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A STUDY OF LIFE CRISIS MAGNITUDE OF PSYCHIATRIC PATIENTS

AND A NON-THERAPY GROUP

by

Helen B. Morris

A thesis submitted in partial fulfillment
of the requirements for the degree

of

MASTER OF SCIENCE

in

Psychology

UTAH STATE UNIVERSITY
Logan, Utah

1968

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Helen B. Morris

Helen Bradshaw Morris

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ABSTRACT

A Study of Life Crisis Magnitude of Psychiatric Patients
and a Non-Therapy Group

by

Helen B. Morris, Master of Science

Utah State University, 1968

Major Professor: Dr. Ronald S. Peterson
Department: Psychology

A group of hospitalized psychiatric patients and a randomly selected non-therapy group responded to the Schedule of Recent Experiences questionnaire. In order to determine the magnitude of life change events for the two groups, Life Change Unit totals were derived for the years 1966 and 1967.

To test the hypothesis that patients in psychiatric treatment have experienced a quantitatively significant greater amount of life change than a group of non-therapy subjects, an analysis of variance was used to determine whether there were significant differences between the scores for the two groups.

For the year 1966, no significant difference was found between the therapy and non-therapy samples. For the year 1967, there was a significant difference between the mean Life Change Unit scores for the two groups.

As a result of these findings, it is concluded that an accumulation of life change events may serve to precipitate mental health change, and that that probability of such health change occurring is significantly greater when there is a clustering of life change events during any given year than when such a clustering does not occur.

(67 pages)

CHAPTER I

INTRODUCTION

General Statement of the Problem

My father . . . went to Paris and became solicitor to the British Embassy . . . After my mother's death, her maid became my nurse . . . I think my father had a romantic mind. He took it into his head to build a house to live in during the summer. He bought a piece of land on the top of a hill at Suresnes . . . It was to be like a villa on the Bosphorus and on the top floor it was surrounded by loggias . . . It was a white house and the shutters were painted red. The garden was laid out. The rooms were furnished and then my father died. Somerset Maughan, The Summing Up (Rahe, Mckean, and Arthur, 1967)

The foregoing literary passage appears to be the description of a sudden and unexplained event bursting upon a life scene. A closer examination of the events prior to the father's death reveals changes in personal habits, residence, occupation, finances, and family constellation.

Previous studies (Rahe, et al., 1964, 1967) have related life changes to illness onset. The findings of these studies and others by Holmes and Rahe (1967; Reports II and III, 1968) demonstrate the clustering of life changes in the year or two prior to health change.

In view of these findings, the question has been posed whether there may be a clustering of life changes in the two year period prior to illness requiring psychiatric treatment.

The purpose of this study is to investigate the quantitative differences in life change between a therapy group (patients in psychiatric treatment) and a non-therapy group (patients never having received psychiatric treatment) as it is related to mental illness.

Such a study seems pertinent in a society which has become a vast network of social and economic complexities. Modern men live eventful lives which are perpetually subject to change and stress (Torrance, 1965).

The statistics regarding the magnitude of mental illness in this country have begun to sound like mass media produced cliches. According to the Joint Commission on Mental Illness and Health (1961) nearly half the hospital beds in the United States are occupied by mental patients. There are approximately 700,000 patients of all types at any given time, and an estimated 17,000,000 persons in the United States suffer from some sort of psychological disturbance. Mental illness costs an estimated three billion dollars in direct and indirect costs annually.

Stress has been cited in several studies as being a precipitating factor in the onset of mental illness (Freeman, Kalis, and Harris, 1964; Coleman, 1956). In referring to a study done by Menninger (1952), Coleman (1956) describes decompensation in the face of excessive stress as following two general states:

(1) "Alarm and mobilization," often indicated by determined efforts at self-control, hypersensitivity and alertness, increased motor activity and thought, oscillation in mood from fearfulness to anger or depression, somatic manifestations such as urinary frequency, and the intensified use of various ego defense mechanisms such as denial of reality and fantasy compensation. Here the individual may show symptoms of maladjustment such as increased tension, lowered efficiency, and continuous anxiety--indications that this normal mobilization of ego defenses is not proving adequate to cope with the stress. This forces the individual to (2) new, deviant defensive measures to compensate for his problem or separate himself from it. In this "stage of resistance," ego defense mechanisms are exaggerated, and neurotic and psychotic patterns begin to appear. (Coleman, 1956)

It is precisely because precipitating factors are considered to be significant in the occurrence of mental disorders that further study becomes important (Rapoport, 1962; Kalis, et al., 1961). The viewpoint

that the field lacks a sustained and systematic approach to the problem is supported by Reid (1959). He believed that while the most valuable studies in this area have been done of stress in war time, that events which occur in civilian life have been insufficiently examined.

Bloom (1963) indicated that the variable which contributes most in crisis judgment appears to be a precipitating event. However, a given event may or may not represent a crisis for an individual. He indicated that until further refinement of the crisis concept is undertaken, assessment of intervention efforts will be difficult.

Caplan (1962) has suggested that a person is more susceptible to being influenced by others during the period of upset or crisis. He indicated that in therapy a small amount of effort leads to a maximum of success. Rapoport (1962) suggested that the person or family in crisis is more susceptible to influence and the degree of activity of the helping person does not have to be high. If this is the case, and if life crises can be demonstrated to be significantly greater among patients admitted to a psychiatric ward than to a non-therapy population, there will be implications for work in the area of prevention of mental illness through intervention during life crises.

Objectives

The problem, then, is that while life crisis has been considered to be a precipitating factor in mental illness, little has been done to determine quantitative differences in life crises between individuals who are receiving psychiatric treatment and those who are not.

Because of this lack of information, the specific objectives of this study are:

1. To examine the relationship between crisis, defined as cumulative life change, and the onset of illness for which psychiatric treatment is sought.

2. To observe the differences in amount of life change experienced during the two year period prior to the study between a group of patients under psychiatric treatment and a group of non-therapy subjects (never having received psychiatric treatment).

Definition of Terms

Life crisis

While a precise definition is essential to this study, it becomes readily apparent that the terms "stress" and "crisis" as used descriptively in the literature, in many instances lack precise definition. Rapoport (1962) attempted to make a distinction between the terms. She considered stress to be a burden under which an individual survives or fails to survive. A crisis is an upset in a steady state. At the same time she acknowledges that the terms, "crisis" and "stress," are often used interchangeably.¹

Central to this study is the following definition of life crisis. Life crisis is defined as a cumulative effect of stress-reproducing changes in life events. Life change, requiring the use of adaptive and coping

¹Where further definition is pertinent it will appear with specific studies in Chapter II.

mechanisms, constitutes stress. The influence of the event depends on change in the pattern of living rather than on psychological meaning, emotions, or social desirability. When the cumulative effects of the stressful events reach a quantitatively defined magnitude, it is designated a life crisis. As defined by Holmes and Rahe (1968, Report II), a clustering of life change events whose individual value sums to 150 LCU or more in one year constitutes a life crisis. The life crisis is defined as terminated at the end of a two year period, following the occurrence of a cluster of life changes.

SRE--Schedule of Recent Experiences. This is the instrument used for the study and is explained in detail in Chapter III.

SRRQ--Social Readjustment Rating Questionnaire. This is the questionnaire used in the development of the SRE and is explained in Chapter III.

LCU--Life Change Units. The values assigned to the life events in the forty items of the SRE.

CHAPTER II

REVIEW OF THE LITERATURE

Introduction

The general areas of the study of stress and life crisis have been fruitful fields for research in recent years. Various disciplines, including psychiatry, psychology, social work and medicine have all contributed to the search for understanding of the nature of stress and states of crisis in man. There has been concern with man's ability to cope with stress both psychologically and physiologically.

During the latter part of the nineteenth century the theories of disease were based largely upon the mechanistic studies of physical and chemical phenomena in biological structures, the roles of infectious organisms, and the organic changes of cellular pathology. Emotional suffering was neglected, and its relationship to organic disorders was almost completely disregarded. The world was ripe for the work of Sigmund Freud, who through observation and case studies deriving from his own therapy, demonstrated a relationship between psychopathology and physical impairment.

It was not long before the efforts of pioneers such as Smith Ely, Jelliffe, William Alanson White, and Walter B. Cannon laid the foundations of psychosomatic medicine (Roth, 1958).

Areas of Research

Medical research

Famous for his work in the area of stress is a medical doctor, Hans Selye (1956). His theories are based upon experimental and clinical data. He defined stress as "the sum of all nonspecific changes caused by function or damage. (This includes the biologic phenomena necessary for the re-establishment of the normal resting states.) (Selye, 1955, pp. 26-27)

"Selye has come to the conclusion that there are diseases of adaptation brought about when the general adaptation syndrome is not successfully employed by the organism." (Roth, 1958, p. 132)

Within the framework of this theory, its relationship to psychopathology is that emotional stress is an effective agent for calling the general adaptation syndrome into play. Studies in this area point to the interaction of psychopathology and somatic illness.

Wolff (1953) described stress as the interaction between external environment and organism, with the past experience of the organism as a major factor. Strain is the alteration of the organism that then ensues. The study of stress in its relation to disease resolves itself into the elucidation of the protective and adaptive patterns of the organism in response to threats and dangers.

Psychophysiological research

Growing out of medical research which has demonstrated that there is much evidence of the participation of the adrenal cortex and other organs in response to emotional stress, is the rapidly growing field of psychosomatic research.

The relationship between what has been called object loss, emotional stress, life stress, etc., and illness onset has been demonstrated by a large number of investigators.

For example, Fischer, Dlin, Winter, Hagner, and Weiss (1962) conducted a study in which 27 patients with coronary occlusion were interviewed by psychoanalytically trained investigators. Patients were selected who were free from previous cardiovascular disease. They concluded that acute emotional stress, mounting tension, and conscious stress contributed to the onset of coronary occlusion.

A study of social stress and illness onset was conducted by Rahe, et al. (1964) for the purpose of examining systematically the relationships of environmental variables to the time of illness onset. A standardized questionnaire, the Schedule of Recent Experiences, was used to identify major social readjustments by the year of occurrence over a ten year period. Seven patient samples, representing five distinct medical entities, and two control groups were studied.

A sample of patients who had been tuberculosis sanatorium employees and who developed tuberculosis on the job were compared to a sample of healthy employees. The groups were individually matched. The tuberculosis patients showed a skewing of social stresses into the final two of the ten premorbid years. The difference between the two groups was significant at the 0.02 level of confidence.

A sample of tuberculous outpatients and a group with cardiac disease were compared to a control group of similar, but healthy subjects, and to one another. The tuberculous group and the cardiac group demonstrated clustering of social stresses in the final two year period

before disease onset. There was a significant difference at the 0.05 level of confidence between either patient sample and the control group.

There were similar increases in social stress in the final two year period preceding symptom onset in patients with newly acquired skin disease, subjects with inguinal hernia and married and unmarried females experiencing pregnancy.

The change in social status found in the two years preceding disease onset was termed psychosocial life crisis. "It was postulated that life crisis represents a necessary but not sufficient precipitant of major health changes." (Rahe, et al., 1964, p. 43)

Other studies in the field of psychosomatic research demonstrating the relationship between what has been called "object loss," and "emotional stress" and subsequent illness have been conducted by Greene (1954); Greene, Miller (1958); Greene, Young, Swisher (1956); Holmes, Wolff (1952).

Studies in laboratory induced stress

The relationship between stress and reactions to stress have also been studied in the laboratory. The approach has been to induce stress in the subjects by an experimental method.

Stress situations are established in the laboratory by such methods as attacking self-esteem, making subjects believe they are in danger of electrocution, employing insulting remarks, making ego-threatening interpretations, blowing a horn behind the subject's head, presenting movies with threatening experiences, etc. (Lazarus, 1964)

Hypnotic suggestion has also been used to induce specific attitudes in subjects involved in experimentation.

A laboratory study demonstrating the relationships between attitude and psychosomatic disease was reported by Graham and Winokur (1958). These experimenters hypothesized that specific attitudes are associated with particular disease syndromes. This was tested experimentally by suggesting attitudes to normal subjects and measuring concomitant changes in skin temperatures on the hand. Subjects were hypnotized and told to assume attitudes which had been previously determined to be associated with Raynaud's disease, and at a later time were told to assume attitudes which had been determined to be associated with hives. The fall of skin temperature is associated with Raynaud's disease and the rise of skin temperature is associated with hives. The difference between the obtained temperature changes under each of the two suggested conditions was statistically significant. The findings supported the hypothesis that an attitude toward a disturbing situation is associated with its own specific disease or set of physiological changes.

Dudley, Martin, and Holmes (1964), in the study of a group of twenty-two subjects, correlated action oriented behavior with hyperventilation in twenty subjects in response to short-term adverse life situations. Respiratory changes occurring during anger or anxiety were similar to those occurring during real or suggested exercise, and respiratory changes occurring during depression resembled those occurring during real or suggested sleep.

Dudley, Holmes, Martin, and Ripley (1964) studied the effect of hypnotic suggestion of naturally occurring and experimentally induced psychologic stress on the respiratory system. Twenty-one experiments were carried out with ten male medical students and one patient with

tuberculosis. They were studied before, during and after hypnotic suggestion of relaxation, depression, anxiety and/or anger, exercises, and head pain. Elevated ventilation and oxygen consumption followed hypnotic suggestion of situations eliciting anger or anxiety, head pain, and exercises. Hyperfunction occurred only on suggestion which was meaningful to the subject. With anxiety, anger, and exercise there was orientation toward action. With suggestions of depression there was a reaction of hypofunction. Mixed emotional responses were accompanied by mixed physiological responses.

Lazarus (1964) saw the laboratory approach as being a more adequate method of studying stress phenomena than are observations made through field studies, many of which have preceded his laboratory work by point in time.

In regard to the work done by Selye, Lazarus (1964, p. 410) said:

It is remarkable that in the quarter of a century that has seen interest in stress phenomena grow so greatly, psychological stress theory has had so little influence on experimental research on the subject. Some researchers seem to believe that Selye's work on the adaptation syndrome has solved our problems concerning the psychology of stress, when in reality, it leaves all the psychological questions untouched. Selye has added perhaps to the measures indexing stress, and to our sophistication about the physiological mechanisms underlying these measures, but not to the understanding of the psychological processes which determine when a stress reaction will or will not occur. (Lazarus, 1964, p. 410)

Lazarus has sought, through laboratory study to bridge the gap between physiological and psychosomatic research, and psychological reactions to life stress situations. He suggested the use of the laboratory analogue (an experiment performed under controlled conditions so that a variable, or several variables, can be related to some effect

that one measures). The term analogue refers to the manipulations in the experiment which are parallel, or similar to processes taking place in nature.

In one such study Lazarus (1964) created experimental analogues of cognitive appraisal by showing films of subincision. Subjects were oriented to respond to the stress inducing film by use of such defenses as denial, reaction formation or intellectualization. Subjects responded in the manner in which they had been conditioned. It was concluded that stress reactions depend upon the cognitive appraisal of the stimulus. The author acknowledged, however, that one limitation of the film technique is that an assumption is made that the subjects will identify with the actors.

The literature is replete with studies showing relationships between induced stress or anxiety and its affects on learning ability or test performance (Block, 1964; Parkes, 1963).

Field studies

Field studies have been done through observation of stress phenomena in real life, and the approaches have been quite varied.

For example, Bruno Bettelheim (1943) spent a year as a prisoner of war in the Nazi concentration camps at Dachau and at Buchenwald. He made consistent observations of the behavior of the prisoners and made a descriptive report on his findings after returning to the United States. He found a progressive regression of the prisoners under this extreme stress, and then their ultimate dependency on the will of the leaders.

Shader (1966) in observing reactions of disaster victims, indicated that one set of symptoms appears soon after a disaster, and long term and chronic symptoms may appear long after the event has occurred.

Examples of field studies in other settings are the following: Lindemann (1944), in a study of grief reactions, made observations of psychoneurotic patients who lost a relative during the course of treatment, bereaved disaster victims and their close relatives, and people who were relatives of casualties of the armed forces. Baker and Chapman (1962) observed people in disaster conditions. The nature and effects of military combat have been reported by Grinker and Spiegel (1945) and the reactions of patients anticipating surgery were reported by Janis (1958).

Stress or crisis as a precipitating event in mental illness

More pertinent to this study is work which has been done to investigate stress or crisis as a precipitating event in mental illness.

While medical research, psychophysiologic research, field studies, and studies of laboratory induced stress have been the primary methods of investigation in areas of study relating to stress and states of crisis, the present study will be concerned with association between life crisis (as previously defined) and mental health. Impetus toward this kind of approach was fostered when Bloom (1963, p. 512) designed an investigation to explore the nature of agreement with respect to the crisis concept among skilled clinicians. This was based on the notion that management of crisis often includes significant long-lasting changes in level and adequacy of mental functioning. He concluded that clinicians regarded the existence of a precipitating event to be the most important

variable in determining whether or not an individual is experiencing a state of crisis. However, a given event may or may not represent crisis for an individual. "Until further refinement of the crisis concept is undertaken, assessment of the effectiveness of intervention efforts will be difficult." (Bloom, 1963, p. 502)

That there is an association between life stress and degree of mental health is further substantiated by an intensive study conducted by Langner and Michael (1963). The goal of the study was to investigate the relationship between stresses in the socio-cultural environment and strain, or mental disorder. They set out to determine how many persons in Midtown Manhattan were psychiatrically impaired, the degree of impairment, who they were and how they got that way. Langner and Michael's framework was an extension of the phrase, "environment affects mental health." Based on the data from their questionnaire, they concluded that mental disorder was directly proportional to stress. As environmental stress factors increase in number, the reaction to attempted adaptation to stress increases.

Losses and depression

In pursuing the notion that events in a person's life history produce or contribute to mental illness, Havens (1957) conducted a study designed to determine whether events in the life history of the subjects have an effect on the duration or outcome of mental illness. Subjects were 128 consecutive inpatients of the Massachusetts Mental Health Center, Boston Psychopathic Hospital, receiving electric shock treatment. Residents were interviewed and the resident's admission written formulation searched for statements about precipitating factors. A precipitating

factor was the event believed by the resident to be responsible for the patient's admission to the hospital. Patients were diagnosed and grouped for analysis.

These were again interviewed by Havens after completion of electric shock treatment. Six months after completion of treatment each patient's condition was re-investigated. Patients were arranged in four outcome groups: still hospitalized or rehospitalized, discharged but not working, discharged and working part-time, discharged and working full-time.

It was concluded that life events precipitating affective illness significantly influenced the outcome of the illness. (However, these relationships did not appear in the schizophrenic illnesses studied.)

In the affective illnesses losses of immediate relatives within two years prior to admission were significantly more frequent among patients with unfavorable outcome than among patients with favorable outcomes. (Six months after electric shock treatment.) Where losses were replaced or stressful conditions remedied, the prognosis was significantly improved. The data also suggested that a continuance of precipitating conditions contributed to a higher rate of relapse. Knowledge of the precipitating events yielded a correct prediction of outcome of affective illnesses.

Parkes (1964) found that the incidence of affective disorders was significantly greater among bereaved than among non-bereaved patients. However, he expressed the reservation that even though a difference was demonstrated, only 28 percent of bereaved patients were diagnosed neurotic or reactive depressive. He indicated that further investigation is required to determine the specificity of the reaction to the bereavement.

An investigation by Adamson (1965) gave support to the notion of relationship between a precipitating event and onset of psychiatric illness. His study focused chiefly on recent changes in object relationships, emotional reactions and the onset of patients' symptoms. The patients were studied by personal interview, family interviews, and medical history. In thirty-three of the forty-five patients who had experienced a recent onset of symptoms, the symptoms developed less than a week after a loss event. For eight of the patients, the loss event antedated the illness onset by one week to one month. Comparisons between the group of fifty psychiatric patients and a group of forty-two medical patients who had previously been studied in similar way revealed that the psychiatric patients had fewer experiences of actual loss and separation through age sixteen, but greater experience of life long and ongoing threats of loss of gratification.

However, a study of life events and affective disorders (Hudgens, Morrison, Barchka, 1967), failed to indicate a significant association between life events and onset of primary affective disorders. In this study, forty hospitalized psychiatric patients, thirty-four with depression and six with mania, were diagnosed by specific criteria and matched with forty controls. The controls were patients hospitalized on surgical and medical services who had no history of psychiatric illness at any time in their lives. The controls resembled the psychiatric patients with respect to age, sex, race, religion, marital status, education, social class, and income. These groups were studied with respect to medical, psychiatric, and social histories, family histories (psychiatric and social), and a variety of life events in the remote and recent past.

For the total group of forty patients the observed rate of coincidence of prior years of stress with years of onset of prior episodes of mania or depression was not significantly greater than the rate of coincidence expected by chance alone. In comparing the two groups with regard to a large number of life events in the recent and remote past, the only areas where significance was found was more frequent changes of residence and a higher incidence of reported interpersonal discord in the patient group in the year prior to admission. In ten to forty psychiatric patients there had been objective life stress six months prior to the current episode of affective disorder. However, these same patients showed a rare temporal association between earlier life stress and previous episodes of psychiatric illness.

Hudgens, et al., accounted for the difference between their findings and those of other studies which have asserted that stress precipitates primary affective disorder, by saying that these studies "have tended to lack suitable controls, a systematic survey of life events, or a specification of the interval prior to onset during which stress is to be sought. In our study we have tried to take these into account." (Hudgens, Morrison, Barchka, 1967, p. 144)

Research Related to the Development of the Instrument

Qualitative and quantitative definition of life events

While previous studies have established a relationship between social stress and illness onset, Holmes and Rahe (1967) have indicated that some magnitude of these events is now required to bring greater precision to this area of research.

The instrument they developed for this purpose is the Schedule of Recent Experiences questionnaire (SRE). Because this instrument is central to the present study, research related to its development is presented in some detail.

An initial step in the development of the SRE was the use of the Social Readjustment Rating Questionnaire (SRRQ) to determine values to be assigned to the items.

Development of the Social Readjustment Rating Questionnaire

Beginning in 1949, a life chart device was used with over five thousand patients to study the quality and quantity of life events empirically observed to cluster at the time of disease onset. The events pertain to major areas of dynamic significance in the social structure of the American way of life. In order to assign a magnitude to the items, 394 subjects completed a questionnaire in which they were asked to rate a series of life events derived from the clinical observations. They were to be rated as to their relative degrees of need for readjustment. Social readjustment is based on the amount and duration of change in one's accustomed pattern of life resulting from the various life events. Social readjustment, then reflects the intensity and length of time necessary to accommodate to a life event whether the event is desirable or undesirable.

For reference in rating forty-three other life events, marriage and the resulting readjustment was selected and assigned a reference value of five hundred points. After the subjects had rated the life events, mean values were determined and the forty-three events were then arranged in rank order.

To test the consensus concerning the relative order and magnitude of the mean of items, coefficients of correlation (Pearson's r) between rankings for sixteen discrete groups in the sample were calculated. Coefficients of correlation were above 0.90 for fifteen of the groups, and 0.82 for the remaining group.

The high degree of consensus suggests a universal agreement on the part of the subjects about the significance and meaning of the life events under study that transcends difference in age, sex, marital status, education, social class, generation American, religion, and race. (Holmes and Rahe, 1967, p. 217)

The high degree of consensus concerning magnitude of life events between American middle class subjects and minority status subjects indicated universal agreement on the part of the subjects that transcended differences in age, sex, marital status, education, social class, generation American, religion, and race.

This finding prompted further investigation into a cross-cultural area (Masuda and Holmes, 1967). The SRRQ was administered to Japanese subjects living in Hiroshima (N = 55) and Sendai (N = 57). The American sample included 394 individuals living in Seattle, Washington. They varied in socio-economic status, education, religion, and race.

The study demonstrated that American and Japanese attitudes toward certain life events are significantly concordant. However, seventeen of the forty-two life event items were significantly different between American and Japanese. The authors have accounted for these differences by explaining cultural variants which distinguish one society from another and offer explanations for these differences.

A further statistical analysis of the SRRQ was made by Masuda and Holmes.

Three measures of central tendency were derived for each item: the arithmetic mean, the geometric mean which was computed as the mean log of the scores, and the median which was calculated using Edward's correction for ties in the same set. (Masuda and Holmes, 1967, p. 219)

The summary of this study follows:

1. An American sample (N = 394) responded to the Social Readjustment Rating Questionnaire by rating the magnitude of forty-three life events as compared to a given score of a modular item.
2. The rankings and the item scores of the arithmetic mean, the geometric mean, and the median were in close parallel although the scores differed considerably in magnitude.
3. The skewed frequency distribution of raw magnitude scores was "normalized" by logarithmic plotting, indicating the propriety of the geometric mean as the measure of central tendency.
4. A linear relationship between the variability of item scores and the magnitude of item scores was demonstrated.
5. Preservation of the ratio between geometric mean and arithmetic mean scores was found.

Schedule of Recent Experiences

The Schedule of Recent Experiences (SRE) questionnaire is self-administered. The items pertain to life events indicative of occurrences involving the individual or indicative of life style. Studies previously described (Holmes and Rahe, 1967) determined the magnitude of significance of these events. The values are defined as life change units or LCU. Items are weighted from 11 LCU, for minor violation of the law to 100 LCU, for death of a spouse, indicating that some have more significance or salience than others (see Table 7 in Appendix A).

Twelve of the items ask the subject to place a mark for the year the item occurred. The other twenty-eight items ask the subject to respond with the number of times an item occurred in each year. If the item does not pertain to the subject, he marks the space, "does not apply." (Schedule of Recent Experiences questionnaire appears in Appendix B.)

In a pilot application of this quantitative method for investigating the relationship of life events to illness onset, Holmes and Rahe (1968) mailed the SRE to resident physicians in the University of Washington integrated hospital system. Patients were asked to list all their health changes for the past ten years. The items subscribed to in the SRE by the 88 subjects (86 males, 2 females, age 22 to 33 years) were assigned their values derived from the SRRQ. The total life change units (LCU) were plotted and upon this profile were superimposed the health change data.

The life crisis was defined as terminated at the end of a two year period. Ninety-three percent of the health changes reported were associated with a clustering of life changes whose values summed at least 150 LCU per year. This association was significant beyond the .001 level. Not all persons experiencing a life crisis report health change, however. Twenty-one percent of subjects who had major life crises with more than 300 LCU had good health for the succeeding two years.

In a prospective study of the occurrence of disease or health change conducted by Holmes and Rahe (1967), the SRE was completed and returned by the same 88 resident physicians who composed the population for the

retrospective study previously described. Eight months after the completion of the SRE, the 88 subjects were contacted for information concerning their health experience during the interval. Eighty-four were successfully contacted. The 84 subjects reported 32 more health changes during the follow-up period. Thirty-one of the health changes, or 97 percent, were associated with, and clearly followed a life crisis of at least mild (LCU 150 or greater) magnitude.

The subjects were divided into two groups: those with scores of 250 LCU or more and those with scores below 250 LCU. Health changes were significantly associated with higher scores. In a second analysis, subjects were divided into high, moderate, and low risk groups. This analysis also indicated a significant association between health change and magnitude of life crisis.

A third analysis of the data involved the 41 subjects in the high risk group. Twenty-four had experienced one or more illnesses during the time interval which provided the base LCU scores for the prospective study. In other words, the advent of illness contributed to the LCU score which placed the subject in the high risk group for the follow-up study. There is no significant difference in the risk of health change in the 2 groups. This finding suggests that it is the total LCU score, not the type of event, which provides the basis for the association of life crisis with the disease. (Holmes and Rahe, 1968, Report III, p. 2)

The life crisis concept adduced by these pilot studies is felt to have distinct advantages over a more general term, such as "life stress." First, the life crisis concept allows for the fact that a certain amount of life change can be experienced without the risk to health. Second, although an individual experiences a life crisis, different health change risks are reflected at different life crisis magnitudes. A third advantage of the life crisis concept is that the life changes measured draw from both the exceptional and the commonly experienced changes in social status for an individual. (Holmes and Rahe, 1968, Report III, p. 2)

In the present study, the notion of life change as a precipitating factor in health change is applied more specifically to the onset of mental illness requiring psychiatric treatment.

Validity of the instrument

A longitudinal study of life change and illness patterns which was done by Rahe, McKean, and Arthur (1967) helped to answer a question of validity of previous findings on life changes and illness onset. To what extent does the factor of the subject's memory misrepresent the actual pattern of life changes and history of illness?

In an attempt to answer this question, health records of two hundred Navy and Marine Corps personnel discharged in 1958 because of psychiatric illness were obtained. Fifty of the two hundred health records were selected at random for intensive analysis.

Careful health records are kept in the military service concerning the health status and personal status of its members. It is rare for a serviceman on duty to consult a physician other than a military medical officer. Therefore, the medical records of these men show virtually all illnesses experienced while on active duty. Data on life changes pertinent to military duty are recorded, and in special instances data on interpersonal problems, finances, and home adjustment are also recorded.

The group of men who are retired from the Navy each year because of psychiatric illness manifested on active duty have health records which contain a wealth of health change and life change data.

Each health record was studied for information concerning life changes and health changes. Life changes which appeared to be symptomatic

of illness or a result of illness were not counted in the LCU score. All other life changes were fitted into one of 41 categories. (These LCU values had been previously established and cross validated.) (Rahe, McKean, and Arthur, 1967)

As indicated in the previous study (Holmes and Rahe, 1967) subjects are most affected in their health status by life events experienced in the year beforehand. The majority of life change magnitude accrued during the year prior to illness occurs in the final six months. A one year time period was the interval for which LCU values were totaled.

Health records of the servicemen were compared to health records of American working men from a study by Hinkle (1965). The health records of the servicemen with at least ten years of active duty prior to their disability retirement provided data which was remarkably similar to that of American working men in regards to the clustering of illness.

From the data on the fifty subjects in the sample, three mean yearly LCU totals were determined. The mean LCU total for each year of active duty for each subject was calculated. From these data the mean LCU value per year for the entire sample was computed. This value was 72 LCU. The mean LCU total for the year prior to a single illness episode, or a clustering of minor illness episodes was 130. The mean LCU total for the year prior to a single illness episode, or clustering of illness episodes of greatest severity was 164. These values were significantly different from one another at the 0.05 and 0.001 levels. The higher yearly total preceded the most severe changes in health status.

These findings provide a validity check on previous data collected by the questionnaire (SRE), since objective records of significant life

changes and illness patterns were utilized. At the same time the findings of the pilot studies using the questionnaire were corroborated. (Holmes and Rahe, 1968, Reports II and III) In both the pilot studies and the study using objective records, life changes and illnesses were seen to cluster during particular years. In general, a cluster year of life changes occurred immediately prior to an illness or clustering of illnesses. More severe illnesses were preceded by cluster years of higher life change magnitude than were minor illnesses.

To what degree does a questionnaire misrepresent the actual pattern of life changes and illness experience, after a time, due to the subject's faulty memory? Since the present study utilized objective records of significant life changes and illness experience, recorded at or near to their actual occurrence, the life changes and illness patterns found, provide an excellent validity check on previous data collected by the questionnaire. (Rahe, McKean, and Arthur, 1967, p. 365)

Since the SRE relies upon the ability of subjects to recall recent life events, further study of validity of recall is pertinent. A quantitative study of recall of life events using the SRE was conducted by Casey, Masuda, and Holmes, (1967). Validity of recall is possible to determine in studying medical illnesses but is more difficult to assess in relation to life events. Since validity of recall cannot be feasibly determined in the life situations, the question arises as to whether consistency of recall is a reflection of recall of validity.

To investigate this question, the SRE was given to a group of 54 resident physicians on two occasions, nine months apart. Thus, 54 paired sets of records were obtained. The subjects' total life change units were determined for a ten year period. If the score difference between Time 1 and Time 2 was 40 LCU or greater, that score was labeled "discrepant." A score less than 40 was labeled "non-discrepant." The

criterion point of 40 was based on the fact that the standard deviation of the mean score difference between the first administration and the second was 40 LCU.

The data were analyzed to determine the stability of the questionnaire and for factors affecting consistency of recall. The correlation coefficients (coefficient of stability) for the two administrations of the questionnaire based upon the total life change unit scores (LCU) were significant for the three years examined. The passage of time was found to affect the magnitude of individual scores but apparently had no effect on the consistency of the scores. Items containing qualifying words (particularly the word "substantial") significantly affected recall consistency. (Casey, Masuda, and Holmes, 1967, p. 246)

This research did demonstrate consistency of recall over a nine month period of time. It also demonstrated that item value or saliency is the single factor most affecting consistency of recall. There was a median percentage of 86 percent for the 40 life event items of the SRE. This is an indicator that these particular life events are salient to the lives of the respondents and implies that clusters of such significant events might contribute to illness onset.

The relationship between saliency and consistency of recall found in this study was then compared to a similar concept established in health interview studies, to make the inference that consistency of recall may indirectly reflect recall validity. (Casey, Masuda, and Holmes, 1967, p. 246)

Summary

The study of stress and life crisis has become a focus of interest to students of the behavioral and biological sciences, and research in this area has been approached in a variety of ways. In this review of literature, studies have been cited from the fields of medical, psychosomatic, laboratory, and field research, with special emphasis upon studies relating life stress to onset of mental illness.

While the studies of stress or crisis as a precipitating event in mental illness are limited in scope, the majority of these studies demonstrate a relationship between such an event, or series of events, and the onset of mental health change.

Most investigators have suggested that there is a need for a refinement of the crisis concept in order to move toward greater objectivity in research in this area. Recent research has sought to add this dimension of objectivity by defining crisis specifically as change requiring the organism to employ adapting and coping mechanisms and by quantifying the magnitude of life change events.

CHAPTER III

PROCEDURES

Sample

The sample of subjects in psychiatric treatment was comprised of patients randomly admitted to the psychiatric wards of the Dee Memorial Hospital and the St. Benedict Hospital in Ogden, Utah. All the patients of the wards of the two hospitals February 20, and February 21, 1968 were given the SRE questionnaire to complete. They were assisted by the writer and by a ward attendant. There was continued administration of the questionnaire at the Dee Memorial Hospital until a sample of 64 patients was obtained. During the course of administration of the SRE, two patients at St. Benedict Hospital refused to participate and two were unable to respond. At the Dee Memorial Hospital three patients refused, three were unable to respond, and sixteen were discharged, transferred, or left the hospital before they were contacted.

The non-therapy sample was obtained by administering the questionnaire to a cross section of residents in the general geographic area from which the therapy sample was drawn. Two streets were selected which provided sampling from the range of socio-economic groups representative of the area. The following sampling procedure was used. The writer visited every fifth residence during the hours of 4:30 p.m. and 9:00 p.m. and during the day on Saturdays. In the event that more than one individual lived at a given residence, an order of selection was established. The order of selection was: man, 31-80; woman, 31-80; man, 14-30; woman, 14-30.

This was rotated at each residence, so that succeeding numbers were selected where there was a possibility of more than one subject at a given residence. In the event there was a refusal or that no one was home at the fifth residence, the next residence was selected and the numbering procedure continued from that point. The procedure was continued until the sample of non-therapy subjects could be matched to the therapy subjects by age, sex, and marital status. There was a ten percent refusal to participate. Reasons for refusal to respond included illness in the home, busyness, lack of interest, resentment of invasion of privacy, and others visiting in the home.

Matching the individual subjects by socioeconomic status was beyond the intent and scope of this study. Subjects were matched as indicated in Table 1.

Instrumentation

The instrument used in this study is the Schedule of Recent Experiences questionnaire (SRE) developed by Holmes and Rahe (1967, 1968, Reports II and III). The purpose of this instrument is to provide a qualitative and quantitative definition of life events composing a life crisis.

The questionnaire is self-administered. The face sheet contains questions concerning personal information in regard to residence; social, occupational, marital status, etc. A separate sheet asking for information concerning the health of the individual over a ten year period was not used in this study. The body of the instrument contains 40 items to which subjects were asked to respond. A sample copy of the SRE appears in the Appendix B.

Table 1. Characteristics of therapy and non-therapy samples examined with the Schedule of Recent Experiences questionnaire

Age	Therapy Group								Non-therapy Group							
	Male				Female				Male				Female			
	S ^a	M	D	W	S	M	D	W	S	M	D	W	S	M	D	W
14-20	9				7	2			9				7	2		
21-30	4				1	2			4				1	2		
31-40		1	1			11	1			1	1			11	1	
41-50		4	2			8				4	2			8		
51-60		5				3				5				3		
61-70		2								2						
Over 70								1								1
TOTAL	13	12	3		8	26	1	1	13	12	3		8	26	1	1

^aKey: (S) single, (M) married, (D) divorced, (W) widowed

Matching subjects by marital status was pertinent to the study because seven of the items in the questionnaire would never apply to the single subjects. Some items apply generally to particular age groups. For example, items pertaining to retirement and death of close friends have a greater probability of being applicable to the age group over 60 than do those under 60. Some items are pertinent to a particular sex. For example, whether the wife has started or stopped working outside the home applies only to a married male.

Fifteen non-therapy subjects were interviewed who did not subsequently match the therapy subjects with respect to age, sex, and marital status, and consequently were not used in the study.

Scoring Procedures

The SRE was administered to subjects in the therapy and non-therapy samples as described previously. It was scored according to the published table of values of questions on the SRE. (Casey, Masuda, and Holmes, 1967, p. 240)² It was scored in the following manner: (see Table 9 in Appendix A). The number of marks or numbers for each item were tabulated and multiplied by the value of the item. These were summed to determine the total LCU for each year (1966 and 1967). A total LCU for both years was also calculated for each subject.

²Dr. Holmes later reported to the writer by letter that "pregnancy," while entered in item 25, personal injury or illness, is given the value of 40 instead of the 53 points listed in the table.

Hypothesis

To achieve the objectives of this study: (1) to examine the relationship between crisis, defined as cumulative life change, and the onset of illness for which psychiatric treatment is sought, and (2) to observe the differences in amount of life change experienced during the two year period prior to the study between a group of patients under psychiatric treatment and a group of non-therapy subjects (never having received psychiatric treatment), the following hypothesis will be tests.

Patients in psychiatric treatment have experienced a quantitatively significant greater amount of stress than a group of non-therapy subjects (never having received psychiatric treatment).

Statistical Techniques for Testing the Hypothesis

To test the hypothesis that patients in psychiatric treatment have experienced a quantitatively significant greater amount of life change than a group of non-therapy subjects (never having received psychiatric treatment), the following statistical analysis was made of the data.

LCU scores for the therapy and the matched non-therapy groups were determined for each completed SRE. LCU scores were compared for the therapy and matched non-therapy sample for the years 1966, 1967 to date of the study. An analysis of variance was used to determine whether there were significant differences between the mean LCU scores for the two groups.

CHAPTER IV

FINDINGS

The following hypothesis was tested in this study of life crisis using the Schedule of Recent Experiences questionnaire.

Patients in treatment have experienced a quantitatively significant greater amount of stress than a group of non-therapy subjects (never having received psychiatric treatment).

The results of the comparison of the 1966 LCU scores for the psychiatric patients and the matched non-therapy group is reported in Table 2. An examination of the data in this table indicates that no significant difference was found for the year 1966.

The results of the comparison of the 1967 LCU scores for the psychiatric patients and the matched non-therapy group is reported in Table 3. For the year 1967 (the year immediately preceding the onset of illness requiring hospitalization of the therapy group) a significant difference was found between the mean LCU scores for the therapy and non-therapy samples. This finding supports the hypothesis that there is a significant difference between the LCU scores for a sample of subjects in psychiatric treatment and a non-therapy group.

This clustering of life change in the year prior to onset of illness for which psychiatric treatment is sought supports the notion of a precipitating event, and that it may be in the form of an accumulation of measurable life change events.

From the results of this study, it would appear that it is an accumulation of life change events in the year immediately preceding the

Table 2. Analysis of variance of 1966 LCU scores for psychiatric patients and a matched non-therapy group

Source of variation	df	Mean square	F
Groups	1	28420.23	2.58
Pairs	63	8955.19	.80
Error	63	11196.27	

Table 3. Analysis of variance of 1967 LCU scores for psychiatric patients and a matched non-therapy group

Source of variation	df	Mean square	F
Groups	1	52302.0	20.06**
Pairs	63	27068.82	1.45
Error	63	18637.98	

**Significant beyond the .01 level of confidence.

need for psychiatric treatment which constitutes a crisis, and that this crisis may precipitate a change in mental health.

Table 4 presents the mean LCU scores for the therapy and non-therapy groups for the years 1966 and 1967.

Responses to the items of the SRE were analyzed by determining the number of responses made by therapy and non-therapy subjects to each item. The total LCU for each item was determined by multiplying the total

Table 4. Table of means of LCU totals for psychiatric patients and a matched non-therapy sample

	Scores 1966	Scores 1967
Therapy	126.31	311.39
Non-therapy	96.25	183.55

number of responses by LCU values. Table 5 shows the five items with the highest total LCU values for each age category.

While such an approach obviously requires further investigation and statistical analysis, it may suggest a method for studying the kinds of change occurring most frequently at different age levels. Such changes may be significant in contributing to the onset of physical or emotional non-functioning.

Discussion

The findings of the present study lend support to other research which relates life change to illness onset.

The hypothesis that there is a significant difference in LCU totals for a sample of subjects in psychiatric treatment and a non-therapy sample was supported.

Subjects were asked to report life change events for a two year period to conform to the findings of Holmes and Rahe (1968) that an individual is at risk for two years following a life crisis. The two year risk period was determined from their retrospective study using

Table 5. Life changes producing greatest amount of stress by age group

Age group	Non-therapy			Therapy		
	Total LCU	Points per item	Five most frequent areas of stress	Total LCU	Points per item	Five most frequent areas of stress
14-20	371	25	personal injury	945	32	jail term
	336	38	personal achievement	820	31	change in residence
	325	49	vacation	636	25	personal injury
	324	18	social activity	504	26	death of family member
	317	16	personal habits	494	49	vacation
21-30	441	26	death of family member	288	21	financial status
	260	37	marital separation	238	47	mort. less than 10,000
	224	38	personal achievement	220	30	health of family member
	220	31	change in residence	200	31	change in residence
	187	47	mort. less than 10,000	200	41	change in working conditions
31-40	477	25	personal injury	693	26	death of family member
	306	21	financial status	396	30	health of family member
	282	28	death of friend	390	37	marital separation
	252	26	death of family member	280	23	arguments with spouse
	234	29	gain family member	266	21	financial status
41-50	424	25	personal injury	901	25	personal injury or illness
	315	26	death of family member	756	32	jail term
	266	21	financial status	504	26	death of family member
	234	49	vacation	364	38	personal achievement
	234	50	change in school	352	30	health of family member
51-60	477	25	personal injury	371	25	personal injury or illness
	252	26	death of family member	195	24	sex difficulties
	195	49	vacation	145	39	son or daughter leaving
	148	28	death of friend	135	40	retirement
	120	16	personal habits	130	49	vacation

Table 5. Continued

Age group	Total LCU	Non-therapy Points per item	Five most frequent areas of stress	Total LCU	Points per item	Therapy Five most frequent areas of stress
61-70	159	25	personal injury	126	25	death of family member
	104	49	vacation	116	42	responsibilities at work
	78	24	sex difficulties	106	25	personal injury or illness
	76	21	financial status	88	30	health of family member
	63	26	death of family member	80	41	working conditions
Over 70	104	49	vacation	37	28	death of close friend
	63	26	death of family member	20	31	change in residence
	53	25	personal injury	16	14	change in sleeping habits
	38	17	change in recreation	13	49	vacation
	38	19	church activities	(only four items available for tabulation)		

the SRE. Holmes and Rahe demonstrated that the life events cluster significantly in the two year period preceding onset of various kinds of health change.

Since a life crisis is defined by Holmes and Rahe as terminated at the end of a two year period, it was pertinent to determine life change units for the two years prior to hospitalization for psychiatric treatment. In comparing the therapy and non-therapy groups for the year 1966, i.e., two years prior to hospitalization, no significant difference was found. The difference between the two groups for 1967 or the year immediately preceding hospitalization, was highly significant.

While the previous studies found that life events cluster significantly in the two year period preceding onset of various somatic illnesses, the findings of the present study indicate a clustering of life events in the one year period prior to onset of illness requiring psychiatric treatment.

This clustering of life change in the year prior to onset of illness for which psychiatric treatment is sought supports the notion of a precipitating event in mental health change. It also provides evidence that it may be in the form of an accumulation of measurable life change events.

In observing the means of the LCU scores for the years 1966 and 1967, it becomes evident that the scores for both the therapy and non-therapy groups increased substantially. The question arises as to the meaning of this parallel increase of life change events.

Two possible explanations are suggested. First, recency of occurrence of the event may be a factor in recalling a greater number of life change events. The early systematic studies of Ebbinghaus generated curves

of forgetting as a function of time elapsed since original learning.

Van Dusen and Schlosberg (1948) found that amount retained is a negatively accelerated decreasing function of the time between original learning and testing.

A second possibility is that the scores for both years do represent an accurate account of life change events for the subjects, and that this study has not accounted for the parallel increase of the two groups. The study by Casey, et al. (1967) demonstrated that subjects did recall life events consistently in two administrations of the SRE nine months apart.

In either case, the fact that the increase did occur for both the therapy and non-therapy samples gives an indication that the same kind of process was operating with both groups. This being the situation, this occurrence may not be significant so far as the present study is concerned.

In a further comparison of these findings an important difference is noted. In the retrospective study by Holmes and Rahe (1968, Report II), 93 percent of the health changes were associated temporally with a clustering of life changes whose values summed at least to 150 LCU per year. For this reason an LCU of 150 is defined a life crisis. In the present study, the mean score for the non-therapy group for the year 1967 was 184, which is greater than the life crisis definition.

The significance of the non-therapy sample having a mean score over 150 LCU for the year 1967 has not been explored in this study. However, two possibilities which may contribute to the difference are presented in the spirit of speculation. First, some of the non-therapy subjects

may belong to a population which manifests a differential resistance to health change. Second, other non-therapy subjects with scores over 150 LCU in 1967 may still be at risk with a higher probability of physical or mental health change than there would be during a period when life change events did not reach the point defined life crisis.

The foregoing would indicate that it is an accumulation of life change events in the year immediately preceding the need for psychiatric treatment which constitutes a crisis which may precipitate the mental health change.

Limitations

A pursuit of this nature is fraught with methodological and conceptual difficulties. At the outset, in seeking to evaluate the cause for mental ill health, a definition of the term becomes necessary. In the case of this study, the definition is implied by dividing the sample in terms of therapy and non-therapy. Thus, we are making an evaluation of an individual's equilibrium in coping with his environment. An arbitrary division--patients in psychiatric treatment--obviously provides only a framework within which to make observations. It tends to imply that all receiving therapy have been unable to employ coping and adaptive mechanisms commensurate with environmental demands, and conversely, that individuals not receiving therapy have either been spared the effects of a stress producing environment or have employed re-equilibrating mechanisms commensurate with the situation. While it is generally true that hospitalized psychiatric patients are functioning poorly, it does not necessarily follow that the non-therapy population is, in fact, making adjustments

to their best psychological advantage. They may be functioning at only a minimal level. (Leighton, 1956)

Because mental health or mental ill health are not dichotomous, sampling procedures bristle with unaccounted for variables, not the least being the various shades of adjustment of the subjects in a non-therapy sample.

Another sampling problem arises because of the individuals who were approached but who refused to participate (10 percent). The extent to which this loss of subjects biased the samples is undetermined.

Summary

From time immemorial dramatists and novelists have stressed the significance of crisis periods in determining the fate of individuals, and even entire nations. The clinical work of psychologists and social workers has impressed them with the significance of periods of life crisis, in which early states of illness determine its direction. Several studies cited previously in this paper have demonstrated a relationship between stress or crisis and onset of physical or mental health change. The present study lends another shred of evidence that not only may crisis be significant in precipitating a mental health change requiring psychiatric treatment and hospitalization, but that life crisis preceding such a health change may be quantitatively defined.

CHAPTER V

SUMMARY, CONCLUSIONS, AND IMPLICATIONS

Summary

Modern men live eventful lives which are continually subject to change in terms of residence, health, family constellation, socio-economic status, occupation, and other life events.

Previous studies have related life change to illness onset. Particularly pertinent to the present study is the research by Holmes and Rahe which hypothesizes that life changes requiring the use of adaptive and coping mechanisms, is related to health change. In order to identify and quantify the magnitude of life events and bring greater precision to this area of research, they developed an instrument, the Schedule of Recent Experiences questionnaire (SRE). Research using the SRE has demonstrated that there is a significant association between life change and health change.

In view of these findings, the question has been posed as to whether there may be a measurable clustering of life changes prior to health change requiring psychiatric treatment. The present study is concerned with examining the possibilities of such a relationship.

Stress has been cited in several studies as being a precipitating factor in the onset of mental illness. It is precisely because precipitating factors are considered to be significant in the occurrence of mental disorders that further study becomes important. While studies have been done in the area, the approach needs further refinement.

The purpose of this study is to investigate the quantitative differences in life change between a therapy group (patients in psychiatric treatment) and a non-therapy group (patients never having received psychiatric treatment) as it is related to mental illness.

The following statistical analysis was made of the data: LCU scores for the therapy and the matched non-therapy groups were determined for each completed SRE. LCU scores were compared for the therapy and matched non-therapy sample for the years 1966 and 1967. An analysis of variance was used to determine whether there were significant differences between the scores for the two groups.

For the year 1966 no significant difference was found between the therapy and non-therapy samples. A significant difference between the LCU scores for the year 1967 was found between the two groups.

Conclusions

1. It can be concluded from the results of this study that there is a significantly greater magnitude of life change events during the years prior to onset of mental illness in patients requiring psychiatric treatment than in a matched non-therapy group.

2. In view of these findings it is therefore concluded that an accumulation of life change events may serve to precipitate mental health change, and that the probability of such health change occurring is significantly greater when there is a clustering of life change events during any given year than when such a clustering does not occur.

Implications

Since it has been concluded that there is a significantly greater magnitude of life change in a therapy than in a non-therapy group in the year preceding onset of illness requiring psychiatric treatment, another bit of evidence has been added to substantiate the notion of a clustering of precipitating events. Being able to identify and quantify the magnitude of a series of life change events has implications for present application and for theoretical considerations and further research.

Application

While a single study is not conclusive, some practical applications may be suggested. If future studies should demonstrate more conclusively that a life crisis can be defined in terms of onset of mental illness, LCU scores for high school students may be a valuable tool in the guidance program of a school. Students whose emotional difficulties do not interfere with classroom procedure are often overlooked and may never receive the help which could well prevent an interruption of normal development. Even though a cut-off point may never be established which would be indicative of a crisis in terms of life events, examination of the items may indicate areas of concern in which a counselor may be of service to a student.

The same reasoning may also apply to the world of work. Any organization employing large numbers of people might utilize a tool designed to measure life crisis as one means of identifying loss of efficiency or imminent emotional or physical health change.

In the military service where men are subjected to continual change of location and assigned tasks, officers may be made more aware of the levels of stress being experienced by the men, and be better able to assess the risk in recommending further changes at a particular time.

A similar application may be made in civilian life. If individuals can be informed of the risk involved in a high concentration of life change events within a brief period of time, optional changes may be postponed. (If a man has built a new house, changed from a teaching position to industry, divorced his wife, and had an appendectomy all within a twelve month period, wisdom dictates that he wait until next year to put cyanide in his neighbor's orange juice. A prison term may be one change too many!)

Theoretical considerations and further research

Although there is a vast amount of literature which deals with crisis behavior and description of states of crisis, most writings appear to possess the spirit of scientific inquiry rather than the attributes of a formal, systematically validated theory. The concept of crisis as formulated by its chief theoreticians, Dr. Erich Lindemann and Dr. Gerald Caplan, refer to the state of the individual who finds himself in a hazardous situation. (Rapoport, 1962) Growing out of this is a crisis-theory framework which is applicable to the individual, to the family, and to the group. While this framework has not been explored in this paper, it is a well-developed, ongoing approach attempting to give precision and clarity to conditions, processes, and possible techniques which might be developed for crisis intervention.

The notion of crisis intervention has been pursued by other students of the behavioral sciences. Lindemann and Klein, (1961) propose that while crises may intensify maladaptive and further regressive phenomena, they also offer unusual opportunity for effective therapeutic intervention. Caplan (1962) and Rapoport (1962) have suggested that individuals in a state of crisis not only are in need of help, but that their state of readiness is such that a minimum of effort leads to positive results.

Peck and Caplan (1966) indicate that there is a growing awareness that any psychiatric hospital which aspires to be an integrated unit in a community mental health program must have facilities and personnel which will permit it to intervene effectively, not only with the patient, but with relevant aspects of his social system.

This being the case, any tool which might assist in the identification of individuals in a crisis situation may have potential value. By providing a practical measure for the identification of individuals whose cumulative life change events constitute a crisis, avenues are opened for further research and an elaboration of theoretical formulations. Studies in the quantification of life change suggest avenues for further research.

If life crisis can in fact be specifically defined through quantification of life change, another avenue may be opened for research which will have value in the area of prevention. Of particular interest are those individuals who have experienced qualities of change in life events beyond the point representing crisis, and still have evidenced no physical or mental health change. This observation is begging the question--what are the factors which enable these individuals to employ

adaptive and coping mechanisms even in the face of extreme stress?

If such factors can be identified, they may well be employed in education for prevention of psychosomatic and/or mental illness.

The man in the street, novelists, physical and behavioral scientists, and psychotherapists have long given recognition to the disturbing events to which have been applied the adjectives "acute," "distressing," "stressful," "painful," etc. The subjective aspects of crisis have been described in Martin Buber's selection from a Hasidic saying:

. . . as if we were hanging by a hair, and a tempest were raging to the very heart of heaven, and we were at a loss for what to do, and there were hardly time to cry out . . . in the world a man is in great danger. (Quoted by Peck and Caplan, 1966, p. 143)

Men and their groups, being in a continuous process of change, may well be in danger when there is an acceleration of these alterations, and when the magnitude of these becomes threatening to the point of crisis. Being able to identify and quantify life change events might possibly be a contribution to man's efforts to more adequately cope with his environment as he pursues the path toward mental health.

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APPENDIXES

Appendix A

Table 6. Pearson's coefficient of correlation between discrete groups in the sample used in the development of the SRRQ

Group	No. in group	Group	No. in group	Coefficient of correlation
Male	179	vs Female	215	.965
Single	171	vs Married	223	.960
Age 30	206	vs Age 30-60	137	.958
Age 30	206	vs Age 60	51	.923
Age 30-60	137	vs Age 60	51	.965
1st Generation	19	vs 2nd Generation	69	.908
1st Generation	19	vs 3rd Generation	306	.929
2nd Generation	69	vs 3rd Generation	306	.975
College	182	vs 4 Years of College	212	.967
Lower Class	71	vs Middle Class	323	.928
White	363	vs Negro	19	.820
White	363	vs Oriental	12	.940
Protestant	241	vs Catholic	42	.913
Protestant	241	vs Jewish	19	.971
Protestant	241	vs Other Religions	45	.948
Protestant	241	vs No Religious Pref.	47	.926

Table 7: Social Readjustment Rating Questionnaire

Events	Values
1. Marriage	500
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	_____
9. Revision of personal habits (dress, manners, associations)	_____
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 the 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 member (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	_____
26. Divorce	_____
27. Changing to a different line of work	_____
28. Major change in the number of arguments with spouse (e.g., either a lot more or a lot less than usual regarding child-rearing, 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.)	_____

Table 7. Continued

Events	Values
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	_____
41. Christmas	_____
42. Changing to a new school	_____
43. Beginning or ceasing formal schooling	_____

Table 8. Values of questions on Schedule of Recent Experiences (SRE)

Item No.	SRE question	Mean value (LCU)
13.	Trouble with boss	23
14.	Change in sleeping habits	16
15.	Change in eating habits	15
16.	Revision of personal habits	24
17.	Change in recreation	19
18.	Change in social activities	18
19.	Change in church activities	19
20.	Change in number of family get-togethers	15
21.	Change in financial state	38
22.	Trouble with in-laws	29
23.	Change in number of arguments with spouse	35
24.	Sex difficulties	39
25.	Personal injuries or illness	53
26.	Death of close family member	63
27.	Death of spouse	100
28.	Death of close friend	37
29.	Gain of new family member	39
30.	Change in health of family member	44
31.	Change in residence	20
32.	Jail term	63
33.	Minor violations of the law	11
34.	Business readjustment	39
35.	Marriage	50
36.	Divorce	73
37.	Marital separation	65
38.	Outstanding personal achievement	28
39.	Son or daughter leaving home	29
40.	Retirement	45
41.	Change in work hours or conditions	20
42.	Change in responsibilities at work	29
43.	Fired at work	47
44.	Change in living conditions	25
45.	Wife begins or stops work	26
46.	Mortgage over \$10,000	31
47.	Mortgage or loan less than \$10,000	17
48.	Foreclosure of mortgage or loan	30
49.	Vacation	13
50.	Change in schools	20
51.	Change to different line of work	36
52.	Begin or end school	26

Appendix B

Schedule of Recent Experiences

- Date _____
1. Name _____ Address _____
2. Sex: Male ___ Female ___ Age _____ Phone _____
3. Race: White ___ Negro ___ Indian ___ Japanese ___ Chinese ___
Other _____
4. Age at which (give age for each marriage, divorce, etc., if more than one):
Married ___ Divorced ___ Widowed ___ Separated ___ Check if never
married ___ Religion _____
5. Education: Number of years _____ Occupation _____
6. In the blanks on the right column enter the number from the left column which corresponds to the length of time at the designated residence.
- | | | |
|-----------------------|-------|-------------------------------|
| (1) Less than 1 month | _____ | Present residence |
| (2) 1 to 3 months | | |
| (3) 4 to 6 months | _____ | Last residence |
| (4) 7 to 11 months | | |
| (5) 1 to 2 years | _____ | Next to last residence |
| (6) 3 to 5 years | | |
| (7) 6 years or more | _____ | Earliest remembered residence |
7. In the blanks on the right column enter the number from the left column which corresponds to the type of housing at the designated residence.
- | | | |
|-----------------------------|-------|-------------------------------|
| (1) Own home, or buying | _____ | Present residence |
| (2) Other detached dwelling | | |
| (3) Duplex or triplex | _____ | Last residence |
| (4) Hotel-apartment | | |
| (5) Boarder (roomer) | _____ | Next to last residence |
| (6) Housekeeping room | | |
| (7) Other | _____ | Earliest remembered residence |
8. Where more of life was spent:
Rural area ___ Towns under 5000 ___ Larger towns _____

9. Where born: Rural area ____ Town under 5000 ____ Larger town ____
 Country of birth: Of self _____
 Of your father _____ Of your mother _____
 Your father's mother _____ Your mother's mother _____
 Your father's father _____ Your mother's father _____
10. How many: Older brothers _____ Deaths of brothers or sisters (give
 Younger brothers _____ your age and his or her age) _____
 Older sisters _____
 Younger sisters _____
11. What was your age when your mother died? _____ Mother is still
 living? _____
12. What was your age when your father died? _____ Father is still
 living? _____

INSTRUCTIONS FOR THE REST OF THE QUESTIONS

Every question will have a list of years like this:

1966	1967
------	------

Think back and decide if the question applied to you in any of these years. If so, mark an X under any year when it applied.

Each question has a space for you to say if it did not apply. If you are sure it does not characterize your life during any of these years, then mark an X where it says: "Does not apply ____."

If you are doubtful at all, then make up your mind it does apply. In other words, you would not be in doubt if you had no reason to be. So answer as well as you can.

Answer every question. Go back to see if you made any mistakes. Don't be afraid to make corrections.

-
13. Mark under the years where there has been either a lot more or a lot less trouble with the boss:

1966	1967
------	------

Does not apply _____

14. Mark under the years where your usual sleeping pattern was changed (sleeping a lot more or a lot less, or change in part of day when asleep):

1966	1967
------	------

Does not apply _____

15. Mark under the years where your eating habits were changed (either a lot more or a lot less eating, or very different meal hours or surroundings):

1966	1967
------	------

Does not apply _____

16. Mark under the years that there has been substantial change in your personal habits (your dress, manner, associations, etc.):

1966	1967
------	------

Does not apply _____

17. Mark under the years that there has been substantial change in your usual amount and/or type of recreation:

1966	1967
------	------

Does not apply _____

18. Mark under the years that there has been substantial change in your usual social activities (clubs, dancing, movies, visiting friends, etc.):

1966	1967
------	------

Does not apply _____

19. Mark under the years that there has been a substantial change in your church activity (either a lot more or a lot less, or a change in denomination):

1966	1967
------	------

Does not apply _____

20. Mark under the years that there has been a substantial change in family get-togethers (picnics, holidays, etc.):

1966	1967
------	------

Does not apply _____

21. Mark under the years that you have had either a lot more or a lot less financial problems:

1966	1967
------	------

Does not apply _____

22. Mark under the years that you had either a lot more or a lot less in-law troubles:

1966	1967
------	------

Does not apply _____

23. Mark under the years that you had either a lot more or a lot less arguments with your spouse (for example, over child-rearing, personal habits, etc.):

1966	1967
------	------

Does not apply _____

24. Mark under the years that you had either a lot more or a lot less sexual difficulties:

1966	1967
------	------

Does not apply _____

NOTICE: FOR THE REST OF THE QUESTIONS, USE NUMBERS TO ANSWER. Every question asks you for the number of times in a year that something happened.

25. List the number of times each year that you experienced major illness, injury, or substantial health change (for example, pregnancy, menopause, large weight gain or loss, etc.):

1966	1967
------	------

Does not apply _____

26. List the number of times each year that you have lost a close family member (other than spouse) by death:

1966	1967
------	------

Does not apply _____

27. List the number of times each year that you have lost a spouse by death:

1966	1967
------	------

Does not apply _____

28. List the number of times each year that you have lost a close friend by death:

1966	1967
------	------

Does not apply _____

29. List the number of times each year that you have gained a new family member (birth of a child, adoption, oldster moving into home, etc.):

1966	1967
------	------

Does not apply _____

30. List the number of times each year that there has been a major change in the health or behavior of a family member:

1966	1967
_____	_____

Does not apply _____

31. List the number of times each year that you have changed place of residence:

1966	1967
_____	_____

Does not apply _____

32. List the number of times each year that you have been held in jail or some other detention place:

1966	1967
_____	_____

Does not apply _____

33. List the number of times each year that you have been found guilty of minor infractions of the law (disturbing the peace, traffic tickets, etc.):

1966	1967
_____	_____

Does not apply _____

34. List the number of times each year that you have undergone major change in regard to business (merger, bankruptcy, reorganization, etc.):

1966	1967
_____	_____

Does not apply _____

35. List the number of times each year that you married:

1966	1967
_____	_____

Does not apply _____

36. List the number of times each year that you were divorced:

1966	1967
_____	_____

Does not apply _____

37. List the number of times each year that there was a lot more or a lot less contact with your spouse (for example, marital separation, reconciliation, etc.):

1966	1967
_____	_____

Does not apply _____

38. List the number of times each year that you have achieved special successes (championships, awards, notable accomplishments, etc.):

1966	1967
_____	_____

Does not apply _____

39. List the number of times each year that a son or daughter has married or moved out of the home:

1966	1967
------	------

Does not apply _____

40. List the number of times each year that you have retired:

1966	1967
------	------

Does not apply _____

41. List the number of times each year that there have been unusual changes in working hours or conditions:

1966	1967
------	------

Does not apply _____

42. List the number of times each year that you have experienced a change in your responsibilities at work (for example, promotions, demotions, transfers):

1966	1967
------	------

Does not apply _____

43. List the number of times each year that you have been fired:

1966	1967
------	------

Does not apply _____

44. List the number of times each year that your living conditions have substantially changed (remodeling, building additions, deterioration of home and/or neighborhood, etc.):

1966	1967
------	------

Does not apply _____

45. List the number of times each year that your wife started and/or ceased working outside the home (gainful employment, volunteer work, school, etc.):

1966	1967
------	------

Does not apply _____

46. List the number of times each year that you took on a new mortgage or loan greater than \$10,000 (financing a home, a business, etc.):

1966	1967
------	------

Does not apply _____

47. List the number of times each year that you took on a new mortgage or loan less than \$10,000 (new car, T.V., freezer, etc.):

1966	1967
------	------

Does not apply _____

48. List the number of times each year that you have experienced a foreclosure on a mortgage or loan:

1966	1967

Does not apply _____

49. List the number of times each year that you have taken a vacation:

1966	1967

Does not apply _____

50. List the number of times each year that you have changed schools:

1966	1967

Does not apply _____

51. List the number of times each year that you have changed to a new line of work:

1966	1967

Does not apply _____

52. List the number of times each year you have either begun or quit formal schooling:

1966	1967

Does not apply _____

VITA

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