LIFE CHANGE UNIT SCORES OF MYOCARDIAL
INFARCTION PATIENTS AND PERSONS WHO
HAVE HAD NO RECENT MAJOR ILLNESS

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A THESIS

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CHAPTER I

INTRODUCTION

In the normal course of living everyone is exposed
to a variety of life changes.  These changes could involve
health, work, home, family, and financial situations as
well as personal and social habits and other experiences.
These life changes demand adaptive or coping responses by
the individual.  The number, magnitude, and rate of these
life changes determine the degree of stress that the body
experiences.  The effect of stress in coping with these
life changes can dramatically affect health.

One of the dramatic effects of stressful life
changes is heart disease, a leading cause of incapacita-
tion and death in the United States and Europe.  Accord-
ing to Selye (1976), heart disease is one of the diseases
of maladaptation that results from the person's inability
to adequately cope with stressful life changes and the
body's response to such inadequate coping.  These stress-
ful life changes seem to be quite independent of such
risk factors as cholesterol levels, blood pressure,
obesity, cigarette smoking, and psychological traits.

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Nurses are committed to health maintenance and disease prevention. They are interested in the whole person, his physical, social, and psychological needs. An important aspect in health maintenance and disease prevention is reducing stressors and adverse conditions that affect an individual's optimal functioning. Assisting individuals to assess their life change events is one way that areas of stress can be identified. If levels of stress are at a dangerous level, further change at that particular time could be discouraged and healthy ways of coping with stress could be reviewed. Nurses have both an opportunity and a responsibility in counseling and in health education to help people attain and maintain optimal health.

## Statement of the Problem

The problem of this study was to compare the life change unit mean score of persons who have a diagnosis of myocardial infarction and the life change unit mean score of persons who have not had any recent major illness.

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## Purposes of Study

The purposes of this study were to:

1. Determine life change unit scores for persons who have a diagnosis of myocardial infarction

2. Determine life change unit scores for persons who have had no recent major illness

3. Determine if there is a difference in the life change unit mean scores for persons who have a diagnosis of myocardial infarction and persons who have had no recent major illness

## Theoretical Framework

The theorietical framework for this study was based on Selye's theory of stress and the concept of life changes developed by Holmes and Rahe. Selye (1976) defined stress as "the nonspecific response of the body to any demand" (p. 1). According to Selye, stress is a normal part of life which everyone experiences to some degree all the time, since any emotion or any activity causes stress. Whether the stress producing factors are unpleasant or pleasant is immaterial. The important factor is the amount of readjustment or adaptation required by the body.

Through his research, Selye found that stress causes certain chemical and structural changes in the body. Some of these changes manifest themselves in damage to the body; whereas, other changes are manifestations of the body's adaptive reaction as a defense against stress. The body's reaction to stress makes it possible to fight disease, to act when confronted with danger, and to cope with trying conditions. If adjustment demands are continuous or intensive, the body's adaptive mechanism wears out. Repeated reactions to continued or extreme stress cause certain changes in structure and chemical composition of the body, resulting in disease or death (Selye 1976).

According to Selye (1976), the totality of these body changes is manifested by the stress syndrome, known as the general adaptation syndrome. This syndrome develops in three stages: (1) alarm reaction, (2) stage of resistance, and (3) stage of exhaustion. During the alarm reaction, the defensive forces are activated with the endocrine and nervous systems liberating chemicals necessary to deal with the stressor. The stage of resistance is the body's adaptation to the stressor. Only severe stress leads to the stage of exhaustion and death. While many people may experience stages one and

two in their daily life, only those who experience continued and severe stress will experience stage three.

Selye's theory of stress laid the foundation for applied research accomplished by Thomas H. Holmes and Richard Rahe on the relationship of life changes to health changes. Holmes and Rahe (1967) have established the theory that a cluster of life events requiring change in life adjustment is closely related to illness onset.

Holmes and Rahe (1967) devised a scale and assigned point values to the life changes so that stress levels could be determined. When a cluster of changes occurred in one year with the point value exceeding 300, illness was found to be more apt to occur. Holmes' research revealed that there was a 37 percent risk of health change for those who had a life change unit (LCU) score from 150-199, a 51 percent risk for those with scores between 200 and 299, and a 79 percent risk for those with scores of 300 or more. These scores, then, were used as guidelines for recognizing potential crisis situations (Holmes and Masuda 1973).

## Background and Significance

Change in personal life situations can be the most powerful and most common stressor (Lamott 1975). Holmes and Rahe (1967) noted that change can be closely correlated with the state of health. Numerous studies have shown that there is a high correlation between change and illness. Results of some of these studies, showing the relationship of change to illness suscepti- bility and the relationship of change to heart disease, will be examined.

Research conducted in Finland by Rahe et al. (1964) systematically examined the relationship of environmental factors to the time of illness onset. A Finland out- patient group of forty tuberculosis patients, forty newly diagnosed cardiac patients, and forty control subjects who had no major illness were included in the study. Using the "Schedule of Recent Experience" ques- tionnaire to document information, the subjects in the study identified change in social status that had occurred in the ten preceding years before symptoms had appeared. The two groups, the cardiac group and the tuberculosis group, revealed no difference in temporal patterns of social stress, both having similar clustering of stresses

during the two years before onset of symptoms. Both disease groups differed significantly from the control group in the increased frequency of change in social status in the final two years of the ten year period. The researchers concluded from the study that the changes that occurred in the two year period preceding disease represented a necessary but not the only factor in major health change (Rahe et al. 1964).

Over three thousand United States Navy personnel were involved in a research study conducted by Rahe and Arthur (1968). Using the life change and health status questionnaire, retrospective data were collected on life change patterns prior to illness and life changes recorded at time of illness and following illness. The life changes data of subjects who indicated recent illness were compared with life change patterns of a larger group of reportedly healthy individuals over the same period of time. The study found that life change unit scores increased significantly above a healthy baseline value before, during, and after illness occurrence.

Holmes and Masuda (1974) found through their research that the greater magnitude of life change, the greater the probability that life change would be associated with illness onset. There was a positive

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correlation between magnitude of life change and the seriousness of chronic illness experienced. Illnesses inlcuded medical, surgical, and psychiatric conditions. From this study the researchers postulated that body resistance is lowered when life change events cause adaptive efforts on the part of the human body. This lowered body resistance enhances the probability of disease occurrence.

Cline and Chosy (1972) examined the life change events requiring social readjustment in 134 cadets enrolled in an officer training program to determine the relationship between the life events and subsequent health changes. The researchers found a positive correlation between life changes and health changes which were noted during the first two weeks of the training period, as well as the succeeding four and eight month periods. The data from the study showed that distrubance in the cadets' social equilibrium affected their physiological disequilibrium and was reflected by their reportable health changes.

Data from a longitudinal study of life change and illness patterns conducted by Rahe, McKean, and Arthur (1967) on navy personnel indicated that the greater the significance of the life change event to the individual

and the clustering of changes, the greater the chance for major body illness to occur. The type of illness which occurred was thought to depend upon the individual's constitutional and acquired weaknesses and his exposure to etiolotical agents.

Considerable research has been conducted on the relationship of life change events to coronary heart disease. Several of these studies will be reviewed.

Rahe and Lind (1971) conducted a study of life change events on thirty-nine subjects who experienced sudden cardiac death. It was found that both subjects with or without prior histories of coronary heart disease had experienced an increase in number and magnitude of life change events the six month period prior to their death. Compared to time periods two to three years prior to their death, the increase in magnitude of life change events was threefold.

In another study conducted by Rahe et al. (1974b), data were gathered from 279 survivors of myocardial infarction and from 226 cases of sudden coronary death in Helsinki to determine the magnitude of life change events that had occurred. The findings of the study, as in previous studies, revealed that there was a significant rise in life change unit levels for the six month period

prior to the subject's infarction or sudden death compared to the time a year earlier. From this study and from previous studies, the researchers concluded that a non-specific stressor effect from recent changes in an individual's life may increase the possibility of an individual with a predisposing factor to heart disease to experience signs and symptoms of coronary heart disease. Individuals with predisposition for other illnesses would develop other diseases following increased life changes. Rahe suggested that in individuals prone to coronary heart disease the life change unit (LCU) score could be used as a prediction for when an attack may occur. An increased LCU score could make the coronary prone person more vulnerable to a myocardial infarction within the near future.

In studying life change events occurring before a myocardial infarction, Connally (1976) compared ninety-one myocardial infarction patients with an equal number of control subjects from an industrial plant. He found that myocardial infarction patients had experienced more life changes three weeks before their infarction than the control group.

Theorell and Rahe (1971) conducted a study on psychological factors in myocardial infarction patients

in Sweden. Information on life changes that occurred prior to myocardial infarctions of fifty-four Swedish males was gathered and compared with a comparison group of fourteen friends who had experienced no coronary artery disease. The myocardial infarction group was divided into two such groups based on whether they had had previous symptoms or any other major illness the three to four years prior to their current myocardial infarction. Findings from the life change data revealed that subjects with no previous histories of heart disease had a significant life change unit increase over the two years prior to their infarction. Those with recent episodes of coronary heart disease or who had experienced other major illnesses had a significant increase in their LCU score during the second year prior to the investigated infarctions. The control group demonstrated no significant change in their baseline LCU score for the three years prior to the study.

Various research studies indicate that change in a life situation is one factor, but not the only factor, in increasing the susceptibility to illness (Rahe et al. 1964). Researchers have found that the greater the magnitude of life change, the greater the probability that life change would be associated with illness onset (Holmes

and Masuda 1974; Cline and Chosy 1972; Rahe, McKean, and Arthur 1967). Research with cardiac patients has revealed an increase in magnitude of life change events in a six month period prior to their attack or death compared to life changes that had occurred earlier (Rahe and Lind 1971; Rahe et al. 1974b; Connally 1976).

These studies indicate that knowledge of life change events would be helpful as preventive aspects to illness are considered. People are often unaware of the stress that can result from too much change in too short a period of time. How stress in the form of life changes influences the health of the individual needs to be emphasized more in nursing education programs and in-service programs for nurses employed in hospitals and in the community. The "Social Readjustment Rating Scale" (SRRS) could be a valuable tool for the nurse to use in assisting people to assess the number and types of changes that have already occurred (Holmes and Rahe 1967). The SRRS could also be used to help the individual plan for the future when further change is a possibility. A self-evaluation could be made to see if further change was advisable at that time. Very little has been done in health agencies in the past to help individuals identify areas of stress in their lives. Using the SRRS tool could

be one way to further health maintenance and prevention of disease. This study, which is a replication of previous research studies conducted on life change events and health, could either strengthen the findings of other studies or show the need for further research.

## Hypothesis

The hypothesis for this study was:

There will be no significant difference in the life change unit mean scores of persons who have been diagnosed as having a recent myocardial infarction and persons in a business and professional group who have had no recent major illness.

## Definition of Terms

The following terms were used in this study:

1. Life change events--the kind of life changes that are part of normal existence that are identified by Holmes and Rahe (1967) as requiring adaptive behavior (appendix A)

2. Life change unit--a number assigned to each life change event on the "Social Readjustment Rating Scale" indicating the relative amount of adaptive behavior required for the event (Holmes and Rahe 1967)

3. Myocardial infarction--a complete obstruction of the blood supply to a portion of the myocardium of the heart (Guyton 1976)

4. Recent major illness--a diagnosis which has required a physician's treatment within the past three months or which requires daily prescribed medication

## Limitations

The following were limitations of the study:

1. As the study utilized a small number in the samples, the findings were limited

2. Some individuals are able to cope with life change situations better than others. Therefore, what would be a crisis situation for one individual may not be for another

3. The ability to recall past events may vary with the individual

4. The data for the group with no major illness were collected by more than one person

## Delimitations

The following were delimitations for the study:

1. The sample consisted of thirty male individuals between the ages of 30 and 65 years who had been

diagnosed as having a myocardial infarction within the past three months and were under treatment at a large southern metropolitan area hospital

2.  The comparison group included thirty male business and professional individuals between the ages of 30 and 65 years who had not had a major illness within the past three months

## Assumptions

For this study the following assumptions were made:

1.  Rapid change in lives of individuals can be stressful

2.  Successful coping with rapid change requires adaptation

3.  To many life change events can result in illness

## Summary

This study compared the life change unit mean score of persons who have a diagnosis of myocardial infarction and the mean score of persons who have had no recent major illness. The theoretical framework for the study was based on Selye's theory of stress and the concept of life change developed by Holmes and Rahe.

The studies reviewed illustrated that the greater the magnitude of life change, the greater the probability that life change would be associated with illness onset. Research studies with cardiac patients indicated that there was an increase in the magnitude of life changes six months prior to a cardiac attack.

The aim of this study was to contribute to the knowledge of what influence change has on a person's health. This knowledge could assist nurses in finding ways to help people assess their stress levels and to cope with change before illness results.

CHAPTER II

REVIEW OF LITERATURE

Research has shown evidence that life events, by evoking psychophysiological reactions, play an important role in the development of many diseases including heart disease (Petrich and Holmes 1977). This study examined the life change events of myocardial infarction patients and a group who had no recent major illness to determine if there were any significant differences in the mean scores of the two groups.

This chapter includes a review of pertinent studies related to stress and life change events as they relate to health changes. Topics to be discussed include heart disease, the concept of stress, life change, and nursing implications in regard to life change events.

Heart Disease

According to Guyton (1976), approximately one-third of all deaths are caused from coronary artery disease. Due to the prevalence of heart disease, researchers have been prompted to investigate the multiple

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factors which may relate to its development. During the past two decades, epidemiologic research conducted in the United States and Europe has identified risk factors that seem to predispose certain individuals to coronary artery disease (Rahe et al. 1974b; Selye 1976; Kozarevic et al. 1976). These risk factors include serum cholesterol levels, obesity, blood pressure, and cigarette smoking. There has also been an increasing amount of research on the relationship of psychosocial factors to heart disease (Russek and Russek 1977; Colemann 1973). The following studies show the relationship between psychosocial factors and heart disease.

Analysis of psychosocial patterns has been the emphasis in various studies on heart disease. Liljefors and Rahe (1970) conducted a study of thirty-two identical male twins in Sweden who were discordant for coronary heart disease. The researchers analyzed the subjects' psychosocial patterns in regard to work, leisure, home problems, and life dissatisfactions. The psychosocial scores for all four categories were higher for coronary artery disease subjects than for their less afflicted brother; the life dissatisfactions category provided the highest correlation with coronary heart disease severity.

Thiel, Parker, and Bruce (1973) investigated psychosocial factors in fifty myocardial infarction patients and fifty healthy individuals to determine the possibility of psychosocial factors playing a role in pathogenesis of myocardial infarction. Life styles and habits of the two groups were compared. Divorce, feelings of loneliness, disturbed relations with colleagues, loss of friends, and feelings of hate occurred more frequently in the myocardial infarction group. Most of the myocardial infarction patients worked longer hours and were high salaried executive individuals. Compared to the control group, the myocardial infarction patients' smoking habits were excessive and either participated in no sports or were committed to overactivity. The clustering of multiple psychosocial stresses and excessive habits, being more prevalent in the myocardial infarction patients, indicated that these factors may be significant in the development of coronary artery disease.

Russek and Russek (1977) investigated psychosocial factors for one hundred coronary patients under 40 years of age. This study found that 91 percent of the coronary cases had experienced prolonged emotional stress related to their jobs compared to 20 percent in a control group. To test the validity of the findings, further studies

were made on different occupational groups having
obvious differences in tension created by the demands
of these jobs. In one of these studies, 4,000 physicians
from four different specialties were surveyed to deter-
mine the prevalence of coronary artery disease in each
group. Two high stress specialties, general practitioner
and anesthesiologist, and two low stress specialties,
pathologist and dermatologist, were selected for the
studies. This study indicated that of the four groups
the general practitioners and anesthesiologists had a
higher prevalence of coronary artery disease. The inci-
dence was highest among the general practitioners and
lowest among the dermatologists. Another study surveyed
25,000 professional men from twenty different occupa-
tional categories to determine prevalence of coronary
artery disease. The findings demonstrated that people
in occupations prejudged to be the most stressful had
the greatest prevalence of coronary artery disease.
These findings supported the growing belief that emo-
tional stress is an important factor in the etiology of
coronary artery disease.

## The Concept of Stress

Selye's theory of stress and the individual's
ability to cope with stress will be described in this

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section. Studies related to the physiological changes in stressful situations will also be reviewed.

Selye's Theory of Stress

Although people may face different problems in life, research has shown that their bodies respond in the same way with identical biochemical changes. These biochemical changes include neural and hormonal reactions which take place to assist the body to adapt to its physical and emotional environment. Selye called this non-specific response of the body to any demand made upon it, stress, and the stress producing factors, stressors. A nonspecific response implied that regardless of the problem all stressors increase the need for the body to perform certain adaptive functions to re-establish normalcy (Selye 1976).

Through experimentation with rats in 1936, Selye discovered that the biochemical changes which occurred produced a stereotyped syndrome characterized by enlargement of the adrenal cortex, shrinkage of lymphatic organs, and gastrointestinal ulcers (Selye 1974). This triad became the objective indexes of stress and laid the foundation for the concept of stress (Selye 1973). In later experiments the stress was found to also manifest many other changes which formed a syndrome known as the

the general adaptation syndrome. The general adaptation
syndrome includes three stages: (1) the alarm reaction,
(2) the stage of resistance, and (3) the stage of exhaus-
tion (Selye 1974).

During the alarm reaction the nervous and endo-
crine systems liberate hormones which help the body to
mobilize for defense against the stressor. The sympa-
thetic nervous system stimulates the adrenal medulla to
secrete adrenalin and noradrenalin resulting in physio-
logical changes such as increased heart rate, blood
pressure, and body metabolism (Benson 1975). This neural
stimulation takes place thousands of times a day providing
a quick spurt of energy whenever there is a change in
stimuli (Toffler 1970).

As a further response to prolonged stress the
endocrine system is activated through the hypothalamus,
a nerve center at the base of the brain. The hypothala-
mus produces a substance which causes the pituitary gland
to secrete adrenocorticotrophic hormone, known as ACTH.
Adrenocorticotrophic hormone, in turn, stimulates the
adrenal cortex to secreta corticoids. Cortisone, the
most important corticoid causes the thymus and lymph
nodes to atrophy, inhibits inflammatory reaction, and
influences glucose and general organic metabolism (Selye

1973). Stomach ulcers are another effect of increased corticoid levels in the blood and increased neural response (Selye 1976).

After the initial alarm reaction the body begins to adapt and resist the stressor. The length of the resistance period depends upon the body's ability to adapt. During the stage of resistance the corticoid activity declines to a level slightly above normal (Selye 1976).

When exposure to the same stressor occurs over an extended period of time, the pituitary and adrenal cortex are again activated; the corticoid activity raises to a level above the maximal level reached during the alarm reaction. During this stage of exhaustion signs of the alarm stage reappear and become irreversible. Eventually the adaptation energy is exhausted (Selye 1974).

Faulty adaptation responses to stress can lead to maladies called diseases of adaptation. Some diseases are due to excessive defensive bodily reactions and some due to overabundance of submissive reactions rather than the direct result of a pathogen. Under optimal conditions, disease will not be produced when there is a perfectly adjusted biochemical response with a balance

between defense and submission. However, when excessive demands are made, the body's adaptive response is no longer sufficient and diseases of adaptation develop. Maladaptation is a factor in conditions such as cardiac disease, hypertension, renal disease, rheumatoid arthritis, inflammatory diseases of the eyes and skin, gastrointestinal disorders, allergic diseases, cancer, nervous and mental diseases, and metabolic disorders. The specific organ which is most vulnerable depends upon the individual's heredity, age, sex, illness, environmental factors, and conditioning (Selye 1977; Colman 1973).

According to Selye, a certain amount of stress is needed in life, but one must learn when the limits of endurance are exceeded. There are danger signs that warn people that they are experiencing undue stress before diseases of adaptation occur. Some of these signs are measurable in the laboratory such as eosinophil count, blood and urine levels of corticosteroids and adrenalines, and level of muscle tension (Selye 1976; Colman 1973). There are also self-observable signs which the average person can detect. The more immediate signs include increase in pulse rate and blood pressure, loss of appetite, restlessness, and sweat secretion.

Some other indexes of stress that are not immediately evident may include general irritability, depression, pounding of the heart, dryness of the throat and mouth, inability to concentrate, fatigue, insomnia, trembling, nervous laughter, diarrhea, and indigestion. These signs warn a person that he is experiencing undue stress and alerts him to the need for more adequate coping (Selye 1976).

## Coping with Stress

Individuals vary in their ability to cope with stress. Some are incapable of coping with small difficulties in life; whereas, others have certain psychological assets which help them to adjust to stress (Mills 1976). What determines the severity of the stress, is the way people perceive the stress situation, the duration of the stress, the multiplicity of demands, and their external resources. Lack of external resources such as close interpersonal relationships and material means make the stress situation more severe and results in less ability to cope with the situation (Colman 1973).

According to Selye,

> . . . it is our ability to cope with the demands made by the events in our lives, not the quality or intensity of the events that counts. What matters is not so much what happens to us, but the way we take it (Selye 1976, pp. 177-178).

Physiological Changes in
Stressful Situations

Various studies have been conducted by researchers
to determine the physiological changes which occur in
people experiencing stressful situations. Palmblad et al.
(1976) conducted a study to determine if there was a
change in the production of interferon in circulating
lymphocytes and the rate of phagocytosis in monocytes
and in polymorphonuclear keukocytes in eight healthy
females who were exposed to a stressful twenty-seven
hour vigil. Results of the study showed that there were
changes in adrenal cortical and medullary hormones, an
increase in production of interferon by the lymphocytes,
and a decrease in phagocytosis during the vigil. There
was an increase in phagocytosis after the exposure to a
level above the pre-exposure level. These findings were
compatible with the typical stress reaction.

In another study serum uric acid, cholesterol,
and cortisol variability were recorded twice a week over
a three or six month period on three medical researchers
during the stress of everyday living. Each participant
kept a diary of particular happenings on each day. Uric
acid elevations occurred in two of the three prior to
experiencing a physical change. Marked elevations of

cholesterol appeared in one of the individuals during an unpleasant residential move. Increases in serum cortisol were noted in another individual during periods of anger concerning personal disappointments and work changes (Rahe, Rubin, and Arthur 1974c).

Some researchers have found that catecholamines play an important role in the pathogenesis of myocardial infarction. Selye (1976) found that the two chemicals, epinephrine and norephinephrine, when given in high doses, cause myocardial infarction in dogs.

Theorell et al. (1972) investigated the relation-ship between life changes, catecholamine excretion, and related biochemical reactions in twenty-one Swedish male myocardial infarction survivors. The researchers analyzed the relationship between the sum total of life change events and the sympathoadrenomedullary activity measured by excretion of catecholamines in the urine. The find-ings showed that in the weeks without life changes, the urine catecholamines levels were significantly below the average for the individual subject; whereas, the weeks with life changes, the epinephrine and norepinephrine levels correlated significantly with the life change unit (LCU) sum of the week. The relationship of the LCU per week and biochemicals was insignificant.

Stressful situations as well as life changes, then, have been shown through laboratory findings to produce physiological reactions in the body. The next section will further consider the relationship of change to stress and studies related to life change.

## Life Change

Various authors have written about the effect of change on people. According to Toffler (1970), many changes place a great challenge on the body and can be stressful if there are too many changes in too short a period of time. Although change gives spice to life and is a necessary factor in life, the biosystem has a limited capacity for change. Selye's (1976) research indicated that stress, of whatever nature, if too prolonged and severe, could eventually overwhelm the person regardless of his adaptive capacities. When the limits are exceeded, the body responds with lowered efficiency and illness.

Holmes' and Rahe's (1967) studies revealed that the rate of change in a person's life is closely related to the state of a person's health. These researchers observed that life changes, whether desirable or undesirable, which require a great deal of adjustment or

coping ability are stressful and correlate with health
changes. An instrument, the "Social Readjustment Rating
Scale," was developed by Holmes and Rahe (1967) to com-
pare the amount of change of a person's life with that
of another. By studying the amount of change in a per-
son's life, the researchers learned how change influenced
health.

Studies Related to Life Change

The review to follow includes prospective and
retrospective studies on life change events. The studies
have been used to predict illness or to identify precipi-
tating factors in illness onset.

In various studies subjects' life changes have
been used as measure to predict illness onset. Rahe
et al. (1971), who studied 2,678 United States Navy en-
listed men using the "Schedule of Recent Experience"
(SRE) questionnaire, found that marital life changes were
of great importance in illness prediction in older Navy
subjects. Another important factor for predicting near-
future illness was disciplinary action.

A prospective study to determine relationship of
life changes to minor illness was conducted using a group
of Norwegian Navy enlisted men and United States Navy

enlisted men. The "Schedule of Recent Experience" questionnaire was administered to enlisted Navy men prior to naval cruises. For both groups the illness rates were directly correlated with their life change unit (LCU) scores six months immediately prior to the study. The researchers found in both samples of men that the further back in time the life changes occurred, the less effect the life changes had on their near-future illness reports. This data supports the idea that life change is related to the time of onset of illness. The researchers also found that the subjects more likely to report their illness were the younger, unmarried subjects, who were relatively unsatisfied with their work. The Norwegian Navy men had illnesses develop similar to United States Navy men, but had fewer life changes and a lower rate in illness than the average United States Navy men (Rahe et al. 1974a).

A study of 194 young, single, underwater demolition team trainees showed that SRE information best predicted their more severe illnesses and not their minor ones. Underwater demolition team training was a very stressful four-month training program. Illness reporting for the group who finished the course was ten times as high as for shipboard subjects. For subjects who were

dropped from training, their illness reporting was as
high as fifty times that of the shipboard rate (Rahe
1972).

A prospective study dealing with the predicta-
bility of illness in 2,664 Navy personnel aboard three
United States Navy cruisers for six to eight months was
conducted by Rahe, Mahan, and Arthur (1970). The Navy
version of the "Schedule of Recent Experience" question-
naire was used to collect life change data prior to the
cruise. The results of the study showed a linear rela-
tionship between recent life changes and rates of ill-
ness during the cruise.

A study conducted by Spilken and Jacobs (1971) was
to predict future illness of ninety-two male college
students. Besides giving the students physical examina-
tions, the Life Change Inventory, the Manifest Affect
Rating Scale, and the Boston University Personality In-
ventory were used to evaluate the students. The higher
the score for each test, the more likely the student was
to seek medical care for illness during the coming year.
In a follow-up phase one year later, the sixty-five
students were recontacted and asked to describe their
health status during the year's time. Analysis of the
findings showed that treatment seeking students scored

significantly higher on the three tests. The results indicated that a person's unresolved life stress may accurately predict future illness.

A follow-up study was conducted on eighty-four of the eighty-eight resident physicians who were subjects of a previous prospective study where life changes for the previous eighteen months were used to predict onset of illness in the future. Data concerning occurrence of any illness were collected eight months later. The findings revealed that illness was reported by 49 percent of the subjects with scores of 300 or higher LCU, by 25 percent of the subjects with scores between 200-299 LCU, and 9 percent of the subjects with scores between 150-199 LCU (Rahe 1972).

McNeil and Pesznecker (1977) studied variables in a group that might affect their ability to withstand high degrees of life change without experiencing illness. Questionnaires were given to 536 people to elicit information on five major variables: (1) health habits, (2) social assets, (3) psychological well-being, (4) life change, and (5) health status. In considering all the variables the researchers found that the most important variable for determining whether a person would have a major health change was the magnitude of life change

experienced. The other variables had only a small effect on a major health change.

The "Social Readjustment Rating Scale" has also been used in many retrospective studies. Some selected studies of this type pertaining to psychiatric illness, heart disease, and asthma will be reviewed.

In a comparative study by Bell (1977), the "Social Readjustment Rating Scale" and an eighteen item coping scale were administered to two groups, psychiatric patients and subjects who had no psychiatric history. The psychiatric patients reported significantly more life changes and short-term coping methods in the previous six months than the control group. In both groups those with high stress scores tended to use short-term instead of long-term coping methods.

A study of a community sample of 720 adults in New Haven, Connecticut to determine the relationship between life events and changes in psychiatric symptomatology was conducted over a two year period. Results showed that the greater the magnitude of life changes the more apt there would be change in mental status, while a decrease in life changes reduced the symptoms (Myer et al. 1972).

Another study conducted by Grant et al. (1978)
investigated the relationship of life change events to
changes in psychiatric symptoms. The sample included
89 male psychiatric patients and 107 hospital and uni-
versity employees, who completed a "Schedule of Recent
Events" and a symptom checklist every two months for
eighteen months. During each of the nine measurement
periods, an increase in symptoms correlated positively
with an increase in life change events. The study con-
cluded that when large groups are studied statistically
significant relationships of life events and symptoms can
be demonstrated, but important individual differences are
obscured. Why life events affect the health of some and
not others is often overlooked.

Johnson and Sarason (1978) proposed that life
changes may have the most adverse effects on people who
believe that they have little control over their environ-
mental events. In a study, the researchers examined the
relationship of life change and amount of a person's
depression and anxiety ". . . as a function of the indi-
vidual's locus of control orientation" (p. 206). The
results of the study indicated that there was significant
correlation between life change and depression and
anxiety in persons who were external in their locus of

control orientation. The researchers concluded that life stress is primarily related to occurrence of negative events instead of change alone.

The relationship of life change and cardiac disease has been researched extensively. DeFaire's (1973) research study analyzed the life change patterns in twenty-seven male twin pairs in which one twin in each pair died from ischemic heart disease. The diseased twin consistently showed higher LCU totals than the surviving twin in the four year period prior to death. The researchers concluded that even when genetic factors are kept under control that life changes, especially those associated with work conditions, play an important role in illness onset.

Theorell and Rahe (1975) studied recent life changes and ballistocardiographic data on thirty-six myocardial infarction patients, half of whom died and half of whom survived over a six year period. For the eighteen who died, there was a significant increase in life changes the year prior to their death and a significant increase in the heart's force of contraction six months prior to death. In contrast, the myocardial infarction patients who survived the six years showed neither an increase in life changes nor increase in the

ballistocardiographic index of cardiac contraction force. The researchers concluded that life change events are a measurable aspect of life stress.

Quantification of life change events and psychological assets in thirty-six chronic asthmatics were used in studying dosage of adrenocorticosteroids required to control chronic intrinsic asthma (DeAraujo et al. 1973). The Berle Index was selected to quantify psychological assets and the "Social Readjustment Rating Scale" for the life change events. The mean amount of daily adrenocorticosteroids was determined for a period of one year. The findings showed that the patients who had high psychosocial assets required lower doses of the medication regardless of the life change score. Those who had low psychosocial assets and a high life change score required higher doses of the adrenocorticosteroid. When both psychological assets and life changes were low the dosage required was also low. The researchers concluded that patients with low psychosocial assets would benefit from help in avoiding high life change and in increasing their psychological assets and coping abilities.

Not all studies agree on the relationship of life events and subsequent illness. Goldberg and Comstock (1976) examined the relationship of stress, measured by

life change events, and hospitalization or death during
the following six to twelve month period using a case-
control design. The two groups used in the study included
a group of subjects who became ill and were hospitalized
and a control group of subjects who had not been sick or
hospitalized. When the life events were compared, there
were no differences between the two groups.

Theorell (1976) examined the effects of the
interaction of "discord" and "life change" on blood
pressure, serum lipids, serum transaminase, and illness
patterns of middle-aged construction building workers.
The results of the study showed that life change alone
without discord was not related to illness onset or
pathological findings. However, when both life change
and discord were present, there were increased rates
of hypertension, neurosis, and other illness.

Not all researchers believe that change by itself
is stressful; therefore, they place more emphasis on
the undesirability of the event. Jacobs et al. (1970)
hypothesized that life occurrences such as failure, un-
resolved role crisis, and social isolation were associ-
ated with the presence of respiratory conditions. Two
groups of college students were compared, one group who
had sought medical treatment for respiratory illness and

one group who had not sought medical treatment and were free of illness. The findings of this study supported the hypothesis that life situations consisting of failure, social isolation, and role crisis were related to the occurrence of respiratory illness; while positive achievement and changes in family relationship and structure were not associated with illness or seeking medical advice. According to the researchers, changes in family relationships may not have affected the students as they were detached from their home situation. This study was limited in its application beyond the illness group studied as the researchers did not study students with symptoms who sought medical care outside the college clinic or who did not seek help at all.

Vinokur and Selzer (1975), using a modified version of the life change events checklist, demonstrated through their research that an accumulation of life events is correlated with tension, distress, emotional disturbances, and behavioral indications of stress. The researchers found that these relationships do not apply in desirable situations, but primarily in undesirable situations. Contrary to what has been suggested in earlier studies, undesirability instead of all types of change is the crucial factor in determining stress.

Findings of most studies on life change events provide only mean life changes and illness data applicable to the group as a whole with little reference to individual variability in life change and illness. In the studies a certain percentage of the subjects with high life change scores do not become ill during the following year. The question arises as to why some people succumb to the life change buildup while others do not. Rahe and Arthur (1978) suggested that how a person perceives the event positively or negatively and one's current social supports influence his reaction to the life change event.

In one study Rahe and Arthur (1978) found that those who used defense mechanisms such as rationalization and intellectualization concerning their leukemia children showed no increase in urinary 17-hydroxycorticosteroid excretions while others who did not use these defense mechanisms showed an increase. The researchers concluded that measures such as certain relaxation techniques, physical exercise, medication, and techniques of psychological coping help reduce body symptoms of stress.

Nursing Implications in Regard
to Life Change Events

In a rapidly changing society helping people deal
successfully with change is needed. Nurses are in a
position both in the community and in health institutions
to help people cope with change.

The Neuman model, a total person approach for
ascertaining patient problems, applies the theory of
stress to nursing practice (Neuman 1974). The "total
person" framework is an open system model with two
components: stress and reaction to stress. Stressors
are defined by Selye as tension producing factors which
can cause disequilibrium or the experience of stress in
a person's life (Selye 1976). Stressors can be intra-
personal, interpersonal, or extrapersonal in nature.
Neuman (1974) emphasized that patients' problems, which
are often multidimensional, can by physiological, psycho-
logical, sociocultural, and developmental. Life events
can also be stressors of an intra, inter, or extrapersonal
nature and are often multidimensional.

Assessing life events can be a means of identify-
ing areas of stress in a person's life (McNeil and Pesz-
necker 1977). Neuman and Young (1972) emphasized the
importance of "primary prevention" in which the nurse

intervenes to reduce the encounter with a stressor that could affect the client's optimal functioning and to strengthen the flexible line of defense to prevent a possible reaction to the stressor. McNeil and Pesznecker (1977) suggested using the life change inventory as a preventive measure to teach people about life change and its effect on wellness. The nurse can help the client identify his coping strengths and anticipated changes, so that his flexible line of defense will be strengthened to prevent a possible reaction with the stressor.

According to Mechanic (1976) a great deal of human activity involves seeking change for exhilaration of a new experience. Through the stress experienced from change, growth takes place. Thus, the task is not to diminish the sense of challenge, but to help people deal successfully with the challenge which change produces (Mechanic 1976). Nurses have the opportunity and responsibility to meet this challenge.

## Summary

Approximately one-third of all deaths are caused from coronary artery disease. Due to the prevalence of heart disease, numerous studies have been conducted to try to find etiological factors involved in its development. This chapter provided background material for this

study, which was to determine if there was any significant difference in the life change unit mean scores of patients who had experienced a myocardial infarction and persons who had not experienced a recent major illness.

Selected studies showing the relationship between certain psychosocial factors and heart disease were reviewed.  To understand the effect of stress on the body and its relationship to illness, Selye's theory of stress was explained.  Holmes' and Rahe's theory of life change in relation to stress and studies related to life change were discussed.  Ways that nurses could help people assess and cope with change were suggested.

# CHAPTER III

## PROCEDURE FOR COLLECTION AND
## TREATMENT OF DATA

In this study the descriptive method of research was utilized. Descriptive research is nonexperimental research in which data are collected, recorded, and analyzed. Information obtained is used to answer a question or solve a problem (Treece and Treece 1977). In this study information on life change events that had occurred in a period of a year in two different groups of people, those who had experienced a myocardial infarction, and those who had not experienced recent illness, was collected, recorded, and analyzed to determine if there was any statistically significant difference in the mean scores of the two groups. A flow plan was utilized to outline the design for this study (appendix B).

## Setting

The setting for this study was a large southern metropolitan area. Two large private hospitals, each with a capacity of over 550 beds, were utilized to obtain

subjects who had experienced a myocardial infarction. The intermediate coronary care units where the subjects were contacted had a unit of twenty beds in one hospital and a unit of twenty-three beds in the other hospital. The subjects for the comparison group were selected from a small service club, a department in a small factory, an employment bureau, and a small church.

## Population and Sample

Samples chosen for this study were composed of two groups, a myocardial infarction group and a comparison group. Thirty males between the ages of 30 and 65 years who had experienced a myocardial infarction in the past three months and were receiving treatment at a hospital in a large southern metropolitan area were chosen for the myocardial infarction group. Questions asking for demographic data relating to age, sex, education, occupation, and whether they had experienced a myocardial infarction in the past three months were attached to the questionnaire (appendix C, form A). Confirmation of the patient's diagnosis was also obtained from the physician's diagnosis on the patient's record. Thirty of the thirty-one patients approached consented to participate in the study. Both the myocardial infarction patients and the comparison group were selected by convenience sampling.

The comparison group, chosen from a service club, a factory, an employment bureau, and a church, included thirty males between the ages of 30 and 65 years who had not experienced a recent major illness. A recent major illness was defined as a diagnosis which required a physician's treatment within the past three months or which required daily prescribed medication. A demographic data collection record was also attached to the question-naire (appendix C, form B) of the comparison group asking for material such as age, sex, education, occupation, and whether they had experienced an illness in the past three months which required a physician's treatment or which required daily prescribed medication. This information determined the subject's eligibility for participation in the study. Of the thirty-eight questionnaires given out, thirty qualified to participate in the study. Of the thirty, eight were from the service club, six from the factory, eight from the employment bureau, and eight from the small church. All groups were chosen by convenience sampling.

## Protection of Human Subjects

Before beginning the research, the study was approved by the Human Research Review Committee and

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Graduate School at Texas Woman's University (appendix D).
To comply with the rules and regulations of the committee,
each subject was given both a verbal (appendix E and
appendix F) and written explanation (appendix G) of the
study. The consent form explained the investigation, the
procedures for the investigation, any possible risks or
discomforts involved, and potential benefits of the
research to the subjects or to others. An offer to
answer all questions, permission to terminate participa-
tion in the study at any time, and a guarantee that their
names would not be used in any release of data were in-
cluded in the consent form. The subjects were assured
that their anonymity would be protected by not having
their names appear on the questionnaires. Voluntary
participation with the subject's freedom to terminate
participation in the study at any time was emphasized.

After consent to conduct the study had been ob-
tained from the Human Research Review Committee and the
Graduate School at Texas Woman's University, arrangements
were made with the two hospitals to use their facilities
in the intermediate coronary care units for data collec-
tion on myocardial infarction patients. Written consent
was obtained from the director of nursing of each hos-
pital using the "Agency Permission for Conducting Study"

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form (appendix H). Written consents were also obtained
from nine physicians to approach their patients who had
experienced a myocardial infarction in the past three
months (appendix I). For permission to approach sub-
jects in the comparison group written consents (appendix
H) were obtained from the president of a service club,
a factory supervisor, an employment bureau supervisor,
and the president of a small church. Human rights of
subjects, then, were insured by approval of the study
by the Human Research Review Committee and the Graduate
School at Texas Woman's University and the permission
given to approach subjects by the agencies, the physi-
cians, and the subjects themselves.

## Instrument

The instrument utilized for this study was the
questionnaire "Schedule of Recent Experience" (SRE)
(appendix C) developed by Holmes and Rahe (1967). The
two researchers included in the questionnaire forty-two
of the forty-three life events listed in the "Social
Readjustment Rating Scale", omitting the event of
Christmas. The questionnaire covered such areas as
family, marriage, education, economics, religion, occu-
pation, residence, health, recreation, and interpersonal

relations.  A letter authorizing the use of the question-
naire can be found in appendix J.

## Development of Instrument

Beginning in 1949 a systematic study at the
Uniersity of Washington was begun to determine the quality
and quantity of life events which seemed to cluster around
the onset of illness (Petrich and Holmes 1977).  This
study resulted in a list of forty-three different life
event items which pertained to the major areas of sig-
nificance in life.  The life events had one thing in
common in that each one required some adaptive behavior
on the part of the individual.  The emphasis was on
change from the existing steady state and not on desir-
ability (Masuda and Holmes 1967).

### Realiability

In 1964 Holmes and Rahe revised the original list
of life change events and formulated a life change scaling
questionnaire known as the "Social Readjustment Rating
Questionnaire."  This list of life events was taken to
over five thousand people in the United States and Japan,
who were asked to rank order the specific items according
to the amount of adjustment needed for each life event.
One item was given a numerical value which the subjects

were to compare with each of the other items. The
arithmetic mean of each item was the magnitude of
adjustment needed for that particular item. Agreement
among the discrete groups as to the importance and
magnitude of each item was shown by the high coefficients
or correlation over 0.90 with the exception of a 0.82
between Caucasians and Blacks (Holmes and Rahe 1967).

Regardless of age, sex, marital status, educa-
tion, social class, religion, race or generation Ameri-
can, the study showed a high degree of agreement on the
part of individuals as to the degree of significance of
life events under study (Holmes and Rahe 1967). Because
of the high coefficient of correlation and because it
has been tested in many studies, the "Social Readjustment
Rating Scale" is considered a reliable tool (Masuda and
Holmes 1967).

Validity

This instrument was tested for validity. A self-
administered questionnaire, the "Schedule of Recent
Experience," which contains forty-two of the forty-three
events listed in the "Social Readjustment Rating Scale,"
was completed by fifty-four physicians on two occasions,
four months apart to ascertain the stability of the

questionnaire and factors affecting consistency of recall
of events. The stability coefficients for the three
years were statisticatly significant at less then 0.005
level of confidence. This instrument has shown to be
both reliable and valid (Casey, Masuda, and Holmes 1967).

Scoring of the Questionnaire

As a result of their research, Holmes and Rahe
(1967) assigned a numerical value ranging from one
hundred to eleven to each life change event. The total
life change unit score determined the magnitude of life
change experienced in one year.

In this study the exact questionnaire and
numerical values of the SRE were utilized, but changes
were made in the directions for completing the question-
naire. The time of recall was limited to one year
instead of two years and the directions for completing
the questionnaire were individualized for each of the
two groups. To make the recalled time similar for the
two groups, the comparison group was asked to begin the
recalled year fifteen months prior to completing the
questionnaire and end three months prior to completing
the questionnaire. If the date of the completion of the
questionnaire were September 1, 1979, the recalled year

would be from June 1, 1978, to June 1, 1979. The myocardial infarction group, who had experienced their infarction within the past three months, had as their recalled year the year prior to their infarction.

The directions for answering the questionnaire by the myocardial infarction group instructed the individuals to recall back on the event and decide if it happened to them in the year prior to their myocardial infarction. For Part A (Items 1-12), if the event did happen to them in the year preceding their myocardial infarction, they placed a check mark in the "yes" column. For Part B (Items 13-42) they were instructed to indicate the number of times that an event happened in the year prior to their myocardial infarction. If the event did not happen, the patients were to check in the "Does not apply" column. The final value for each life change event in Part B was determined by multiplying the number of times the event had occurred in the recalled year by the numerical value of the event. Similar directions were given the comparison group for Part A and Part B as were given the myocardial infarction group. The questionnaire took approximately five minutes to complete.

## Data Collection

The data concerning the life change events of
the myocardial infarction patients were obtained at the
two hospitals in the intermediate coronary care units.
Information concerning the patient's diagnosis of myo-
cardial infarction, age, and sex were obtained from the
patient's record.  Each patient received a personal
explanation of the study and the questionnaire, with
opportunity for questions.  The information contained
in the "Verbal Presentation to Myocardial Infarction
Patients Prior to Signing Consent Form" (appendix E)
was included in the explanation.  If the patients decided
to participate, they were given a "Consent to Act as a
Subject for Research and Investigation" form (appendix
G) to read and sign.  They were informed that the ques-
tionnaire would take approximately five minutes to com-
plete and that it would be collected after they had
finished.

The data for the comparison group were collected
from members of a service club, employees at a small
factory and employment bureau, and members of a small
church.  The study was explained to all the service club
members at one time using the material stated in the

"Verbal Explanation to Comparison Group Prior to Signing Consent Form" (appendix F). Those who chose to participate in the study signed the "Consent to Act as a Subject for Research and Investigation" form, which included the same information in written form as for myocardial infarction subjects. The questionnaires and consent forms were explained and distributed by the supervisors in the factors and employment bureau to their employees and by the researcher to the participants from the small church. Before distributing the questionnaires and consent forms, the study was explained relating the information in the "Verbal Explanation to Comparison Group Prior to Signing Consent Form" (appendix F). When the questionnaire was completed, it was returned to the person administering the questionnaire.

## Treatment of Data

The total score for each individual was determined by adding the life change unit values. The score indicated the magnitude of the life change that had taken place for that individual. Three ranges of scores were used to define a life crisis: 150-199 LCU, indicated a mild crisis; 200-299 LCU, indicated a

moderate crisis; and 300+ LCU, indicated a major life crisis (Holmes and Masuda 1973). The mean score for each group was calculated by totaling the scores of each group and dividing by the total number of participants in the group. The mean scores of the myocardial infarction group and the comparison group were compared. A Student's $t$ test was used to determine if there was any significant difference at the 0.05 level of significance between the mean scores of the two groups. The Student's $t$ test was chosen as the number of subjects in the study was small (Koosis 1972).

CHAPTER IV

ANALYSIS OF DATA

The purpose of this study was to compare the
life change unit mean scores of a group who had experi-
enced a myocardial infarction with a group who had
experienced no recent major illness.  This chapter
will present the results of the study including a
description of the sample and the findings of the study.

## Description of Sample Population

This study included two groups of people, a group
who had experienced a myocardial infarction within the
past three months and a group who had not experienced a
recent major illness in the past three months.  Both
groups were males within an age span of 30 through 65
years of age.  In the myocardial infarction group, three
subjects were between the ages of 30 and 39 years, six
between the ages of 40 and 49 years, sixteen between the
ages of 50 and 59 years, and five between the ages of
60 and 65 years.  The comparison group, those who had
experienced no recent major illness, included eight sub-
jects between the ages of 30 and 39 years, twelve between
the ages of 40 and 49 years, ten between the ages of 50

and 59 years, and zero between the ages of 60 and 65
years (table 1). The mean age for the myocardial infarc-
tion group was 53 years with a standard deviation of
7.5; while the mean age for the comparison group was
46 with a standard deviation of 8.5.

TABLE 1

RANGE OF AGE OF MYOCARDIAL INFARCTION
GROUP AND COMPARISON GROUP

| Age | Myocardial Infarction | | Comparison Group | |
|---|---|---|---|---|
| | Number | Percentage | Number | Percentage |
| 30-39 | 3 | 10 | 8 | 27 |
| 40-49 | 6 | 20 | 12 | 40 |
| 50-59 | 16 | 53 | 10 | 33 |
| 60-65 | 5 | 17 | 0 | 0 |
| Total | 30 | 100 | 30 | 100 |

The educational level varied in both groups from
under high school to master's degree (table 2). Those
who had a bachelor's degree or higher included 27 per-
cent of the myocardial infarction group and 67 percent
of the comparison group.

TABLE 2

EDUCATIONAL LEVELS OF MYOCARDIAL INFARCTION
GROUP AND COMPARISON GROUP

| Educational Level | Myocardial Infarction | | Comparison Group | |
|---|---|---|---|---|
| | Number | Percentage | Number | Percentage |
| Under High School | 5 | 17 | 1 | 3 |
| High School | 7 | 23 | 3 | 10 |
| 1-2 Years College | 10 | 33 | 6 | 20 |
| Bachelor's Degree | 7 | 24 | 14 | 47 |
| Master's Degree | 1 | 3 | 6 | 20 |
| Total | 30 | 100 | 30 | 100 |

The following types of occupations were repre-
sented in the two groups: professional, business, mana-
gerial, sales, trades, and retired. Forty-three percent
of the myocardial infarction group were in the managerial
category; while 33 percent of the comparison group were
in the managerial category. Thirty-six percent of the
comparison group were professional people compared to
10 percent of the myocardial infarction group (table
3).

TABLE 3

OCCUPATIONS OF MYOCARDIAL INFARCTION
GROUP AND COMPARISON GROUP

| Occupation | Myocardial Infarction | | Comparison Group | |
|---|---|---|---|---|
| | Number | Percentage | Number | Percentage |
| Professional | 3 | 10 | 11 | 36 |
| Business | 3 | 10 | 2 | 7 |
| Managerial | 13 | 43 | 10 | 33 |
| Sales | 1 | 3 | 2 | 7 |
| Clerical | 0 | 0 | 0 | 0 |
| Trades | 7 | 24 | 1 | 3 |
| Retired | 2 | 7 | 2 | 7 |
| Other | 1 | 3 | 2 | 7 |
| Total | 30 | 100 | 30 | 100 |

## Presentation of Findings

The hypothesis for the study stated that there
would be no significant difference in the life change
unit mean scores of persons who have been diagnosed as
having a recent myocardial infarction and persons in a
business and professional group who have had no recent
major illness. This study compared the life change unit
mean scores of the two different groups, the myocardial
infarction group and the comparison group, by applying

the Student's t test to determine if there was any significant difference between the two scores. With a t test score of 0.86, the null hypothesis was not rejected as there was no significant difference between the two scores at the 0.05 level of significance.

The mean score of the myocardial infarction group was 236 with a standard deviation of 122.2; the mean score of the comparison group was 211 with a standard deviation of 100.7 (table 4). Although the mean score of the myocardial infarction group was higher than the mean score of the comparison group, when the t test was applied the difference was found not to be significant (Koosis 1972).

The LCU scores for the myocardial infarction group ranged from 13 to 542 (table 4) with 30 percent of the subjects with scores in the major life crisis area, 33 percent in the moderate life crisis area, 17 percent in the mild life crisis area, and 20 percent indicating no life crisis in life changes (table 5). The comparison group also had a wide range of scores ranging from 29 to 470 (table 4) with 13 percent in the major life crisis area, 37 percent in the moderate life crisis area, 17 percent in the mild life crisis area, and 33 percent indicating no life crisis in life changes

TABLE 4

DISTRIBUTION OF LCU SCORES FOR MYOCARDIAL
INFARCTION GROUP AND COMPARISON GROUP

| Myocardial Infarction Group Scores x | Comparison Group Scores x |
|---|---|
| 542 | 470 |
| 453 | 406 |
| 406 | 369 |
| 376 | 326 |
| 367 | 295 |
| 334 | 275 |
| 332 | 271 |
| 320 | 270 |
| 304 | 268 |
| 267 | 263 |
| 265 | 251 |
| 263 | 226 |
| 247 | 225 |
| 236 | 220 |
| 226 | 202 |
| 219 | 193 |
| 212 | 186 |
| 210 | 177 |
| 200 | 175 |
| 186 | 172 |
| 177 | 149 |
| 170 | 148 |
| 169 | 137 |
| 161 | 122 |

TABLE 4 (continued)

| Myocardial Infarction Group Scores x | Comparison Group Scores x |
|---|---|
| 101 | 115 |
| 98 | 113 |
| 96 | 110 |
| 68 | 79 |
| 48 | 74 |
| 13 | 29 |
| Total 7066 | 6316 |

Mean $= \dfrac{\Sigma x}{n} = \dfrac{7066}{30} = 236$          Mean $= \dfrac{6316}{30} = 211$

Standard deviation $= \sqrt{\dfrac{(x-X)^2}{n-1}}$

s = 122.2                                    s = 100.7

(table 5). Seventeen percent more myocardial infarction patients were in the major life crisis area than the comparison group and 13 percent less in the no life crisis area.

The events which occurred for 33 percent or more of the myocardial infarction group included change in health of a family member, business readjustment, change in financial state, change in responsibilities at work, son or daughter leaving home, trouble with boss, change

TABLE 5

LIFE CRISIS AREAS FOR MYOCARDIAL INFARCTION
GROUP AND COMPARISON GROUP

| Category | Myocardial Infarction | | Comparison Group | |
|---|---|---|---|---|
| | Number | Percentage | Number | Percentage |
| Major Life crisis (30C+ LCU) | 9 | 30 | 4 | 13 |
| Moderate Life crisis (200-299 LCU) | 10 | 33 | 11 | 37 |
| Mild life crisis (150-199 LCU) | 5 | 17 | 5 | 17 |
| No life crisis (below 150 LCU) | 6 | 20 | 10 | 33 |
| Total | 30 | 100 | 30 | 100 |

in work hours or conditions, mortgage or loan less than
$10,000, change in sleeping habits, and vacation. For
the comparison group the events which occurred for 33
percent or more of the group included death of a close
family member, mortgage or loan of less than $10,000,
and vacation (table 6). Death of a spouse, divorce,
detention in jail, marriage, and changing to a new
school were not reported by either group.

TABLE 6

NUMBER AND PERCENTAGE OF MYOCARDIAL INFARCTION AND COMPARISON
GROUPS' REPORTING EACH LIFE CHANGE EVENT

| Life Event | Myocardial Infarction | | Comparison Group | |
|---|---|---|---|---|
| | Number | Percentage | Number | Percentage |
| Death of spouse | 0 | 0 | 0 | 0 |
| Divorce | 0 | 0 | 0 | 0 |
| Marital separation | 1 | 3 | 1 | 3 |
| Jail term | 0 | 0 | 0 | 0 |
| Death of close family member | 6 | 20 | 11 | 37 |
| Personal injury or illness | 5 | 17 | 1 | 3 |
| Marriage | 0 | 0 | 0 | 0 |
| Fired at work | 0 | 0 | 1 | 3 |
| Marital reconciliation | 0 | 0 | 1 | 3 |
| Retirement | 0 | 0 | 2 | 7 |
| Change in health of family member | 10 | 33 | 6 | 20 |

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TABLE 6 (continued)

| Life Event | Myocardial Infarction | | Comparison Group | |
|---|---|---|---|---|
| | Number | Percentage | Number | Percentage |
| Pregnancy | 0 | 0 | 1 | 3 |
| Sex difficulties | 1 | 3 | 4 | 13 |
| Gain of new family member | 8 | 27 | 4 | 13 |
| Business readjustment | 11 | 37 | 6 | 20 |
| Change in financial state | 10 | 33 | 5 | 17 |
| Death of close friend | 8 | 27 | 6 | 20 |
| Change in different line of work | 2 | 7 | 5 | 17 |
| Change in number of arguments with spouse | 2 | 7 | 4 | 13 |
| Mortgage over $10,000 | 6 | 20 | 2 | 7 |
| Foreclosure of mortgage or loan | 0 | 0 | 2 | 7 |
| Change in responsibilities at work | 12 | 40 | 7 | 23 |

TABLE 6 (continued)

| Life Event | Myocardial Infarction | | Comparison Group | |
|---|---|---|---|---|
| | Number | Percentage | Number | Percentage |
| Son or daughter leaving home | 10 | 33 | 8 | 27 |
| Trouble with in-laws | 3 | 10 | 3 | 10 |
| Outstanding personal achievement | 3 | 10 | 5 | 17 |
| Wife begin or stop work | 3 | 10 | 8 | 21 |
| Begin or end school | 1 | 3 | 1 | 3 |
| Change in living conditions | 6 | 20 | 6 | 20 |
| Revision of personal habits | 5 | 17 | 7 | 23 |
| Trouble with boss | 11 | 37 | 8 | 27 |
| Change in work hours or conditions | 10 | 33 | 7 | 23 |
| Change in residence | 1 | 3 | 4 | 13 |
| Change in schools | 0 | 0 | 0 | 0 |

TABLE 6 (continued)

| Life Event | Myocardial Infarction | | Comparison Group | |
|---|---|---|---|---|
| | Number | Percentage | Number | Percentage |
| Change in recreation | 9 | 30 | 8 | 27 |
| Change in church activities | 7 | 23 | 7 | 23 |
| Change in social activities | 8 | 27 | 5 | 17 |
| Mortgage or loan less than $10,000 | 13 | 43 | 12 | 40 |
| Change in sleeping habits | 13 | 43 | 4 | 13 |
| Change in number of family get-togethers | 8 | 27 | 8 | 27 |
| Change in eating habits | 7 | 23 | 5 | 17 |
| Vacation | 16 | 53 | 22 | 73 |
| Minor violations of the law | 3 | 10 | 5 | 17 |

## Other Findings

Of the 20 percent of the myocardial infarction group who had scored lower than 150 LCU, five indicated that they had experienced a great amount of stress in relation to their jobs. The subject who scored thirteen, the lowest score in the group, stated that his cholesterol was high, had been a heavy smoker, worked long hours as a trucker, and had a family history of heart disease. Another subject related that besides a very stressful job, his vacation had been stressful by having been evacuated from a burning cruiser. One subject indicated that he was having trouble with his boss at work and had been in the process of trying to build his own home in his spare time and on weekends. The sixth subject scoring under 150 LCU stated that although he was retired and experiencing no job stress, the divorce of his daughter and her moving home had been "hard on him." These examples indicate that even though a person did not experience an excessive amount of change as indicated by the life change unit scores, individual events and factors which are undesirable may be a crucial factor in determining stress.

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## Summary

In examining the LCU scores of two groups of
people, a group who had experienced a myocardial infarc-
tion and a group who had experienced no recent major ill-
ness, the mean scores of the two groups were found not
to be significantly different; therefore, the null
hypothesis which stated that there would be no signifi-
cant difference in the life change unit (LCU) mean
scores of persons who have been diagnosed as having a
recent myocardial infarction and persons in a business
and professional group who have had no recent major ill-
ness was not rejected.  The population included thirty
males in each group between the age span of 30 through
65 years, with an educational level ranging from under
high school level to master's degree.  Professional,
business, managerial, sales, trades, and retired were
occupational statuses represented in both groups.  Al-
though the mean scores for the two groups were not
significantly different, 17 percent more myocardial
patients scored in the major life crisis area and 13
percent less scored in the no life crisis area than the
comparison group.  Other findings indicated that although
some patients had not experienced much change, certain

events in their lives had been perceived to be very stressful.

# CHAPTER V

## SUMMARY OF THE STUDY

The problem of this study was to compare the life change unit mean score of persons who have a diagnosis of myocardial infarction and the life change unit mean score of persons who have not had a recent major illness. The hypothesis for this study was that there would be no significant difference in the life change unit mean scores of persons who have been diagnosed as having myocardial infarction and persons in a business and professional group who have had no recent major illness.

## Summary

Before beginning the study a review of literature and related research was done to provide background information for the study. Studies chosen for review included pertinent studies related to stress and life change events as they relate to health changes. Selected studies showing the relationship between certain psycho-social factors and heart disease were reviewed. Selye's theory of stress and Holmes' and Rahe's theory of life change in relation to stress, which laid the theoretical

framework for this study, were examined. The hypothesis was developed in order to determine if people who had experienced a myocardial infarction had a higher life change unit score than people who had experienced no recent major illness.

The setting for this study was a large southern metropolitan area. Thirty myocardial infarction patients from two large hospitals in the area and a comparison group of thirty individuals from a service club, factory, employment bureau, and a small church in the same area were included in the study. Both the myocardial infarction patients and the comparison group were chosen by convenience sampling.

The questionnaire, the "Schedule of Recent Experience," based on the "Social Readjustment Rating Scale" (Holmes and Rahe 1967), was used to collect data. The data were analyzed using the Student's $t$ test to determine if there were any significant difference in the mean scores of the two groups.

The null hypothesis, which stated that there would be no significant difference in the life change unit (LCU) mean scores of persons who have been diagnosed as having a recent myocardial infarction and persons in a business and professional group who have had no recent

major illness, was not rejected. With a Student's t test score of 0.86, there was no significant difference between the mean scores of the groups at the 0.05 level of significance.

## Discussion of Findings

This study, like the study of Goldberg and Comstock (1976), found that there was no significant difference between the life change unit mean scores of the sick and well group. Goldberg and Comstock suggested that there should be a re-evaluation of the use of lists of life events and the events should be counted as stressors only if seen that way by the participant.

Some participants of this study viewed some events as being more stressful than was indicated by the scale. Although some of the subjects did not have high LCU scores, they inferred that they had experienced a great deal of stress on the job or in the family. This would be in agreement with the idea expressed by some researchers who have found that the stressfulness of unpleasant events have more bearing on the state of a person's health than change alone (Russek and Russek 1977; Johnson and Sarason 1978; Vinokur and Selzer 1975).

This study found that both the myocardial infarction and the comparison groups' mean scores were in the moderate life crisis range. A possible explanation of why those in the comparison group who scored high did not have a health change could be considered by looking at conclusions made by other researchers. Mills (1976) and Colman (1973) concluded from their studies that individuals vary in their ability to cope with change and differ in the psychological assets they possess. There is a possibility that the comparison group in this study had more psychological assets to help them adjust to change, as they had a higher percentage of professional people and a higher educational level compared to the myocardial infarction group who had a higher percentage of tradesmen with a lower educational level.

Many studies have shown that there are individual differences in how people respond to stress due to how they perceive the event and the support systems they have (Thiel, Parker, and Bruce 1973; Selye 1976; Grant et al. 1978). A certain percentage will not be affected by high life change unit scores as shown by Holmes' research where there was a 79 percent health risk for those with a score of 300 or over, a 51 percent risk for those with scores between 200 and 299, and 37 percent

risk for those with a score from 150-199 (Holmes and Masuda 1973). Likewise, in this study although 13 percent of the comparison group scored in the major life crisis area, 37 percent in the moderate life crisis area, and 17 percent in the mild life crisis area, the individuals were not affected by high life change unit scores.

There are some factors that explain possible reasons for the mean scores of the two groups not being significantly different. For some individuals certain events in life may be more stressful for them than the value given the event by the "Social Readjustment Rating Scale." Events which are stressful to one person may not be to another. Some individuals may have more psychological assets than others to cope with change. In considering the method of conducting the study, inability to randomize the samples may also have made a difference in the results.

## Conclusions and Implications

This study was conducted to determine if there was a significant difference in the life change unit mean scores of a group who experienced a myocardial infarction and a group who had not experienced recent major illness. The findings of the study indicated there was no

significant difference in the mean scores of the two groups. However, both groups had mean scores in the moderate life crisis area, indicating both groups had experienced a considerable amount of change. The conclusion is that life change unit scores, as measured by the "Social Readjustment Rating Scale," may not necessarily measure the stress that a person is experiencing. This was evidenced by the low scores in 20 percent of the myocardial infarction group who indicated that certain events resulted in long and sustained stress for them. Another conclusion would be that people respond to change in different ways, as evidence by those in the comparison group who had high scores, but who did not become ill. This could be because of the meaning of the event to the individual, his psychological assets, and the ways of coping with stress that he had developed.

Based on the findings of the study, the nurse should be aware of individual differences in people as they face change. Such instruments as the "Schedule of Recent Experience" can be used to help people identify changes that have taken place in their lives, but the nurse should recognize that the score may not give a true stress rating for all people. In using the instrument as a counseling tool, care should be taken to ascertain how

people perceive the event and what psychological assets they have to help adjust to change.

The concept of change as it relates to stress should be emphasized in all areas of nursing including primary prevention, secondary prevention, and tertiary prevention. Nurses can use their knowledge of stress in their teaching and caring for patients to help prepare them to identify change, cope with change, and recognize their limits. Nurses have a responsibility both in the community and in health institutions to help people attain and maintain optimal health.

## Recommendations for Further Study

Based on the findings of the study, the following recommendations were made:

1. That a follow-up study be conducted in a year of the comparison group to determine if any in the group have experienced a health change

2. That a follow-up study of the comparison group be conducted to determine their psychological assets and their means of coping with stress

3. That the "Social Readjustment Rating Scale" be revised to include more items such as anticipated life stresses and long standing life difficulties

4. That participants in future studies rate the life events according to the amount of stress they experienced

APPENDIX A

## THE SOCIAL READJUSTMENT RATING SCALE

| Life Event | LCU Value |
|---|---|
| Death of spouse | 100 |
| Divorce | 73 |
| Marital separation | 65 |
| Jail term | 63 |
| Death of close family member | 63 |
| Personal injury or illness | 53 |
| Marriage | 50 |
| Fired at work | 47 |
| Marital reconciliation | 45 |
| Retirement | 45 |
| Change in health of family member | 44 |
| Pregnancy | 40 |
| Sex difficulties | 39 |
| Gain of new family member | 39 |
| Business readjustment | 39 |
| Change in financial state | 38 |
| Death of close friend | 37 |
| Change in different line of work | 36 |
| Change in number of arguments with spouse | 35 |
| Mortgage over $10,000 | 31 |
| Foreclosure of mortgage or loan | 30 |
| Change in responsibilities at work | 29 |
| Son or daughter leaving home | 29 |
| Trouble with in-laws | 29 |
| Outstanding personal achievement | 28 |
| Wife begin or stop work | 26 |
| Begin or end school | 26 |

| Life Event | LCU Value |
|---|---|
| Change in living conditions | 25 |
| Revision of personal habits | 24 |
| Trouble with boss | 23 |
| Change in work hours or conditions | 20 |
| Change in residence | 20 |
| Change in schools | 20 |
| Change in recreation | 19 |
| Change in church activities | 19 |
| Change in social activities | 18 |
| Mortgage or loan less than $10,000 | 17 |
| Change in sleeping habit | 16 |
| Change in number of family get-togethers | 15 |
| Change in eating habits | 15 |
| Vacation | 13 |
| Minor violations of the law | 11 |

APPENDIX B

## THE DESIGN

Objectives of the Study:

1. To determine the life change unit scores and mean score of the myocardial infarction group.

2. To determine the life change unit scores and mean scores of the comparison group.

3. To determine if there is any statistically significant difference between the life change unit mean scores of the myocardial infarction group and the comparison group.

---

Hypothesis: There will be no significant difference in the life change unit mean scores of persons who have been diagnosed as having myocardial infarction and persons who have had no recent major illness.

---

Sampling Plan: Convenience Samples

Myocardial Infarction patients: males ages 30-65

Comparison group with no recent major illness: males ages 30-65

Instruments:

Data Sheet: to determine age, health status, educational level, and occupation.

Questionnaire: Schedule of Recent Experience Questionnaire.

Data Collection:

1. Questionnaires given to myocardial infarction patients at two hospitals.

2. Questionnaires given to comparison group at service club, factory, employment office, and small church.

Data Analysis:

1. Life change events scores for each individual in each group totaled.

2. Mean score determined for each of the two groups.

3. Student's $t$ test used to indicate if the means are significantly different.

4. Calculating numbers and percentages of different age categories, educational levels, and occupations.

Findings of Study:

    With a $\underline{t}$ test score of 0.86 there was no significant difference between the mean scores of the two groups at the 0.05 level of significance.  Therefore, the null hypothesis was not rejected.

APPENDIX C

## SCHEDULE OF RECENT EXPERIENCE
### (FORM A)

Fill in or check the following:

1.  Age _____

2.  Sex:  Male_____        Female_____

3.  Educational level:  High School_____

    1 to 2 years of college_____

    Bachelor's Degree _____

    Master's Degree_____

    Doctor's Degree_____

4.  Occupation:  Professional _____

    Business_____

    Managerial_____

    Sales_____

    Clerical_____

    Trades_____

    Retired_____

    Other_____

5.  Have you had a myocardial infarction within the past
    three months?      Yes_____          No_____

## SCHEDULE OF RECENT EXPERIENCE (SRE)

PART A (Items 1-12)

Instructions

For each life event item listed below, please do the following:

Think back on the event and decide if it happened to you in the year prior to your myocardial infarction.

If the event did happen, place a check mark in the "Yes" column.

If the event did not happen to you in the year before your myocardial infarction, place a check mark in the "No" column.

|  | | Yes | No |
|---|---|---|---|
| 1. | A lot more or a lot less trouble with the boss. | ___ | ___ |
| 2. | A major change in sleeping habits (sleeping a lot more or a lot less, or change in part of day when asleep). | ___ | ___ |
| 3. | A major change in eating habits (a lot more or a lot less food intake, or very different meal hours or surroundings). | ___ | ___ |
| 4. | A revision of personal habits (dress, manners, associations, etc.). | ___ | ___ |
| 5. | A major change in your usual type and/or amount of recreation. | ___ | ___ |
| 6. | A major change in your social activities (e.g., clubs, dancing, movies, visiting, etc.). | ___ | ___ |

|  | Yes | No |
|---|---|---|
| 7. A major change in church activi-<br>ties (e.g., a lot more or a lot<br>less than usual). | ___ | ___ |
| 8. A major change in number of<br>family get-togethers (e.g., a<br>lot more or a lot less than<br>usual). | ___ | ___ |
| 9. A major change in financial<br>state (e.g., a lot worse off<br>or a lot better off than<br>usual). | ___ | ___ |
| 10. In-law troubles. | ___ | ___ |
| 11. A major change in the number<br>of arguments with spouse (e.g.,<br>either a lot more or a lot less<br>than usual regarding child-rearing,<br>personal habits, etc.). | ___ | ___ |
| 12. Sexual difficulties. | ___ | ___ |

## Part B (Items 13-42)

This part is similar to Part A, except that you are now asked to indicate the number of times that an event happened in the year prior to your myocardial infarction.

If the event did not happen, check in the Does not apply column.

|  | No. of times<br>Event Happened | Does Not<br>Apply |
|---|---|---|
| 13. Major personal injury<br>or illness. | ___ | ___ |
| 14. Death of a close family<br>member (other than spouse). | ___ | ___ |

| | No. of times Event Happened | Does Not Apply |
|---|---|---|
| 15. Death of spouse. | ___ | ___ |
| 16. Death of a close friend. | ___ | ___ |
| 17. Gaining a new family member (e.g., through birth, adoption, oldster moving in, etc.). | ___ | ___ |
| 18. Major change in the health or behavior of a family member. | ___ | ___ |
| 19. Change in residence. | ___ | ___ |
| 20. Detention in jail or other institution. | ___ | ___ |
| 21. Minor violations of the law (e.g., traffic tickets, jaywalking, disturbing the peace, etc.). | ___ | ___ |
| 22. Major business readjustment (e.g., merger, reorganization, bankruptcy, etc.). | ___ | ___ |
| 23. Marriage. | ___ | ___ |
| 24. Divorce. | ___ | ___ |
| 25. Marital separation from spouse. | ___ | ___ |
| 26. Outstanding personal achievement. | ___ | ___ |
| 27. Son or daughter leaving home (e.g., marriage, attending college, etc.). | ___ | ___ |
| 28. Retirement from work. | ___ | ___ |

| | No. of Times Event Happened | Does Not Apply |
|---|---|---|
| 29. Major change in working hours or conditions. | ___ | ___ |
| 30. Major change in responsibilities at work (e.g., promotion, demotion or lateral transfer). | ___ | ___ |
| 31. Being fired from work. | ___ | ___ |
| 32. Major change in living conditions (e.g., building a new home, remodeling, deterioration of home or heighborhood). | ___ | ___ |
| 33. Wife beginning or ceasing work outside the home. | ___ | ___ |
| 34. Taking on a mortgage greater than $10,000 (e.g., purchasing a home, business, etc.). | ___ | ___ |
| 35. Taking on a mortgage or loan less than $10,000 (e.g., purchasing a car, TV, freezer, etc.). | ___ | ___ |
| 36. Foreclosure on a mortgage or loan. | ___ | ___ |
| 37. Vacation. | ___ | ___ |
| 38. Changing to a new school. | ___ | ___ |
| 39. Changing to a different line of work. | ___ | ___ |
| 40. Beginning or ceasing formal schooling. | ___ | ___ |
| 41. Marital reconciliation with mate. | ___ | ___ |

|  | No. of Times Event Happened | Does Not Apply |
|---|---|---|
| 42.  Pregnancy. | ___ | ___ |

---

Source: Copyright "C" 1976 by Thomas H. Holmes, M.D., Department of Psychiatry and Behavioral Sciences, University of Washington School of Medicine, Seattle, Washington  98195.

# SCHEDULE OF RECENT EXPERIENCE
## (FORM B)

Fill in or check the following:

1. Age _____

2. Sex: Male _____    Female_____

3. Educational Level:    High School _____

    1 to 2 years of college _____

    Bachelor's Degree _____

    Master's Degree _____

    Doctor's Degree _____

4. Occupation: Professional _____

    Business _____

    Managerial _____

    Sales _____

    Clerical_____

    Trades_____

    Retired_____

    Other_____

5. Have you been treated by a physician for a diagnosed illness in the past three months?  Yes____    No____

6. Are you taking any daily prescribed medication for an illness?  Yes____    No____

## SCHEDULE OF RECENT EXPERIENCE (SRE)

Part A (Items 1-12)

Instructions

The "recall year" will begin fifteen months prior to the date you complete the questionnaire and will end three months prior to today. Example: If today were July 1, 1979, your recall year would be April 1, 1978 to April 1, 1979.

For each life event item listed below, please do the following:

Think back on the event and decide if it happened to you in the recall year.

If the event did happen, place a check mark in the "Yes" column.

If the event did not happen to you in the recall year, place a check mark in the "no" column.

|  |  | Yes | No |
|---|---|---|---|
| 1. | A lot more or a lot less trouble with the boss. | ___ | ___ |
| 2. | A major change in sleeping habits (sleeping a lot more or a lot less, or change in part of day when sleeping). | ___ | ___ |
| 3. | A major change in eating habits (a lot more or a lot less food intake, or very different meal hours or surroundings). | ___ | ___ |
| 4. | A revision of personal habits (dress, manners, associations, etc.). | ___ | ___ |

|  | Yes | No |
|---|---|---|

5. A major change in your usual type and/or amount of recreation. ___ ___

6. A major change in your social activities (e.g., clubs, dancing, movies, visiting, etc.). ___ ___

7. A major change in church activities (e.g., a lot more or a lot less than usual). ___ ___

8. A major change in number of family get-togethers (e.g., a lot more or a lot less than usual). ___ ___

9. A major change in financial state (e.g., a lot worse off or a lot better off than usual). ___ ___

10. In-law troubles. ___ ___

11. A major change in the number of arguments with a spouse (e.g., either a lot more or a lot less than usual regarding child-rearing, personal habits, etc.). ___ ___

12. Sexual difficulties. ___ ___

---

Part B (Items 13-42)

This part is similar to Part A, except that you are now asked to indicate the number of times that an event happened in the recall year.

If the event did not happen, check in the Does Not Apply column.

| | No. of Times Event Happened | Does Not Apply |
|---|---|---|
| 13. Major personal injury or illness. | ___ | ___ |
| 14. Death of a close family member (other than spouse). | ___ | ___ |
| 15. Death of spouse. | ___ | ___ |
| 16. Death of a close friend. | ___ | ___ |
| 17. Gaining a new family member (e.g., through birth, adoption, oldster moving in, etc.). | ___ | ___ |
| 18. Major change in the health or behavior of a family member. | ___ | ___ |
| 19. Change in residence. | ___ | ___ |
| 20. Detention in jail or other institution. | ___ | ___ |
| 21. Minor violations of the law (e.g., traffic tickets, jaywalking, disturbing the peace, etc.). | ___ | ___ |
| 22. Major business readjustment (e.g., merger, reorganization, bankruptcy, etc.). | ___ | ___ |
| 23. Marriage. | ___ | ___ |
| 24. Divorce. | ___ | ___ |
| 25. Marital separation from spouse. | ___ | ___ |
| 26. Outstanding personal achievement. | ___ | ___ |

|  | No. of Times Event Happened | Does Not Apply |
|---|---|---|
| 27. Son or daughter leaving home (e.g., marriage, attending college, etc.). | ___ | ___ |
| 28. Retirement from work. | ___ | ___ |
| 29. Major change in working hours or conditions. | ___ | ___ |
| 30. Major change in responsibilities at work (e.g., promotion, demotion, or lateral transfer). | ___ | ___ |
| 31. Being fired from work. | ___ | ___ |
| 32. Major change in living conditions (e.g., building a new home, remodeling, deterioration of home or neighborhood). | ___ | ___ |
| 33. Wife beginning or ceasing work outside the home. | ___ | ___ |
| 34. Taking on a mortgage greater than $10,000 (e.g., purchasing a home, business, etc.). | ___ | ___ |
| 35. Taking on a mortgage or loan less than $10,000 (e.g., purchasing a car, TV, freezer, etc.). | ___ | ___ |
| 36. Foreclosure on a mortgage or loan. | ___ | ___ |
| 37. Vacation. | ___ | ___ |
| 38. Changing to a new school. | ___ | ___ |

|  | No. of Times Event Happened | Does Not Apply |
|---|---|---|
| 39. Changing to a different line of work. | ___ | ___ |
| 40. Beginning or ceasing formal schooling. | ___ | ___ |
| 41. Marital reconciliation with mate. | ___ | ___ |
| 42. Pregnancy. | ___ | ___ |

---

APPENDIX D

TEXAS WOMAN'S UNIVERSITY

Human Research Committee

Name of Investigator: __Goldie Kvinge__  Center: Dallas_____

Address: __9629 Hillsboro_____  Date: __5/17/79____

__Shreveport, Louisiana 71118_____

_____

Dear ___Ms. Kvinge_____

 Your study entitled__Life Change Unit Scores of Myocardial Infarction Patients__
and Persons Who Have Had No Recent Major Illness
has been reviewed by a committee of the Human Research Review Committee and

it appears to meet our requirements in regard to protection of the individual's

rights.

 Please be reminded that both the University and the Department of Health,

Education and Welfare regulations require that written consents must be

obtained from all human subjects in your studies. These forms must be kept

on file by you.

 Furthermore, should your project change, another review by the Committee

is required, according to DHEW regulations.

                          Sincerely,

                          _Estelle R. Zuch_

                          Chairman, Human Research
                          Review Committee

                     at_____Dallas_____

APPENDIX E

VERBAL PRESENTATION TO MYOCARDIAL INFARCTION
PATIENTS PRIOR TO SIGNING CONSENT FORM

I am Goldie Kvinge, a graduate student from Texas
Woman's University. I am conducting a research study to
compare the life change events of two different groups of
people, those who have had a myocardial infarction and
those who have had no recent major illness. Would you
like to participate in the study by answering a question-
naire which will take approximately five minutes to com-
plete? Before you decide, I would like to have you read
the consent form which explains the study. If you have
any questions, I would be glad to answer them. Should
you decide to participate, you will receive the question-
naire after you have signed the consent form. Names will
be omitted from the questionnaire to assure you anonymity.

If you decide at any time during the study that
you wish not to participate, you are free to withdraw.
Care will not be altered if you decide not to participate.

APPENDIX F

## VERBAL EXPLANATION TO COMPARISON GROUP
## PRIOR TO SIGNING CONSENT FORM

A research study is being conducted to compare the life change events of two different groups of people, those who have had a myocardial infarction and those who have had no recent major illness. Would you like to participate in the study by answering a questionnaire which will take approximately five minutes to complete? Before you decide, I would like to have you read the consent form which explains the study. If you have any questions, I would be glad to answer them. Should you decide to participate, you will receive the questionnaire after you have signed the consent form. Names will be omitted from the questionnaire to assure your anonymity.

If you decide at any time during the study that you do not wish to participate, you are free to withdraw. There is no penalty for not participating.

APPENDIX G

TEXAS WOMAN'S UNIVERSITY

Consent to Act as a Subject for Research and Investigation:

(The following information is to be read to or read by the subject):

1.  I hereby authorize ___Goldie R. Kvinge___ to perform the following procedure or investigation:

    A three-page questionnaire, the Schedule of Recent Experience, based on the Social Readjustment Rating Scale, will be given to two groups, a group who have had a myocardial infarction in the past three months and a group who have had no major illness in the past three months. The questionnaire contains forty-two events from daily living which you may or may not have experienced during a one-year period. No names will appear on the questionnaire.

2.  The procedure of investigation listed in Paragraph 1 has been explained to me.

3.  I understand that the procedures or investigations described in Paragraph 1 involves the following risks or discomforts:

    Recalling events that have occurred in the past may be uncomfortable for the subject. I have been informed that if at any time before, during or after the completing of the questionnaire, I find that the recall of events creates too much discomfort for me, I may withdraw from the study without fear of penalty.

4.  I understand that the procedures and investigations described in Paragraph 1 have the following potential benefits to myself and/or others:

    This study will contribute to the knowledge of what influence change has on a person's health and will assist nurses in finding ways to help people assess their stress levels and to cope with change before illness results.

5. An offer to answer all of my questions regarding the
   study has been made. If alternative procedures are
   more advantageous to me, they have been explained.
   I understand that I may terminate my participation
   in the study at any time.


_____          _____
Subject's Signature                       Date

APPENDIX H

TEXAS WOMAN'S UNIVERSITY
COLLEGE OF NURSING
DENTON, TEXAS 76204

DALLAS CENTER
1810 INWOOD ROAD
DALLAS, TEXAS 75235

HOUSTON CENTER
1130 M. D. ANDERSON BLVD.
HOUSTON, TEXAS 77025

AGENCY PERMISSION FOR CONDUCTING STUDY*

THE_____

GRANTS TO___Goldie Kvinge_____
a student enrolled in a program of nursing leading to a Master's Degree at Texas
Woman's University, the privilege of its facilities in order to study the follow-
ing problem:

LIFE CHANGE UNIT SCORES OF MYOCARDIAL INFARCTION PATIENTS AND PERSONS

WHO HAVE HAD NO RECENT MAJOR ILLNESS

The conditions mutually agreed upon are as follows:

1. The agency (may) (may not) be identified in the final report.

2. The names of consultative or administrative personnel in the agency
   (may) (may not) be identified in the final report.

3. The agency (wants) (does not want) a conference with the student
   when the report is completed.

4. The agency is (willing) (unwilling) to allow the completed report
   to be circulated through interlibrary loan.

5. Other_____

   _____

Date: _Aug 6 79_____                    Signature of Agency Personnel

_____             _____
      Signature of Student                    Signature of Faculty Advisor

* Fill out and sign three copies to be distributed as follows:  Original-Student;
  First copy - agency;  Second copy - TWU College of Nursing.

GP:GEN 13
07020074  cd

TEXAS WOMAN'S UNIVERSITY
COLLEGE OF NURSING
DENTON, TEXAS 76204

DALLAS CENTER
1810 INWOOD ROAD
DALLAS, TEXAS 75235

HOUSTON CENTER
1130 M. D. ANDERSON BLVD.
HOUSTON, TEXAS 77025

AGENCY PERMISSION FOR CONDUCTING STUDY*

THE _____

GRANTS TO ___ Goldie Kvinge _____
a student enrolled in a program of nursing leading to a Master's Degree at Texas
Woman's University, the privilege of its facilities in order to study the follow-
ing problem:

LIFE CHANGE UNIT SCORES OF MYOCARDIAL INFARCTION PATIENTS AND PERSONS

WHO HAVE HAD NO RECENT MAJOR ILLNESS

The conditions mutually agreed upon are as follows:

1. The agency (may) (may not) be identified in the final report.

2. The names of consultative or administrative personnel in the agency
   (may) (may not) be identified in the final report.

3. The agency (wants) (does not want) a conference with the student
   when the report is completed.

4. The agency is (willing) (unwilling) to allow the completed report
   to be circulated through interlibrary loan.

5. Other_____

   _____

   _____

Date:____October 11, 1979_____

_____
Signature of Agency Personnel

_____
Signature of Student

_Beth C Vaughan-Wrobel, R.N., Ed.D_
Signature of Faculty Advisor

* Fill out and sign three copies to be distributed as follows:  Original-Student;
  First copy - agency;  Second copy - TWU College of Nursing.

GP:GEN 13
07026074  cd

TEXAS WOMAN'S UNIVERSITY
COLLEGE OF NURSING
DENTON, TEXAS 76204

DALLAS CENTER
1810 INWOOD ROAD
DALLAS, TEXAS 75235

HOUSTON CENTER
1130 M. D. ANDERSON BLVD.
HOUSTON, TEXAS 77025

AGENCY PERMISSION FOR CONDUCTING STUDY*

THE _____

GRANTS TO ___Goldie Kvinge___
a student enrolled in a program of nursing leading to a Master's Degree at Texas
Woman's University, the privilege of its facilities in order to study the follow-
ing problem:

LIFE CHANGE UNIT SCORES OF MYOCARDIAL INFARCTION PATIENTS AND PERSONS

WHO HAVE HAD NO RECENT MAJOR ILLNESS

The conditions mutually agreed upon are as follows:

1. The agency (~~may~~) (may not) be identified in the final report.

2. The names of consultative or administrative personnel in the agency
   (~~may~~) (may not) be identified in the final report.

3. The agency (~~wants~~) (does not want) a conference with the student
   when the report is completed.

4. The agency is (willing) (~~unwilling~~) to allow the completed report
   to be circulated through interlibrary loan.

5. Other_____

   _____

Date:___7/19/79___

_Goldie R. Kvinge_
Signature of Student

signature of Agency Personnel

_Bob C Vaughan-Wrobel RN, Ed.D._
Signature of Faculty Advisor

* Fill out and sign three copies to be distributed as follows: Original-Student;
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DALLAS, TEXAS 75235                        HOUSTON, TEXAS 77025

AGENCY PERMISSION FOR CONDUCTING STUDY*

THE _____

GRANTS TO___Goldie Kvinge_____
a student enrolled in a program of nursing leading to a Master's Degree at Texas
Woman's University, the privilege of its facilities in order to study the follow-
ing problem:

LIFE CHANGE UNIT SCORES OF MYOCARDIAL INFARCTION PATIENTS AND PERSONS

WHO HAVE HAD NO RECENT MAJOR ILLNESS

The conditions mutually agreed upon are as follows:

1. The agency (may) (may not) be identified in the final report.

2. The names of consultative or administrative personnel in the agency
   (may) (may not) be identified in the final report.

3. The agency (wants) (does not want) a conference with the student
   when the report is completed.

4. The agency is (willing) (unwilling) to allow the completed report
   to be circulated through interlibrary loan.

5. Other_____

   _____

Date:___10/21/79_____          Signature of Agency Personnel

_____          _____
       Signature of Student                    Signature of Faculty Advisor

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3. The agency (wants) (does not want) a conference with the student
   when the report is completed.

4. The agency is (willing) (unwilling) to allow the completed report
   to be circulated through interlibrary loan.

5. Other_____

   _____

Date:____10/16/79_____          Signature of Agency Personnel

____Goldie R. Kvinge____              ____Beth C Vaughan-Wrobel RN EdD____
     Signature of Student                    Signature of Faculty Advisor

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3. The agency (wants) (~~does not want~~) a conference with the student
when the report is completed.

4. The agency is (willing) (~~unwilling~~) to allow the completed report
to be circulated through interlibrary loan.

5. Other _____

_____

_____

Date: ___July 21, 1979___          _____
                                   Signature of Agency Personnel

___Goldie R. Kvinge___             ___Beth Vaughan-Wrobel RN, Ed.D.___
Signature of Student                Signature of Faculty Advisor

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APPENDIX I

PHYSICIAN'S PERMISSION FOR CONDUCTING STUDY

Name of Physician: _____

Grants to _____ Goldie Kvinge _____

a student enrolled in a program of nursing leading to a

Master's Degree at Texas Woman's University, the permis-

sion to administer the Schedule of Recent Experience

Questionnaire to patients with myocardial infarction

under his care who agree to participate in the study.

_____

Signature of Physician

APPENDIX J

From the Office of

THOMAS H. HOLMES, M.D.
*Professor of Psychiatry and*
*Behavioral Sciences, RP–10*
*University of Washington*
*Seattle, Washington 98195*

(206) 543–3787

February 26, 1979

Goldie Kvinge, R.N.
1629 Hillsboro
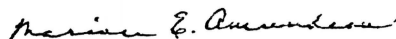Shreveport, Louisiana 71118

Dear Ms. Kvinge:

We are pleased to give you permission to use the Schedule of Recent Experience (SRE) in your proposed research on patients with coronary artery disease. Please note that the Social Readjustment Rating Scale is not a questionnaire, but is the list of values, which in turn are used to score the SRE.

I am also enclosing a variety of other reprints which I hope will be of assistance to you.

We would be most interested to hear further from you as your research proceeds.

If you wish to use the Opscan version of the SRE you may purchase it from us. However, we have found that subjects can more easily complete the typed version. You have permission to duplicate copies of the typed SRE for your research if you decide to use this.

Sincerely yours,

Marion E. Amundson
Secretary to Thomas H. Holmes, M.D.

Encl.

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