated with health status for subjects later assigned to a high life change subgroup. The discrepancy may be explained by the different populations under study, the different measures employed, or the different time periods involved, but the incongruity of these results is disappointing nonetheless.

Thus far there has been only one personality study in which high life change individuals who did not become ill were directly compared with high life change individuals who did become ill. Using the Seriousness of Illness Rating Scale and Social Readjustment Rating Scale, Kobasa (1977) formed two groups of high level executives who had equally elevated life change scores but widely disparate recent health experiences. The results from a battery of self-report measures (Jackson's Personality Research Form; Hahn's California Life Goals Evaluation Schedules; Rotter's Internal vs. External Locus of Control Test; the Alienation vs. Commitment Test of Maddi, Kobasa, and Hoover; and two tests developed by Kobasa to measure role consistency and perception of work environment) indicated very significant personality differences between the two groups. In comparison with their high life change/high illness counterparts, the high life change/low illness executives were found to be less alienated from themselves, more vigorous in their exercise of effective action, and stronger in their experience of life as meaningful. The data also suggested that the healthier subjects were more oriented toward achievement in the pursuit of interesting experiences, stronger in

their need for achievement, weaker in an orientation toward leadership, and stronger in their motivation for endurance and social desirability. Kobasa interpreted these results to portray the high life change/low illness individual as having the personality characteristics of "authenticity." Other findings from the study suggested that high life change individuals who did become ill experienced a stronger sense of stressfulness in their inner worlds and a stronger view of work as confusing and competitive. It was also reported that in contrast to high life change executives who did not experience illness, high life change executives who did become ill more often responded to stress with depression, anger, and reduction of activities.

An additional study which bears mentioning in a discussion of disease resistance is a recent doctoral dissertation concerned with the personality characteristics of extremely healthy people (Burchfield, 1978). In the study, the health records of the members of Kaiser-Permanente (a group health organization) were reviewed, and on the basis of medical diagnosis, physical examinations, and present symptomatology, 356 subjects were assigned to four groups classified as follows: "extremely healthy," "healthy," "general population," and "sick." Members of each group completed the SRE, a scale of social functioning, and a measure of current life conditions. Family and personal health histories were also obtained. Findings from the study indicated that subjects in the extremely healthy group differed from subjects in the other groups in several major respects. Extremely healthy subjects were found to experience greater

satisfaction with life, and they were portrayed by self-report measures as being more optimistic. They were also found to be more self-reliant and freer of worry and tension, and their lifestyles were more likely to be characterized by emotional stability and moderation in personal habits. Relative to members of the other groups, members of the extremely healthy group reported more contentment in their marriages and in their sex lives.

Personal problem areas for the extremely healthy subjects tended to concentrate in work-related areas, while less healthy subjects were more likely to have family-related problems. The only significant demographic finding was that extremely healthy subjects were more likely to be males. Although the personal health histories of extremely healthy subjects showed fewer major illnesses than the health histories of other subjects, significant differences in family health histories in the various groups were not evident. There were also no apparent differences with regard to the health practices of the four groups. Extremely healthy subjects smoked, drank, and were overweight with the same frequency as the other subjects.

Using her data, Burchfield created the following archetype of an extremely healthy person:

> A typical extremely healthy individual is a male, aged 20-50 who is happily married. He may be from any walk of life: job and income are unimportant. He may smoke or drink (occasionally in excess). He observes the Socratic plea, "moderation in all things." He experiences more satisfaction than frustration from life and enjoys his work, family, and friends. He feels that his wife understands and cares about him. Sex is an important part of his marriage. He has plenty of energy and rarely worries about his physical health. Occasionally he is disappointed by his friends, wonders if

> circumstances are against him, and does things that cause trouble for himself or his friends. Despite these frustrations he is rarely depressed and has never wished he were dead. He is generally self-reliant and keeps most of his problems, which are work-related, to himself. If he is unable to solve them, he will discuss them with his or family or seek help from a professional. He rarely worries of gets "uptight." His family experienced average health although his past history of disease indicates that he infrequently has major or minor illnesses. He is an independent man who has a very close, satisfying marriage. He tends to be an optimist, feeling the future will be brighter while refusing to worry about the past (Burchfield, 1978, p. 56).

Unfortunately, significant differences in life change scores were not found among the four groups of subjects in Burchfield's study. Burchfield did not report the mean life change scores for each group, so that the life change level of her extremely healthy subjects in not known. It is clear, however, that Burchfield was not focusing on extremely healthy persons having many recent life changes. Whether these individuals represent a distinct and qualitatively different subsample of extremely healthy individuals remains an open question. Because the study did not include a follow-up, it is also not known how many of the extremely healthy subjects having high life change scores may have gone on to become ill subsequent to the study.

Life Events and Resistance to Disease: Summary of Mediating Variables and Further Considerations

It is evident from the preceding review that the extant literature concerning life events and disease resistance contains many diverse suggestions as to possible determinants of superior health under adverse psychosocial conditions. Explanations of sustained good health amid psychosocial crisis range from preordained physiological

variables to a considerable array of psychological and social factors. The following categories serve to organize the many potential sources of disease resistance along the life event-illness pathway:

1. Psychosocial Adjustment--equilibrium in the individual's social and inner worlds leading to freedom from conflict and satisfaction with life
   a. psychological adjustment--freedom from psychopathological symptoms; self-acceptance; the experience of life as meaningful; self-confidence; flexibility in adaptation; an ongoing sense of psychological well-being
   b. social adjustment--satisfaction with career, family, marriage, and friends; gratifying interpersonal relationships; productivity; embeddedness in social support networks
2. Perception of Life Events--personal meaning of events; psychological impact or significance of events; event "stressfulness"
3. Personality--the relatively enduring psychological organization of the individual
   a. traits--stable personality characteristics which create consistent patterns of interaction with the environment (e.g., egocentricity, "homeostatic flexibility," social conformity, "authenticity")
   b. psychological defenses--psychological operations serving to preserve internal equilibrium and protect the individual from threat

c. ego-strength--personal resourcefulness and adaptibility; resilience of the personality organization; ability to draw upon and effectively utilize personality resources

4. Physical Factors--somatic variables which may directly affect health status (e.g., genetic make-up, preexisting physiological response patterns, somatic damage secondary to previous illnesses, exposure to contagion, and health status at times of life change)

5. Coping Behaviors--deliberate efforts to reduce tension and control physiological activation (e.g., physical exercise, meditation, relaxation training, self-hypnosis, counseling, medications, diversionary activities, etc.)

It should be pointed out that this summary is not intended as a complete compendium of every variable which science has implicated in the determination of health status. Rather, it is an organizational scheme derived primarily from the Cobb and Rahe models to categorize the various factors which life event researchers--particularly life event researchers casting an eye toward disease resistance--have seen to mediate the somatic effects of excessive life changes. Mediation may be such that health is enhanced, thereby creating disease resistance, or it may be such that health is undermined, thereby creating increased disease susceptibility. Given the psychosocial context of life event research, it is no surprise that the emphasis of the summary should be upon mediating variables from psychological and social domains. In terms of the life event-illness pathway as portrayed by the Cobb and Rahe models, the variables presented here

pertain to the pathway only so far as the point where illness symptoms actually become manifest. That part of the pathway extending between manifest symptomatology and diagnosis at a treatment facility is not represented in the summary. This restriction reflects the present study's focus on factors actually affecting the appearance or nonappearance of physical symptoms. Factors such as individual, peer, and gatekeeper attitudes toward illness and the sick role, which influence outcome once illness symptoms have appeared, are therefore not included.

It should also be pointed out that neither life events nor the factors mediating their effects upon the body operate in vacuums. Life events occur within the context of psychosocial matrices, and as life event research has indicated, the effects of temporally contiguous life events are probably additive. Consequently, the effect of a particular life event on the individual is very likely influenced by other concurrent life events or by events having occurred in the recent past. Similar interdependence is seen among resistance sources. Mediating factors do not function in isolation from one another; rather, they represent different aspects of a total system of disease resistance.

The interdependence of perception, defensive functioning, and personality style has long been recognized in psychodynamic personality theory. The interplay of these variables has also received considerable experimental attention beginning with Bruner and Postman's work on perceptual defense (1947a, 1947b) and continuing with Holzman and Gardner's study of "leveling" (Gardner, Holzman, Klein, Linton, &

Spence, 1959; Holzman, 1962; Holzman & Gardner, 1959), Witkin's work on field dependence and independence (Witkin, 1965; Witkin, Lewis, Hertzman, Machover, Meissner, & Wapner, 1954), Voth and Mayman's (1963) studies of "ego-closeness" and "ego-distance," and Byrne's (1964) work with the Repression-Sensitization Scale. Together, the Cobb and Rahe models recognize each of these variables, but the models fail to convey the full extent to which the three variables are intertwined. As used by life event researchers, perception generally refers to the phenomenology of the life event experience, alluding to the personal meaning of the event and to the significance which the individual ascribes to the event. This treatment comes fairly close to what psychological stress researchers treat as "appraisal" (Lazarus, 1966). The perception of life events is seen to be influenced by a great number of factors, including early life experiences, anticipated family and social role changes, the number of concurrent life events, current levels of social support, the confidence which the individual has in his ability to deal with the changes, and present satisfaction with self, family, occupation, and friends. Many of these factors presumed to affect event perception fall under the rubric of psychosocial adjustment.

Cognitive psychologists in stress research have repeatedly emphasized the significance which perception holds in determining physiological response to potentially threatening stimuli. Definitions of psychological stress generally hinge on whether a situation is perceived as threatening and whether the individual feels capable of reducing perceived threats (Cofer & Appley, 1964; Lazarus, 1966).

In support of this point of view, empirical investigations have shown that when unconsciousness or anasthesia interfere with the apprehension of actual bodily insult, the endocrine effects associated with the physiological stress response may not occur (Gray, Symington, Currie, Curran, & Davidson, 1955). Stress researchers generally agree that the more a situation or stressor is perceived as controllable, the less harmful are its potential effects upon the organism; conversely, the lower the perceived controllability, the higher the probability of symptom formation (Averill, 1973; Bakal, 1979; Seligman, 1975). The first corollary to this principle is that the more stressful stimuli are predictable, the less is their pathogenic potential, presumably because it is possible to prepare for events which can be predicted (Perkins, Seymann, Levis, & Spencer, 1966). Numerous experimental studies have shown that perceptive set has a major influence in perception; elsewhere, clinical studies utilizing placebos have demonstrated the extraordinary power of perception and expectation in affecting somatic processes.

Although there have been many efforts made to link personality orientations with specific disease syndromes, the status of this work after many years and voluminous literature remains unchanged: associations of this nature are still regarded as controversial (Bakal, 1979). Perhaps the single exception to this statement is in the area of the coronary disease-prone individual, where the work of Friedman and Rosenman (1974) on the Type A personality has provided widely accepted documentation of a definitive relationship between specific personality attributes and diseases of a specific

body system. Today's reawakened interest in holistic medicine has caused eyes to turn once again toward evidence linking personality factors with cancer and other diseases having inordinately high rates of incidence in the Western world (Pelletier, 1977), but in the scientific community at-large, the reception of this work continues to be marked by skepticism and disputation. One generalization which might be risked at this point, however, is that personality factors which dispose an individual to the buildup of tension are generally thought to be contributive to increased disease susceptibility. Given that this is true, psychological defense structure, that aspect of the personality organization traditionally regarded as most responsible for the regulation of psychic equilibrium, would have unquestionable significance for health status.

The extensive collection of research studies relating physical health status to ego-strength and psychological adjustment has been attentively surveyed by McKinstry (1977), and many of these studies are also reviewed in the discussion of Barron's ego-strength scale (Es) in Chapter II of this dissertation. The evidence from these studies points summarily to a substantial level of interconnection between ego weakness, maladjustment, and health problems. A number of studies have shown a positive association between psychiatric disturbance and physical health disturbance (Eastwood & Trevelyan, 1972a, 1972b; Gordon, Singer, & Gordon, 1961; Lovett & Doust, 1952; Roessler & Greenfield, 1961), although there remain skeptics who argue that findings of this nature are due to lower thresholds of complaint in psychiatric populations (Kreitman, Pearce, & Ryle, 1966;

Mechanic, 1972, 1974). While the ego function of defense has been theoretically linked to illness onset and recovery by a great many authors, there is a relative dearth of accompanying empirical evidence to support this supposition. As McKinstry (1977) has pointed out, research involving psychological defenses has been beleagured by categorization and measurement problems which have discouraged investigation and obfuscated those empirical findings which have been obtained. These problems have unfortunately been quite apparent in the one area where psychological defense has been most extensively studied in relation to a medical problem, i.e., recovery from heart attack. Studies in this area have focused on the importance of denial in the acute phases of recovery (Cassem & Hackett, 1971; Froese, Hackett, Cassem, & Silverberg, 1974; Gentry, Foster, & Haney, 1972; Hackett & Cassem, 1973), but firm conclusions have yet to be reached due to questions over the validity of measurement (Doehrman, 1977; Krantz, 1980). While researchers studying cardiac recovery generally treat denial as an unconscious mechanism, investigators concerned with factors which contribute to the onset of myocardial infarction tend to see denial as an instrumental cognitive coping strategy (Greene, Moss, & Goldstein, 1974; Moss & Goldstein, 1970; Moss, Wynar, & Goldstein, 1969; Simon, Feinleib, & Thompson, 1972).

Despite nosological and psychometric problems, the evidence which has been gathered thus far definitely does tend to tie health status to defensive functioning. Perkins and Reyher (1971) used hypnosis to induce anxiety-arousing impulses in experimental subjects

and then observed good and poor repressors for differential physiological response. Their results indicated that the better repressors (subjects showing more control in the management of impulses) experienced more prolonged physiological activation and complained of more somatic symptoms than poor repressors. Gambaro and Rabin (1969) found that when low-guilt subjects were able to retaliate against frustrators they were able to reduce frustration-induced blood pressure elevation; however, this was not true of high-guilt subjects. Wolff, Friedman, Hoffer, and Mason (1964) made interview assessment of defensive functioning in the parents of children with leukemia and found that they were able to predict levels of 17-hydroxycorticosteriod excretion (adrenal activity byproducts) on the basis of the assessed level of defense effectiveness. McKinstry's (1977) findings indicated that individuals who reported few health problems scored somewhat higher on a scale measuring "turning-against-the-object" (identification with the aggressor and displacement) than persons who reported many health problems. Individuals reporting few health problems also scored somewhat lower on scales of "turning-against-self" (masochism and autosadism), "reversal" (negation, denial, reaction formation, and repression), and "principalization" (intellectualization, isolation, and rationalization). Cognitive psychologists have found that when defensive cognitive orientations are encouraged in the appraisal of threat, experimental subjects show substantially less physiological activation than when defensive postures are not encouraged (Lazarus, Opton, Nomikos, & Rankin, 1965; Speisman, Lazarus, Mordkoff, & Davison, 1964).

Physical factors affecting health status include the cluster of genetic, constitutional, and physiological variables which act to predetermine individual immunity or susceptibility. Medical research has implicated genetic influences in vertually every malady known to man, and the role which heredity plays in predetermining longevity is taken for granted. The knowledge that individuals tend to develop characteristic physiological response patterns which are generalized across stimulus situations was established with Lacey's (1959) work on physiological response specificity, and individuals with more rigid unimodal physiological response patterns have long been recognized as being more prone to symptom formation as stimulus intensity rises (Malmo, Shagrass, & Davis, 1950). The potential which personal health history carries for affecting later health status and predispositions is self-evident.

But in addition to these preordained variables, physical status is also known to be heavily influenced by the more accessible factors of physical activity and nutrition. As opposed to psychosocial factors, exercise and nutrition affect physical status by direct physical action upon the body, and both of these factors have increasingly been recognized for their prophylactic and health-enchancing potentials (Pelletier, 1979). Surprisingly, life event researchers intrigued with resistance to disease have tended to overlook the roles which dietary regulation, physical exercise, and good health care practices may play in helping high life change persons maintain states of good health. In neither the Rahe nor Cobb

models are these "somatic maintenance" factors taken into account. Although Burchfield (1978) did not find health habits to be significant in explaining the good health of extremely healthy people, and while Pesznecker and McNeil (1975) did not find health habits to be significantly related to illness onset, it is far too soon to conclude that an individual's health care orientation does not or cannot affect health status where life change is greatly elevated. Leaf's (1973a, 1973b) research into centenarian populations indicated that diet and exercise were among the factors accounting for the extraordinary longevity and good health of these people, with hereditary potential and ongoing active involvement in family and community activities throughout old age also being primary contributors. Physical exercise, however, was singled out as the most important variable.

Like the term "stress," the term "coping" has seen such diverse usage that its meaning has become rather nebulous. In some places, coping refers to such broad and overlapping patterns of cognitive, behavioral, and affective response that is meaning is indistinguishable from the meaning of "adaptation." In other places, coping is used to describe specific strategies designed to alleviate specific threats. Lazarus' (1966) model of stress and coping treats coping as involving either direct attempts to reduce external threat or palliative activities intended to reduce affective and physiological disturbances. Rahe's treatment of coping (Rahe, 1974; Rahe & Arthur, 1978), which defines coping as it will be used in this study, belongs to the latter category and includes such

tension-reducing techniques as physical exercise, meditation, relaxation training, self-hypnosis, counseling, and the use of medications.

Despite a surprisingly limited number of empirical studies into the palliative effectiveness of exercise, what studies have been done in this area point unerringly to the conclusion that exercise reduces both muscular and psychological tension (Bahrke & Morgan, 1978; de Vries & Adams, 1972; Morgan, 1973, 1979; Sime, 1977, 1979). Faith in the beneficial effects of exercise has even led to its being proposed as a psychotherapeutic technique, particularly for the treatment of anxiety and depression (Brown, 1978; Orwin, 1973). Meditation has likewise been supported as effective in reducing physical and psychic tension (Bahrke & Morgan, 1978; Kanellakos, 1974; Michaels, Huber, & McCann, 1976; Sime, 1977; Wallace, 1979; Wallace & Benson, 1972), and it too has been posited as having psychotherapeutic value (Smith, 1975). Similar findings have been reported for relaxation training and hypnosis (Paul, 1969; Jacobson, 1964, 1970), as well as for autogenic training (Luthe, 1965). Psychological counseling and the use of pharmacological agents are both time-honored adjuncts to coping, and biofeedback has also achieved acceptance as an efficacious method for reducing a wide variety of physiological disturbances (Birbaumer & Kimmel, 1979; Brown, 1977).

The quality of the individual's social support system, which represents a major dimension of his or her psychosocial adjustment, is widely acknowledged as a critical determinant of the mind-body response to psychosocial stressors. Social support is defined as

socially conducted information which leads an individual to believe that he is cared for and loved, esteemed and valued, and a member of a network of communication and mutual obligation (Cobb, 1976). The rule of thumb which has eventuated from a variety of research studies in this area is that the greater one's social connectedness, the less deleterious are the effects of mounting life change. Whether this occurs because social support affects perception and appraisal of life events, buttresses psychological defenses, or influences future expectations--or a combination of all three of these pssibilities--is not certain, but it is clear that social isolation is positively correlated with a spectrum of pathological conditions. In his 1976 Presidential Address to the American Psychosomatic Society, Sidney Cobb reviewed the abundant evidence linking social support with disease resistance and concluded that "social support can protect prople in crisis from a wide variety of pathological states: from low birth weight to death, from arthritis through tuberculosis to depression, alcoholism, and other psychiatric illness. Furthermore, social support can reduce the amount of medication required and accelerate recovery and facilitate compliance with prescribed medical regimens" (p. 310). Other comprehensive reviews have led to the same general conclusions (Gore, 1973; Pinneau, 1975).

Medical recognition of the predictive significance of family relationships for the prognosis of stress diseases was achieved with the work of Berle and colleagues in 1952, and Chen and Cobb's (1960) review of research pertaining to family structure and illness

further linked family relationships with health status. Life event-illness studies themselves have indicated that social and family support can have beneficial effects in disease prevention and recovery, although life event researchers have thus far shown only limited interest in examining the part which social resources play in the life event-illness process. In the Nuckols, Cassel, and Kaplan (1972) study cited earlier, psychosocial assets were found to be negatively correlated with pregnancy complications where life event scores were elevated, while pregnancy complications occurred at a very high rate where life change was high and psychosocial assets were low. Other life event researchers using the index of psychosocial resources which evolved from Berle's work (the Berle Index) reported negative correlations between psychosocial assets and steroid requirements in chronic intrinsic asthma patients (De Araujo, Van Arsdel, Holmes, & Dudley, 1973). In another application of the Berle Index, Holmes, Hawkins, Bowerman, Clarke, & Joffe (1957) found that psychosocial assets were highly predictive of the outcome of sanitorium treatment for tuberculosis patients. Evidence of the mitigating effect of social ties in stress-related psycholoigical disturbance is also plentiful (Andrews, Tennant, Hewson, & Vaillant, 1978; Brown & Harris, 1978; Henderson, Byrne, Duncan-Hones, Adcock, Scott, & Steele, 1978; Luborsky, Todd, & Katcher, 1973; Miller & Ingham, 1976; Segal, Phillips, & Feldnesser, 1967).

In view of earlier cited studies linking object loss with health deterioration, it should not be surprising that both increased

illness and reduced longevity are associated with the loss or absence of social support. Berkman and Syme's (1979) 9 year study of mortality rates in adults between the ages of 30 and 60 showed that the risk of death was significantly higher for both men and women with few social ties. This relationship persisted even when initial health status, social class, and health habits were taken into account. Wolf's (1978) longitudinal study of the inhabitants of Roseto, Pennsylvania, where death rates from cardiovascular disease were initially low, revealed a marked increase in cardiovascular mortality rates during the 15 year observation period. Wolf attributed this change to the breakdown of the cohesive, mutually-supportive milieu of this Italian-American community. As noted earlier, dramatic increases in death and morbidity rates have been seen to occur following bereavement (Maddison & Viola, 1968; Parkes, Benjamin, & Fitzgerald, 1969; Rees & Lutkins, 1967), although there is also evidence to suggest that social support may help to allay these effects (Burch, 1972; Gerber, Wiener, Battin, & Arkin, 1975). The appalling rate of health decline among elderly persons recently displaced to nursing homes (Ferrari, 1962) further attests to the importance of an ongoing sense of social connectedness for the maintenance of good health.

The Present Study

From the foregoing discussion of mediating variables and resistance resources, it is clear that there are a great many possible explanations for the good health of high life change

individuals who do not become ill. Physiological disturbance resulting from psychosocial stress can conceivably be circumvented at any number of points in the life event-illness pathway. Excessive life change may be diluted by perceptive equanimity or the action of defenses, it may be rendered harmless by physiological imperturbability, or it may be absorbed without damage due to coping efforts, superior ego-strength, or simply to a rich endowment of psychosocial assets. Each of these possibilities depends in turn on myriad interacting factors belonging to psychological, social, and physical domains, making illness resistance and susceptibility extremely complex matters.

As the previous discussion has also indicated, few concentrated efforts have been made to investigate empirically the hypotheses and conjectures which life event researchers have made with reference to disease resistance. In fact, there has been only one study carried out in which high life change individuals who did not become ill served as subjects (Kobasa, 1977). As noted earlier, this research involved a limited personality study of high life change subjects who did and who did not become ill, and the results of the study did indicate significant differences between the two groups.

Further studies of this nature will no doubt be valuable in attempting to determine why some people become ill where others do not. Yet personality factors constitute only a portion of the potpourri of factors hypothesized to determine differential response to life events, and the exclusive study of personality differences without attending to other potential sources of disease resistance

would, at this point, represent a loss of the forest for the trees. The danger in pursuing a single variable or single domain of variables during the preliminary stages of research in this area is, of course, that variables unexpectedly critical to disease resistance may be overlooked. Research into disease resistance has thus far been characterized by attempts to link the dependent variable with more or less unitary areas of independent variables, and one consequence of this approach is that little sense of the relative importance of each of the main categories of resistance variables has been achieved. In other words, although there are data to support the roles of adjustment factors, personality factors, constitutional factors, health care factors, coping factors, etc., as contributors to disease resistance, there is insufficient knowledge to establish the relative power of each of these compound variables.

The most immediate need of research in this area, therefore, is for comprehensive work which addresses the entire gamut of resistance possibilities. The most powerful study would naturally be one in which each of the hypothetical resistance factors was comparatively tested in large samples of high risk subjects who did and who did not become ill. This would be an enormous undertaking far beyond the resources of the present project, however. A more practical, and yet useful, alternative is an exploratory investigation taking a case study approach with a group of high life change subjects who have managed to remain healthy despite their recent life experiences. Apart from practicality, the advantage of this

method is that it permits observation of virtually any factor which may contribute to illness prevention. Because it is exploratory and not absorbed with the testing of specific hypotheses, the case study approach affords the greatest opportunity for making new discoveries.

The present study therefore takes the form of an exploratory investigation purporting to further clarify the reasons for the good health of individuals who have been at high risk of illness but who have not become ill. Exploration will be organized around the several categories of resistance variables discussed in the previous section (i.e., psychosocial adjustment, perception of life events, personality, physical status, and coping) and will be guided by questions such as:

1. What is the quality of these people's psychosocial adaptations?
    a. How psychologically well-adjusted are they? Do they evidence signs of psychopathology?
    b. How satisfied are they with their careers, marriages, families, friends, and lives in general?
    c. What goals and future plans do they have?
    d. How involved are they in family, community, and other social support networks?
2. How do these people perceive important life events?
    a. What has been the perceived personal impact of the life events they have experienced?
    b. Do they experience life events as requiring the same amount of readjustment as do other people?

3. What personality characteristics are found among these individuals?
   a. Are there any specific personality attributes which are common among the members of this group?
   b. Do they have exceptional ego-strength?
   c. What sort of interpersonal styles do they have?
   d. How other-oriented are they?
   e. How defensive are they?
4. What physical status factors distinguish these individuals?
   a. What are their personal health histories like?
5. How oriented toward health and health care are these people?
   a. What provisions do they take to protect their health?
   b. What is the quality of their usual self-care habits?
6. How do these individuals cope with tension?
   a. What tension-reduction techniques do they use? How systematic are they?
   b. How do they spend their free time?

Associated with each area of inquiry are expectations based upon the research which has been reviewed earlier. It might be expected, for example, that healthy high life change individuals would show superior psychosocial adjustments, as reflected in freedom from psychological disturbance and satisfaction with their careers, families, friends, etc. They would further be expected to have a sense of purpose and direction about their lives, as well as a sense of meaningful social connectedness. Regarding perception, it seems reasonable to assume that they experience life events as less

impinging and less threatening than do others. This might be related to superior ego-strength, a superior social support network, or to heightened defensive functioning. In terms of accessible physical status factors, there may be indications of inherently superior physical functioning, as demonstrated in disease-free personal health histories. It may also be that high life change individuals who do not become ill are persons whose attention to personal health care and whose effectiveness in using coping techniques to control tension prevents them from contracting illnesses.

In the matter of personality variables, it is difficult to make predictions. Some writers have attributed disease resistance amidst psychosocial crisis to self-centeredness, some would suggest that it is a by-product of personal flexibility, authenticity, or ego-strength, and still others believe it to be associated with a repressive personality orientation. With specific regard to excessive life change and disease resistance, the only finding which has emerged with any frequency is that unusually disease-resistant individuals appear to be motivated toward social desirability. In view of the limited and sometimes contradictory findings, however, the relationship between social desirability and disease resistance should at best be regarded as tentative. If, indeed, disease-resistant persons are characteristically conforming and appearance-oriented, it would be very reasonable to assume that they would also be quite defensive. The apparent resistance which they show to stress-related disease might therefore result in part from a

perceptive style in which the impact of stressful events is minimized, in part from a frank denial of symptoms once they appear.

What is presently known about personality and disease resistance is indisputably much less than what is not known. While the literature relating psychological pathology and somatic pathology would suggest that disease-resistant people are also psychologically healthy people, there has been insufficient standardized assessment of these individuals to ascertain if this is true. Certainly this is a necessary step in attempting to understand psychological aspects of disease resistance. Different researchers have reported a number of diverse personality attributes to be associated with health but, rather surprisingly, there has also been no specific assessment of interpersonal functioning. Given the psychosocial context of life event research, it would seem that an investigation into the interpersonal orientations of disease resistant individuals is already overdue. Do they move toward others? Away from others? Against others? With others? Are they active or passive in their interpersonal styles? These are just a few of the questions which need to be answered about this population's interpersonal functioning.

In seeking information about the psychosocial adaptations, styles of perceiving life events, personality characteristics, health histories, health care orientations, and coping strategies of healthy high life change individuals studied in the field, the author hopes to gather information which will contribute to an ordering of the several domains of resistance variables in terms of their primacy. Given the uncontrolled nature of the study, this determination will

necessarily rely on the salience of common factors in the various domains.

CHAPTER II

METHODOLOGY

Subjects

Ten healthy, well educated, high life change individuals from the Knoxville, Tennessee area served as subjects for the study. Participation was on a voluntary basis. Both sexes were equally represented in the subject sample, with ages ranging from 28 to 40. While no effort was made to limit Ss to one racial group, the 10 people who qualified for the study were all Caucasian. With one exception, all of the Ss were married; five of the Ss had one or more children.

All Ss had been educated through a minimum of 4 years of college. Five of the Ss (four men and one woman) held doctorate degrees, two Ss (one man and one woman) held master's degrees, and one (female) S held a bachelor's degree. The remaining two female Ss both held R.N. degrees; one of these Ss also held an additional bachelor's degree. Various professions were represented as follows: one lawyer, two university professors, two psychologists, one social worker, one counselor, and one nurse. Two of the female Ss who for many years had been occupied as mothers and housewives had left these occupations within the past 15 months to take full-time jobs outside the home. One was now employed as a security guard, the other as a coordinator at her church.

Experimental criteria for inclusion in the study required that Ss report superior physical health for the past 12 months, while also recording more than 300 life change units (LCU's) on the Social Readjustment Rating Scale (SRRS) for any consecutive 12 month period during the past 2 years. The actual range of these 12 month LCU scores was from 320 to 565, with the mean being 424. As discussed in the previous chapter, annual life change scores in excess of 300 have been taken to denote "crisis" levels of life change which are highly predictive of increased morbidity (Holmes & Masuda, 1973; Rahe, 1975). Use of the SRRS and the scoring procedures that were followed are described more fully in the following section.

The health status of Ss was determined by the use of a health questionnaire, which is also described more fully in the following section. In order to meet the health criteria, Ss were required to report freedom from any significant health problems. Chronic illnesses, acute problems requiring medical attention, and significant use of medication all served to immediately disqualify prospective Ss. One episode of cold or flu, or a single minor health problem not requiring professional care (e.g., transient toothache, headache, cough, sore throat, etc.), did not necessitate immediate disqualification, but the presence of more than one minor health problem did result in exclusion. Any respondent missing more than 2 days of work, making frequent use of non-prescription medication, or reporting symptoms possibly suggestive of serious illness was also rejected.

Of the 10 Ss selected for study, only one had missed any work due to illness; this had been a loss of 1 day as the result of

a 24-hour "bug" during which she had had vomiting and diarrhea. With the exception of some occasional muscle strain secondary to her weightlifting hobby, this had been her only health problem in the past 12 months, despite an LCU score of 401. Several of the other Ss had also experienced minor health problems which were not of sufficient magnitude to exclude them from the study. One reported occasional minor foot pain, three noted periodic muscle stiffness and pain, and two reported occasional tension headaches. One had experienced a brief gum inflammation, and another had suffered a laceration which had required a number of sutures.

The majority of the participants in the study were recruited during normally schedules meetings of different professional and community groups. After an introduction by the group's chairperson, either the investigator or an associate would make a brief announcement concerning the purpose of the study, and a request would then be made for interested individuals to fill out and return the two questionnaires. The information given in these announcements was virtually identical to that contained in the recruiting letter (Appendix A), which was passed out along with the questionnaires. The recruiting letter informs readers only that "the focus of the study is on psychological and social variables affecting health status." No further details were given in order to prevent biasing of questionnaire response. The completed questionnaires were returned to the investigator through the mail, with respondents being assured of strict confidentiality.

Different professional groups were thus canvassed during faculty meetings, business meetings, staff meetings, and in-service classes occurring in a variety of hospital, university, and other community settings. Several recruiting trips were made to groups meeting at local churches with higher SES congregations, and in some cases it was possible to have colleagues pass out individual questionnaire packets at their places of work. Of the 338 questionnaire packets which were distributed, 146 were returned, to create an overall response rate of 43.2%.

Instrumentation and Assessment Procedures

The SRRQ and health questionnaire served as screening instruments, as described. The 10 individuals selected for further study on the basis of their good health and high LCU scores were then evaluated with the Leary Interpersonal Battery (levels I and II) and an individual interview. The Leary method utilizes the Minnesota Multiphasic Inventory (MMPI) and Interpersonal Adjective Check List (IACL) for data collection, so that a considerable amount of psychometric data was available along with the interview information.

The Social Readjustment Rating Questionnaire (SRRQ) and Social Readjustment Rating Scale (SRRS) (Appendices B and C). The development of the SRRS, its applications, strengths, and weaknesses have been discussed in detail in previous sections. The SRRQ is nothing more than the questionnaire form of the SRRS, the SRRS being used to score the data generated by the SRRQ. Weights denoting the amount of social readjustment required by each life event listed on

the SRRQ have been derived for use with the SRRS, and by adding these "life change units" (LCU's), an aggregate life change score can be calculated for any specified period of time. LCU values are not present on the SRRQ.

As a questionnaire, the instrument is a self-administered 43 item inventory of events which "pertain to major areas of dynamic significance in the social structure in the American way of life" (Holmes & Rahe, 1967, p. 216). The areas sampled include family constellation, marriage, occupation, economics, residence, group and peer relationships, education, religion, recreation, and health. While "some of the events are negative or 'stressful' in the conventional sense, i.e., are socially undesirable . . . many are socially desirable and consonant with the American values of achievement, success, materialism, practicality, efficiency, future orientation, conformism, and self-reliance" (p. 217). The SRRQ is essentially a modern form of Meyer's (1951) life chart, the Schedule of Recent Experience (Rahe et al., 1964) being its immediate predecessor. Because of their utility, the SRRQ and SRRS have been used extensively in research concerned with psychosocial aspects of illness.

In the present study, respondents were asked not only to check each event as often as it had occurred in the past 24 months, but also to indicate the months and years in which the events had occurred. This procedure made it possible to observe the overall distribution of life changes for each respondent in the preceding 2 years. Events were generally scored as often as they had occurred, subject to the scoring guidelines elaborated below. These guidelines

were developed to address ambiguities in the usual scoring procedure, with the intention that they should be fully consistent with the philosophy with which the SRRS was created.

The scoring procedure first required recognition of the 43 SRRS items as either discrete or non-discrete. Discrete events (e.g., "Death of a spouse," "Divorce," "Retirement," "Change in residence," etc.) make up the majority of the checklist items and are those events which occur on specific dates or at well defined points in time. Non-discrete life changes (e.g., "Change in eating habits," "Change in sleeping habits," "Change in social activities," "Change in number of arguments with spouse," etc.) lack such clear temporal parameters. Discrete events were scored as often as they occurred, which was rarely more than two or three times in the 2 year interval.

Where questionnaire responses indicated separate episodes of non-discrete life changes, each separate episode was scored, up to a limit of one scoring per any 3 month period. If responses indicated separate episodes, but the months listed were adjacent, it was assumed that only one actual change had occurred, and the item was scored only once. Non-discrete life changes which continued for extended periods of time but which were continuous in nature were also scored only once per year, regardless of duration. Hence, scoring of these items was reasonably conservative. Where respondents indicated "many," "multiple," or "numerous" occurrences of non-discrete events over extended periods of time, the items were scored once for each 3 month interval. The same procedure was followed where the respondent indicated "several" repeated episodes of a

particular non-discrete life change, but with the total number of scorings being limited to three, regardless of the interval length.

Health Questionnaire (Appendix D). The seven point health questionnaire was developed by the experimenter specifically for the purposes of this study. The instrument covers a full spectrum of somatic maladies, ranging from stiff muscles and the common cold to dangerous symptoms and severe illnesses. To be sure no illnesses or health problems were overlooked, the questionnaire included not only two separate symptom checklists, but also questions about medications, visits to the doctor, and days of work missed, in addition to direct questions about illnesses suffered. Only a brief description of any ailment was requested, since the purpose of the questionnaire was simply to separate those respondents who had experienced significant health problems from those who had not. The time period under observation was 12 months prior to the study.

The questionnaire was constructed such that positive responses to questions 1-4 would automatically disqualify respondents from further participation in the study. Question 1 concerns health problems that have led the individual to consult a physician. Question 2 pertains to any chronic illnesses or disabling physical conditions that the individual might suffer (e.g., asthma, hypertension, allergies, diabetes, arthritis, etc.). The third question asks if any days of work have been missed in the last year due to illness, and the fourth item on the questionnaire is a checklist of serious

illness symptoms (e.g., fever or chills, convulsions, changes in skin color, chest pains, coughing up blood, blood in stool, etc.). Both this checklist and the one which appears later in item 5 were taken from a comprehensive review-of-systems checklist used in a local medical clinic.

In most cases, positive responses to the fifth, sixth, and seventh questionnaire item also led to disqualification from the study. Exceptions were made only when responses indicated very minor or insignificant problems. The fifth item involves persistent (lasting more than 48 hours) or recurrent (more than three occasions) episodes of minor ailments (e.g., headache, morning cough, sore throat, heartburn, constipation, low back pain, etc.), while the sixth item covers any health changes not reported in response to other questionnaire items. The final item requests a listing of any medications which the individual takes on a regular or periodic basis, together with the reasons for the medication.

The Leary Interpersonal Battery. The Leary Interpersonal Battery (Leary, 1956, 1957) represents a unique method of personality assessment, combining the data from familiar psychometric instruments to create a multilevel portrait of individual personality organization. The theoretical orientation behind the Leary method is Sullivanian, treating personality structure as an internal constellation of interpersonal dynamics. Results from an evaluation with the Leary method are therefore interpreted in an interpersonal context.

The Leary method has been used in a wide variety of clinical research projects, seeing its greatest popularity in studies concerned with group and individual psychotherapy (Cutler, 1958; Leary & Coffey, 1955; Leary & Gill, 1959; Leary & Harvey, 1956; Mueller, 1969; Mueller & Dilling, 1969); marital-family dynamics and counseling (Guerney & Guerney, 1961; Luckey, 1960a, 1960b, 1961, 1964; McDonald, 1962; Mitchell, 1963; Romano, 1960; Terrill & Terrill, 1965); and interpersonal aspects of substance abuse (Cohen, White, & Schooler, 1971; DeForest, Roberts, & Hays, 1974; Gynther, Presner, & McDonald, 1959; Kogan & Jackson, 1961, 1963; Schooler, White, & Cohen, 1972; Teasdale & Hinkon, 1971; White, Schooler, & Cohen, 1970). As yet, there has been no substantive use of the Leary in conjunction with stress-and-illness research, although the Leary and SRRQ were recently used together in a study of weight loss maintenance (Beevers, 1981). The validity and reliability of the method have been discussed by several authors (Armstrong, 1958; Klopfer, 1961; Lange, 1970; McDonald, 1968; Meers & Neuringer, 1967).

The present study utilizes only two of the five levels of interpersonal organization which are tapped by the battery. Level I is termed "the level of public communication," while level II is "the level of conscious communication." Level I scores, which are derived from several MMPI scales, indicate how the individual's interpersonal style is perceived by others. In other words, level I scores are indicative of the individual's persona. Level II scores are derived from the Interpersonal Adjective Check List, Form 4 (LaForge & Suczek, 1955), a 128 item schedule of adjectives which

cluster into eight distinctive groups. In contrast to level I scores, level II scores reflect how individuals themselves perceive their interpersonal postures. To quote Leary, "Level I is what the subject does. Level II is what he says he does" (1957, p. 98). Because differences between scores at levels I and II reflect discrepancies in the ways in which individuals perceive themselves and the ways in which they are experienced by others, the Level I versus Level II comparison is taken as an index of self-deception.

The Leary model rests on two primary axes for conceptualizing interpersonal behavior. Axis one is an affiliation-distanciation dimension, and axis two is an activity-passivity dimension. The quadrants formed by the intersection of these axes are bisected to form a schema (a "circumplex") of eight octants for categorizing interpersonal styles. Each of the octants thus formed corresponds to one of the eight adjective groupings on the Interpersonal Adjective Check List. The octants are labeled as follows: managerial-autocratic (octant 1), competitive-narcissistic (octant 2), aggressive-sadistic (octant 3), rebellious-distrustful (octant 4), self-effacing-masochistic (octant 5), docile-dependent (octant 6), cooperative-overconventional (octant 7), and responsible-hypernormal (octant 8). This interpersonal diagnostic system is then applied at each of the levels being assessed. Summary scores are standardized so that the relative rigidity or exclusiveness of a particular style can be ascertained.

The MMPI. One of the bounties of the Leary method is that it entails the use of the MMPI, an instrument so familiar in research and clinical practice that it scarcely needs introduction. the MMPI has itself been the object of thousands of research studies, having also served as an investigative tool for countless clinical projects. First published by the Psychological Corporation in 1943, it continues to see frequent application in personality assessment and research (Dahlstrom, Welsh, & Dahlstrom, 1972, 1975; Graham, 1977). Four decades of debate over its validity and reliability have not detracted from its popularity, and the MMPI continues to be recognized as useful in screening for psychopathology, assessing salient personality characteristics, and evaluating for symptomatic disturbance.

The Leary method uses the Group Form of the MMPI, which is a full-length (566 item) form of the instrument. All forms rely on self-report for data collection. The test items are formed into four "validity scales" and 10 "clinical scales," which are interpreted both singly and together as a profile configuration. Although the validity scales were originally designed to insure the validity of item endorsement, it is widely recognized that these scales carry important personality implications as well. Each of the clinical scales is labeled in terms of the psychiatric syndrome it was intended to measure. The labels are as follows: scale 1--hypochondriasis (Hs); scale 2--depression (D); scale 3--hysteria (Hy); scale 4--psychopathic deviance (Pd); scale 5--masculinity-femininity (Mf); scale 6--paranoia (Pa); scale 7--psychasthenia (Pt); scale 8--schizophrenia (Sc); scale 9--mania (Ma); scale 10--social introversion

(Si). While some of these terms and the conceptualizations from which they arose have become outdated, the labels nevertheless continue to be indicative of the symptom clusters and personality trait clusters which the scales are currently seen to tap. Guides to interpretation are abundant (Carson, 1969; Dahlstrom & Welsh, 1960; Dahlstrom, Welsh, & Dahlstrom, 1972; Gilerstadt & Duker, 1965; Graham, 1977; Hathaway & McKinley, 1967; Lachar, 1974).

MMPI Scale Es: An index of psychological adjustment and personal resourcefulness. In addition to the 14 standard scales of the MMPI, there are also a great many subscales and auxiliary scales which have been developed from the original test items. One of the best known and most thoroughly studied of these scales is Es (ego-strength), originally constructed by Barron (1953) to predict the response of neurotic patients to psychotherapy. Barron also believed the scale to provide a measure of personal resourcefulness and adaptability, hence the name "ego-strength." The 68 items in the scale pertain to moral and religious attitudes, physical functioning, feelings of personal adequacy, coping ability, seclusiveness, and the experience of various anxieties. Attempts to confirm the value of Es for preciting therapy outcome resulted in inconsistent findings, and this use of the scale continues to be regarded as questionable.

Apropos of Barron's assertion that Es tapped individual adaptability, however, a good deal of evidence supporting the use of Es as a measure of psychological adjustment has now accrued. Es scores have consistently been found to differentiate psychiatric and

normal populations, with normal populations obtaining significantly higher scores (Crumpton, Cantor, & Batiste, 1960; Gottesman, 1959; Herron, 1962; Kleinmuntz, 1960; Quay, 1955; Silverman, 1963; Spiegel, 1969; Taft, 1957). Frank's (1967) review of 46 studies which had reported Es scors for psychiatric groups showed that the psychiatric groups scored significantly lower than normal groups, even when age, education, sex, and intelligence were not controlled. Within psychiatric groups, Es scores have been found to be higher for neurotic patients than for psychotic patients (Roos, 1963; Rosen, 1963), and students receiving counseling were reported to have significantly lower Es scores than their classmates who were not receiving counseling (Himelstein, 1964). Stein and Chu's (1967) cluster analysis of the Es responses of 220 psychiatric outpatients and 90 military officers matched for age and education showed five clusters, the first three of which were interpreted as representing different aspects of a general sense of well-being. The other two clusters pertained to religious non-belief and the avoidance of boredom.

The evidence indicating that high Es scorers tolerate and cope with stress more effectively than do low scorers is also clear-cut. Grace's (1960) study of psychiatric patients required to do difficult and impossible tasks showed significant positive correlations between Es scores, stress tolerance, and recovery from stress. Egan (1972) found a significant negative relationship between Es scores and nursing students' assessments of clinical situations as threatening. Roessler's extensive studies into the relationship between

Es scores and physiological activation have consistently shown higher Es scorers to respond to stressful stimuli with greater physiological activation compared with low scorers (Roessler, 1973; Roessler, Alexander, & Greenfield, 1963; Roessler, Burch, & Mefferd, 1967; Roessler, Burch, & Childers, 1966; Roessler & Collins, 1970). This relationship has been observed in a number of different populations under several modalities of stimulation and with several different measures of arousal being employed. While these findings seem to suggest a contradiction to the life change-illness hypothesis in that a greater degree of physiological arousal might be expected to result in a greater disturbance of homeostasis, Roessler (1973) has concluded that high scorers on Es show superior physiological discrimination, responding more appropriately to low threat with low activation and to greater threat with higher activation.

Other studies have related Es scores to health status and recovery from illness. Canter, Imboden, and Cluff (1966) found that employees classified as psychologically vulnerable on the basis of Es scores and other personality measures had a significantly higher rate of dispensary visits than did employees calssified as nonvulnerable. Hospitalized medical patients have been found to have lower Es scores than the treatment staff (Wolan & Kepecs, 1969). Higher scorers on Es have also been shown to make more rapid recoveries from mononucleosis compared with low scorers (Greenfield, Roessler, & Crosley, 1969), and low scorers have been described as being more sedentary following the development of coronary artery disease (Mordkoff & Rand, 1968).

In sum, the Es scale has been well-established as having distinct value in the assessment of psychological adjustment and coping ability. As reviewed by Graham (1977) and others (Dahlstrom & Welsh, 1960; Dahlstrom, Welsh, & Dahlstrom, 1972), there are additionally many personality characteristics associated with high and low Es scores. High Es scores are indicative of emotional stability and control; tolerance for the values of others; self-confidence and independence; resourcefulness and persistence; sociability and interpersonal effectiveness. Low Es scorers, on the other hand, have been found to be characterized by poor self-concepts; feelings of helplessness and confusion; chronic physical problems; anxiety and inhibition; unadaptiveness and rigidity; and seclusiveness. Norms for the calculation of Es standard scores have been compiled by Hathaway and Briggs (1957).

Other MMPI indices of psychological adjustment: The F, D, and Pt scales and the overall elevation of the profile. Interpretations of Es scores with reference to psychological adjustment are, of course, enhanced when other measures of adjustment are also considered. The MMPI provides a number of additional scales which are useful in the assessment of psychological adjustment, and several of these were used in the present study. The first is the F scale, universally recognized by the authors of interpretive works on the MMPI as one of the test's most important scales. Graham (1977) has labeled scale F "the single best MMPI index of degree of psychopathology" (p. 153). The F scale is one of the four "validity scales"

of the MMPI, but like the other validity scales, its clinical utility extends well beyond yes-or-no determinations of whether a profile is valid. The 64 items in the scale deal primarily with peculiar thoughts and beliefs, antisocial behavior, hostility, isolation, and impulse control. Because the F items are worded as direct statements of psychological difficulty, more than a few positive responses are suggestive of psychological disturbance once the possibility of deviant response sets (e.g., random responding, answering all items "true," or deliberate attempts to exaggerate problems) can be ruled out. Even relatively minor, "subclinical" elevations (T-scores between 50 and 70) suggest that the individual is experiencing some distress or has an important problem area in his or her life. Intact psychotics may even score at this level (Dahlstrom & Welsh, 1960). As scores climb above a T-level of 65, the likelihood of severe psychopathology increases significantly, with T-scores greater than 79 or 80 often being indicative of frank psychosis. Low F scores (T-scores less than 50), in contrast, suggest freedom from major emotional problems and conformity to traditional beliefs and values.

D (depression) and Pt (psychasthenia) scores also speak to the quality of the individual's psychological adjustment, since both of these "clinical scales" tap dimensions of psychic distress. MMPI experts concur that elevated Pt scores indicate the presence of anxiety and agitation, while D score elevations are seen to be more suggestive of dissatisfaction, discomfort, and despair. High scorers (T-scores greater than 80) on the 60 item D scale are

often found to be suffering outright clinical depressions. Where D score elevations are persistent and not reactive, they are suggestive of a depressive character style typified by overcontrol and indecision, introversion, brooding, apathy, and chronic feelings of failure. Low scorers on D (T-scores below 50) are found to be just the opposite: relaxed, confident, cheerful, and gregarious.

In view of the fact that both D and Pt were designed to measure dysphoria, it is not surprising that descriptions of high Pt scorers are similar to those of high D scorers. Thirteen items in the two scales overlap, and the intercorrelation of the scales has been estimated at .26 (Dahlstrom & Welsh, 1960). The 48 items in Pt deal with self-doubts and worries, obsessive thoughts and concentration problems, moral standards, and abnormal fears. High scorers are described by handbook authors as being tense, ruminative, perfectionistic, insecure, rigid, and moralistic. They are also seen as indecisive, socially awkward, and prone to somatic complaints, particularly of the gastrointestinal and cardiac systems. Low scorers on Pt (T-scores below 50), like low scorers on D, are described as self-confident, friendly, socially effective, adaptable, and well adjusted. They are additionally described by Graham (1977) as being rather success-oriented.

A final way of using MMPI data to evaluate psychological adjustment is, in fact, the first method which is commonly used when this task is actually undertaken in the clinic. The method involves simply glancing over the "clinical" portion of the profile and observing the overall level of elevation. Generally speaking, the

more scales that are elevated and the greater the magnitude of elevation, the greater the probability of serious psychological problems (Graham, 1977). The profile elevation can be indexed by either averaging the scaled scores on the clinical scales or by simply counting the number of clinical scales with T-scores of 70 or above. The more scores there are above 70 and the higher the mean level of scale elevation, the greater the level of maladjustment.

The personal interview. The personal interview has always been one of the most basic methods in the armamentarium of clinical researchers. When structured or semi-structured, the interview method permits some degree of standardization, while at the same time allowing the greatest sensitivity to the individual differences of those being interviewed. In the semi-structured interview, the basic structure of the interview is predetermined, but the way in which the interview is actually conducted and the specific topics that are covered vary in relation to the responses, anxieties, and interests of the subject. The subject is steered into the main areas of interest, with the interviewer then following the subject, probing for additional details. In this way the interviewer obtains the greatest access to the subject's personal world as it pertains to the research interests. Besides facilitating rapport, the special advantage of the semi-structured interview is that it allows for exploration of unforeseen material which may be of great importance.

Interviews in the present study were individual and semi-structured, lasting 60-90 minutes. They were conducted at either the S's home or office, or at the experimenter's office, whichever the S preferred. All interviews were conducted by the investigator in order to minimize interviewer bias, and all interviews were audiotaped, with the recording equipment in full view of the S. The content areas covered in the interviews pertained to five of the six categories of resistance variables which were under consideration, i.e., psychosocial adaptation, life event perception, physical status, health care orientation, and coping (personality information was gathered primarily by means of psychometric techniques, although the style of self-presentation during interviews was, of course, noted by the interviewer).

An outline of the material covered in each category is given in the Interview Checklist (Appendix E). The sequence of the interview was such that more neutral topics were covered first, with more personal topics being broached only after the appropriate rapport had developed. The order in which the five topics areas were approached was, therefore, as follows: 1) physical status, 2) health care orientation, 3) coping, 4) perception of life events, and 5) psychosocial adjustment. During that phase of the interview in which subjects' perceptions of life events were being discussed, Ss were provided with copies of their completed SRRQ's. After review of each of the content areas had been concluded, Ss were then asked to give their own ideas about how they had managed to remain so healthy despite such adverse life change conditions.

Perception of Life Events

At the close of the interview, each S was given a copy of the SRRS and asked to make adjustments in the LCU weights so that the scale would be subjectively accurate for him or her personally. The exact instructions to Ss were as follows:

> This is a scale for rating the life events which were listed in the life change questionnaire that you filled out. The ratings are intended to reflect the amount of social readjustment required by each of the events. As you can see, the events have been rank-ordered and given readjustment values ranging from 0-100. However, the personal significance of each event and the amount of social readjustment which each event requires can vary widely for different individuals.
>
> What I would like you to do is to go through the scale item-by-item, changing the readjustment values of items so that the scale is right for you personally. The values you assign should reflect the amount of readjustment which the event has--or would--involve for you personally. 100 would be the highest value you would assign, and 0 would be the lowest value you would assign.

While the LCU values thus obtained are not perfectly comparable to the original LCU weights, since the instructions to Ss in the present study differ significantly from those given to Ss when the SRRS was originally derived (see Holmes & Rahe, 1967), it was felt that such a comparison might nonetheless be of interest. If high life change Ss who do not become ill are individuals who perceive life changes as non-demanding or non-stressful, then it would certainly seem reasonable to expect that they would consistently scale down LCU values on the SRRS.

Collection of Data

Questionnaire respondents meeting the experimental and demographic criteria were recontacted by telephone and asked to

continue their participation in the study. At the time of the telephone call they were informed more fully as to the purpose of the research project, and the basis for subject selection was explained to them. The text of the information which was given over the telephone is recorded in Appendix F. All of the 10 individuals re-contacted in this manner agreed to continue. An appointment was then scheduled for each S to meet briefly with the investigator, so that a relationship could be established and the testing instruments and consent form (Appendix G) could be distributed.

Individual interviews were scheduled once completed personality inventories and consent forms had been returned to the investigator. In addition to reiterating the purpose of the study and the conditions of participation, the consent form also extended to Ss an invitation to meet with the investigator for an individual feedback session after the study had been completed. Nearly all of the subjects took advantage of this opportunity.

CHAPTER III

RESULTS

Each of the first six sections making up this chapter deals with one of the six domains of resistance resources discussed in Chapter I. These domains have been labeled 1) psychosocial adaptation, 2) perception of life events, 3) personality, 4) physical status, 5) health care orientation, and 6) coping. The seventh and final section of the chapter reviews Ss' own beliefs about how they have been able to sustain good health.

Psychosocial Adaptation

Information about the quality of the Ss' psychosocial adaptations was garnered by means of the MMPI and individual interviews. The results from the two methods are presented separately. Additional interview material is recorded in Appendix H.

MMPI findings. The MMPI profiles of the 10 Ss are reproduced in Figure 3. Group profiles are presented in Figure 5 in Appendix I. For the sake of clarity, female Ss were numbered 1-5 and male Ss were numbered 6-10. The numbering of Ss is also such that within these two subgroups, i.e., males and females, higher numbers correspond to higher MMPI profile ranks.

An inspection of the profiles quickly shows S10's profile to be highly deviant from the others. With scores on nearly all the clinical scales greatly elevated, this "floating" profile is indicative of severe psychopathology, together with a very high level of

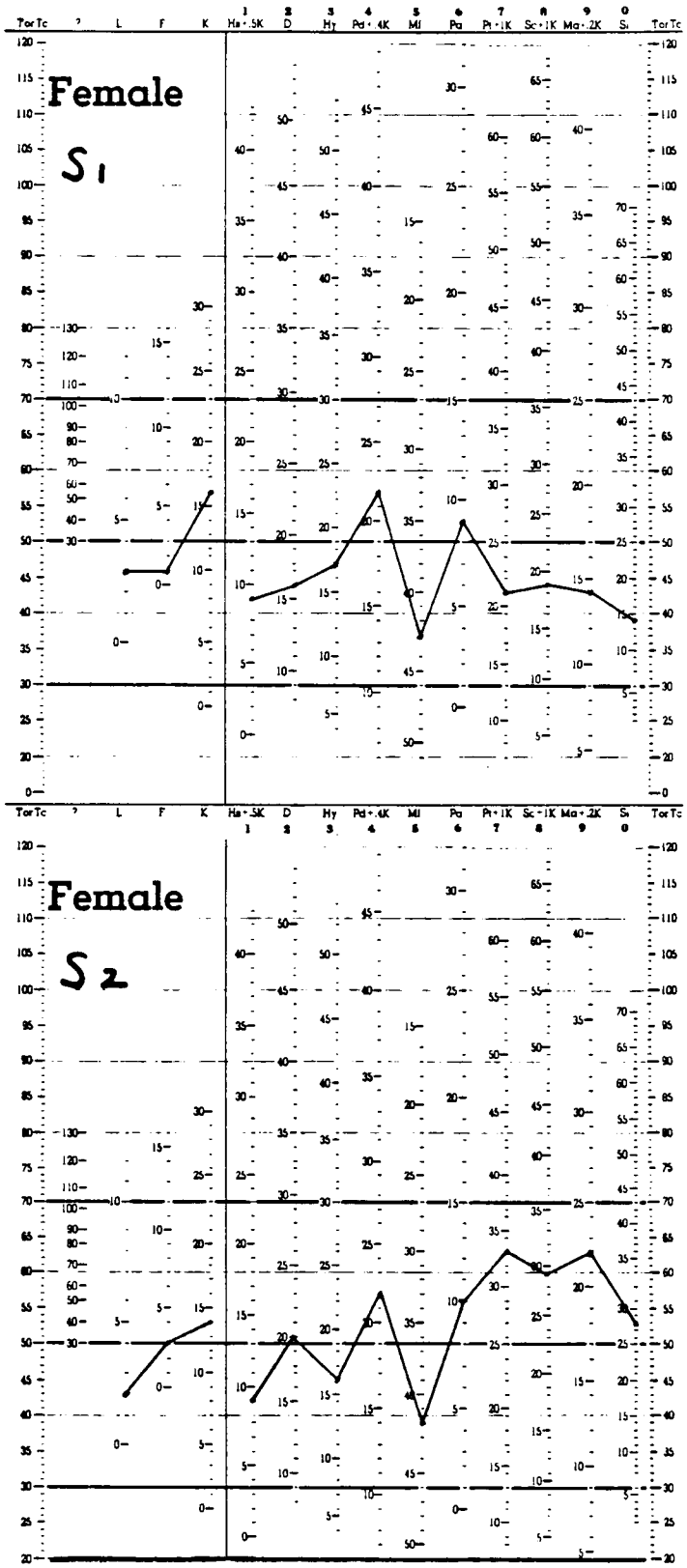


Figure 3. Individual MMPI profiles.

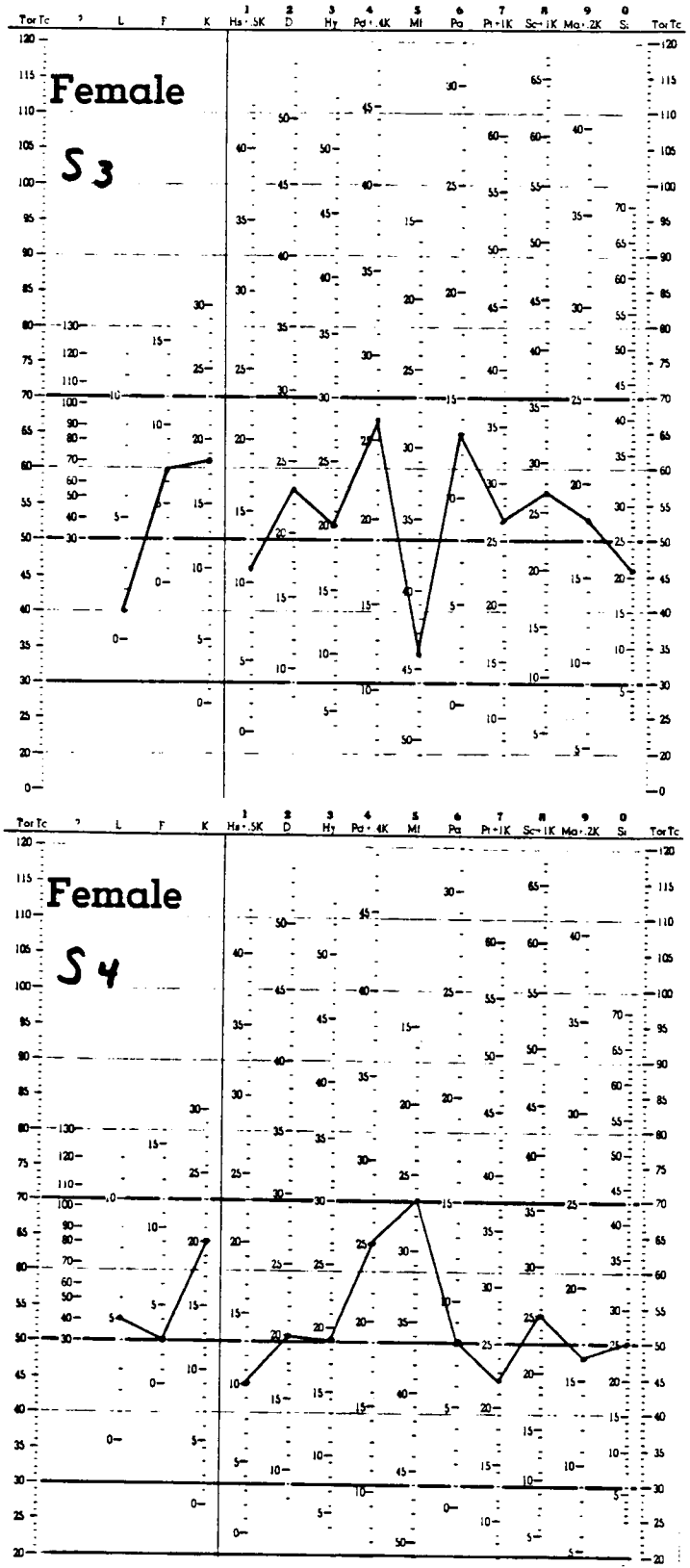
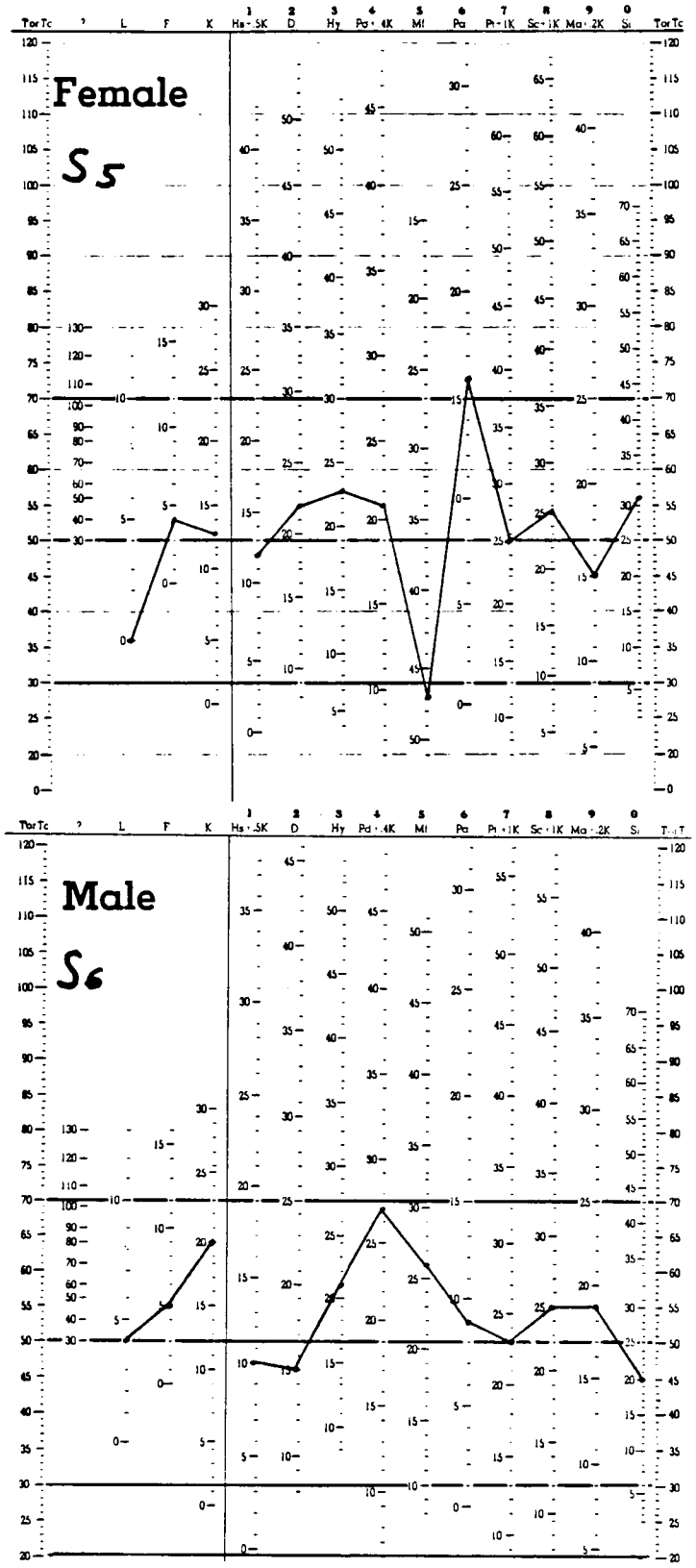


Figure 3 (continued).



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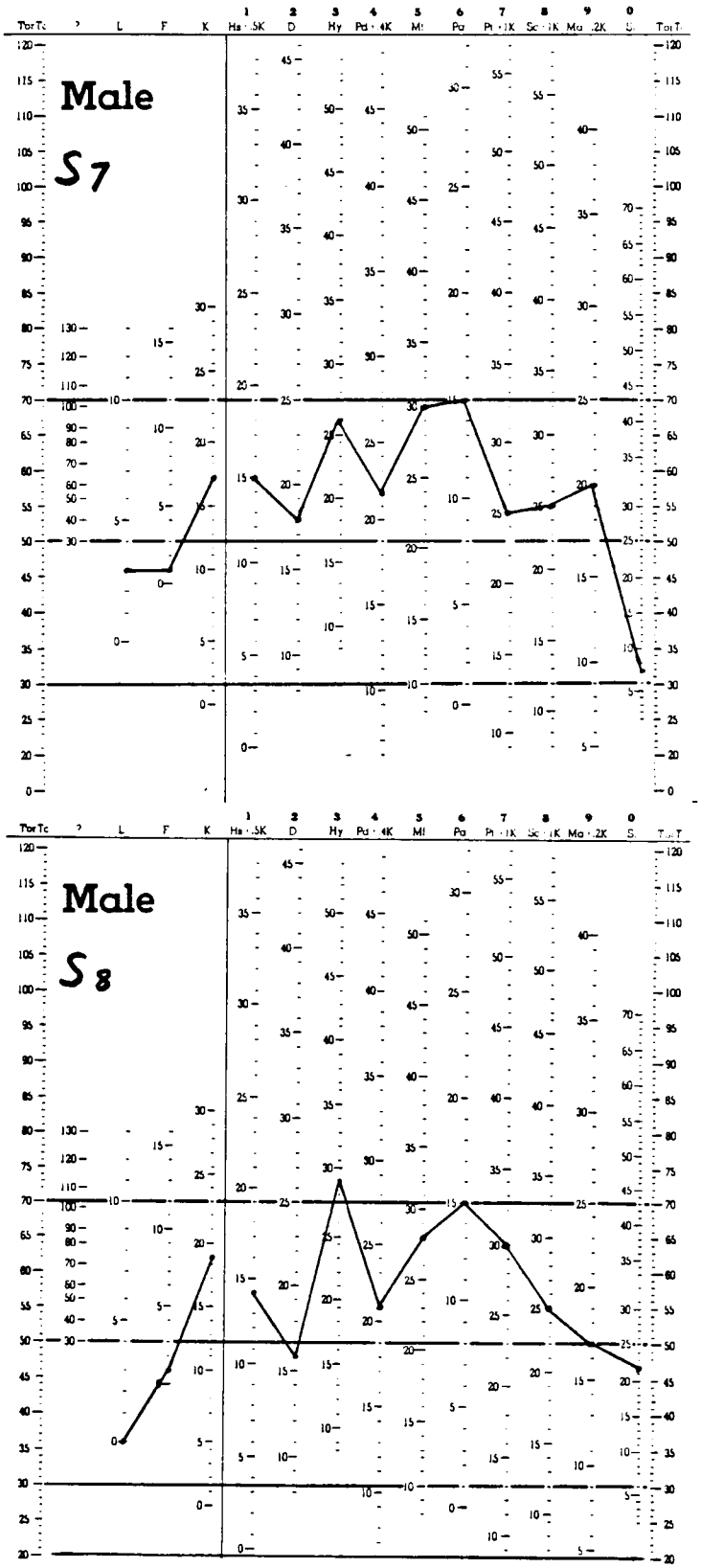


Figure 3 (continued).

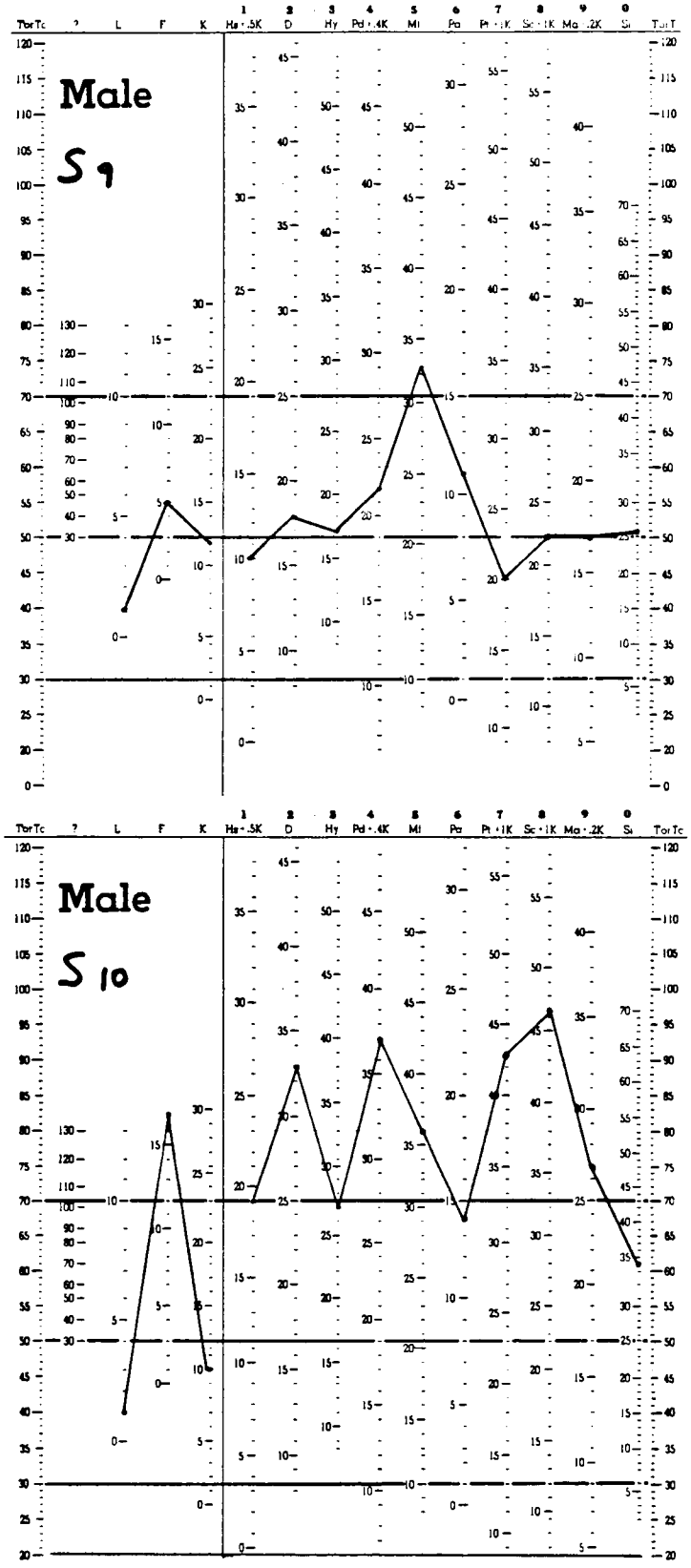


Figure 3 (continued).

psychological distress. S10's scores on the three scales which are individually most sensitive to the presence of emotional distress, i.e., the F, D, and Pt scales (as discussed in Chapter II), are all above a T-score of 80, with the Pt scaled score reaching above a T-score of 90. These scores suggest a high level of internal tension manifested in worry, rumination, irritability, and depression. With the summary evidence contraindicating a deviant response set, S10's MMPI profile clearly indicates very serious psychological maladjustment.

By contrast, the nine remaining profiles contain few suggestions of serious symptomatic disturbance. Four of the profiles (those of S4, S5, S7, and S9) show statistically significant elevations (i.e., $T \geq 70$) on single scales, and S8's profile shows scores on two scales elevated to this level, but these elevations occur on scales more associated with personality traits than with emotional discomfort per se. Furthermore, all of these elevations are below a T-score of 75, and three of the six elevations are right at the T = 70 level. From a clinical standpoint, these elevations are significant, but by no means extreme.

Profiles of the first nine Ss are not entirely without indications of dysphoria, however. S1, S4, S5, S6, and S7 would not appear to be suffering significant levels of affective distress, but the profiles of S2, S3, S8, and S9 all contain some signs of unpleasant affect states. The levels of disturbance range from mild to moderate. S2's profile has a moderate Pt elevation (T = 63), which, particularly with the accompanying elevation on the Ma scale

(T = 63), suggests anxiety, tension, indecision, and restlessness. S8's profile shows a similarly elevated Pt score (T = 64). S3 obtained mild elevations ($50 < T \leq 60$) on all three of the "distress scales" (i.e., F, D, and Pt), and S9's profile shows slight elevations on both the F and D scales ($50 < T \leq 55$).

Taken together, the MMPI profiles suggest that as a group, the Ss are individuals currently experiencing relatively modest levels of anxiety, depression, and other unpleasant affects. This becomes even more clear in Table 1, where group and subgroup means have been calculated for the F, D, and Pt scales respectively. Because S10's profile was so markedly deviant from the other profiles, the group mean and the subgroup mean for the males were calculated both with and without S10's scores. As seen in Table 1, even with S10's scores included, the mean F, D, and Pt standard scores for the 10 Ss are quite low, becoming insignificantly elevated above the norm once S10's scores are excluded.

Interview findings. Results from the interviews generally paralleled psychometric data in characterizing Ss as having fairly good overall psychosocial adjustments. In view of the magnitudes of life change which they had endured, the quality of their psychosocial adaptations is perhaps somewhat remarkable. With the exception of S10, all of the Ss tended to view life rather positively, expressing high levels of satisfaction with self and acceptance of their lots in life. Overall, they were probably best described as reasonably content and cautiously optimistic.

Table 1. Mean F, D, and Pt Standard Scores

	F		D		Pt	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
Females (S1-S5)	51.80	4.66	51.60	4.45	50.80	7.05
Males (S6-S10)	57.00	13.61	57.80	15.84	61.80	15.47
Males w/o S10 (S6-S9)	50.50	4.50	50.00	3.08	54.50	5.72
Group (S1-S10)	54.40	10.50	54.70	12.04	56.30	13.22
Group w/o S10 (S1-S9)	51.22	4.64	50.89	3.98	52.44	6.75

Their positive feelings about themselves and their lives were by no means shallow or one-dimensional, however. All of the Ss described periods of frustration, anxiety, and depression in relation to the life events they had experienced, and all described having experienced at least one significant problem in the areas of family, career, or social life. Both S7 and S8 had experienced acute anxiety attacks, and S3 specifically mentioned problems with anxiety and depression on her health questionnaire. The psychosocial adaptations of these and the other Ss obviously had not always been adequate to prevent periods of dysphoria, but considering the levels of psychosocial demand which have been placed upon them, this does not necessarily indicate poor psychosocial adaptation. The indications that Ss successfully continued with positive adaptive efforts despite psychological distress suggests not only good ego-strength, but also adequate initial psychosocial resources.

The following quotations were selected as being representative of statements made by Ss concerning their feelings about their situations in life. (Note that additional interview material is available in Appendix H.) These statements were all made in response to the question, "With so many changes taking place in your life over the past two years, how happy have you generally felt?"

> S1: During [the period around her divorce] . . . I was not happy with life at all. I didn't know where I wanted to be . . . I wanted to be somewhere else . . . I didn't have a home . . . I wasn't anywhere. Other than that, in my entire life, I would say that I have been a happy person.

S2: I think I've basically been very happy, even when I was in pain, and I was depressed for a long time in the fall, but still aware that I was growing and that something good would come out of it . . . I'm happy . . . I have a sense of direction.

S5: But basically . . . I'm very glad with my life the way it is right now. My life is much better than it ever was . . . It's much better than I thought it would be . . . There have been periods of depression related to internal things, but not dissatisfaction with my life. The depression seemed to have a purpose to me . . . It seemed more like a working through than a sense that there was something really wrong with my life that I wanted to change.

S7: I think my happiness has been at a kind of plateau . . . Some of the happier times with the family are decreasing. It bothers me a little bit, but happiness from a self-esteem point-of-view, from a self-accomplishment point-of-view, is there in place of that.

S8: I was depressed as well as happy, the feelings went together. It was a strange combination of both.

While these quotations document periods of unhappiness and feelings of discontent, an overall positive valence is evident. In some of these quotations and elsewhere in the interviews are repeated references to growth, maturation, and positive change arising out of the unpleasant demands of life. More will be said about the optimistic nature of the Ss' world views in the following section, which deals with Ss' perceptions of the life events which they have experienced. In general, the Ss emphasized constructive outcome and progressive forward movement, and the tone of their reflections suggests an attitude of acceptance of life and its vicissitudes.

With only S10 as an exception, the Ss consistently evaluated themselves in positive terms, and in most cases, Ss openly expressed high levels of self-esteem and self-acceptance. Three of the female

Ss (S1, S2, and S4) indicated that the sources of the greatest satisfaction in their lives lay in their feelings of capability and personal strength. S10, on the other hand, verbalized considerable dissatisfaction with himself, even though he described his actual abilities as being superior to those of his peers. His outlook on life, unlike those of the other Ss, tended to be more sour and pessimistic, as seen below in his response to the question concerning his feelings of happiness in life:

> S10: I would not say that I'm overly ecstatic about anything, nor was I before. Trying to be a realist sometimes takes the gloss of anything off. I'm never really giddy happy. I can be pleasantly pleased and that's about the extent of my theory in that area . . . If you have a period of time that you are joyously happy and pleased with life, you're gonna have times that you're in such a doldrum of misery that it offsets each other, maybe too much. I try to keep on an even keel, relatively stable. That way you're better able to cope with the bad times.

All of the Ss but S6 expressed satisfaction with their career choices, and job satisfaction in the group was generally quite good. Only S3 and S6 expressed dissatisfaction with their jobs, and both of these Ss were actively working toward improving their employment situations. S3 had returned to school to upgrade her credentials, and S6 was currently attending job interviews. While job satisfaction among Ss was generally high, it was not unqualified, with several of the Ss voicing similar complaints regarding the politics at their places of work. Goals and priorities among the Ss centered around a duality of career and marital-family interests, and for most of the Ss, these domains provided the sources of the greatest satisfactions--and dissatisfactions--in their lives. S10 alone indicated that his

greatest priority in life was in the area of finances. His greatest dissatisfaction concerned his own work habits.

The home situations of the nine married Ss were generally described as stable and gratifying, but not entirely without problems. S4 alone indicated severe marital conflicts, to the point that she had recently filed for divorce. As part of her response to the problems at home, she had withdrawn somewhat from the family and had become much less active with her children. S7 had also experienced a period of marital difficulties in the past year, but not to the point that divorce had ever been a serious consideration. The problems had eventually been resolved, and S7 felt the marriage had been strengthened as a consequence. To a lesser extent, S6 and his wife had also had a period of marital maladjustment, but here too the differences had been productively resolved. In general, Ss tended to view their marriages as evolving relationships, and this perception seemed to allow them the necessary latitude for working through problems.

The other Ss described their marriages as quite happy, with three of the Ss spontaneously reporting that they felt they had the best marriages of anyone they knew. Ss with families further described themselves as close to their children and actively involved with them. This, however, did not preclude some parent-child conflicts. Both S2 and S9 reported longstanding problems with individual children, and these conflicts represented major sources of dissatisfaction in their lives. Nonetheless, these Ss evaluated their family situations as gratifying overall. S3, the only unmarried S,

indicated that marriage and a family were major goals in her life.

With regard to families of origin and extended families, only S6 reported major conflicts within the past 2 years. After returning to his home town to join the family business in the year prior to the study, he had again left the area several months later due to tensions developing between himself and his parents. Most of the other Ss had had similar problems with their families in earlier years, but these problems had been dealt with previously and were no longer at active levels. Ss generally presented as being quite independent of their families, and nearly all had left the areas where they had been reared. Their style of coping with family problems had generally been to increase distance while remaining on cordial, if not friendly, terms. With the exception of S6, Ss generally described present relationships with their families in positive terms, and all the Ss continued to make periodic visits home. Most of the Ss saw themselves as quite different from their parents, and the evidence did indeed suggest a high level of differentiation in this respect. S10 alone had remained in his home town and seemed to be following closely in his father's footsteps.

Social support systems among the Ss were, as a rule, both stable and substantial. In addition to the generally supportive nature of their marriages and home lives, nearly all of the Ss had close friends with whom they had regular contacts and with whom they were quite intimate. S9 and S10 alone seemed to differ in this respect. S9, who described himself as being somewhat suspicious of

others, reported that he had little social life and few friends. This S was, however, highly involved with his wife and children (including an adopted child), and his limited social life outside the family was clearly a matter of choice. S10 described a very active social life centering around daily activities at a country club, but even though he and his wife had a group of 10-15 people with whom they were "reasonably close," his relationships were not described as having the same level of intimacy seen in the relationships of the other Ss. This seemed to be true of his marital relationship as well. Although he indicated that he was pleased with his marriage, he viewed his marriage as the result of a choice on his part, rather than as a mutual undertaking, and he specifically stated that he had made his choice on "pragmatic grounds," i.e., career and financial considerations.

The other nine Ss all presented themselves as far more oriented toward relationships. Descriptions of their friendships and marriages indicated that they placed a high value on these relationships, and all felt that they had a number of people to whom they could turn for help in times of trouble. Excepting S10, all Ss described their close relationships as important factors in dealing with the stresses of their lives. S6, in particular, felt that it had been the support he had received from friends in his church that had enabled him to weather an inordinate number of life changes at the time he had first moved to the Knoxville area. The overall pattern seen among the Ss was one in which the emphasis tended to be placed on maintaining a few very close, quality relationships

rather than on having a more extensive network of casual relationships. Only S7 and S10 reported frequent attendance at parties and similar types of social gatherings.

Community involvement also tended to be at a relatively modest level. S10 belonged to several civic organizations, and S7 had served as a PTA officer for several years, but these were the only Ss serving in more than nominal roles in community activities. Most of the Ss indicated that they were simply too busy with their family and career interests, and in several cases, Ss' jobs involved a significant amount of community contact. S1 had joined a service organization, and S4 was a member of both a political group and an intellectual club, but their actual activity levels and personal investments in these groups were minimal. Several of the Ss were active in their churches, most notably S2 and S6, both of whom described their churches as the centers of their social lives.

Perception of Life Events

In order to arrive at some understanding of how healthy high life change individuals perceive life events, interview questions were joined with a psychometric technique to form a two-track assessment procedure. As described in Chapter II, the psychometric procedure involved having Ss make adjustments to the original SRRS LCU values such that the adjusted values would conform to Ss' own experiences. The results of this procedure are presented under the next heading, with the interview results being presented subsequently.

Ratings of life events. The raw data from Ss' reratings of the SRRS items are contained in Appendix G, together with the mean scores and standard deviations for the male and female subgroups, as well as for the group as a whole. Also shown in Appendix G are the medians of the 10 Ss' reratings of SRRS items. Of immediate interest are the frequently large standard deviations, suggesting a good deal of variability in how Ss perceive life events. In interpreting these figures, however, it must be understood that the data upon which the standard deviations have been calculated are subjective magnitude estimations, distributed as an ogive, as described by Stevens' Power Law (1951). Variability in magnitude estimations is often high, and as numerous life change researchers have pointed out, different life events can have very different meanings for different individuals. The greatest variability in Ss' ratings was seen among the females, but much of this is due to S4's highly inflated ratings of a number of items in the middle and lower end of the scale. Likewise, S8's consistently lower ratings, especially in the middle and upper end of the scale, result in somewhat inflated measures of variability for the males.

Despite the variability in Ss' ratings, when product-moment tests of correlation were carried out between each S's ratings and the original LCU values of the items, high levels of correlation were seen across the group. The coefficients, presented in Table 2, are all significant well beyond the $p < .001$ level. Of the 10 Ss, only S4 and S8 (those commented on previously), with coefficients of .57

Table 2. Coefficients of Correlation Between Subjects' Ratings of SRRS Items and the Items' LCU Values

	Subject	r_{xy}
Females	S1	.91
	S2	.88
	S3	.96
	S4	.57
	S5	.96
Males	S6	.96
	S7	.93
	S8	.75
	S9	.87
	S10	.84
Group	S1-S10	.96[a]
	S1-S10	.97[b]

Note. All coefficients are significant at $p < .001$.

[a]This "group coefficient" was calculated using the means of Ss' ratings of each item.

[b]This "group coefficient" was calculated using the medians of Ss' ratings of each item.

and .75 respectively, failed to produce ratings which correlated with the original item values at a level exceeding conventional standards for adequate reliability (i.e., r = .80). Summary correlations for the group calculated on the basis of both mean and median ratings yielded coefficients of .96 and .97 respectively. Quite clearly, at the group level, there is a high concordance between Ss' rankings of SRRS items and the ranking of the items on the original scale. Assuming the assessment procedure is valid (this will be discussed in the next chapter), it may be concluded that in terms of ordering the relative magnitudes of the readjustment demands of SRRS items, Ss as a group conform with other populations.

In order to determine whether the values which Ss assigned to the SRRS items differed in actual magnitude from the items' LCU weights, each S's ratings were compared with the LCU weights by means of the componiste-rank method (R-test). The results of these comparisons are presented in Table 3, along with other summary statistics for comparing Ss' ratings with LCU values. Column one shows the sums of each S's 43 ratings; column two gives the mean rating of each S; and column three compares the sums of the composite-ranks of each S's ratings with the respective sums of the composite-ranks of the LCU values (i.e., the results of the R-test).

The R-test results and other summary statistics show the ratings of three male Ss, S7, S8, and S10, to be significantly lower than the LCU values, indicating that although these Ss order SRRS items very similarly to other individuals, they report perceiving the life events listed on the SRRS as less demanding than do others.

Table 3. Summary Statistics Comparing Subjects' Ratings of SRRS Items and the Items' LCU Values

		Sum of the 43 Ratings	Mean of the 43 Ratings	Sum of Ranks of Ratings/Sum of Ranks of LCU Values
SRRS		1466	34	N/A
Females	S1	1514	35	1791/1950
	S2	1541	36	1864/1878
	S3	1419	33	1804/1938
	S4	2229	52	2016/1725
	S5	1333	31	1732/2010
Males	S6	1363	32	1770/1972
	S7	1209	35	1631/2110*
	S8	860	20	1420/2322**
	S9	1553	36	1874/1868
	S10	1150	27	1551/2190**

*$p < .05$ in a two-tailed test.

**$p < .01$ in a two-tailed test.

This generally seems to be the trend among the male Ss, with the summary statistics compiled on S6's ratings also showing values consistently lower--but not significantly so--than those compiled on the LCU weights. The ratings of the remaining male, S9, proved to be very similar to the original LCU weights and do not show the trend toward reduction. Of the females, only S5 consistently rated the SRRS items lower than their LCU values, and the overall difference was not statistically significant. The ratings of S1, S2, and S3 showed no major differences from the LCU values.

Unexpectedly, S4's statistics showed a clear tendency toward ratings higher than those on the SRRS. Thus, S4 evaluated many of the life events as being more demanding than they are experienced by most other people. The difference is considerable, barely failing to achieve statistical significance in a two-tailed test of the differences of the composite ranks (the difference is significant in a one-tailed test). With the exception of S4, however, Ss rated the SRRS items as either comparable with or lower than the scores of the norming groups in terms of the amount of readjustment which the events require. Obviously, there is substantial variability in the ratings, and no clear pattern emerges for the group as a whole, even though there does appear to be a trend toward lower ratings among the males.

Interview findings. Ss' responses to interview questions suggested that as a group, Ss' initial emotional responses to the life changes which they had been through did not differ appreciably

from what might be expected of any group of individuals encountering high levels of psychosocial demand. Excepting S10, who generally denied being affected by the many changes in his life, and S7, who also tended to minimize the emotional effects of recent life experiences (note that S10 and S7 are two of the three Ss who consistently scaled down LCU values on the SRRS, as described in the previous section), Ss lucidly described unpleasant emotional responses characterized by frustration, anxiety, depression, and feelings of being out of control. Even S8, who showed the greatest tendency to scale down LCU values, reported periods of feeling depressed and overloaded. Below are some of the statements which Ss made while reflecting on what it was like to have experienced so many life changes:

S1: It was awful. The word that describes it most, it was terrible.

S2: Awful almost, and very scary.

S3: It was a pretty miserable year.

S4: [Concerning the death of her father] It was just devastating, absolutely devastating . . . It's a feeling of helplessness, hopelessness, and powerlessness.

S6: There has been stress, there has been the whole range of emotions from anger to sorrow to heartache and misunderstandings and arguments and frustrations . . . If I had allowed myself, I could have been very devastated.

S8: I felt lousy . . . I did get depressed . . .

(Note that additional interview material concerning the Ss' responses to life events is available in Appendix H.)

What is more interesting, however, and probably of major importance in explaining the good health of these individuals is that

despite apparently normal emotional responses to stressful life events, the Ss seem able to integrate even very unpleasant experiences in such a way that positive aspects or consequences are perceived alongside the unpleasant. Most commonly, this took the form of Ss perceiving that personal growth or personal learning had occurred as a result of painful or stressful experiences. As evidenced in the following excerpts, one sees repeated references to personal gains arising out of Ss' stressful life experiences:

> S1: It has made me more aware of what I have now and appreciative of the stability and freedom that I have now. I realize that I'm luckier than most people in that--not the financial end of it, but the emotional support.
>
> S2: I've been aware of almost watching myself go through it . . . I'm in such a totally different place than I was . . . I've come such a long, long way . . . I believe God did intend for us to always be growing.
>
> S3: Each one [life event] has been difficult, but each one has eventually resolved itself . . . Each one has had an effect . . . Each one has forced me to face different challenges that have been difficult, but I've kind of gained something from each one . . . Each one is something you have to deal with in the course of maturing, and I've gotten through each one and grown . . . It's growth-producing . . . creates a sense of process.
>
> S4: They've probably gone a long way to make me more assertive and aggressive (laughs), I wouldn't be surprised. As a matter of fact, I'd almost say that they were positive changes--that's only from my viewpoint. And it must not be too far off, because I've made a lot of friends. It's made me more (pause) . . . more myself.
>
> S5: I'm a lot stronger than I used to be. I'm much more confident that I'm going to live out my entire life. I'm not going to pull out of life, I'm going to live it out and see where it goes . . . That really wasn't true of me before.

S6: We [my wife and I] felt good that we had gone through what we had gone through, and there was some positive elements in that . . . If we had never gone that route we would never know whether or not we would want to run our own business . . . It didn't work out the way we had hoped, but that was O.K., we go on from there . . . I get the feeling that perhaps I'm going through one of the--what's the name?--passages.

S7: It's the kind of thing that I was in a way--I caused them to happen. I was seeking to expand my [career] interests. It seems exciting . . . I envisioned it as a way of growing, something that's challenging, something that's entertaining, a feeling of accomplishment.

S8: Well, my life is better now. I don't think of it as a lot of major changes. They were major changes in the sense that I had been building towards a number of things and then they all kind of finally materialized. But my life is better than what it was. I spent a long time building towards this and setting up the pieces . . . I feel proud of what it is that has happened and that has developed . . . I did get depressed, but that was a constructive kind of depression for me to go through . . . I've had to struggle with it.

S9: It may be that in a funny way the increased amount of pressure is compensated for by this [good] feeling that I have when I feel I've learned or integrated something that I didn't have before. I really like that. Everything seems to pass to another level.

The optimism and equanimity which are conveyed by these statements seem to be outgrowths of worldviews in which acceptance of life and acceptance of self are central. The overall optimism and high self-esteem seen among the Ss has already been noted, and it is clear from the above quotations that Ss are reflective, introspective persons. They have the ability to view themselves and their experiences from afar (i.e., observing ego), and this ability to not "lose the forest for the trees," so to speak, may contribute to a sense of continuity about life during times of great change. Their references to maturation (S3), growth (S2), "process" (S3), "passages" (S6), and

"passing to another level" (S9) reflect perceptions of life as a flowing, shifting venture, and such views may help to arm them against the loss of meaning during periods of adversity. The tendency to view life as a fluid process which one must move with, not against, is exemplified very nicely in the following quotation from S7:

> I always look at life as a constant change--I wouldn't want it to be anything other than that. So I still look at myself as though I haven't grown up and I don't know what I'm gonna be when . . . 10 years down the road. I have absolutely no idea where I'll be 5 years from now--and that doesn't bother me . . . I'm always moving, trying to do different things.

Even S10, different from the other Ss in so many ways, described a world view in which the shifting and unpredictable nature of life was fundamental. However, the deeply pessimistic context of this outlook is readily apparent in the following excerpts:

> S10: I would probably be as concerned about a period of time when I was very, very happy as a time when I was very, very miserable, simply because one's gonna follow the other eventually. You're not gonna be able to maintain either one of those emotions forever . . . The cards can only stand so long . . . Everything is in flux.
>
> I try and anticipate the worst possibility and prepare for that. Now if things work out better--hey, I'm happy with it--but be prepared for the worst that can happen. That way you're at least never disappointed. I always want to know what is the worst bottom line. Then things that might be very stressful don't seem so stressful, because they have to be better than anticipated--I call that my "adaptability syndrome."

Despite sharing with the other Ss a view of life as always changing, S10's patent negativism and apprehension about the future set him far apart from the other Ss. The following passage from

S6's interview is far more representative of the views expressed by the other Ss:

> S6: A lot of people will say they gotta save for a rainy day . . . always have this money, or whatever it is, put aside for a rainy day. And that sounds, you know, pretty reasonable. It sounds like forthright kind of planning. You know that when a situation comes along that you're going to have this money to carry you through. Well, what happens is that if you save for a rainy day, you are gonna have rainy days. You've already--whatever you want to call it--a self-fulfilling prophecy, or whatever. Not that planning is not a part of life--but positive kinds of things, positive kinds of planning--and planning for a rainy day is not a positive kind of thing, even though it sounds like it on the surface.

S10's remarks further suggest a major difference in the extent to which he and the other Ss perceive themselves as victims in life. S10's "adaptability syndrome" reveals him as an individual constantly struggling against and preparing for the inevitable hardships of life. Although the other Ss also tended to view life as constantly changing, their statements did not suggest that they saw themselves as passive victims in life's vicissitudes. On the contrary, they seemed to see themselves as having some input into their fates and to view their life experiences as inevitable elements in their own forward movement. S7's perception that he himself was responsible for many of the changes that he had encountered is quite evident in the statements quoted earlier, and, to a lesser extent, a similar belief is evident in the statements of S8.

Personality

The variables to be considered under the rubric "personality" include ego-strength, interpersonal style, and sundry character

traits. The findings pertinent to each of these areas originate with psychometric data and are considered below under separate headings. As discussed in Chapter II, the Es scale of the MMPI provides measures of Ss' flexibility and personal resourcefulness--i.e., ego-strength; the Leary Interpersonal Battery summarizes interpersonal behavior at both public and self-perceived levels (levels I and II respectively); and the MMPI provides for the assessment of the various personality characteristics to be considered.

Ego-strength. As seen in Table 4, the Ss' Es scores were consistently above the population norm. Only S10, whose MMPI data indicated severe psychological disturbance, obtained as Es T-score below 50. Even with S10's low score included, the mean Es standard score for the male subgroup was 59, nearly one standard deviation above the norm. Without S10's score included, the mean Es standard score for the males was 64, which approximates the mean score for the females at 67. Because standard score conversions for the Es scale require different norms for males and females, the only way to obtain a group mean was to average standard scores across the group. The group mean thus obtained was 63.1, which rose to 65.0 when S10's score was excluded.

Interpersonal functioning. The Ss' summary scores on levels I and II of the Leary Interpersonal Battery are plotted in the circumplexes appearing in Figure 4. The same data are also presented in more collapsed form in Table 5. Several interesting trends are immediately discernible. First, with only one exception, all the

Table 4. Scores on Scale Es

		Raw Score	T-score
Females	S1	55	73
	S2	45	58
	S3	54	72
	S4	55	73
	S5	44	54
Males	S6	53	64
	S7	51	61
	S8	55	61
	S9	55	67
	S10	42	46
Female Mean	S1-S5	50.6	67
Male Mean	S6-S10	50.4	59
Male Mean w/o S10	S6-S9	52.5	64
Group Mean	S1-S10		63.1[a]
Group Mean w/o S10	S1-S9		65.0[a]

Note. Standard score conversions are based on the data of Hathaway and Briggs (1957).

[a]Due to standard score conversions for scale Es requiring different norms for males and females, group means were calculated by averaging Ss' (rounded) T-scores.

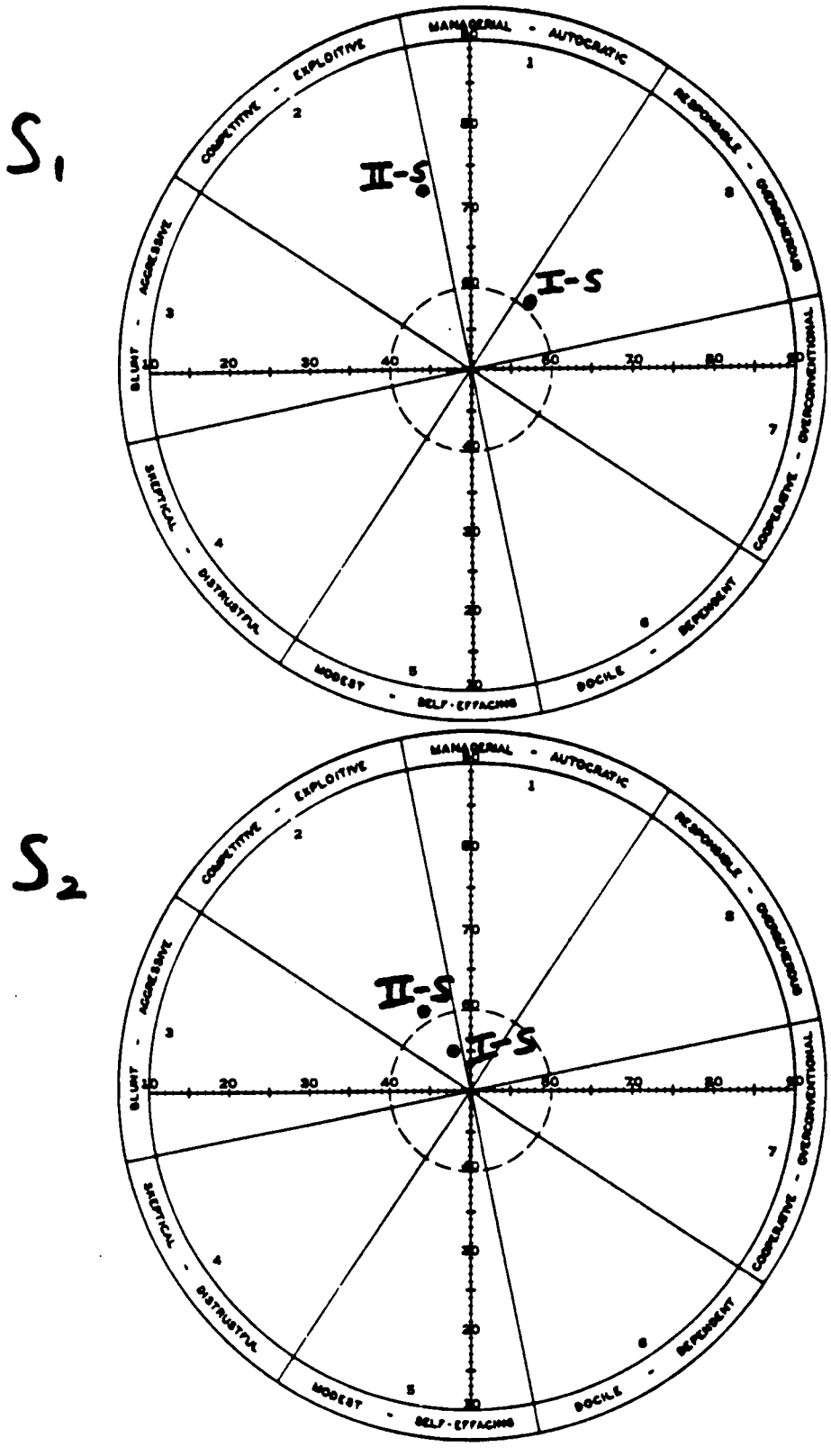


Figure 4. Level I and Level II summary scores on the Leary Interpersonal Battery plotted in circumplexes.

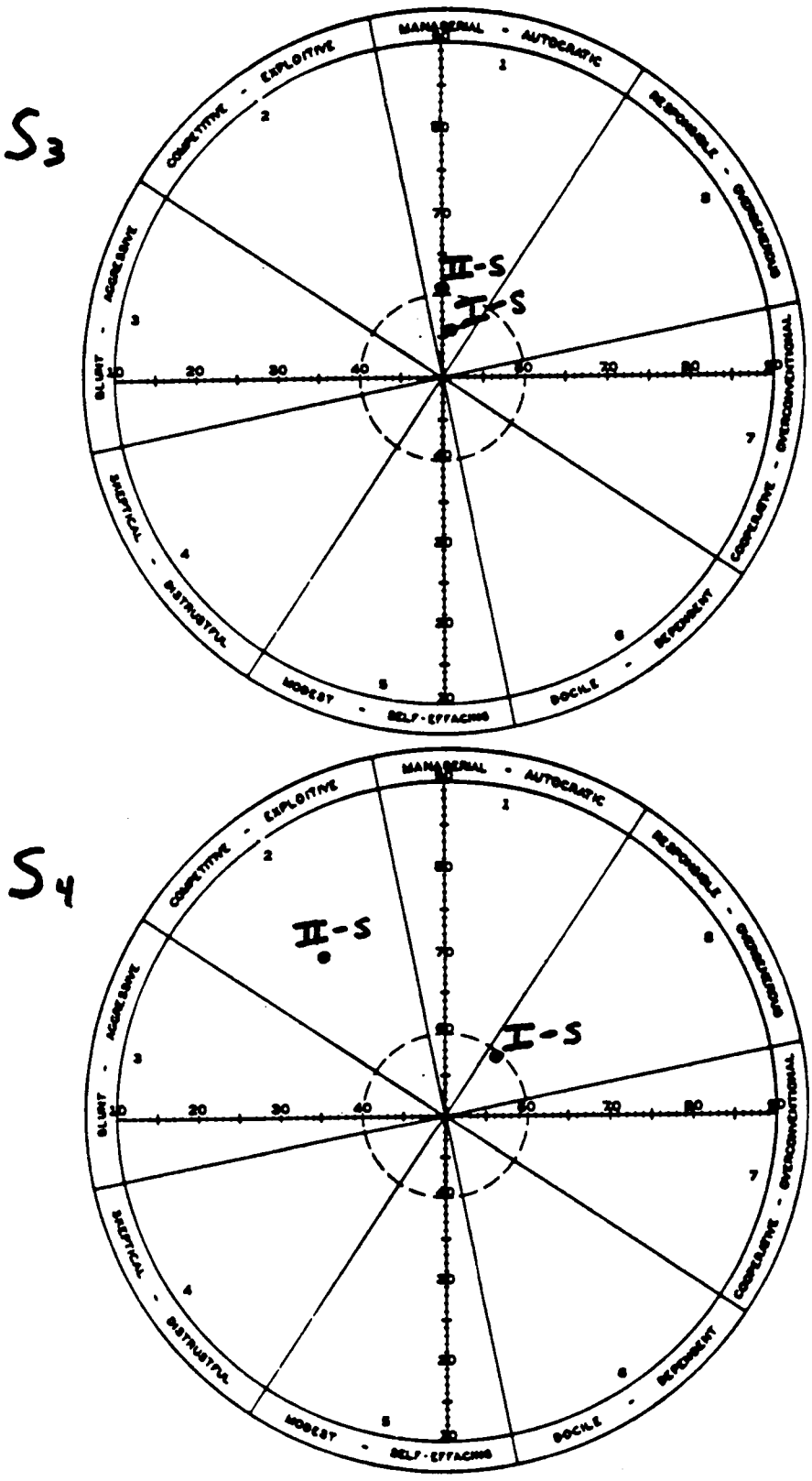
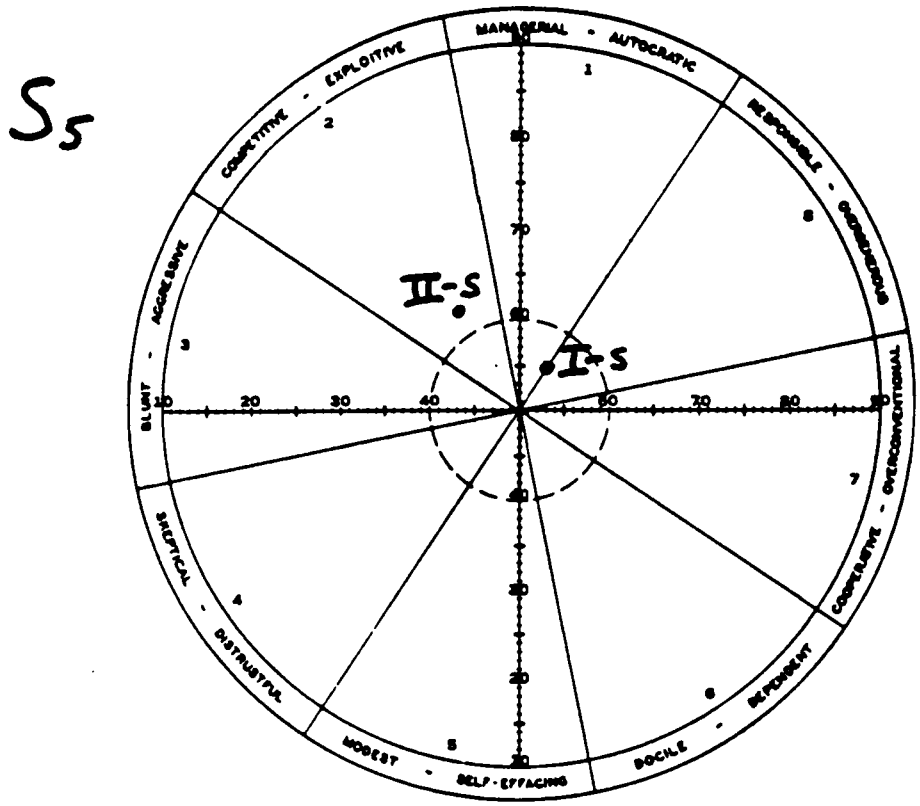


Figure 4 (continued).



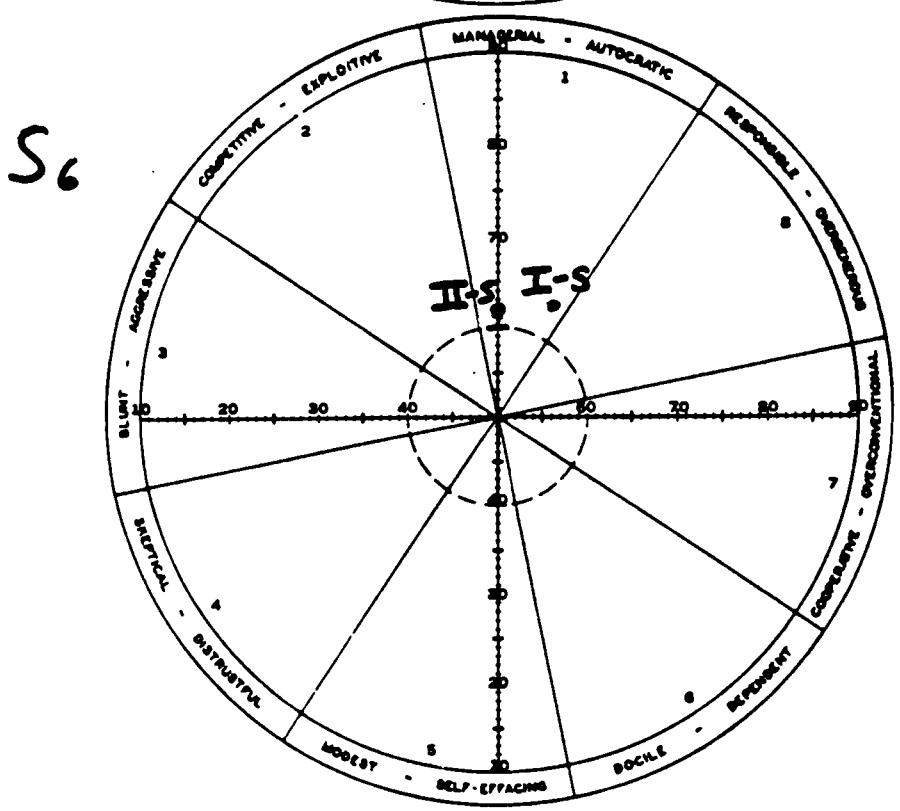
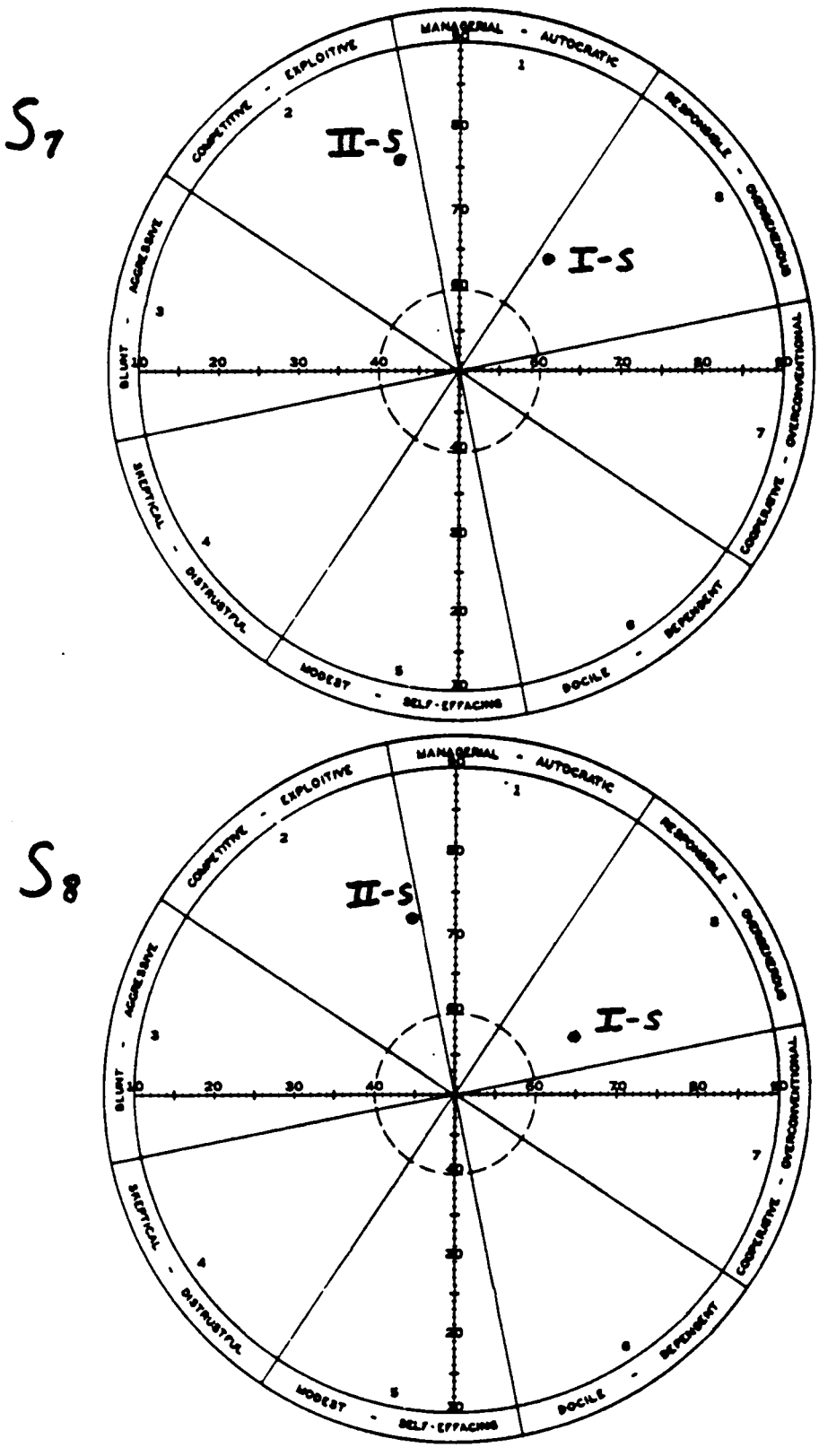


Figure 4 (continued).



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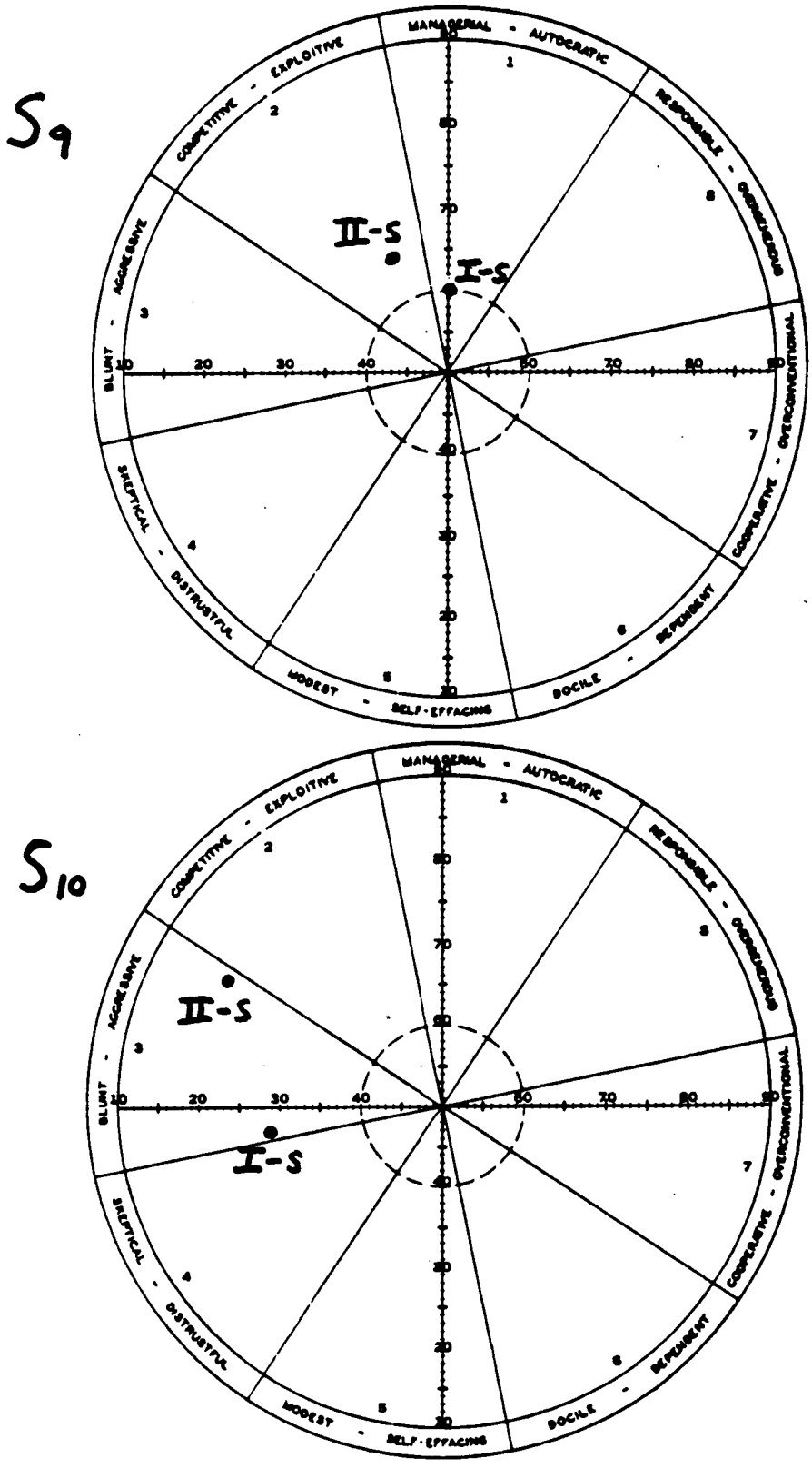

Figure 4 (continued).

Table 5. Level I and Level II Summary Scores on the Leary Interpersonal Battery

		Level I Octant	Level II Octant
Females	S1	8'	2"
	S2	2	2'
	S3	1	1'
	S4	8	2"
	S5	8/1	2'
Males	S6	1'	1'
	S7	8'	2"
	S8	8'	2"
	S9	1'	2'
	S10	3"	3"'

Note. The prime marks (') after numbers indicate the number of standard deviations from the norm. A single mark indicates a T-score between 60 and 69 (inclusive), a double mark indicates standard scores between 70 and 79, and a triple mark indicates that T falls between 80 and 89.

scores, whether for level I or level II, fall into the upper halves of the circumplexes. The single exception, almost predictably, is a score belonging to S10. Both of S10's scores fall far out in octant three, characterizing him as an individual who is viewed by both himself and others as aggressive, self-seeking, and unfriendly. Specific items which he endorsed on the Interpersonal Adjective Checklist included "sarcastic," "frequently angry," "hard-hearted," and "critical of others," and there is apparently little discrepancy between his self-description and public behavior. In short, he is portrayed as an individual whose interpersonal distanciation, distrust, and hostility toward others tends to elicit in others hostile responses.

The scores of the other Ss indicate a far greater orientation to sociability. The clustering of the scores in the upper octants indicates that in their interpersonal orientations, they are "strong" individuals, far more inclined to initiate than to follow. In fact, one sees throughout the Leary results repeated suggestions that Ss specifically avoid passive or dependent interpersonal roles. Instead, they typically assume postures of leadership and responsibility, evoking respect and compliance in others. The data do not indicate any significant sex differences in this respect.

It is readily evident from Table 5 that with only two exceptions, all of the level I summary scores fall into the adjacent octants of one and eight. Furthermore, most of the level I scores fall fairly close to the mean (the center of the circumplex), contraindicating pathological overelaboration of or rigid confinement to one

interpersonal posture. As Leary (1957) has pointed out, the personal qualities represented in the upper octants, including leadership and independence, are generally prized in Western society, and the clustering of Ss' level I scores in these octants within or close to the inner (or "normal") circle, suggests not only that Ss are perceived by others as "normal," but also that they are viewed favorably. The four Ss obtaining level I scores in octant eight (S1, S4, S7, and S8) are likely to be seen by others as helpful and supportive, while the three Ss scoring in octant one (S3, S6, and S9) are probably seen as more directive and managerial. S5's score at level I fell on the boundary between octant one and octant eight, and the remaining S, S2, scored in octant two at both level I and level II. Although more distant level I scores in octant two suggest an individual whose overt competitiveness and self-aggrandizement provoke feelings of inferiority, dislike, and distrust in others, S2's scores both fall relatively close to the mean, where the associated interpersonal characteristics are those of assertiveness, self-confidence, and socially-acceptable competitiveness.

At the same time that Ss' level I scores grouped in octants one and eight, their level II scores grouped in octant two, typically at significantly greater differences from the mean than their level I scores. Only S3, S6, and S10 did not obtain level II scores in octant two, but the scores of all three of these Ss fell into the octants adjacent to octant two, i.e., octants one and three. Again, no sex differences were evident in this pattern. As noted above, distant scores in octant two are associated with competitiveness and

self-seeking, and the clustering of the level II scores in this octant demonstrates mild to moderate discrepancies between Ss' self-perceptions and the ways in which they are generally perceived by others. Whereas they are viewed by others as responsive to the needs of others, they tend to see themselves as more self-serving, indifferent, and competitive. The relatively higher scores at level II indicate that self-perceptions of this nature are fairly well pronounced among the majority of the sample members.

Personality traits. The MMPI results, shown earlier as profiles in Figure 3 (p. 94), are presented again in tabular form in Table 6. Scores on the ? scale were omitted, since virtually all items were answered by each S. The reader is reminded that findings with regard to scales F, D, and Pt and their implications for psychological adjustment and symptom level have been discussed elsewhere in this chapter.

Ss' scores on the L scale, which detects naive efforts to present oneself favorably, are well within normal limits and essentially unremarkable. It is well known that L scale scores decline with increasing intelligence, education, and socioeconomic status, and given the demographic characteristics of the sample, Ss' scores on this scale are fully consistent with expected values. In terms of test-taking attitudes, the scores indicate a reasonable willingness to admit to personal shortcomings. Ss' scores on scale F are also well within normal limits (except for the score of S10, as discussed earlier), further corroborating the validity of the profiles.

Table 6. Scores on the MMPI Scales

		L	F	K	Hs	D	Hy	Pd	Mf	Pa	Pt	Sc	Ma	Si
	S1	46	46	57	42	44	47	57	37	53	43	44	43	39
	S2	43	50	53	42	51	45	57	39	56	63	60	63	53
	S3	40	60	61	46	57	52	67	34	65	53	57	53	46
	S4	53	50	64	44	51	50	64	70	50	45	54	48	50
	S5	36	53	51	48	55	57	55	28	73	50	54	45	56
	S6	50	55	64	47	46	58	69	61	53	50	55	55	45
	S7	46	46	59	59	53	67	57	69	70	54	55	58	32
	S8	36	46	62	57	48	73	55	65	70	64	55	55	47
	S9	40	55	49	47	53	51	57	74	59	50	50	50	51
	S10	40	83	46	70	89	69	93	80	67	91	97	75	61
Female Mean	S1-S5	43.6	51.8	57.2	44.4	51.6	50.2	60.0	41.6	59.4	50.8	53.8	50.4	48.8
Male Mean	S6-S10	42.4	57.0	56.0	56.0	57.8	63.6	66.2	69.8	63.8	61.8	62.4	58.6	47.2
Male Mean w/o S10	S6-S9	43.0	50.5	58.5	52.5	50.0	62.3	59.5	67.3	63.0	54.5	53.8	54.5	43.8
Group Mean	S1-S10	43.0	54.4	56.6	50.2	54.7	56.9	63.1	55.7	61.6	56.3	58.1	54.5	48.0
Group Mean w/o S10	S1-S9	43.3	51.2	57.8	48.0	50.9	55.6	59.8	53.0	61.0	52.4	53.8	52.2	46.6

Note. All data are K-corrected standard scores.

Intended as a measure of more sophisticated attempts to either deny (high scores) or exaggerate (low scores) psychopathology, K scale scores, like L scale scores, also must be interpreted with reference to the test-taker's socioeconomic status. The average range of standard scores for persons having college educations is 55 to about 65 (Lachar, 1974) or 70 (Graham, 1977), and the sample mean of 57.8 (with S10's score excluded) falls well within these bounds. Thus, an impression that might be gained from Figure 3 (p. 94), i.e., that the Ss' K scores are somewhat elevated (and that the F minus K index is positively skewed)--which would suggest excessive efforts to "fake good" and present oneself favorably--would probably be erroneous in the cases of most of the Ss, since call of the Ss were highly educated. In fact, four of the Ss (S2, S5, S9, and S10) scored slightly below the norms outlined by Graham, and none of the Ss scored above the upper cutoff. With the exception of S10's score, which, combined with the high F score and elevated clinical scales, forms a pattern of pathological indicators, none of the K scores is especially deviant, and the relatively lower scores of S2, S5, and S9 are not regarded as having major interpretive significance.

As might be expected of individuals reporting excellent health, the scores which Ss obtained on the Hs (hypochondriasis) scale, a scale designed to tap hypochrondriacal preoccupation with disease and bodily integrity, were generally below the mean. Graham has noted that low scorers on the scale tend to be optimistic, sensitive, and insightful, as well as free of excessive bodily concerns. The moderate elevations seen in the Hs scores of S7 and S8 occurred together with more substantial deviations in their Pd

and Pa scores, a configuration to be discussed shortly. Although S10's Hs standard score of 70 was the highest in the sample, this score was nonetheless low relative to the overall elevation of his profile.

Hy (hysteria) scores among the female Ss generally fell quite close to the population mean. S5's score of 57 was the highest of the female scores and was also S5's second highest profile score. Hy scores among the males tended to run somewhat higher, with all the males except S9 obtaining moderate elevations. Again, however, the score of S10, while elevated in terms of its absolute value, was low relative to scores on most of the other clinical scales. Mild elevations, such as those seen for S5 and S6, are of dubious significance, as both scores are less than one standard deviation above the mean and as there is some tendency for Hy scores to climb with intelligence, education, and SES level (Graham, 1977).

The larger Hy elevations seen for S7 and S8, however, occur in concomitance with similar elevations on the Pa (paranoia) scale, as well as with the lesser deviations on the Hs scale. This pattern is quite suggestive of emotional overcontrol as a salient personality characteristic. Persons producing this profile tend to be rigid and denying, and they often have high expectations of others as a result of having difficulties accepting their own limitations. Reports of tension and anxiety are common in psychiatric populations producing similar profiles, and it is noteworthy in this regard that both S7 and S8 reported experiences of acute anxiety episodes. It is also interesting to note that tension headaches and gastrointestinal problems are often seen among persons with this profile, and while

S8 reported tension headaches in the past, both of these Ss disavowed problems of this nature during the past year.

Pa scores among the other Ss also tended to be somewhat elevated. Altogether, seven of the Ss obtained Pa standard scores above 55, and four of these scores were above a T-score of 65. The mean Pa scaled score for the group was 61.6, the respective means forthe females and males being 59.4 and 63.8. Although the label of the scale connotes rather insidious personality characteristics, only very high scores on the scale (T-scores above 74) actually indicate frank paranoia. Mild and moderate elevations inside a T-score range of 55 to about 60 or 65 are more often associated with such positive traits as kindness, sensitivity, soft-heartedness, candor, trust, generosity, intelligence, and industriousness (Dahlstrom & Welsh, 1960; Graham, 1977; Lachar, 1974). Intermediate scores between T-levels of 65 and 75, such as those seen for S5, S7, S8, and S10 (and approximated by the score of S3) are more suggestive of suspiciousness, rigidity, and excessive sensitivity, however.

The generally modest Pa elevations seen among the female Ss tend to occur in concert with similar elevations in Pd (psychopathic deviance) scores and moderate dips on scale Mf (masulinity/femininity). This pattern is clearly evident for S1, S2, S3, and S5. The deflated Mf scores, surprisingly low in view of the fact that scores on Mf typically rise with education and SES (both for males and females), suggest an emphasis on conformity to a conventional feminine role, as characterized by passivity, submissiveness, and

deference to men. Low Mf scores for women are usually associated with the rejection of such "masculine" traits as competitiveness and aggressiveness, and where high Pd and Pa scores are joined with low Mf scores, the women are often seen as passive-aggressive and masochistic (Carson, 1969).

The marked contrast between the female Ss' low Mf scores and their somewhat elevated Pd and Pa scores, while generally not of a magnitude to suggest frank passive-aggressive personality disorders (S3's profile does approach this level), does suggest conflict over feminine adequacy and attendant problems with the expression of aggression. The lone female who did not obtain a low score on scale Mf, S4, deviated substantially in the opposite direction ($T = 70$), so that all of the women tended to score away from the norm on this particular scale. In conjunction with the moderate Pd score elevation, S4's relatively high Mf score suggests an active rejection of traditional feminine roles and values, with her feminine rebellion probably taking on a driven quality. It will be recalled that this S had recently left her role as housewife and mother to take a job as a security guard.

Modest Pd elevations ($T < 65$), such as those seen for most of Ss, are generally seen to reflect independent and mild non-conformity (Lachar, 1974). Pd scores among the male Ss were very comparable with those obtained for the females, excepting, of course, the score of S10, which, at more than four standard deviations above the mean, indicates a severe personality disorder, probably paranoid in type. Of the first four male Ss, only S6 obtained a Pd score

of sufficient magnitude to suggest possible problems with behavioral controls. Mf scores for these four males were within the limits to be expected on the basis of their demographic characteristics, and there is no particular interpretive significance to these scores other than to suggest aesthetic, artistic, and cognitive interests.

Ss' scores on the three remaining MMPI scales, Sc (schizophrenia), Ma (hypomania), and Si (social introversion), generally fell within one standard deviation of the mean in either direction, so that there were no indications of significant differences between sample members and the general population in terms of the characteristics measured by these scales. With S10's scores excluded on the basis of the highly deviant nature of his profile, neither was there any particular pattern evident in Ss' scores on these scales. There was a very minor tendency in the group toward elevated Sc scores (the group and subgroup means all approximated a T-score of 54), and scores at this level are sometimes regarded as reflecting creativity, imagination, and capacity for abstraction (Lachar, 1974). Three of the males scored somewhat below the mean on scale Si, suggesting that they are somewhat more outgoing and gregarious than average. S7's Si score was clearly deviant in this direction, and even the score of S10, at 61, is low relative to the other scores in his profile.

Physical Status

The cluster of biological and genetic factors subsumed under the label "physical status" is generally beyond the ken of the social

scientist. However, some effort was made to tap into this pool of variables by obtaining information about Ss' personal health histories. This information was obtained during the individual interviews.

Personal health histories. All Ss tended to describe themselves as being quite healthy throughout their adult lives. Without exception, Ss reported very few days of illness leave in recent years, and many of the Ss had not missed a day of work in several years. The few days of missed work which had occurred had been due to relatively minor problems with colds and viruses. Outside of childbirths, only two of the Ss had experienced hospitalizations during adulthood. S6 had once been hospitalized for 2 days with strep throat, and in 1968, S4 had been hospitalized with pneumonia occurring during a pregnancy. S4 had also been hospitalized on one other occasion for minor cosmetic surgery. S7 had had oral surgery for the extraction of wisdom teeth, but this procedure had taken place in the dentist's office.

Despite the generally good health of Ss in recent years, their health histories were by no means unremarkable. S1 noted that she hadhad frequent ear, nose, and throat infections through age 18, and at age 7 she had been hospitalized for testing while suffering a viral infection. As a teenager, she had had an appendectomy, and in 1974, she had undergone an extended hospitalization due to pelvic and clavicular fractures sustained in an automobile wreck. Both of her children had been born by Caesarian section as the

result of problems with delivery. S3, whose childhood health history was positive for mumps, measles, and chicken pox, had also been involved in a car accident (at age 4), but her injuries had been relatively minor and were successfully treated in the hospital emergency room. S3 had also received emergency room treatment for stomach cramps in 1978.

S2, whose only major childhood illness was tonsilitis (which had required a tonsillectomy), was one of two female Ss who reported what sounded very much like psychosomatic illnesses during early adulthood. At the age of 20, following her graduation from nursing school, S2 had developed foot pain, which worsened after she began her first job. A series of tests rendered a diagnosis of rheumatoid arthritis, which was treated pharmacologically. She was also referred for a psychiatric oncsultation consultation and was informed that repressed hostility toward her mother was contributive to the problem. At the time she became pregnant with her first child, she discontinued medication, but the symptoms remained in remission. A second full diagnostic work-up 15 years later, when the patient was 35 years old, showed no evidence of rheumatoid arthritis, providing further evidence of psychogenesis.

S2 also noted that during the 5 year period following the birth of her children, she had experienced occasional episodes of severe gastrointestinal distress, including vomiting. The symptoms typically occurred at night, waking her from sleep, and she would then be unable to resume sleeping without taking a tranquilizer. The last occurrence of this problem had been some 3 years ago, and

S2 felt quite strongly that stress had been the precipitant. A further problem which S2 had experienced in recent years (1977) was a breast cyst, which a biopsy had shown to be benign.

The other female S to give some history of physical illness in relation to life stress was S5, who had experienced prolonged lower back pain during her early twenties, a "horrible time," as she put it. She had originally pulled a muscle while doing yoga exercises, but two chiropractors had been unable to effect a recovery in a year and a half of treatment. As recalled by S5, there was no improvement "until my life got better." She again experienced problems with lower back pain during a stressful period in graduate school. Otherwise, though, her health history was quite good. She reported occasional episodes of colds and flu over the years, and she had had measles and chicken pox during childhood, but her only hospitalization had been for a tonsillectomy at age 10. She had not had a cold since 1979, and she was unable to recall missing a single day of work in several years.

The female Ss were not alone in either the types of health problems which they had experienced in the past or in the apparent relationships which some of these problems had to stress. S6, who had had his tonsils removed in childhood, reported frequent throat infections during several stressful periods earlier in his life, and on one occasion, he had been hospitalized with strep throat, as mentioned previously. As a child, he had also been hospitalized briefly after being nearly poisoned to death by gas leaking in the family home. S7 too had suffered frequent colds and bronchial

problems during a stressful period which had occurred a number of years previously. At the time, some 10 years ago, he had been working full-time as a hospital orderly, while simultaneously attending college as a full-time student. His childhood health history, like those of most of the Ss, had been marked by the usual childhood diseases, and continued ear, nose, and throat problems had culminated in a tonsillectomy at age 5. Additionally, his appendix had been removed at age 9.

S9, born 6 weeks prematurely, had remained hospitalized with a heart murmur for some time after his birth, but with the exception of a tonsillectomy at age 9, his subsequent childhood health history was unexceptional. Apart from broken fingers as an adolescent, a case of alcohol poisoning as an undergraduate, and persistent winter colds during the years before he had quit smoking, his later health history was benign, except for one clear instance of a stress-related malady. In 1967, after a long, demanding period during which he had been both working and attending graduate school, he had completed his master's degree and had promptly become ill. The physician he consulted informed him that what he was suffering from was physical exhaustion, and after following his doctor's recommendation that he take a vacation, he had recovered.

While the health histories of the female Ss were negative for any cardiovascular disturbances, two of the male Ss did report isolated episodes of elevated blood pressure. S6 had had one high blood pressure reading of 140/100 3 years prior to the study, but

regular checkups since that time had failed to show any further indications of hypertension. S10 reported several instances of high blood pressure readings in his history, and he noted that each instance had occurred during a stressful period in his life. The blood pressure elevations had never persisted, however, and no medical treatment had ever been required. Like S6, S10 had continued to monitor his blood pressure regularly, without obtaining any further indications of a hypertensive problem. Other than the occasions of high blood pressure readings, his health history was unremarkable except for a fractured arm at age 9.

S8 indicated that he had always been very healthy throughout adulthood. His only health problem as an adult had been proneness to shoulder pain after exposure to cold or drafts, and he was unable to recall the last time that he had missed work due to any illness. His only major childhood disease had been walking pneumonia at age 15. He had been hospitalized at age 9 for observation following an automobile accident, and he had required sutures several times for childhood injuries, but no further endogenous disorders were included in his history.

Health Care Orientation

Information about Ss' self-care habits was collected during the interviews in order to develop some idea of how well these people had taken care of themselves. Specific points of focus included nutrition, exercise, sleeping habits, alcohol and tobacco use, and frequency of physical checkups.

The majority of the Ss described fairly regular eating habits, including the consumption of at least one balanced meal each day. None of the Ss had added any special "health foods" to his or her diet, but among most of the Ss, there was some conscientiousness about diet. Five of the Ss (S1, S3, S5, S6, and S8) specifically mentioned limiting red meat consumption, and nearly all of the Ss indicated an avoidance of "junk food" and candy. Limits on sugar, salt, and fried food intake were other dietary controls commonly mentioned. S3 emphasized the stability and simplicity of her diet, stating that with regard to nutrition, she was "truly a person of moderation." S4, S5, and S9 reported regular use of supplemental vitamins, and both S6 and S7 indicated that they often added vitamins to their diets whenever they began to feel "run down."

S2 and S5, both former nurses, were the two Ss who stood out for their conscientiousness about nutrition. Both took care to eat three balanced meals daily, whereas most of the other Ss were irregular in eating breakfast and less painstaking in planning balanced meals. Although neither S2 nor S5 presented herself as a "health nut," both had given proper nutrition an important place in their systems of self-care, and S2 had recently discontinued her long-time habit of taking daily vitamins in favor of a special diet.

Toward the other end of the spectrum, in order, were S10, S4, and S7, all of whom described only meager efforts to assure adequate nutrition. S10, an avowed "junk food junkie," had rather irregular eating habits and made no particular efforts to eat

balanced meals. He did not take vitamins or eat breakfast, but he had reduced his caloric intake. S4 used a variety of supplemental vitamins and generally tried to avoid salt in her diet, but she too described a long pattern of unbalanced nutrition and irregular eating habits. Of all the Ss, however, S7 showed the least orientation toward good nutrition. He described his diet as "terrible" and his eating habits as entirely irregular, noting that he consumed considerable quantities of "junk food," ate dinner at home only one or two times weekly, and often skipped meals altogether.

Smokers and non-smokers were equally represented in the sample, with the division tending to occur along lines of sex membership. Four of the women (S1, S2, S3, and S5) were non-smokers, while only one of the men (S9) was a non-smoker. S9, however, like S5, had been a regular smoker before quitting several years prior to the study. S4 and S6, on the other hand, had both resumed smoking fairly recently, after having quit quite some years previously (16 years in the case of S4). S10 had begun smoking only some 2 1/2 years prior to the study, and he, S4, and S6 all attributed their use of tobacco to stress. The smoking Ss (S4, S6, S7, S8, and S10) all smoked fairly heavily (1-2 packs of cigarettes per day), except for S7, whose pipe and cigar smoking were quite variable.

Alcohol use in the group ranged from complete abstinence (S4) to fairly heavy social drinking (S3, S7, and S10), with moderation probably best describing the norm. Most of the Ss described themselves as light social drinkers who occasionally enjoyed wine with dinner and an occasional drink at home. S1, S2, and S9 had wine with dinner

on a daily basis but otherwise consumed alcohol only infrequently. S6 was a more moderate drinker, reporting an average of 2-3 drinks of hard liquor per week. S3 had 2 drinks daily after returning home from work, but on social occasions she often drank twice that amount, and on several occasions during the past year she had experienced hangovers after drinking at parties. S7, one of the heavier drinkers in the sample, reported variable alcohol consumption ranging from 2 drinks per week to as much as 3-4 drinks per day for periods as long as a week. Like S10, who averaged 2-4 drinks after work each day, with periodic drinking to excess, S7's use of alcohol occurred primarily in conjunction with social activities.

Most of the Ss turned out to be physically active individuals for whom planned physical exercise formed a regular part of their health care regimens. Most outstanding in this regard was S4, who had been lifting weights 3-4 times weekly for the past 2 years. Her workouts typically lasted for 3 hours, and in addition to her weightlifting, she also fast-walked 5 miles on alternate days of the week. S9 was also an enthusiastic exerciser, running 3 3/4 miles 3-4 times a week. He had begun running about 1 year prior to the study and had gradually built up to his present level during that time. S3 too had begun running in the past 15 months, her present level being 1 mile 2-3 times weekly. S3 had also been playing 2-3 hours of racquetball each week for the past 3 months.

Both S5 and S7 did 10 to 15 minutes of floor exercises in their homes each day. S7 had only begun this practice some 6 to 8 months earlier, but already he was doing 50 push-ups and

50 sit-ups daily. S5 indicated that she had been exercising in this way for several years, and she also enjoyed occasional running. S10 regularly played several hours of competitive tennis each week, in addition to frequent golf games and weekend sailboating. Prior to her pregnancy, S1 had taken ballet classes 2 times weekly and had also exercised fairly regularly at a health spa. Since the birth of her child in August, she had had less time for these activities and had confined her exercising to periodic calisthenics. She noted, however, that since resuming courses at the university in the fall, she had been walking several miles each weekday, and she was presently forming plans to resume dance classes. Of the 10 Ss, only S2, S6, and S8 indicated that they did not have regularly planned exercise in their schedules.

Sleeping habits among the Ss were generally characterized by regularity. Almost all of the Ss had regular bedtimes and slept 6-8 hours every night. S10 alone described himself as a restive sleeper, indicating that although he rested in bed some 8-9 hours nightly, he was often unable to sleep more than 5-6 hours of this time due to difficulties turning off "the internal dialogue." S7 was also somewhat exceptional in that he reported a normal sleep requirement of only 4 1/2-5 1/2 hours per day. He was, however, fairly consistent in the actual hours during which he slept.

Inquiry about the frequency and regularity of Ss' physical exams produced the finding that few of the Ss routinely scheduled medical checkups. S1 and S5 reported having annual Pap smears, but of the females, only S4 regularly underwent a full physical exam.

S7 and S10, the two Ss having some histories of blood pressure elevations, were the only males to schedule annual physicals. As noted earlier, both of these Ss also had their blood pressures checked every few months. Despite the group's lack of enthusiasm for regular medical examinations, it nevertheless turned out that seven of the Ss had been examined by a physician within a year of the study. In addition to the three Ss who scheduled such checkups regularly (S4, S7, and S10), S1, S2, and S6 had been required by their employers to have complete physicals. S8 had been examined by a physician after experiencing several acute anxiety attacks. S5 had had a Pap smear shortly before the beginning of the study, leaving S3 and S9 as the only Ss not to have had some contact with a health professional within the past year.

Coping

In responding to open-ended interview questions concerning the ways in which they coped with stress, Ss typically emphasized the importance of psychological operations for preserving an internal sense of order and control. Their mental strategies, however, tended to take two qualitatively different forms. The first style is probably best labeled "suppressive," while the second style will be termed "deliberative." Among the males, the suppresssive style predominated, with S6, S7, S8, and S9 all describing this approach. Two of the females (S1 and S4) described themselves as suppressors, while the other three females emphasized a more deliberative response to stress. S10, by virtue of his constant ruminating, was assigned

to the deliberative group, even though the obsessive quality of his deliberations set him somewhat apart from the other Ss employing this style.

The suppressive response was characterized by an emphasis on mental suppression of disturbing thoughts and affects occurring as the result of stressful stimulation. Ss describing this style of response indicated that they were able to simply block out disturbing thoughts from consciousness, thus controlling distress and protecting executive ego functioning. Later, during more relaxed or conflict-free moments, the suppressed material might or might not return to consciousness for further evaluation. Although the suppressive Ss showed awareness of this style of responding to stress, and in some cases described the response as intentional, such acts of suppression appeared to be largely automatic in nature, and suppressed content was not described as being readily accessible to consciousness. Suppressive Ss did not necessarily feel, however, that suppressed material was unavailable to further resolution, and they obviously did not regard suppression as a way of escaping problems, but rather as a viable way of dealing with them. The following excepts capture the essence of the suppressive style:

> S1: I have a limited focus sort of thing. I focus on one thing at a time, I think about it a while, then just put it on a back burner and come back to it. It will just sort of be pushed back . . . nothing I do consciously.
>
> S4: I just simply won't allow myself to get horribly emotional about it. I just put a lid on it . . . I'm dealing with it, mind you, I'm just not showing it. I can't do a Scarlet O'Hara--I know it's there--it's just that I deal with it when it comes to me rather

than skipping way ahead like I used to . . . It does come up and absolutely choke me sometimes, but when it does, it's just too bad, I have to just push it right back down again.

S6: Depending on the source of the tension, if it's in work or a work-related sort of thing, I usually manage to just put--leave it--aside. I don't bring it home with me anymore. I used to, I guess, years ago, I mean years, years, ago. If it's financial tension or something, I'd have to work a little harder on that one; I don't know if I fully, completely could push that out. I think it's probably a combination of a conscious effort to say that whatever it is that I can't control at this point, I'm not gonna you know, [let it bother me].

S7: I can turn that off. It's something that doesn't eat at me, it only bothers me at the time I have to deal with it . . . [After that] it's just not there. Some of that stuff does come back at night when I'm trying to go to sleep, and I occasionally have difficulties going to sleep. It might take me 10 or 15 minutes, instead of 1 minute or 2 minutes.

S8: Despite whatever it is that is going on that might get to me, get me pissed-off or upset, or feel real pressured, I do have an ability to keep it balanced . . . I just have a large tolerance for that kind of stress stuff . . . They're not banished from awareness, they sort of go into the back burner of my computer, and I am all the while working it out and processing it, but it's all preconscious, a subliminal thing, and then I have an answer. The next time it comes around the block, I know what I'm going to do . . . I never avoid dealing with things, I just program it into the computer.

S9: I have an ability in a crisis situation of dealing with it and then taking the most emotional part of it and putting it aside and letting it in as I can work with it, so that over a period of time I'll work it out . . . If it's a very emotional situation, I cry or scream, or whatever it is, but that doesn't last very long. It's sort of over with, but then it revisits me . . . It comes back, or I let it in. I can push things away so that they do not intrude on whatever I'm doing. It comes [back] in in those relaxed, nothing, disengaged kind of moments. I think that's pretty much how I handle all these things.

Unlike Ss who emphasized suppressive operations in their internal responses to stress, the deliverative Ss indicated inability to dismiss from consciousness their thoughts and feelings about stressful events without first analyzing and understanding them. Whereas the suppressive Ss tended to fill their free moments with activities, thus enhancing suppressive capabilities, the deliverative Ss were more likely to respond to stress by creating more time for reflection. Their reports indicated that once they had been able to apply cognitive organizations to their feeling states, they were then able to let their attentions turn elsewhere. Such resolutions generally required solitary contemplation, often followed by discussions with others, leading to a sense of consensual validation. The departure of this approach from the suppressive style is quite evident in the following statements:

S2: I try to figure out what's happening, what I'm feeling, and where it's coming from . . . It helps me to get a handle on what's going on, and when I understand what's going on, it makes it a lot easier to deal with . . . I still might feel depressed or nervous, but if I can figure out what it is, it makes it not so scary, and that gives me a sense of control.

S3: That would be the typical sort of time that I would go out to the mountains or go out and do something sort of relaxing, but something that would give me time to sort of think and contemplate--something that would be sort of relaxing, sort of fun, but give me time to contemplate about it . . . I'm never one to keep busy when things are going bad. It helps me much more to, in fact, do just the opposite, to sort of slow down and just contemplate . . . I talk to my therapist, that's a big part of it too. I guess just the presence of another person being part of it takes some of the trauma away from it, so that the realistic solution could kind of fall into place.

S5: It'll just stay on my mind until I kinda feel like it's working through or something, and then I can figure it out or talk to somebody, or something like that. During the day I have to pretty much rely on my instincts and then know that I'm going to have to think things through a little bit later . . . If I can just talk it through, that's all I need. I don't know where the anxiety goes, but when it goes, it goes. When I can get a certain emotional distance, when I have enough awareness of why something would hit me in a particular way, then I can put it back and say, well, I'll deal with that later, but I have to do these other things first.

S10: I worry a lot (laughs). Basically, I am a worrier, and I'll worry about 'em constantly. Sometimes you think you need some kind of getaway or something, but I really don't utilize it. I just worry about it . . . Many of the best theories I have in a matter that comes up, I'll get it at night in bed, or I'll get it on the golf course, or something like that. I think about it constantly.

Despite differences in emphasis along the suppressive-deliberative dimension, all Ss nonetheless described highly pragmatic approaches to problem-solving. When asked how they would handle specific highly stressful situations, all Ss quickly laid out logical and well-ordered plans. Although their psychological strategies differed as described, the ultimate effect of either approach was to preserve an internal sense of order and control, a theme which Ss repeatedly emphasized.

While none of the Ss followed a stress management program per se, their lifestyles incorporated several of the basic ingredients of such programs. In addition to the social activities, friendships, and exercise habits described earlier in this chapter, Ss typically reported a wide variety of hobbies, interests, and diversions, pleasure reading being foremost among them. Without exception,

Ss' regimens included an "alone time" (S2), "quiet time" (S7), "vegetative state" (S9), or similar period for relaxation, usually on a daily basis. S1, S5, and S9 had marked off daily periods for being together and talking with their spouses. S3 took daily walks and often took time out to sit and relax in a nearby park. S2 also took frequent walks and emphasized the importance of creating time for being alone. In addition to her intensive exercise program, S4 made regular trips to a shooting range each week for handgun practice. She reported that during such times, "my troubles are gone."

S7 and S8, the two male Ss demonstrating most vividly the suppressive style of dealing with stressful stimulation, had both structured relaxation times into their daily schedules. S7's "quiet time" occurred during his drive to work each morning, when he listened to his car stereo, and S8's "measure of solitude" occurred every evening, when he would sit undisturbed for an hour or more and read. S10 reported that he would "inundate" himself with fantasy by watching television movies 6-8 hours per week, and it was during these times that he was best able to control "the inner dialogue." S6 was the only S to make use of a relaxation training technique per se, "sort of a self-taught biofeedback technique" in which he focused on the sequential relaxation of specific muscle groups. However, this was a reserve strategy used only during times of severe tension. The more routine method of relaxing for this S was to watch television.

An interesting finding was that half of the Ss either had been in or presently were in psychotherapy. S3, S5, and S8 were

currently undergoing long-term, growth-oriented treatment, and all of these Ss had been involved in therapy for periods greater than 2 years. S2 had completed therapy after 2 years but still made occasional visits to her therapist. S6 had not been in individual therapy but had been in group therapy a few years previously. These Ss felt very definitely that their therapy experiences had been helpful to them in coping with stress, mainly due to the reassurance and sense of stability that came with improved understanding of their own reactions to stressful events.

Subjects' Own Explanations of Their Good Health

At the close of the interviews, Ss were asked to briefly reflect on what they themselves saw as the most important reasons for their sustained good health. Rather than introducing new factors, their answers tended to emphasize variables which had already become salient. Their statements repeatedly pointed to optimism in their outlooks on life, equanimity in their perceptions of stressful events, positive self-regard, and confidence in their use of psychological and interpersonal resources to find solutions to problems. Of interest during this part of the interview were the many statements suggesting that Ss viewed illness as reflecting personal weakness; conversely, health was seen by Ss as being indicative of personal strength.

S10 was the most direct in expressing his disdain for illness, stating, "Anybody that would basically cause himself illness because of the stress of their life--that's pretty cowardly." Similar

sentiments were conveyed by the statements of several of the other Ss, usually not in such pointed fashion, however. S3 indicated that values in her family of origin had strongly discouraged illness behavior, noting that there had been no "coddling" or other gains to be had as the result of being sick. Visits to the doctor had been very uncommon in her family, and S3's parents had not done "the things that most people do to alleviate the pain and make it pleasanter." S2 also pointed to the influence of parental attitudes toward illness, indicating that her parents "didn't give up and be sick." She added, "You have to go on [when sick], you do what you have to do," revealing her own view of illness as a weakness or failure. S4, who described herself as "iron-fisted" and explained her health as the result of self-discipline and self-control, felt that staying healthy was for her "a matter of pride and dignity."

Ss clearly did not look upon health and illness as random events beyond their control. Quite the opposite, they seemed to view illness as the result of a conscious decision to "give up." Accordingly, their own states of good health were generally ascribed to personal strengths and personal fortitude. S1, for example, stated, "I have a nimble mind that gives me many outs . . . There's not many things that trap me." S10 indicated, "You've got to believe in yourself and your ability to get out of the situation and to go forward." Implicit in these statements is the notion that illness occurs when one feels "trapped." In explaining their own good health, S2 and S3 emphasized the effectiveness of their deliberative coping styles, S3 reporting, "I think it's because I

really try to think it through and act in some other way." S8 responded, "I play it out on different levels than my body; I play it out on internal [psychological] kinds of levels. I think I struggle as much internally as someone who develops an ulcer or something like that."

Several of the Ss also highlighted their ways of looking at life events as important factors in their resistance to disease. S6 underscored the importance of adopting a positive attitude and maintaining the belief that "things will work out." S7 reported, "I just don't perceive what most people think is stress as stress. I consider it a challenge, or I get high on it or something, I don't know, it's part of excitement and change." In a similar vein, S9 accentuated the need to "remind yourself that nothing's really permanent." S9 also indicated that "It's important to be involved in something, to really care about something."

Summary of Results

Group scores on MMPI indices of dysphoria and internal discomfort showed little deviation from population norms. The profile of one S (S10) was noteworthy in that it showed a very high level of overall elevation, indicating extensive psychopathology and characterizing this S as quite different from the other Ss. Of the other Ss, five obtained at least one scaled score of 70 or above, however, indicating that the other Ss were not necessarily without areas of personal limitation. The group's MMPI data failed to demonstrate a particularly conspicuous scoring pattern, although group,

female subgroup, and male subgroup means on the Pd and Pa scales clustered about one standard deviation above the population norm. Es scores for the Ss were consistently above the general population norm, with the various group and subgroup means clustering around a scaled score of about 64.

Interview data complemented psychometric indices of affective disturbance in characterizing Ss as generally free from from major disturbances in their psychosocial adaptations, although most of the Ss did cite specific problem areas in their lives. Overall, Ss described themselves as reasonable content with their lots in life and cautiously optimistic about the future. Most of the Ss reported contentment in their marriages, families, friendships, and social lives, and with few exceptions they consistently described themselves in terms sugges-suggestive of high levels of self-acceptance and self-esteem. Their interests and priorities in life generally centered around a duality of family and career interests. Most of the Ss described periods of conflict with their parents at some time in the past, and as the result of gradually resolving these problems, Ss had come to see themselves as quite differentiated from parents and families of origin. Only two of the Ss had active social lives in the conventional sense, but all described substantial social supports. The friendship pattern in the group was one in which the emphasis tended to be placed on having a few very close relationships, rather than on maintaining a more extensive network of social acquaintances.

At the group level, the Ss' reratings of SRRS items were not significantly different from the items' LCU values. Thus,

it did not appear that the majority of the Ss viewed life events in general as being less demanding than the events would be viewed by others. Where the Ss' perceptions of life events did appear to beunique was at the level where perceptions of life events were integrated with self-perceptions and broader attitudes about life in general. Within the group there was a shared view of life as a constantly changing process, and in reflecting on the many changes which they had experienced, Ss emphasized constructive outcomes in the form of personal growth and personal learning. Interview material consistently revealed Ss as people who had a sense of moving forward in life, and the great majority of Ss expressed a basic optimism about life.

Leary summary scores at level I clustered in the upper octants, and most of these scores were relatively close to the population norm. Thus, in their public behaviors, Ss are ascendant individuals who are likely to be seen by others in a favorable light. Level II summary scores grouped at a moderate distance from the population mean in octant two, indicating that in their self-concepts, Ss emphasize strength, independence, and self-reliance.

The Ss' self-reported health histories were generally quite good. However, their childhoods had been marked by the usual childhood illnesses, as well as by a fair number of tonsillectomies and appendectomies and, as adults, Ss had not been immune to the effects of colds and viruses. An important discovery was the finding that half of the Ss reported some history of stress-related health problems in the past.

The health care orientations of Ss were fairly good, but not outstanding. Among most of the Ss there was some conscientiousness about diet, with the majority of the Ss eating at least one balanced meal daily and showing some concern for salt, sugar, fried food, and red meat intake. However, few of the Ss took daily vitamins, and few Ss had added any special "health foods" to their diets. Half of the Ss were smokers. Alcohol consumption in the group ranged from complete abstinence to fairly heavy social drinking, with moderation probably best describing the norm. Many of the Ss did turn out to be physically active individuals for whom planned physical exercise formed a regular part of their health care regimens, and sleeping habits among the Ss were generally characterized by regularity. Few of the Ss routinely scheduled physical checkups.

In responding to open-ended interview questions concerning the ways in which they coped with stress, Ss typically emphasized the importance of psychological operations for preserving an internal sense of order and control. Their mental strategies, however, tended to take two qualitatively different forms, which were widely separated along a suppressive versus deliberative dimension. The suppressive Ss emphasized the mental suppression of disturbing thoughts and affects occurring as the result of stressful stimulation, while the deliberative Ss reported inability to dismiss disturbing thoughts and feelings from consciousness without first analyzing them. Despite these differences, all Ss nonetheless described highly pragmatic approaches to problem-solving. None of the Ss adhered to a stress management program per se, but their lifestyles incorporated several

of the ingredients of such programs. Ss typically reported a wide variety of hobbies, interests, and diversions and, without exception, the Ss' regimens included times for relaxation, often on a daily basis.

When Ss were asked to give their own ideas about the reasons for their good health, their responses repeatedly pointed to optimism in their outlooks on life, equanimity in their perceptions of stressful events, positive self-regard, and confidence in their use of psychological and interpersonal resources to find solutions to problems. Of interest during this part of the interview were the many statements suggesting that Ss viewed illness as indicative of personal weakness.

CHAPTER IV

DISCUSSION

An Evaluation of Mediating Variables in the Life Event-Illness Pathway

Any notion that healthy high life change individuals are supermen and superwomen who simply do not respond to stress is strongly contraindicated by the results of this study. While there is every indication that psychological factors play a pivotal role in determining the nature of the individual's response to stressful life changes, it does not appear that the resources which enable the individual to resist illness during times of stress are pre-ordained or fixed; rather, they seem to be acquired in the course of adult life, or "built." Neither does it appear that genetic, constitutional, or other preexisting biological factors can adequately account for the disease resistance shown by these individuals. The conclusions devolve most immediately from the surprising discovery that at least half of the Ss had experienced some form of stress-related health problems in the past. S7 and S10 both reported some history of blood pressure elevations; S8 had once experienced frequent tension headaches; S5 had suffered prolonged lower back pain which had not responded to treatment; and S6 had had recurrent throat infections during an earlier period in his life. In each case, these infirmities had occurred during stressful periods, and Ss' own assessment very clearly pointed to stress as a causal factor. S2 had developed

symptoms of rheumatoid arthritis at the time she was to launch her professional career, but a psychiatrist's opinion had been that the illness was psychosomatic, and the symptoms had later disappeared. S2 had also had some history of psychogenic gastrointestinal problems.

If the good health of Ss resulted from genetic or constitutional superiority, one would expect health histories better than those obtained. The Ss' health histories were by no means poor--in fact they were generally quite good--but they were not of a quality which indicated some sort of organic immunity to illness. Although the Ss' adulthoods were generally characterized by good health, their childhoods had been marked by the usual childhood illnesses, as well as by a fair number of tonsillectomies and appendectomies. In addition, Ss had not been immune to the effects of colds and viruses, and there were also the more noteworthy stress-related illnesses described above. In short, the average S in this study had generally been a healthy individual, but he or she had not been one of those proverbial people who has never been sick a single day in his or her entire life.

Further, Ss did not appear to be individuals who, due to "emotional insulation," shallow object attachments, or a "sociopathic flavor" (Hinkle, 1974b), failed to have normal affective responses to stressful life events. During the interviews, Ss detailed periods of depression and anxiety, as well as feelings of powerlessness and despair in reaction to various life events. Their MMPI profiles, while not indicative of pathological levels of emotional distress, did suggest that several of the Ss continued to experience periods

of mild to moderate dysphoria. S10 proved the single exception to each of these statements and generally distinguished himself as deviant from the other members of the sample. His extremely high "floating" MMPI profile indicated severe egocentricity and character pathology, and in both his psychometric data and interview material he was portrayed as very alienated and distrustful.

The other nine Ss, however, proved to be far more other-related and embedded in their psychosocial milieus. Even S10 was "embedded" in the sense that he enjoyed his job, was a member of a social group, and reported contentment in his marriage. Many of the Ss had set aside regular daily times to spend with their spouses and children, and Ss' goals in life generally centered around a duality of family and career interests. While marital and family problems were not unknown to sample members, the majority of the Ss described their marriages as happy, and several of the Ss felt that their relationships with their spouses had been of critical importance in helping them deal with the many changes that they had endured. The tendency of Ss to look upon their marriages as evolving, rather than static, seemed to affort them additional latitude for working through problems during times of stress. Only two of the Ss reported having active social lives in the conventional sense, but all Ss (except S10) maintained a number of close friendships. The most common pattern in the group was one in which the emphasis was placed on having a few very close friends rather than on maintaining a more extensive network of casual acquaintances.

The psychosocial adaptations of Ss were thus found to be relatively good, a finding not to be unexpected, given the mitigating role ascribed to stable psychosocial adjustment by life event researchers concerned with mediating agents in the life event-illness pathway (Cobb, 1974; Hinkle, 1974b; Rahe, 1974). Ss were generally content with their jobs, as well as with their friends and families, and despite limited social and community activities, Ss had clearly developed substantive social support systems. This finding accords with the work of Cobb (1976) and the many other social scientists who have earmarked social support as a critical moderator of life stress. The relationships between Ss and the members of their extended families and families of origin were relatively free of active conflict, although many of the Ss did describe periods of conflict with their parents and other close family members in the past. However, differences between Ss and their relatives had, for the most part, been resolved to the point that their family relations were at least cordial, if not friendly. Perhaps as the result of working through previous family conflicts, Ss tended to see themselves as quite different from their parents, and the interview data did suggest a relatively high level of differentiation in this respect.

At the same time that Ss' psychosocial adaptations proved to be relatively healthy and stable, they were not altogether flawless. S10, as noted, was virtually unable to achieve intimacy in his interpersonal relationships, S4 was contemplating divorce, and both S6 and S7 had had to work through periods of marital maladjustment.

S2 and S9 described longstanding conflicts with individual children, and S6 had felt it necessary to leave the family business due to differences with his father. S5, S8, and S9 were all somewhat constricted in their socializing, and several of the Ss indicated areas of dissatisfaction in their jobs, even though overall job satisfaction in the group was high.

Health care habits among the Ss were also something less than perfect. Eating habits were fairly regular for most of the Ss, and some conscientiousness about diet was seen in the group, but Ss could by no means be described as dietary "nuts," and three of the Ss reported longstanding patterns of unbalanced nutrition and irregular eating habits. Only a few of the Ss used supplemental vitamins on a regular basis, and none of the Ss had added any special "health foods" to their diets. Half of the Ss were smokers, and it was interesting to note that three of these Ss had either started or resumed smoking fairly recently, apparently in response to the stressful events of their lives. Alcohol use in the group ranged from complete abstinence to fairly heavy social drinking, moderation being the norm. As far as physical checkups were concerned, few of the Ss made routine visits to their doctors.

Thus it would not appear that scrupulous attention to self-care can account for the unusually good health of the Ss. This finding conforms with Burchfield's (1978) conclusion that health habits were not significantly related to the good health of extremely healthy people. While the health care orientations of Ss could not, on the whole, be described as exemplary, they were perhaps somewhat

better than average for several of the Ss. Ss generally described themselves as moderate in their personal habits, and this result again conforms with Burchfield's findings. Most of the Ss reported regular sleeping habits, averaging about 7 hours of sleep per night, and the majority of Ss were physically active individuals who had incorporated regular physical exericse into their daily or weekly regimens. In view of the abundant literature on the health-enhancing effects of exercise (Bahrke & Morgan, 1978; Bakal, 1979; Brown, 1978; de Vries & Adams, 1972; Morgan, 1973, 1979; Orwin, 1973; Pelletier, 1979; Sime, 1977, 1979), the exercise habits of Ss may have some bearing on their good health. What prevents physical exercise from emerging as a prepotent variable is the fact that three of the Ss reported very little exercise in their regimens, and of the exercising Ss, only a few were truly conspicuous for their exercise habits.

Data pertaining to coping, defined in the study as conscious efforts to manage stimulation and control internal tension, also failed to provide strong evidence that either a particular style of coping or that well-orchestrated coping efforts along were able to account for the Ss' good health. Even though Ss typically enjoyed a wide variety of interests and activities and usually included a period of relaxation in their daily schedules, none of the Ss followed a stress management program per se, and several of the Ss emphasized mental suppression as their primary way of dealing with stressful stimulation. This latter finding is curious in that excessive suppression has traditionally been seen as etiologic in a

wide variety of psychosomatic disorders. However, Byrne et al. (1968) found a lower incidence of illness among "repressors" than among "sensitizers," and Garrity et al. (1977) reported a negative correlation between declining health status and a factor which they termed "social conformity." In the present study, however, only six of the Ss were evaluated as "suppressives," the other Ss emphasizing a more "deliverative" style of coping and thus presenting themselves as being more like Byrne et al.'s "sensitizers." Hence there were no indications of a primary link between repression/suppression and resistance to disease.

While results in the domains of psychosocial adaptation, physical status, health care orientation, and coping conformed more or less to expectation--in that most Ss were reasonable well-adjusted individuals who took reasonably good care of themselves, coped reasonably well, and gave reasonably good health histories--none of the findings in these categories stood out sufficiently nor was universal enough to suggest it as a sine qua non for resisting the long-term physical effects of prolonged stress. The domain which did emerge as preeminant was the one pertaining to the perception of life events. It was tempting to specular prior to the study that high life change persons who did not become ill did not become ill simply because they did not see life events as stressful. This, however, does not appear to be the case. Not only did Ss describe the dysphoric responses noted earlier, but in rerating the SRRS items so that the LCU values would apply to their own personal experiences, the majority of the Ss produced ratings which were

not significantly different than those produced by the norming group. Only three of the Ss consistently rated the items lower than the original values. These Ss were all males, and while there was thus some tendency toward reduced ratings among the males, a similar trend was not evident among the females. Sex-related rating differences (and possible correspondence with sex differences along the suppressive-deliberative dimension) were not explored further due to questions arising over the validity of the assessment procedure, to be discussed shortly. Correlations between each S's ratings and the original LCU weights were generally quite high, and group correlations calculated on the means and medians of the 10 Ss' ratings of each item showed concordance levels of .96 and .97 respectively.

It would not, therefore, appear that Ss are exceptional in the ways in which they initially apprehend stressful life events or in the ways in which they initially respond affectively to these events. Where they do seem to be unique is at the level where perceptions of life events are integrated with broader attitudes about life in general. Ss' interview responses suggested an ability to not "lose the forest for the trees," so to speak, the capacity to maintain a relativistic perspective in which the positive aspects of change could be seen alongside more unpleasant aspects. In discussing the events which they had experienced, they tended to emphasize constructive outcomes in the form of personal growth and personal learning, and their reflections on their various experiences revealed a basic optimism about life (with the exception of S10).

Throughout the many life changes which they had experienced, they apparently had been able to retain a sense of moving forward and progressing with life, and faith in themselves and in their personal progress appeared to have tempered feelings of hopelessness and despair. A surprising discovery was that six of the Ss either were in psychotherapy or had been in psychotherapy previously, and these Ss felt that the increased self-understanding which had come with their therapy experiences had been helpful to them in preserving a sense of equilibrium.

In short, what Ss did not seem to lose with the excessive demands of their lives were a sense of hope, a feeling of purpose, and faith in themselves. Nowhere was this better expressed than in S5's answer to the question of how she herself accounted for her ability to stay so healthy:

> I think it is because basically I feel like a basic sense of hope about my life. I feel like things are going somewhere. I feel like there is a purpose to going through particular things, and I think the reason that I feel that has to do with my relationship with my husband and my efforts to work through things that are so difficult for me. There are times when I really feel depressed, there's times that I absolutely feel like shit, I mean I feel anxious a lot, but it doesn't feel like it's a dead end kind of situation. I feel like there's a process of working through.

The hypothesis that health is protected by optimism about life and the retention of a sense of purposiveness and personal meaning during times of stress is not without support in the literature of health psychology. Seligman (1975) has posited feelings of helplessness and despair as primary factors in the pathogenesis of psychosomatic response to stress, and several different researchers

studying the increased incidence of illness following object loss have accounted for this phenomenon in terms of psychological "giving up" (Engel, 1968; Greene, 1965; Parens et al., 1966; Schmale, 1972). Burchfield's (1978) comparison of a sample of extremely healthy Ss with three groups of less healthy Ss showed greater optimism, satisfaction with life, self-reliance, and freedom from worry among the extremely healthy Ss, and the healthier Ss were also characterized by greater emotional stability and moderation in their personal habits. In the only study to date which has compared high life change individuals who have not become ill with high life change Ss who have become ill, Kobasa (1977) found the healthier Ss to be less alienated from themselves and stronger in their experience of life as meaningful. As discussed in Chapter I, the healthier Ss in Kobasa's study were also evaluated as being more vigorous in their exercise of effective action, more oriented toward achievement and the pursuit of interesting experiences, and stronger in their motivation for endurance and social desirability.

The one obstacle to similar conclusions in the present study is the case of S10. From his severe psychopathology and egocentricity to his basic distrust and express pessimism, S10 differed in many critical respects from the other Ss. His apparent good health despite many major life changes is therefore something of a mystery which seems to fall outside the bounds of the explanations being offered for the good health of the other Ss. S10's inclusion in the study perhaps represents a sampling error caused by the inaccurate self-reports of an emotionally disturbed individual.

A very important common factor shared by S10 and the other Ss, however, was a perception of life as a shifting, flowing process. But where S10 looked to an uncertain future with apprehension, the other Ss looked forward to the unknown more hopefully. The view of life as constantly changing, and not static or predictable, may help safeguard against the loss of meaning during times of change by keeping the individual's expectations congruent with his or her actual experiences. In other words, the demands of life may be lessened in their impact on the individual once the individual has come to adopt a world view in which change is seen as integral to life. Such an outlook helps to place limits on one's illustions about the controllability of life and may consequently lead to greater acceptance of life's more unplesant vicissitudes. As discussed in Chapter I, the importance of the perceived controllability and predictability of stressful stimuli has been widely recognized as one of the important mediating factors in the determination of the individual's response to stress.

The personality correlates of the Ss' optimism, self-confidence, and equanimity in perceiving life events were not entirely clear from the limited psychometric data that were obtained. The pattern of findings discussed thus far is certainly suggestive of Antonovsky's (1974) concept of "homeostatic felxibility," but no specific measurements of this trait were made. The Ss' adapatability is also highly suggestive of superior ego-strength, a finding which would be consistent with previous studies relating high ego-strength with superior physical functioning (Canter et al., 1966; Greenfield et al.,

1969; Mordkoff & Rand, 1968; Roessler, 1973, Roessler et al., 1963; Roessler et al., 1967; Roessler, et al., 1966; Roessler & Collins, 1970; Wolman & Kepecs, 1969) and superior stress tolerance (Egan, 1972; Grace, 1960).

Although the Es scores obtained on the Ss were elevated, they were not, however, of such a magnitude as to suggest superior ego-strength as the be-all and end-all of disease resistance. Es standard scores did exceed a T-level of 70 for three of the female Ss, but among most of the Ss, Es scores were more moderate. The mean Es standard score for the females was 67, while for the males the mean was 64 (S10's score of 46 being excluded on the basis of his extremely deviant MMPI profile). Most of the scores thus feel between one and two standard deviations from the mean, a range which from a statistical standpoint is only moderately significant. Whether the obtained Es scores are significantly different from what should be expected on the basis of the group's demographic characteristics is also not clear, particularly since the only available norms on scale Es (Hathaway & Briggs, 1957) are now more than 20 years old. Tamkin and Klett (1957) reported Es scores to correlate .32 with Wechsler full scale I.Q. scores and .45 with education, and in a very recent study of psychiatrists, psychologists, and social workers classified as either Type A or Type B personalities, Friedman (1982) found mean Es scores in the various groups to range from 59.5 to 65.3. These scores are obviously comparable with the scores obtained in the present study. Further muddling interpretation of the obtained Es scores is the fact that some 13, or nearly 20% of the

68 items in the Es scale are direct statements of physical well-being. Thus the accurate reporting of good health could well lead to elevations in Es scores.

Ss' interpersonal styles were relatively uniform, again with the exception of S10. The clustering of their level I and level II summary scores in the upper octants of the Leary circumplex indicates that they are interpersonally ascendant individuals more apt to initiate than to follow. The endorsement of IACL items associated with weakness and passivity was generally avoided by the group, and this finding tended to support a clinical impression that Ss were strongly motivated to avoid illness behavior because they perceived such behavior as implying personal weakness. In their self-perceptions, Ss universally emphasized independence and self-reliance, while at the public level they are more likely to be seen as strong, capable, normal, and relatively responsive to the needs of others.

The MMPI data were far more diverse. At the group level, there was insufficient uniformity among the profiles to suggest a "disease resistant personality," and group scores on the individual scales did not show consistent elevations of sufficient magnitude to unequivocable link Ss' good health with any of the specific traits measured by the test. There was some tendency toward Pd and Pa elevations observed across the group, with the group, female subgroup, and male subgroup means on both these scales all falling about one standard deviation from the norm. Given the substantial ego resources of these individuals (exception S10), as represented in their educational accomplishments, psychosocial adaptations, and solid

Es scores, these generally modest elevations should not be summarily interpreted as indicative of psychopathic or paranoid tendencies. Elevations at this level have even been recognized as being associated with a variety of such positive qualities as independence, sensitivity, and kindness (Graham, 1977).

At the same time, the MMPI profiles do not portray the average S as a perfect picture of mental health. More than half the Ss had at least one MMPI scaled score at or above a T-level of 70, and the profiles of several Ss were suggestive of noteworthy personal limitations. The moderate Pa elevations seen for S7 and S8 occurred in conjunction with similar elevations on the Hy scale, characterizing both these individuals as rather rigid and overcontrolled. This finding certainly corresponds with the suppressive operations which they so graphically outlined during discussions of their coping styles, and both these Ss consistently scaled down LCU values when rerating the SRRS items.

Among the females, four the the Ss showed mild to moderate dips on scale Mf together with the Pd and Pa elevations, a pattern which in psychiatric populations is usually associated with passive-aggressive and masochistic styles (Carson, 1969). The applicability of such an interpretation in the present sample is questionable, not only due to the modest degree to which the pattern is apparent for most of the female Ss, but also because it is not clear to what extent this pattern of scores may be an artifact of the Ss' demographic status. It will be recalled that all the women in the study had dual interests in homemaking and outside professional activities, and

there are no normative data available on the Mf scores of these more modern, "liberated" women. Traditional interpretations of low Mf scores for women have emphasized conformity to conventional (passive) feminine roles, but the accomplishments of the women in the study do not speak of a particularly submissive orientation in life. Even if the females' low Mf scores are reflective of conflict over their femininity, it is not at all clear how this would contribute to superior health status. Chronic illness would seem a far more viable mode of passively or masochistically expressing aggression.

Limitations of the Study and Indications for Future Research

The limitations of an uncontrolled clinical study on a relatively small group of people selected and evaluated on the basis of retrospective, self-reported information are not too difficult to discover. The hazards of self-reported and retrospective data have been repeatedly noted by critics of the SRRS and similar instruments, as discussed in Chapter I. At issue with retrospective material is the accuracy of Ss' recall, particularly where personality factors or the demand characteristics of the situation may introduce bias, or where the time period being considered extends far back into the S's past. Ss' fallacies in accurately preserving historial material in memory is, of course, well known to psychology. The drawbacks to uncontrolled studies are also quite obvious. Without groups of Ss matched for all but the experimental variables, it cannot be ascertained to what extent findings may be due to demographic or other spurious sources. It is also difficult to tell in uncontrolled

studies to what extent the obtained results are significant. The resulting limitations for data interpretation have clearly not been foreign to the present study.

Even with its many shortcomings, exploratory research of an uncontrolled nature is not without its merits. The purpose of this type of work is not to provide final answers, but to point the way for subsequent research. What is important in exploratory studies is to observe appropriate caution in interpreting the results and to limit as much as possible the potential sources of bias.

The single greatest weakness of the present study lies in its reliance on Ss' self-reports for the determination of health status. This is not a minor issue, as the express purpose of the project was to study high life change people who had remained physically healthy in defiance of prediction. Many previous life event studies have also relied on self-reports to determine Ss' health status, but unlike most of these other efforts, the present study took specific measures to limit the biases which often come with self-reported data. The health questionnaire which was used was developed specifically for the purposes of the present study, and with its detail and several cross-checks, it seems unlikely that significant health problems could be overlooked by respondents. Furthermore, all respondents were aware at the times they filled out the health questionnaires that they might be recontacted subsequently, so that there was thus some safeguard against reckless responding. The importance of accurate reporting was emphasized in the recruiting letter which accompanied each health questionnaire, and it might also be pointed out that of the 36

respondents who obtained 12 month life change scores of 300 or more, only 10, or 27.8%, reported continued good health. This proportion compares very favorably with the ratios of healthy Ss reported in other studies concerned with life experiences and health status (Antonovsky et al., 1971; Hinkle, 1974b; Rahe & Arthur, 1978).

The selection of well-educated, verbally sophisticated Ss represented a further effort to enhance the validity of self-reported data, and the data gathering situation was free of the demand characteristics for which Sarason, de Monchaux, and Hunt (1975) have criticized life event research among military populations. The use of upper SES Ss also addresses Sarason et al.'s point that completion of the SRRQ is a task better suited to more sophisticated populations. While the information provided by Ss on the SRRQ and health questionnaire was not verified point-by-point, Ss' health histories and recent life event experiences were discussed in some detail during the individual interviews, and the interview material did not prove discrepant with the health and life change information provided during screening. This does not altogether rule out response bias, but the investigator was impressed with the Ss' candor during interviews, and scores on the validity scales of the MMPI were not suggestive of excessive motivation toward social desirability.

All these checks on the validity of the self-reported health data still do not obviate the possibility that one or more of the Ss was suffering an undetected disease. The only way to unimpeachably ascertain health status is by direct physical examination, and future studies relating life experiences to health status would be well

advised to take this into account. Most of the Ss in the present study had been examined by a physician within the past year, but it would be preferable in the future to have Ss examined at the time the study is actually being carried out. Even more preferable would be a prospective paradigm in which Ss' health status was regularly monitored.

A disturbing question which even prospective studies might fail to address concerns the matter of response latency. Is it possible that people who do not respond to excessive life change with health decline simply do not respond during the usual observation periods? Could there by some sort of a trade-off such that physical resistance to stress in the short run is later paid for with chronic disease, heart attacks, reduced longevity, etc.? Delayed psychological response to stress is now well documented among Vietnam War veterans. Is it possible that a similar phenomenon could pertain to physical response to stress? The answers to these questions can only come with longitudinal studies, and follow-up work on the Ss of the present study might prove interesting in this respect.

A weakness in the present study which should be corrected in future work involves the rating procedure by which Ss rerated SRRS items so that the LCU values would correspond to the Ss' own experiences. The procedure involved having Ss review the SRRS and simply make whatever adjustments they felt were necessary. The problem with this procedure is that Ss were well aware of the original, or "normal," LCU values. Response sets were thus openly invited into the assessment situation, and Ss' reratings may be more

indicative of how differently Ss perceive themselves from others than they are reflective of how Ss actually experienced life events. The use of values thus obtained for comparison purposes is obviously of questionable validity. A better procedure would be to have Ss rate the SRRS items via the psychophysical method of magnitude estimation, as was done by Holmes and Rahe (1967) in the original procedure by which the LCU weights were derived. The only difference would be that Ss would be instructed to rate the items such that the ratings would correspond to the Ss' own experiences.

The need for further research on individuals who remain healthy despite conditions which are predictive of illness can hardly be overemphasized. Judging from the results of the present study, the most productive work will focus on the phenomenology of life event experiences. This is not meant to imply that physical status factors, health care habits, and coping practices cannot be enhanced to improve resistance to the physical effects of stress; it merely reflects the finding that among healthy high life change Ss in the field, the factors appearing to figure most conspicuously in Ss' good health pertained to the ways in which life events were perceived and integrated. Life event researchers have argued over the mediating influence of the desirability and controllability of life events, but the exact influence of these and other dimensions of life experiences in the etiology of somatic response to life change remain unclear. Sarason and his colleagues have begun work which should help to elucidate phenomenological variables (for a review, see Sarason, Levine, & Sarason, 1982), but this work is still in relatively

early stages. Given the obvious importance of personality for phenomenology, and in view of the paucity of personality studies on disease resistant individuals, there is also a rather obvious need for further work of this nature as well.

Summary and Implications

Of the six domains of mediating variables in the life event-illness pathway, i.e., psychosocial adaptation, perception of life events, personality, physical status, health care orientation, and coping, the one which emerged as most salient in explicating the good health of healthy high life change individuals was the one pertaining to the perception of life events. Common factors were evident to a lesser extent in the other domains, but these variables did not achieve the same conspicuousness or uniformity as the findings relating to life event perception. On the basis of both interview material and the Ss' reratings of the SRRS items, it did not appear that Ss as a group viewed the life events which they had experienced as being less demanding than the events would have been experienced by other individuals. Nor did it appear that the majority of the Ss had failed to have normal affective responses to the many changes in their lives. Where Ss did appear to be unique was at the level where their perceptions of life events were integrated with self-perceptions and broader attitudes about life in general. The Ss emphasized personal strength and self-reliance in their self-descriptions, and faith in themselves and in their abilities to deal with problem effectively figured as highly significant in their

determinations to not "give up" during times of adversity. Also present was a tendency to view illness as indicative of personal weakness.

Within the sample there was a shared view of life as a process of continual change, and this view seemed to help the Ss preserve a sense of continuity and perspective during times of turmoil. In reflecting on the many changes which they had experienced, Ss emphasized constructive outcomes in the form of personal growth and personal learning, and despite inordinate levels of psychosocial change, the Ss had apparently maintained a sense of moving forward with life. Throughout the interview data there were repeated indications that the great majority of Ss experienced a basic optimism about life.

While the Ss' views of life and self might suggest intrinsic personality resources which promote superior adaptation, other findings argued against this conclusion, particularly the surprising discovery that half of the Ss had experienced some form of stress-related health problems in the more remote past. This finding would imply that the personal resources which have enabled the Ss to stay healthy despite numerous life changes in more contemporary times have been acquired in the course of adulthood. The MMPI data failed to provide convincing evidence of common personality factors which might account for the Ss' superior health status, although modest elevations on scales Pd and Pa were seen for most of the Ss. Group, female subgroup, and male subgroup means on both of these scales clustered about one standard deviation above the population norm. Measures of

ego-strength, which one would certainly expect to be elevated on the basis of the interview findings, also failed to show consistent elevations of sufficient magnitude to demonstrate clear departure from expected values.

While the MMPI was thus unable to unequivocably establish specific personality correlates of the Ss' disease resistance, there was substantial uniformity among measures of the Ss' interpersonal styles. Data collected on the IACL and MMPI and integrated by means of the Leary method portrayed the Ss as interpersonally ascendant individuals who are generally viewed by others as strong, capable, and reasonably solicitous. The personality data were not without indications of significant areas of personal limitation, however, as six of the Ss obtained at least one MMPI scaled score of 70 or above.

Psychosocial adaptations among the Ss were generally good, although specific problem areas were evident for several of the Ss. Job satisfaction was generally quite high, as was satisfaction with family, friends, and life in general. Psychometric measures of mood disturbance and psychological maladjustment showed major elevations for only one of the Ss.

The coping styles of Ss diverged widely along what was labeled a "deliberative" versus "suppressive" dimension, so that no one style predominated. None of the Ss adhered to a prestructured plan for managing stress, although it was noted that several of the Ss had set aside daily relaxation times, and many of the Ss exercised on a regular basis. Additionally, the Ss typically enjoyed a wide variety

of interests and activities, and social supports were described as being quite substantial.

The Ss' health care habits varied from poor to good, with no evidence to suggest that superior self-care was a primary factor in the unusual level of resistance which Ss had shown to disease. The Ss' health histories, while generally quite good, were not of a quality to suggest an essential organic factor. The health histories included episodes of illness during both childhood and adulthood, and the cases of stress-related health problems described earlier would further argue against the primacy of a preexisting biological factor in the formulation of the Ss' good health.

The findings from this exploratory project clearly justify the continued study of the role which psychological variables play in the life event-illness pathway. Given the importance which the perception of life events appears to have as a mediating variable, it might be expected that future work which focuses on the phenomenology of life event experiences will be the most productive.

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APPENDICES

APPENDIX A

RECRUITING LETTER

The University of Tennessee, Knoxville
College of Liberal Arts
Department of Psychology

KNOXVILLE, TN 37996-0900

(615) 974-2531

February, 1982

Dear Respondent:

The request that you complete the two accompanying questionnaires is made in the interest of collecting information for a doctoral dissertation study. The focus of the study is on psychological and social variables affecting health status.

The Health Questionnaire concerns your recent health history, while the Social Readjustment Rating Questionnaire asks about various life events which you may have experienced in the past two years. Although the questionnaires are relatively brief and should require little of your time to complete, it is extremely important that the information which you provide be accurate. Please feel free to consult your spouse or others if you are unsure of your memory.

Because some respondents will be recontacted in the future and asked to participate further, some identifying information is necessary. However, identifying information will remain strictly confidential and will be available only to myself. No identifying information will be used in the reporting of the study, and at the conclusion of the study, all identifying information will be destroyed.

Please return the completed materials within the next two weeks. An envelope is provided for that purpose. If you have any questions, please feel free to call me at 521-7466.

Thank you,

Peter Watrous
Psychology Graduate Student

APPENDIX B

THE SOCIAL READJUSTMENT RATING QUESTIONNAIRE

Number _____

Name _____ Age _____
first middle/maiden last

Address _____ Degree _____

_____

Phone _____ Occupation/Department _____

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THE SOCIAL READJUSTMENT RATING QUESTIONNAIRE

Instructions: On the line at the right, check each event as many times as it has occurred in your life over the past 24 months. Then give the date(s) (month and year) that the events occurred.

	# Times	Date(s) (month/year)
1. Marriage	_____	_____
2. Troubles with the boss	_____	_____
3. Detention in jail or other institution	_____	_____
4. Death of spouse	_____	_____
5. Major change in sleeping habits (a lot more or a lot less sleep, or change in part of day when asleep)	_____	_____
6. Death of a close family member	_____	_____
7. Major change in eating habits (a lot more or a lot less food intake, or very different meal hours or surroundings)	_____	_____
8. Foreclosure on a mortgage or loan	_____	_____

		# Times	Date(s) (month/year)
9.	Revision of personal habits,(dress, manners, associations, etc.)	_____	_____
10.	Death of a close friend	_____	_____
11.	Minor violations of the law (e.g., traffic tickets, jay walking, disturbing the peace, etc.)	_____	_____
12.	Outstanding personal achievement	_____	_____
13.	Pregnancy	_____	_____
14.	Major change in health or behavior of a family member	_____	_____
15.	Sexual difficulties	_____	_____
16.	In-law troubles	_____	_____
17.	Major change in number of family get-togethers (e.g., a lot more or a lot less than usual)	_____	_____
18.	Major change in financial state (e.g., a lot worse off or a lot better off than usual)	_____	_____
19.	Gaining a new family members (e.g., through birth, adoption, oldster moving in, etc.)	_____	_____
20.	Change in residence	_____	_____
21.	Son or daughter leaving home (e.g., marriage, attending college, etc.)	_____	_____
22.	Marital separation from mate	_____	_____
23.	Major change in church activities (e.g., a lot more or a lot less than usual)	_____	_____
24.	Marital reconciliation with mate	_____	_____
25.	Being fired from work	_____	_____

		# Times	Date(s) (month/year)
26.	Divorce	_____	_____
27.	Changing to a different line of work	_____	_____
28.	Major change in number of arguments with spouse (e.g., either a lot more or a lot less than usual regarding childrearing, personal habits, etc.)	_____	_____
29.	Major change in responsibilities at work (e.g., promotion, demotion, lateral transfer)	_____	_____
30.	Wife beginning or ceasing work outside the home	_____	_____
31.	Major change in working hours or conditions	_____	_____
32.	Major change in usual type and/or amount of recreation	_____	_____
33.	Taking on a mortgage greater than $10,000 (e.g., purchasing a home, business, etc.)	_____	_____
34.	Taking on a mortgage or loan less than $10,000 (e.g., purchasing a car, TV, freezer, etc.)	_____	_____
35.	Major personal injury or illness	_____	_____
36.	Major business readjustment (e.g., merger, reorganization, bankruptcy, etc.)	_____	_____
37.	Major change in social activities (e.g., clubs, dancing, movies, visiting, etc.)	_____	_____
38.	Major change in living conditions (e.g., building a new home, remodeling, deterioration of home or neighborhood)	_____	_____
39.	Retirement from work	_____	_____
40.	Vacation	_____	_____

	# Times	Date(s) (month/year)
41. Christmas	_____	_____
42. Changing to a new school	_____	_____
43. Beginning or ceasing formal schooling	_____	_____

APPENDIX C

THE SOCIAL READJUSTMENT RATING SCALE

Rank	Life Event	Social Readjustment Value
1	Death of a spouse	100
2	Divorce	73
3	Marital separation	65
4	Jail term	63
5	Death of a close family member	63
6	Personal injury or illness	53
7	Marriage	50
8	Fired at work	47
9	Marital reconciliation	45
10	Retirement	45
11	Change in health of family member	44
12	Pregnancy	40
13	Sex difficulties	39
14	Gain of new family member	39
15	Business readjustment	39
16	Change in financial state	38
17	Death of a close friend	37
18	Change to a different line of work	36
19	Change in number of arguments with spouse	35
20	Mortgage over $10,000	31
21	Foreclosure of mortgage or loan	30
22	Change in responsibilities at work	29
23	Son or daughter leaving home	29
24	Trouble with in-laws	29
25	Outstanding personal achievement	28
26	Wife begin or stop work	26
27	Begin or end school	26

Rank	Life Event	Social Readjustment Value
28	Change in living conditions	25
29	Revision of personal habits	24
30	Trouble with boss	23
31	Change in work hours or conditions	20
32	Change in residence	20
33	Change in schools	20
34	Change in recreation	19
35	Change in church activities	19
36	Change in social activities	18
37	Mortgage or loan less than $10,000	17
38	Change in sleeping habits	16
39	Change in number of family get-togethers	15
40	Change in eating habits	15
41	Vacation	13
42	Christmas	12
43	Minor violations of the law	11

APPENDIX D

HEALTH QUESTIONNAIRE

1. List any illnesses, injuries, medical conditions, health problems, or health changes (including pregnancy) for which you have consulted a health professional (physician, dentist, chiropractor, nurse, etc.) in the past 12 months.

illness or problem	date(s) (month/year)	duration

2. List any chronic illnesses or disabling physical conditions that you suffer (e.g., asthma, hypertension, allergies, diabetes, arthritis, bursitis, etc.) and note the severity.

_____

_____

3. In the past 12 months, how many days of work have you missed due to illness?_____

4. Check any of the following which you have experienced in the past 12 months.

__ fainting or dizziness
__ loss of consciousness
__ convulsions
__ fever or chills
__ frequent colds
__ severe cold, flu, or virus
__ change in skin color
__ loss of hair
__ coughing up blood
__ recurrent vomiting
__ pain on deep breathing
__ chest pains
__ shortness of breath
__ excessive urination
__ burning on urination
__ blood or pus in urine
__ decrease in force of urine stream
__ blood in stool
__ infection

Describe the nature, severity, and duration of any items checked.

_____

_____

5. Check any of the following which you have experienced on a persistent (lasting more than 48 hours) or recurrent (more than 3 occasions) basis during the past 12 months.

__ headache	__ sore throat or hoarseness	__ constipation
__ excessive sweating		__ diarrhea
__ excessive weakness	__ trouble with teeth	__ hemmorrhoids
__ appetite change	__ sore gums	__ low back pain
__ eye problems	__ skin rash	__ pain in feet
__ ear problems	__ itching	__ joint pain
__ frequent coughing	__ heartburn	__ joint stiffness or swelling
__ morning cough	__ excessive belching	
__ sinus or nasal problems	__ nausea	__ muscular aches or stiffness
	__ stomach pains	

Describe the nature, severity, and duration of any items checked.

_____

_____

6. Describe the nature and severity of any other medical conditions, health problems, health changes, or injuries which you have experienced in the past 12 months and which have not been reported in previous questionnaire items.

_____

_____

7. List any medications you take on a regular or periodic basis (including over-the-counter medications) and give the reasons why.

name of drug	reason
_____	_____
_____	_____
_____	_____

APPENDIX E

INTERVIEW CHECKLIST

I. Physical Status Factors

Have you always been as healthy as you have been over the past year? What health problems have you had in recent years? In earlier years? What is the most serious health problem you have ever had? Have you ever been in the hospital? How many days of work do you usually miss each year due to illness? Are there any diseases or health problems that seem to run in your family? Over the past year, have the other members of your household shared your good health?

II. Health Care Orientation

What measures do you normally take to protect your health? How attentive are you to your diet? Are there any special foods that you eat to enhance your health? Do you try to eat balanced meals? Do you eat much candy and junk food? Are there any foods you specifically avoid? Do you take vitamins? Do you smoke? How much? Do you drink? How much? How often do you see a doctor for a checkup? How many hours do you normally sleep at night? What efforts do you take to keep in good physical condition? How much exercise do you normally get in the course of a week?

III. Coping

What do you do to cope with the stresses in your life? What do you do for fun and diversion? What hobbies do you have? What do you do to relax? How regularly do you use these methods of relaxing? Which seem to be the most effective for you? How do you usually spend your free time? How would you react to the following situation (give example of an extremely traumatic life event)?

IV. Perception of Life Events

What was it like to have so many changes in your life? What effect did it have on you? How did you react? Of the life

IV. Perception of Life Events (continued)

events you have experienced in the last 2 years, which have had the greatest impact on you? Why? Which events have had the least significance for you? Why? (After picking out some of the heavily weighted life events on the subject's SRRQ--) What were these events like for you? What about the events made you experience them that way?

V. Psychosocial Adaptation

With so many changes taking place in your life over the last 2 years, how happy have you generally felt? How satisfied have you felt with your 1) career; 2) friends and social life; 3) marriage and family; and 4) self? What problems have you encountered in these areas? How many close friends have you had? How much time have you spent with them? How have you spent your time with them? How active a family person have you been? How have you spent your time with your family? How active have you been socially? What clubs or social groups have you been an active member of? Have you been active in a church? What is the source of the greatest satisfaction in your life? The greatest unhappiness or dissatisfaction? What is your greatest interest or priority in life? What do you see in your future? What goals have you set for the next 10 years?

VI. Miscellaneous

In your own mind, what is the single best explanation for your good health over the past year?

VII. Demographic

Race_____

Sex_____

Marital Status_____

No. of children_____

APPENDIX F

TEXT OF TELEPHONE INFORMATION GIVEN TO PROSPECTIVE SUBJECTS FOLLOWING SCREENING

Hello, this is Peter Watrous. I'm the psychology graduate student whose questionnaires you recently filled out. (Any questions regarding questionnaire responses are to be clarified at this point.)

As it turns out, you seem to be one of the rare people that I was hoping to find with the questionnaire. What I'm looking for are people who have managed to remain very healthy despite having gone through a great many stressful life changes in the recent past. I've just finished scoring your questionnaires and it looks like you're exactly one of the people I've been trying to find.

So far, I've scored (number) questionnaires, and you are only the (number) person to meet the criteria for the study. That should give you some idea of how rare you really are. Most people who go through as many life changes as you have in the past 2 years end up with some sort of health problem, usually a serious one.

The purpose of my dissertation is to find out more about how people like you manage to stay so healthy. I'm hoping that you would be willing to continue in the study? That would be great.

Let me tell you what is involved. There are two self-administered paper-and-pencil personality questionnaires which you can do at your own convenience. The time requirement on these is about 1 1/2 hours, but it is not necessary that they be done in a single sitting. I would also like to be able to see you for a personal interview during which I could ask you questions about the life events you have experienced, your personal and family health histories, your lifestyle, social activities, family life, and personal health practices. The interview should last about an hour. That's all there is.

I guess the next step, then, is to set an appointment time when I can have a chance to meet you and give you the personality questionnaires. Is there a time that would be convenient for you sometime soon? (Set appointment.) We can wait to schedule the interview until after you have had a chance to finish the questionnaire.

Well that sounds good. I'll be looking forward to meeting you on (date) at (time). Thanks again. Bye.

APPENDIX G

SUBJECTS' RERATINGS OF SRRS ITEMS

SRRS Item	Value	Subjects' Ratings: Females S1	S2	S3	S4	S5	Males S6	S7	S8	S9	S10	Female Mean	Female S.D.	Male Mean	Male S.D.	Group Mdn.	Group Mean	Group S.D.
1	100	100	100	100	98	100	100	100	75	100	90	99.6	.80	93.0	9.80	100	96.3	7.69
2	73	100	100	75	75	73	60	75	50	85	80	84.6	12.60	70.0	13.04	75	77.3	14.75
3	65	70	75	70	50	70	50	65	50	75	70	67.0	8.72	62.0	10.30	70	64.5	9.86
4	63	80	100	70	99	63	70	70	45	63	70	82.4	14.97	63.6	9.69	70	73.0	15.73
5	63	70	70	70	100	70	65	80	50	70	50	76.0	12.00	63.0	11.66	70	69.5	13.50
6	53	50	65	50	25	60	65	55	25	55	50	50.0	13.78	50.0	13.42	53	50.0	13.60
7	50	50	40	65	60	45	60	60	25	75	25	52.0	9.27	49.0	20.35	55	50.5	15.88
8	47	80	65	40	100	47	40	50	40	60	50	66.4	21.86	48.0	7.48	50	57.2	18.75
9	45	40	40	40	95	35	45	45	15	60	25	50.0	22.58	38.0	16.00	40	44.0	20.47
10	45	70	40	60	55	45	45	30	5	50	20	54.0	10.68	30.0	16.43	45	42.0	18.33
11	44	70	50	35	85	35	40	35	25	44	10	55.0	19.75	30.8	12.19	38	42.9	20.39
12	40	60	65	50	85	35	40	40	20	60	60	59.0	16.55	44.0	14.97	55	51.5	17.47
13	39	60	30	40	45	20	45	38	15	50	20	39.0	13.56	33.6	13.78	39	36.3	13.94
14	39	50	45	45	95	45	40	32	20	30	20	56.0	19.60	28.4	7.63	43	42.2	20.29
15	39	39	30	40	90	25	35	24	10	30	50	44.8	23.28	29.8	13.12	33	37.3	20.33
16	38	30	30	40	98	30	35	29	10	40	50	45.6	26.48	32.8	13.32	33	39.2	21.92
17	37	30	45	50	100	37	30	25	50	70	30	52.4	24.76	41.0	16.85	41	46.7	21.93
18	36	25	30	40	99	36	25	20	25	10	50	46.0	26.99	26.0	13.19	28	36.0	23.48
19	35	20	30	30	90	20	30	14	40	30	20	38.0	26.38	26.8	9.00	30	32.4	20.49
20	31	20	31	15	10	31	20	5	10	50	0	21.4	8.45	17.0	17.78	18	19.2	14.09
21	30	50	30	30	95	25	25	26	0	40	50	46.0	25.96	28.2	16.88	30	37.1	23.64
22	29	20	20	20	30	20	25	10	0	30	20	22.0	4.00	17.0	10.77	20	19.5	8.50
23	29	20	40	30	20	29	20	31	15	40	10	27.8	7.44	23.2	10.91	25	25.5	9.62
24	29	20	10	20	10	20	23	8	10	20	10	16.0	4.90	14.2	6.08	15	15.1	5.59
25	28	20	10	25	55	35	25	36	65	20	10	29.0	15.30	31.2	18.86	25	30.1	17.21
26	26	20	40	26	15	26	25	18	10	15	20	25.4	8.38	17.6	5.00	20	21.5	7.93
27	26	15	10	30	12	30	20	23	40	15	20	19.4	8.80	23.6	8.59	20	21.5	8.95
28	25	20	20	30	25	25	22	21	10	15	10	24.0	3.74	15.6	5.16	21	19.8	6.16
29	24	20	10	20	24	20	20	14	20	10	10	18.8	4.66	14.8	4.49	20	16.8	5.00
30	23	20	40	20	97	23	20	15	15	30	10	40.0	29.46	18.0	6.78	20	29.0	24.04
31	20	30	20	20	40	15	20	9	15	25	10	25.0	8.94	15.8	6.05	20	20.4	8.91
32	20	20	40	15	10	20	15	18	5	50	10	21.0	10.20	19.6	15.83	17	20.3	13.33
33	20	20	10	15	10	15	15	23	5	20	10	14.0	3.74	14.6	6.53	15	14.3	5.33
34	19	10	10	10	19	12	19	6	5	10	10	12.2	3.49	10.0	4.94	10	11.1	4.41
35	19	10	30	10	10	8	15	0	10	1	10	13.6	8.24	7.2	5.78	10	10.4	7.80
36	18	15	30	10	65	15	20	7	5	10	10	27.0	20.15	10.4	5.16	13	18.7	16.89
37	17	10	10	10	10	17	15	2	0	15	10	11.4	2.80	8.4	6.34	10	9.9	5.13
38	16	10	10	10	90	10	15	7	5	20	10	26.0	32.00	11.4	5.46	10	18.7	24.09
39	15	10	10	10	15	10	12	12	5	5	10	11.0	2.00	8.8	3.19	10	9.9	2.88
40	15	10	10	10	8	10	15	3	5	10	20	9.6	.80	10.6	6.28	10	10.1	4.50
41	13	10	10	8	5	10	12	16	5	20	10	8.6	1.96	12.6	5.12	10	10.6	4.36
42	12	10	30	5	5	8	15	11	0	20	10	11.6	9.39	11.2	6.62	10	10.4	8.13
43	11	10	10	10	5	8	10	1	5	5	10	8.6	1.96	6.2	3.43	9	7.4	3.04

APPENDIX H

SELECTED* INTERVIEW MATERIAL CONCERNING SUBJECTS' PSYCHOSOCIAL ADAPTATIONS AND RESPONSES TO LIFE EVENTS

S1

During that period [the period around her divorce], say a 6 month period, right in there, I was not happy with life at all. I didn't know where I wanted to be, I couldn't go to my mother's, I wanted to be somewhere else. I didn't have a home, I didn't have a base. I wasn't anywhere. Other than that, in my entire life I would say I've been a happy person. Adjusting after that, learning to live alone--and then I settled into that much more. But I really do think getting married again, you know, not finding a man again, but just finding a situation, that's integral to my ability to relax and feel . . . (pause).

Work is just not enough for me, work itself, and relaxation. I think me in not enough for me (laughs). If I hand't had [her child] during the first time, I don't really know if I could have made it. I need to focus on other people too. I know how important it is for me to feel good about myself, and I do, and I think I'm a worthwhile person, but I like to be either teaching other people or helping or counseling other people, or being involved in other people too. I like to give.

In general, I'd have to say I've been pretty satisfied [with her career]. I would like to have a few closer friends, I think. I think part of it is just the structures, the way things are, but I think my social life is much better than it's ever been. But still, I don't have time for a lot of really close friends. By the time you try to do some sort of career or school, and a family and a social life with your husband, then you include friends, but it's not like the real good girlfriends that you used to have, that you used to spend a lot of time with. If you define close friends in terms of feeling like you could call them and talk to them and tell them your problems, I have, I'd say, about 10 close friends. But as far as seeing them, it may be only once or twice a year.

I would say that about once every 2 or 3 weeks I visit [my parents], and that's enough. I don't really desire any more. I definitely had a rebellious time when I couldn't get along with either

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*Minor editorial revisions have been made to improve clarity and assure confidentiality.

one of my parents. They didn't want to let me go, and they were very strict, much more so than they are now with my other sisters. They recognize my independence, and my mother has even said that I'm more mature than she is, and I believe it (laughs). I listen to what my mom says, but I don't take everything that they say as the gospel, I see where it comes from in their own . . . (pause). They're people too. Yes, they've had a lot more experience in the things that they are experienced in--I do listen and don't say just because my mom said it I'm not gonna do it--I will listen, but in other things, when I see that there are differences, I just say no, that's a bunch of crap (laughs). She [S's mother] has her opinions, and it's hard to live with her at times, and if I lived there--I couldn't live there.

My husband loves people, and he likes to be at parties and things. I think he doesn't feel uncomfortable in the fact that I like close friends at the house, that I'm not particularly a "50 person"--invites everybody over--I'd rather do that out at the country club. I just like people I like and like me.

To me, maybe one of the important things is to find someone in this world who complements you. You can say that's pretty egotistical, but you're not trying to change anybody else, all you're trying to do is find someone who is a natural complement to you. I think it works both ways when you find that kind of person, and instead of warring--and we've had a lot of fights too, 'cause there's definitely a lot of things that are different--but emotionally, we both need a lot of the same things, I think, and it's been nice to feel like you have somebody on your side and in your corner and that they've very supportive of everything that you do. I think it's very strengthening to have that.

I've been active [in community activities, clubs, church, etc.] only on the surface. I joined [a service organization] this year, and I've been to a few of the meetings, but it just so happens that it comes on school days quite often. It's not for working women as much as it's for people who have a lot of time. And that's one of the things that keeps me active in community activities.

It's [the source of the greatest satisfaction in her life] tied up with the fact that I feel good about myself, and I think that being together as a person has--I feel reasonable in all areas, you know, I don't have to feel brilliant or great or anything like that, but I feel like I'm a reasonably well-adapted, reasonably well put together person. That's very satisfying. Mentally, I get a big kick out of feeling mentally sufficient.

[Regarding the source of the greatest dissatisfaction in her life] Probably when I don't have control over a situation. I don't mean just total control, but I mean when I feel like things are out of my hands, that you can't practically do anything about these situations. When you can't use your mind anymore, it's not going to make a bit of difference how many solutions you've come up with, how many things you've tried--you can't do anything about it,

you've done all you can do, you just have to just sit back and watch the chips fall--that is very traumatic to me.

My number one goal is to enjoy them [the years ahead]. I think you get these bitter adults that look back and haven't done what they wanted to do, they've not enjoyed their life, and now's the time when they don't really know how. And I'm saying no, it's not when you're 50 or 60 that you're gonna take the time to enjoy it, it's right now. These are the best times, and next year'll be the best times, and the next year'll be the best times, and at 50 it'll be the best times if you make them that way. I think the goal is to do things and to be in situations where I enjoy life and that the people around me enjoy sharing my life.

S2

I'm happy. It was 4 years ago this month that I took this thing [job] that changed my life. The morning that I did it, I prayed that God would give me some kind of a direction, that I would know that I could not stand that messiness that I was living--What was I going to do the rest of my life? Was I gonna go to nursing, was I gonna do anything? This was terrible. I'd lived in it for 5 or 10 years. I was in this venturesome attitude thing, and on the last day, it was almost like some weird experience that I decided that this [job] was just what I wanted and that I would go and ask. Then they gave me money and paid for all my education.

The difference is a sense of direction. I'm on a path now, I'm not just wandering. My job is really important to me. My friends are my working contemporaries, my peers. My social life has just changed tremendously, because I spend so much time relating really closely here. I do a lot of listening and counseling. I call it "back door," but I really do a lot. So socially, I don't have the needs . . . (pause). I think of this as being temporary. Right now I'd rather be with my husband alone or alone, or with a child or alone. Ten years ago I really liked to have parties and have people in for dinner and all that kind of stuff. I don't want that right now.

It's partly the age of my children. I do a lot of driving them places and going to things. It's different for me being an extrovert and growing up with a family and a lot of people around me. I mean, I always wanted a lot of people around me, but right now I don't. Next week I'll go off to a conference again for a week, and I'll really love the time alone.

My contentment with my family varies. I'm pretty content with my marriage. That's been rough on him, because he married me the other way, and his expectations were that I would be home pouring the milk (laughs). He's come around, and I probably could say that I have a better marriage than almost anybody I know. It could be

better, he's very introverted, very introverted, and I think that in some ways I've become a threat to him and he's jealous of some of my abilities, the way that I relate to people easily. A lot of people are drawn to me for some reason. I don't know why. We just went through a weekend together that wasn't highly successful (laughs).

Now I have a 15 1/2 year old daughter who's been driving me crazy for 2 years, and if I have one thorn in my life, it's my relationship with her. We just cannot get along. She's at war within herself, and it just spills out all over. That's the one part of my life that I'd like to do some more growing in, so that I don't get hooked into so much of that. I just apparently, there's something really--there's often some triangling between her and my husband, and when I get left on the outside, I feel like I'm out there with no say. That's when I just don't deal very well, and that triangle is often that way. I'm pretty active with the family. When I'm there, I really give my attention to them, and we do mountain stuff, you know.

I probably have a lot of people that consider themselves my friends, and I do [have many friends]. Two or three are very close. I probably have five or six close ones that I could go to anytime, and three [of these friendships] have gone to a deeper level.

The greatest dissatisfaction would be when I do not function or operate on a level that I think I should, like with my daughter. I don't like that. Or when I lose my temper. I get the most satisfaction when I feel like I'm really living up to my potential, really being challenged. My greatest priority is probably just to keep growing and to keep my creativity. That's one of my gifts, and of course the "whole woman" thing is a goal that in the church and in society women do have a place and are capable and can contribute. I'm not a "women's libber" in that I want to be equal, but I think God gave us special things to offer the world, and they have not been valued as highly as they should. So a goal that I have, I guess, would be consciousness-raising.

S3

Up until last September, when all those job changes were going on and all those mental health problems [i.e., in a family member], I guess I would say on a scale of 1-10, it was probably about a 4. It was a pretty miserable year. There was so much going on that year, so much. I mean, there were bright spots, but the other things overshadowed them. Between September and now, it's probably been a 7 or 6.5.

My career is very unsettled right now, as far as where I'm going to be working 6 months from now, so it's hard to be satisfied with a career that you're not really . . . (pause). I feel like overall, I'm on the right track, though. The jobs have been very

difficult, they haven't been something I wanted to stay with, it wasn't something I was looking toward being the final job, so I can't really say I was satisfied with them.

It's hard to say about friends and social life, because every single aspect of my life right now is in transition, you know, job, relationships. Maybe about 7 on a 10 scale. Things will be very different 6 months from now, and it's harder to talk about satisfaction when you know you're in the middle. When I was living out of state, I had friends there, but you knew that they would be gone in several months, so nothing . . . (pause). You can't really invest that much in what you're doing or who you know when you know that everything's gonna be changing in the next few months. But that's not a factor of them not being the kind of people you want to invest in or that not being the kind of job you want to invest in, it's a function of the fact that it's not gonna be there, so why go either way.

I would say that I have three very close friends. I guess I see one 3-4 days a week. One I see once a week, and one is out of state, and I call her to talk to her on the phone and write to her a couple times a month. Most of the weekend, like Friday night, Saturday night, Sunday night, and Saturday day, or Sunday day, I'm spending time with people, especially with my class-that's sort of social. During the week I would say I would visit with one of these friends once. I guess I don't belong to any community clubs or things like that. I guess in general I'm not involved in a lot of things, but I do have a few close friends that I spend a lot of time with. But even that is in transition. It's really hard because everything's in transition (laughs).

I feel fairly independent from my family. We've gone different directions. All of my extended family lives [out of state] in a 20 mile radius, except for maybe two cousins, and that's like all my family. So, being separate from that is sort of a move that I've taken, and I've experienced a lot of different things from most of the people there have, and I don't really want to be part of the small circle that they are.

If I had had the chance to engineer my life the way I wanted to, from growing up to now, I think I would have like to have had a family where I would have wanted to stick around more. But the way things have worked out, I do better on my own and finding my own way than sort of devoting my life to the way they are. So I would say it's sort of a friendly but distant relationship. I mean, I like when they visit, I enjoy seeing them, but I don't want to visit them more than three or four times a year. I've chosen to make my own life rather than have a conflict with them.

I feel like I'm always getting more satisfied with myself. I feel like it's always changing--maybe 7.5 on a 10 scale. The source of the greatest satisfaction in my life is the people I know, my three close friends and my therapist. I think loneliness is a way of summarizing [the greatest dissatisfaction in her life] because

I would like to be married and have a family and all that. I just haven't gotten to that point yet. So I guess if I say the one thing that I'm most dissatisfied with, it's not having a family.

I think my greatest priority in life is developing good relationships, having a good family. I plan to have a family and also to have a career.

S4

I was terribly awfully unhappy for years because of my marriage, and up until I started my physical activity--physical activity has been the saving of me--because up until then I'd brood, I'd just sit and get really depressed, and I felt terribly unhappy. I'd do my work and all the rest of that, it isn't as if I just sat about, because I can't bear to be still for great long periods of time, anyway. Whether I'm happy or unhappy makes no difference, I don't go in a corner. It's jsut that I won't smile, and I won't talk much, that sort of thing.

But after I began my physical activities, it was such a boon to my mental outlook that I wouldn't miss it for anything. It's a "need-to" sort of thing. I feel generally happy, if you can believe it or not, I really do, generally speaking, I do. I have my bad times, but who in the world doesn't--but not too often--and when I do, I try to put the skids on by going off and doing something, being with people. I'd say I feel pretty good.

I love my career. It suits my personality to a T. I could do something else as well, but I happen to love this right now. It's a hard, hard job. It's physically demanding, and night shift is no joy. It's a physically demanding job, but I do like it. To my way of thinking, there's a little bit of prestige to it, 'cause I'm being trusted with something essential--there's enough trust in me that I'm allowed access to this.

I've always been the strong one in the family, and that's the antithesis of me, I guess, or what I've grown to be in the past 5 years or so--probably always have been, I just didn't let it out before. The children look to me, as a rule, for discipline, and they'll take it from me, and I'll do it, too. I'm not talking about physical discipline, just discipline in their lives and teaching them. They look to me for that. I'm the authoritarian figure in the home, I really am. This isn't what I wanted it's just what evolved.

The kids are fairly well happy with me, I've found this out. But they're not happy with their father. He can't deal with them very well or very effectively. He would tell you this himself. So when he's gone [i.e., after the impending divorce], I hate to put it this way, but we'll probably be a closer family unit, the children and I.

Unfortunately, for the past year or so, this is a home of five people living in it. That should tell it to you right there. At this point, I don't do too much with the kids. I've particularly--I just don't feel like it. I come home in the morning, I'm ready to do a little bit of housework, I go to bed, and I don't get up 'til 6:30 or 7:00 in the evening. Then I'm just comatose for the next hour or two, and by that time, it's time for them to go to bed. There's not a whole heck of a lot [of time with her children] with this evening shift, but even before them I didn't do a whole heck of a lot with them either.

I'm happy with my friends, but I don't have much of a social life anymore due to the job. Before that I had much more. I don't spread myself out very far. I have one extremely close friend. I've known her 6 years, and I see her every day, even if it's only for a half hour. I have two very, very close friends, really. She is really the very most close friend I have, but I have two that are quite close and two more pretty close, but I wouldn't confide as deeply in them. I do have a lot of acquaintances too. That's one thing I like about the job, I get to meet a lot of people, and I like that.

One great satisfaction [in life] is the increasing independence that I'm getting, and finding out through trials by fire that I can hack it, I really can hold up, and I can do it, and I can get through it. All of these things--that is an enormous sense of satisfaction to me. That's probably number one right there. The source of that is the things that have happened to me. The troubles that have come my way have forced me to either sink or swim, and I chose to swim, at least the best way I know. This sense of being able to get on with it and be independent, increasingly so--I'm certainly not totally [independent] yet--is an enormous thing for me. I need that.

S5

Happy is a really weird thing to me (laughs). I mean, I never think in terms of happy, I really don't think in terms of happy. But basically--it's not happy--I'm very glad with my life as it is right now. My life is much better than it ever was. I mean, over the last, I would say, 5 years, it's much better than it ever was before that. It's much better than I ever thought it would be, it's much different than I ever thought it would be.

There have been periods of depression related to internal things, but not dissatisfaction with my life. The depression seems to have a purpose to me, it's not a--the feelings of hopelessness and that kind of thing that go with depression--but never in terms of my overall life. It [the depression] seemed to have a purpose, it seemed more like a working through than a sense that there was something really wrong with my life that I wanted to change. So,

I'm very satisfied with my life--I don't know about happy, I mean, I just don't know about happy.

I'm glad that I'm doing what I'm doing [career-wise], and it's very challenging. I feel very satisfied with my job and where I'm headed.

That [her friends and social life] has changed somewhat over the last 9 months to a year, and again, that has to do with the fact that we've [S and her husband] been moving around so much, and now we've settled, and it sort of puts us in a whole new category. Before, our friend[ships] were very transient. You would get close to people, and then you would move, or they would move . . . Even so, I do feel like there would be people who would help [in the case of a crisis].

I notice we've been at somewhat of a standstill in terms of social life. I mean, we do some things, but we haven't done several things with the same couple or several things with one or two people, and I think that that must have to do with adjusting to settling down, or figuring out what it is that you do when you settle down. And I also think that right now, we're both so invested in work, moving toward really settling and thinking about a family and things like that, and I think at that point, we will probably settle into more friends and doing things with people and making more of an effort at those kind of things.

Oh yeah, I feel very contented with my marriage. Almost every night, I would say probably every night, except if something unusual comes up, my husband and I always talk, and that probably more than anything, I think, helps [me to deal with stress]. We'll like go over the day or talk about if something bothered me or something bothered him, you know, get some distance on it. I mean, he knows me very well in terms of what kind of things get me crazy and what kinds of things . . . (pause). I can get a different perspective, so it's not a crisis of the day, it just fits into the, you know, the normal kinds of things that just get me going.

There's not nearly as much conflict [with her parents] as there used to be. Things are at a point that are much more tolerable for me, that are much more satisfactory for me than they used to be. I think the only time that there gets to be tension is if they're here or I'm there for too long a time--for anything over like a 3 day period of time. The old things start going, and it gets difficult there. But for the most part, when I see them, and when I talk to them, there's not a lot of conflict at this point. I mean, the boundaries are much more firmly set than they were, there's not a lot of people, you know, screwing around with each other and things like that, like there used to be.

No, I'm not at all active [in community activities]. I think that will happen. Again, I think this year is a year of us both being very invested in our work, and me in particular. I think the next stage is going to be thinking about a family, and when we think about a family, we're going to be thinking about friends more, and getting involved in the community, you know, doing things in

church and other organizations, other people who have children, and those kinds of things. I think we'll move much more towards that.

I don't know how to say which one is more important, but I would say my work and my marriage, my marriage and my work [are her priorities in life]. I mean, I guess, the marriage I could probably put first, and then the work. I guess I would really like to have like a house, I mean, I would like to settle, and the fact that is not something that we can definitely say we're gonna do in several months [is the source of the greatest dissatisfaction in her life]. And that's when I would like to do it. I would like us to be able to buy a house and to be able to know that we're gonna be there for at least 2 or 3 years, something like that, and know that it was ours, that there was an investment, you know, something like a home. And the time--I don't know when that's going to occur, so I guess that would be the greatest dissatisfaction.

My goal would be to have the same thing as now--the marriage, my work--except that we would like to have children. I think that's where it is for me. It'll shift some with the kids, shift more with a family focus. I'll still want to work, but, you know, I think that's where it's going.

S6

There's something about me that usually says that if a situation is this, I have to deal with it as that, and I'll just deal with it, I'll go with it, whatever it is. Some people will stand up on their hind legs and complain about it, and sometimes I do that too, but it seems like that, you know, if this is the situation, this is what it is for now, and this is what I'll have to go through for now. I'll do what I have to do to get through it. Most of the times, I look at it as a temporal situation if it's something very stressful. If it's a change, for instance--change necessitates adjustment, and adjustments are of different kinds and varieties, depending on the situation. Not that I'm always set, sometimes there's a lot of changes that I'm not prepared for--wait a minute, nobody told me about this one, you know (laughs).

There have been people that have commented that during the 2 year period, that how I had changed in a positive way. Basically, I feel, you know, you can--you don't--my basic feeling is you don't stand still, you're either moving backwards or forwards. Not that you're always doing it, I mean, I'm not trying to say that it's happening perpetually, moment by moment, but over a given time frame. And so it's up to me what I want to do with it, you know. Sometimes, I guess I'm a little more motivated to work on change, positive change and growth . . . I think going to [a church] has kind of pulled together some of those things that I had kind of felt all along, but I never really put any kind of labels or any kind of conceptualization to them.

I've had some good feelings [about my life] in the past few months. I'd say when I was living in my home town, there was not what you'd call a great--you know--a very basic happiness there. More recently, the past couple of months, you know, since the beginning of the year, I've felt like, you know, like I'm in the right spot, you know, I'm where I'm supposed to be right now, and it feels good. It feels good to see things come together in a lot of different ways. I think the happiness part has come from the fact that I've been able to accept myself a little more.

I think part of my dissatisfaction in life comes from the fact that one, work has not been that satisfying. Secondly, I feel that I'm worth more, plus being able to--I'd like to be doing a lot more than the system that I'm working with will allow you to do, for whatever reasons, whether it be physical restraints, fiscal restraints, or, you know, personality, hierarchy, administrative constraints, whatever. That's not very satisfying. You feel like if you have a good idea, you could make it work, you want to get it through, and somebody pulls a plug on it somewhere. Or you keep running into different personalities that want to--that have their own hidden agendas for some reason or another.

While we [S and his wife] were here, we've been able to meet a good, I'd say, at least a good handful of people. We can sit around and just, you know, take off your shoes and socks and sit down on the floor, just relax, and be who you want to be, and you're accepted for that. Nobody's gonna look at you strange and say, "Well, we ain't gonna mess with him anymore."

With my marriage, basically, I've been very satisfied. Our relationship is going through some changes now, and I think that's probably one of the hardest things that I've had to cope with, 'cause that's been very stable for me for awhile. Just the changes in our relationship--A.'s growing a little bit, and she's changing a little bit, and that gets a little threatening. I feel good about it [my marriage] overall. I think we have a good relationship, it's just working through these rough edges, rough times.

With my family of origin I'm a little disappointed. I think part of it was my own expectations when we moved down from [out of state], and we were gonna walk right into "The Waltons," you know, we're gonna be on Walton's Mountain, we were gonna have that good ole family--that whole family was gonna be right there. And you know, I set myself up for that one (laughs). The thing was that it was in retrospect that I could see that, plus the whole deep differentiation in myself and my family.

My father feels very definite about certain things. I'm sure he loves me, but he doesn't quite know, doesn't quite understand me, I guess. My parents, particularly my father, doesn't quite understand why [I left the family business], and I'm not sure I could tell him why, you know. He doesn't really understand our relationship, my wife's and my relationship, and being from, I guess, somewhat of an older school, sees that a woman needs to be put in her place every once in a while. [My wife's] and my relationships is more on equal

terms, and I don't think he quite understands that. I guess [the greatest dissatisfaction in my life] has been my relationship with my father, and that not working out the way I had hoped. I don't think I've met his expectations for success, or whatever.

I remember on several occasions when I would get into these conversations with my dad--confrontations actually--which would tend to be depressing. But I would keep telling myself that I'm gonna make it, that I'm O.K., that that's alright, he's entitled to what he wants to believe. It would be nice to have his acceptance--not that he has rejected me--but I'm somewhere else. But I think personally . . . (pause), I feel I'm O.K., that I'm not perfect (laughs), but that's O.K., that's alright. I've accepted those things that I feel perhaps are not up to par. There's some things I've sort of set out to change because that's what I've felt I wanted to do, but there's other parts of me I've--they're O.K. I just--they're there, and I'll go with them.

I'm going to live to whenever, 80 or 90, or whenever, and I'm going to keep plugging at it. I'm gonna--I picture myself as being one of these 80 or 90 year olds that's the exception to the rule, you know, is not decrepit and in a nursing home. I don't picture myself in that kind of existence. But goal-wise, more immediately, I want to kind of get into something where I can really express myself productivity-wise.

S7

I think my happiness has been at kind of a plateau. There's lots of different things that can make you happy, and there's been a change. Some of the more happier times with the family are decreasing. It bothers me a little bit, but happiness from a self-esteem point-of-view, from a self-accomplishment point-of-view is there in place of that. I always look at life as a constant change--I wouldn't want it to be anything other than that. So I still look at myself as though I haven't grown up and I don't know when--10 years down the road. I have absolutely no idea where I'll be 5 years from now--and that doesn't bother me.

Sometimes I feel as though I'm walking through the woods, and I see a stream, and I can either go into one stream or the other, and I make the decision to go into that stream, and I jump into it. Then I find myself being carried with the current, so if I don't like that current, I'll jump out of that stream and go find another one. That doesn't bother me. I'm always focusing around what I perceive my talents are.

In the last year, I might spend an average of 15-20 hours a week with the family. I guess that's not a lot. I mean, that's the contact time in waking hours in a 7 day week. Almost all of that time is spent actively interacting and doing things together. Where

maybe a few years ago I spent a lot more time, but we might have been in the same room together, but we weren't doing things together. Basically, I think I've been closer to the family than a lot of my peers have been to their families. My wife wanted a college degree, and she needed to work, so I raised the kids also, we raised them together--not many sex roles there that we were afraid to break.

When [the children] were young and [his wife] was working, and I needed to get something done at work, I brought them to work with me. I even involved them with simple exercises that they could do in my office. So I think that I've been pretty close. The time at home working on the house was a family event. Not only did we play together, I think we worked together.

Most of our real social life has dealt with our neighborhood. We don't have a lot of relatives here, so the retired couple next door were the grandparents, and the other--we live on the end of a road where there is only a few families, and there's no one else around--so we celebrate birthdays together, holidays together, family things together. In the last year, with the increased [work] responsibilities, there's been a lot more social entertaining going on at the house, celebrating contracts, meetings with business dinners that were predominantly designed to be social, and I guess we kind of got caught up in that, so we [S and his wife] started going out together--dating almost--in the last year, and we've done a lot of it. We've been doing this with friends, foursomes, and such, out to dinner, movies, dancing.

I guess discovering something in the laboratory that really puts us further out on that first wave, that makes our contribution very significant [is what gives him the greatest satisfaction in life],having that professional recognition for my people, seeing [people for whom he is responsible] get recognition. It gives me a lot of pride that we're doing something right. At the same time, finishing another room in the house and sitting back and looking at that and saying to yourself, "Hell, did I really build that?" That's almost as much satisfaction as having [a major triumph at work]--totally different, but it gives you kind of the same glow.

The [slow] rate at which we can expand the level of our activities [is the source of the greatest dissatisfaction in his life]. Good minds, money is not a limiting factor, a limiting factor is the time which it takes to implement things, build new facilities.

I've got lots of little priorities. If I accomplish some of them, fine; I know I won't accomplish them all. One that's always been there is [work-related]. I realize that that's been the goal of 500 scientists for the past 50 years, and most likely, I'll never accomplish that, but it's still kind of a goal that I always have. I definitely don't go a week without thinking about it, but I might go a day without thinking about it.

S8

I think if I would ever lose my wife . . . eventually I would reinvest, I do know that. It would just be a matter of time, a matter of when, rather than if. I just--I don't quit. I just never have. It takes me longer sometimes that I would like, but I don't check out of situations. I really don't understand why, I just don't do it (laughs). It's a deep-seated belief that things will somehow work out, that I will somehow fix them.

Well, my life is better now. I don't think of it as a lot of major changes in the sense that I had been building towards a lot of things and then they all finally kind of materialized. But my life is better than what it was. I spent a long time building towards this and setting up the pieces, and then they all kind of came together. I feel good about how they have all come together, I also feel like finally I'm going to get an opportunity to realign some things that need to be realigned. I'm getting to the point of wanting to make those changes, and now I'm getting to the point where I have successfully set it up so that I can begin to do that kind of stuff. So I feel good about that, I feel proud about what it is that has happened and that has developed.

So I guess my major feeling about it is good. I also had some trouble with it. I did get depressed in the sense, you know, you work towards that, those kinds of goals, and you finally get 'em and it means, O.K., now what are you gonna do and lot of realignment. In that sense, I did get depressed, but that was a constructive kind of depression for me to go through. It was both depressing and exciting at the same time. I've always known that it was gonna work out, it was just a matter of me setting it up to be able to do it and then enduring it through. But I've known it's gonna work out.

[While going through these changes] I was depressed as well as happy, the feelings went together. It was a strange combination of both. I was depressed in the sense that because of a lot of completions and actually getting what I wanted--all the responsibility that goes with that, the inevitable, you know, feeling that, shit, this doesn't do anything particularly real good for you. I was depressed. I had those anxiety attacks there on and off for a 16 month period.

I've had to struggle. In fact, in many ways I can't believe that I have turned out the way that I have turned out. I am so different from my family, just so very, very different. I also have a recognition that I can't get away from all those kinds of background and "roots" kinds of things for me, and no longer want to. There was a time when I wanted to get away from all that. Now I'm trying to find a balance of having some sense of connection there, while being very different, and I am. It's a little shocking to me sometimes to figure out how the hell did I get here. Other than physical appearance, you would not put me with my family, you just wouldn't. There's no way that people would match us, and I'm not exactly sure how that happened, but it did.

So I have had to struggle. We [S and his wife] have had to struggle financially. We have worked very hard on our relationship. We have the best relationship of anybody I have ever known. I am very proud of that. We have worked very hard at that. It continues to get better.

I have trouble being able to say "no" at times. I get extremely invested and involved in what I do. I either do it, or I don't, generally. Some things I'm more in the middle, but like my work, for example, is extremely important to me, and I try very hard to do a good job at what it is that I do. Despite that level of involvement, there is also that part of me that doesn't get involved--all that exists at the same time. I have a lot of funny combinations of, like, opposites, and they work on different levels at the same time. I'm compulsive as shit in some ways, and then in other ways, I just kind of wing it, without any kind of plan at all.

At this point in time, I feel good about my career. I feel good about what I have done professionally, all things considered. I don't have some of the "externals" that I would like to have, but on the balance, I feel good about where I am personally and professionally.

We [S and his wife] have a handful of people that we do like to see. We don't see them often, primarily because we both do such people-oriented work, that, you know, we kind of treasure our time being alone. If we didn't both do such people-oriented work, I'm sure we would be more social, but because of that, I think, we kind of don't always like to be with people. I do maintain contact and friendships. I mean, there are people that I grew up with 12 years ago--I keep contact with all those people. We are as different as Israelis and Arabs kind of thing, yet I keep contact with them. In fact, all of us like to think that nothing has changed, we're still all real tight and real close, and I like to maintain that measure of contact. I assume that if worst came to worst and I needed some assistance, I could draw upon people for that. I do maintain the connections that I have with people.

I guess [the sources of the greatest satisfaction in his life are] my relationships with my wife, my work. They're really close. I guess it's my relationship with my wife. [The source of the greatest dissatisfaction in his life is] my work (laughs), and the sense of bullshit stuff that I have to put up with and tolerate, politics. I'd prefer not to have to do that. I'm gonna have to do that no matter where I go, but I'm gonna do it less in the future than what I have to do now.

I would like to be able to get a balance on doing things, like professionally, as well as a belongingness kind of dimension. I want my marriage to last from now until the time I die. I want it to grow even stronger than what it is now. I want us to have sound kids, and I want for our kids to be able to go out and to do something in life that is inherently meaningful. I don't care what the hell it is, but as long as it's inherently meaningful, it

somehow gives back. I really do believe that despite all that we've had to struggle, my wife and I have been fortunate, and I don't know exactly how all that turned out. A large part of it is because we've been willing to work so hard on it, but in a funny sort of way, there's almost like a morality, an ethical morality sort of thing where I figure that she and I also hav- a responsibility to give back more. When I die, I'd like to be able to kind of say, yeah, I really did do the very best I could do.

S9

When I get down, I say--maybe it's another one of my coping strategies--I say, "Wait a minute, look around you, look at the world, what are you gettin' so crazy about? I mean, look what you got goin' for you." You know what I mean. Essentially, I have a job I want, and like most American men, I put a lot of stuff in my job. I mean, it has an importance to me. Even with all the things I don't like about it [i.e., politics], what do I have to complain about? I pretty much do what I want. I'm slowly working towards making it more all the way closer to my, sort of, ideal, and I'm making a little progress--not as much as I'd like--but, you know, I've . . . been able to work out a schedule that's, you know, closer to your rhythms. I like that a lot.

It provides me an opportunity to get back to my family at times when I feel that my family needs me--when people are sick, or if anybody wants you to come see them for the game, or something like that. I can do more of that, I think, than other men can. So, as far as the job part goes, I'm pleased with that, and I say that to myself when I start to get stupid, when I feel myself degenerating into, like, how am I gonna make this bill or that bill--I'll say "Wait a minute, where the hell did you start? (laughs). I mean, I'm so far up the social ladder, it's unbelievable. I'm actually in the middle class--upper middle class! This is ridiculous! It seems odd, I mean--what the hell do I care? (laughs). I mean, it's not that big a deal.

I think there are lots of people who love me. As a matter of fact, I'm positive about it. I've always felt that . . . I don't have doubts that people don't love me and think I'm--and I have, I think, the respect of my people I work with. So that generally, I don't walk around and say to myself, "Hey, I'm happy," or "Hey, I'm unhappy." I'm not--I'm not sure I'd say I'm happy, but I definitely wouldn't say I'm unhappy.

I don't have much of a social life or many friends, actually--what I consider friends. There's nobody like that [i.e., a very close friend] near here. I think I would like more friends, but I'm not willing to do the things that would encourage that. I also don't have--there's a certain level of distrust I have about people. Not

that they would want to hurt me or anything like that, I don't mean that. I mean, I value loyalty very highly, and I guess that's what I'm saying--I don't feel that other people have the same sense of loyalty like I do, and I don't want to deal with the disappointment of it not being so. There's a whole problem with that in my growing up [elaborates history of political percecution of family of origin]. I don't think I'm able to get away from that. My brother and I have talked about this, and I've talked about it with a couple other children of people who were friendly with my parents, and we all have this similar kind of experience.

So that socially, I guess what I'm saying--I would like to [have more friendships], but I'm not willing to go the distance that it would require. And I'm sure I get an awful lot out of family. I mean, I like my wife, I dig my kids. I always liked my wife. That was one of the pieces of wisdom my father gave me: "Be sure you like your wife." That's more important than the other stuff. I wasn't sure what he meant then, but I'm sure what he meant now. I mean, everybody in the world that I was associated with in their wedding is divorced, except me (laughs), which is really kind of unusual, that kind of odds. If I'm not at work, I'm home. I don't have other--I even work at home.

The greatest satisfaction [S becomes visibly emotional]--I'm afraid I'm gonna lose this--is coming home, and my daughter yells, "Daddy!" and comes over and gives me a hug. It's better than anything--and it disturbs me that she's growing up, and she won't do that anymore, I'm not going to be able to have that. But that is--it sounds so damn corny--but it--it's just so genuine. I like that stuff, in general, from anybody (laughs).

It may be in a funny way the increased amount of pressure is compensated for by this feeling that I have when I feel I've learned or integrated something that I didn't have before. I really like that. Everything seems to pass to another level.

My greatest source of dissatisfaction is when people don't honor their word to you. And I try to always honor my own word. It may be I'm putting more--I keep saying to myself, "Why are you putting too much in their word? It's not that important to them. Important to you, but it doesn't have the same value to them. You can't expect them to act that way." But it turns out that that's the thing that bugs me the most.

S10

I would not say that I'm overly ecstatic about anything, nor was I before. Trying to be a realist sometimes takes the gloss of anything off. I'm never really giddy happy. I can be pleasantly pleased and that's about the extent of my theory in that area.

I go through some depressions at different times with regard to financial outlay, or a particular [work-related project] I'm involved in. It's very short-lived. Then I go back to my old even keel. If you have a period of time that you are joyously happy and pleased with life, you're gonna have times that you're in such a doldrum of misery that it offsets each other, maybe too much. I try to keep on an even keel, relatively stable. That way you're better able to cope with the bad times.

I would probably be as concerned about a period of time when I was very, very happy as a time I was very, very miserable, simply because one's gonna follow the other eventually. You're not going to be able to maintain either one of those emotions forever. So I'd probably be miserable if I'm happy, because I'd know that some day I would be miserable again. So I'd worry about that (laughs). The cards can only stand so long.

I'm not particularly satisfied [with his career] at this time. I have some criticism of myself, and I'm just not particularly pleased with myself in it. My career's fine, and [business] continues to pick up, but I'm not pleased. As [as professional], I'm too lazy, I'm just too lazy. I have a lot of trouble making myself work. Now, I work different than a lot of people. I can accomplish in several hours what it might take another [professional] a week to do. I know [professionals] that get in at 8:00 in the morning and don't leave til 6:00. I can come in at 10:00 and leave at noon and have accomplished everything, totally, that they've even thought about accomplishing. I work in that "spurt system," and I have trouble instigating myself to do it.

I've always been lazy, always basically lazy. I worried about that when I was in the fourth grade. I don't find any beginning to that, that's just an evolution. I have terrible work habits. If I had somehow developed some work habits when I was a child, maybe I wouldn't be so worried about it. Of course, then maybe I wouldn't be able to accomplish what I can in the period of time that I'm able to do it.

Oh, I'm satisfied with my career choice, and I have good success in what I do--I don't like the way I do it. I think I can do it differently. I might be able to do it better, or at least be happier with the way I do it. I have no criticisms at all of my success in doing it. My track record has been excellent. It's just a dissatisfaction with myself. I think I ought to have better work habits.

That [his friends and social life] is fine with me. There has been some change since I was married. Now my wife sees innuendo that I would not have seen, I do not assume--and maybe I'm away from my own theory--I do not assume the worst of people that are friends of mine. I do not see if I'm being slighted, and I don't think of somebody talking behind my back. But it seems that wives do that. I do not know that for true, but it seems that they do, and as a result, you have some suspicions go up. Your wife will come in and say, "Well, this has happened. What do you think about it?" You

say, "Well, I don't understand it. I don't like it, either, but I don't understand it" (laughs). I don't particularly care for that. I would rather go along just assuming the best, and if somebody's talking about you behind your back, it's not killing you, and if they want to do that, they can continue to do that.

I wouldn't say we have extremely close friends, but we do have a group of maybe 10 or 15 people that are reasonably close that we see quite often. And then we have two other groups, one that revolves around my wife's job, and one that revolves around mine. Those are on the periphery, but still friends, we still do social things with them, but not quite as often.

I'm not particularly active in [community and civic affairs]. I usually use my father as a gauge on that. He was in [numerous civic and business organizations]. I have become somewhat more active. I do not think of myself as politically active or particularly socially active. I support certain charities, I support certain politics, but I try and do it low key. I have recently done some more things [elaborates quite a number of community and civic activities].

It [his marriage] can be a source of contentment. I am satisfied with my wife. I never felt like I would be a very good husband, and I'm probably not a very good husband. I'm a little set in my ways after thirty-odd years as a bachelor. I made my wife selection on pragmatic grounds . . . My wife is very intelligent, she's very talented. I do not think you can go through life with a "vegie" as your right hand (laughs)--and she's an equal, and as a result of that, I have not changed my opinion at all, or in any other regard. I've had no real surprises.

With my own family--well, strike that. We have never been a very close familial unit, throughout my family. I have good relationships with my parents. I've always had a terrible relationship with my brother--but we have good relations now and always have had, but they are not particularly close familial relationships.

I guess because of the way I approach problems, I do not normally anticipate or expect support, so I usually find that a pleasant surprise. I think my wife is very supportive, I think most of my friends are very supportive, but many of my friends look more to me for help than I look to them. My [professional group] is excellent, and if I ever need help from them, I can get it, just like they can from me. But I don't think I'm every really looking for support, and if I'm ever really looking for support and I'm depressed, I'll get that from my wife.

She complains that we don't spend enough time together. We bought the boat simply to increase that, and we're trying to increase our participation together. We're from different lifestyles with different interests, and maybe we do need to spend more time--I would prefer to spend more time--I'm sure she would. She's pointed that out (laughs)--many times, many times.

It's hard to pin down [the source of the greatest satisfaction in his life], simply 'cause I find no one thing giving me any great

satisfaction. I think probably the best satisfaction is probably when I . . . conduct myself in what I consider in a very professional, workman-like, prepared manner--when I come up to a culmination of a situation that I've anticipated and I've prepared everybody for, and things have gone exactly the way I said it would. I take great satisfaction in that.

My major dissatisfaction I've already mentioned. I'm not happy with my own work habits . . . when I go into a situation that I find I've just looked at it wrong, I'm not ready to go the way it should go. I find that embarrassing, and--I say it's rooted in my own stupidity. I should have seen it more, I should have looked at it more carefully. I just shouldn't misread things. Nothing will depress me more than that.

Financial security is a priority. How to do that--I believe the day of the rich young [professional] is dead, particularly in this area. My goal is--I hope to diversity through different methods, so that I can obtain some financial security that way . . . I'm not gonna get rich [doing what he's doing]. So you've got to make some plan for that [elaborates extensive plans].

APPENDIX I

GROUP PROFILES ON THE MMPI

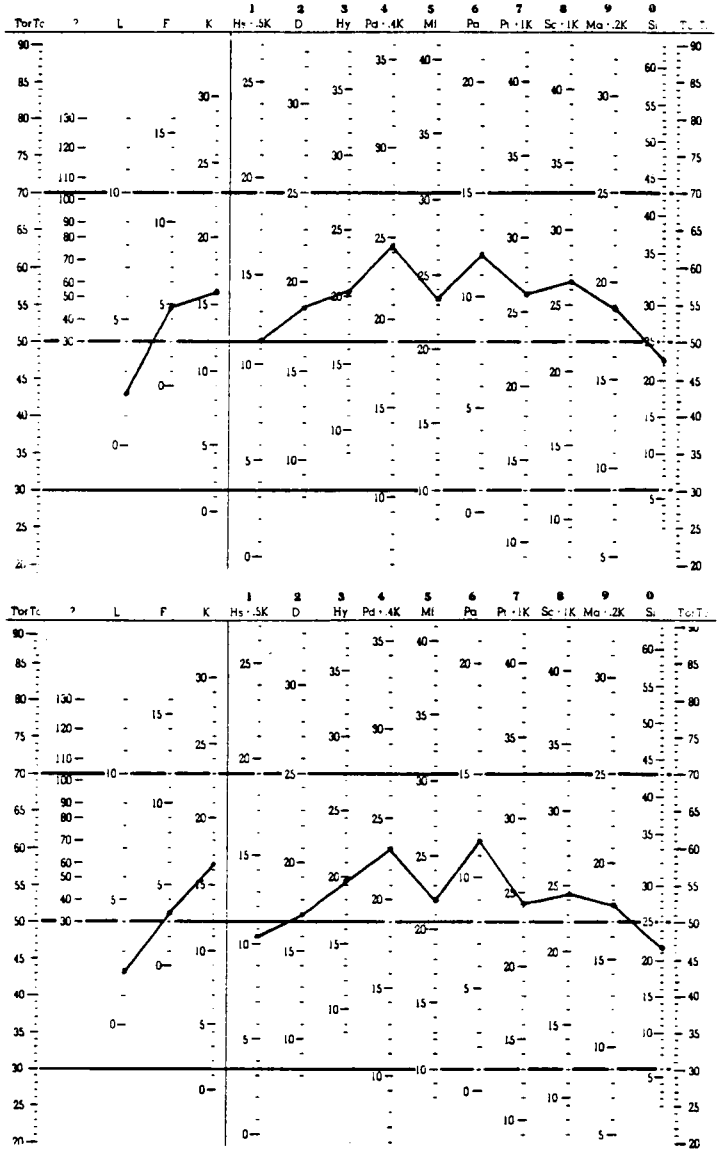

Figure 5. Group MMPI profiles. The upper profile is based on the mean K-corrected T-scores of the 10 Ss. In the lower profile, the scores of the most deviant S (S10) have been excluded.

VITA

Born on June 4, 1951, Peter Watrous was raised in Binghamton, New York. He attended Binghamton public schools until his graduation from high school in June, 1969. Later that year he entered Hamilton College in Clinton, New York, where he majored in psychology and earned the Bachelor of Arts degree in May, 1973. In the fall of 1975, he began graduate work in clinical psychology at The University of Tennessee, Knoxville, serving a 1 year clinical internship at the Texas Research Institute of the Mental Sciences in Houston, Texas, between 1978 and 1979. Following completion of his internship, he continued work on his doctoral dissertation while serving on staff first at the Georgia Regional Hospital in Atlanta, Georgia and later at the Regional Mental Health Center in Oak Ridge, Tennessee. He was awarded the Doctor of Philosophy degree in March, 1983.