The Interrelationship of Leader Self-Actualization and Life Stressors to the Resultant Incidence of Reported Medical Problems of Middle Management Educators

John S. Thatcher

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THE INTERRELATIONSHIP OF LEADER SELF-ACTUALIZATION
AND LIFE STRESSORS TO THE RESULTANT
INCIDENCE OF REPORTED MEDICAL PROBLEMS
OF MIDDLE MANAGEMENT EDUCATORS

by

John S. Thatcher

A Dissertation
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that brought this final degree requirement to fruition. Without her help this dissertation would not be a reality. This dissertation is dedicated to her.

John S. Thatcher
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CHAPTER I

THE PROBLEM AND ITS BACKGROUND

Introduction

Journal literature constantly refers to the idea that we are living in an age of stress. A review of history would demonstrate the present era as no exception to the past. Each important period of time has been identified with an "ailment" or "disease" which mirrors the problems of that particular society. The middle ages were dominated by the plague; the Renaissance by syphilis; the Baroque period by scurvy and gout; the Romantic period by tuberculosis; and the 19th century by neuroses. A close examination of these "ailments" provides a reflection of the status of education, technology, belief, values, customs, and ethics existing during that particular period of time.

In looking at the 20th century, Toffler (1970) characterized the present as an increase in the pace of daily life producing a sense of bewilderment and "temporariness." This fast pace has resulted in a strange new society where conceptualizations of work, religion, sex, space, and time are constantly changing. The modern day individual is increasingly asked to adapt.

In this same vein, Reich (1970) discussed the "temporariness" of society and the baffling current events encircling it. In terms of current events, he perceived society as being reactive as
opposed to being proactive. Society seeks a solution that will quickly ameliorate the crisis at hand rather than engaging in long term problem solving and planning. The net effect is a quickened pace in daily life at the expense of a long range view utilizing available resources.

McQuade (1972) described the consequences of our "temporariness" as a loss of social support systems:

Modern societies have to a great extent lost the supports that helped people in earlier times endure toil, hardship, and suffering—religious faith, sustaining frameworks of tradition and custom, a sense of place in the social order, a sense of worth derived from the exercise of craftsmanship, and awareness that toil, hardship, and suffering were likewise endured by the other members of the same community and the same social class (p. 104).

It appears that the individual in modern society is increasingly becoming victimized by that society. Wolff (1969) described the "facelessness" of kindergarten age children, where a sense of being a nobody is often learned early and learned well. "Emotional instability, irritability, endless fatigue, and the building of fantasies to replace or relieve the threatened danger are characteristics of the individuals' attempt to cope. . . ." (Anxiety, p. 3).

The problems of society are often the problems of education. Campbell (1976) depicted the schools of today as being a "microcosm of society." The psychological and physiological manifestations of stress seen in society are also becoming more apparent in the schools. Combs (1965) and Reitman (1971) also supported this contention that education mirrors the stress problems manifested in the larger social systems.

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Therefore, it appears that the increasing pace of daily life characterizing modern society is also present in the schools. This increase in pace, according to McDavid and Harari (1968) has resulted in conflicting job expectations and the problems of finding the appropriate role or roles. They stated, "There is evidence that many kinds of minor neurotic conflicts that occur in members of our society originate from such conflicts...in which two kinds of positions are simultaneously imposed..." (p. 227).

More evidence has come from the work of Kahn, Wolfe, Quinn, Snoeck, and Rosenthal (1964) who reported that 35% of all employees have complaints about job ambiguity and 48% reported frequent conflicts between what various people expected of them on the job. Expressing himself on the same topic, and following our argument that education mirrors society as a whole, Gmelch (1978) stated that "principals today are faced with more pressure, more aggression, more change, and more conflict than ever before" (p. 5). The author points out that stress, whether good or bad is here to stay for the principal.

The art of managing stress would therefore appear to be an important issue as it pertains to principals. Their ability or inability to cope with stress might directly affect their performance as leaders. Several recent studies seem to support this position.

Weber (1971) pointed out the importance of principal leadership. His study focused on four inner city schools in which reading achievement was clearly successful for lower socioeconomic children on the basis of national norms. He found "strong leadership" as
the most distinguishing factor in those schools studied.

In 1974, the New York State Office of Education Performance Review published findings that substantiate most of Weber's major findings. In comparing two schools which were matched except for achievement, the relevance of leadership was once again demonstrated.

Madden, Lawson, and Sweet (1976) also contributed to this body of literature. In their more rigorous and sophisticated version of the Weber and New York studies, 21 pairs of California elementary schools were matched except for school achievement. The characteristics that seemed most responsible for achievement differences included principal support for teachers resulting in greater staff effort. Greater support from the district administration was another distinguishing factor.

Brookover and Lezotte (1977) in conjunction with the Michigan Department of Education, compared differences between elementary schools which were declining or improving from an academic perspective. One of the chief differences identified was the role the principal played in each of the school settings. In the improving schools, the principal took a more active instructional leadership role than his/her counterpart. They were also more assertive and willing to take responsibility for the achievement of basic objectives. The principals from the declining schools did not cope with problems of leadership nearly as well in their environments and in general succumbed to many of the pressures inherent in such a position.

In view of the fact that the principalship is a critical
position in the educational process, it appears incumbent upon educational researchers to improve the effectiveness of principals. The increasing number of stressors impinging upon the principal is a mirror of society as a whole and the consequences of not having the tolerance to handle these stressors may have psychological and physiological implications. The need to identify individuals with high tolerance for stress or train principals to manage stress may become increasingly important.

One might ask the question why should one be interested in the stress experienced by principals? One cogent answer could be that given the literature identified, principals unable to cope with stressors may be ineffective as principals. In addition, it is reasonable to presume that an inability to handle daily stressors is a significant variable in stress related diseases which may well result in either ineffective service or the termination of that service. How calmly or how violently the principal reacts to these life stressors may be an individual matter with a variation of medical reactions manifesting themselves.

Administrators are like all other living organisms in how they handle a stressor. Selye (1956) has provided the most widely accepted explanation of the stress paradigm entitled the "General Adaption Syndrome." First the individual becomes aware of the stressor. There follows a period of adaptation which may be characterized by flight or tolerance. If the stress is not reduced, exhaustion sets in and stress related diseases or death may occur.

Giammatteo and Giammatteo (1980) have pointed out that the
mind can determine how positively or how negatively our bodies will react to the perceived stressor. Social psychologists have long emphasized this point. Our perceptions, beliefs, and ideas about the world influence us as much as objective reality (Biddle, 1969; Charters, 1963; Sarbin, 1954). More succinctly put, it is not so much the stressor as our assignment of worth of the stressor that creates stress.

Principals, as individuals, have differing capabilities in dealing with stressors. What personality characteristics result in one principal having a great deal of tolerance and another very little? Why do some principals succumb to stress related medical problems while others appear forever immune? The need to investigate the relationship between stressors, personality style and stress related medical problems is becoming increasingly important. The personality characteristics that moderate the relationship between stressors and stress related medical problems are therefore of central concern.

Betz and Thomas (1979) have substantiated the notion that personality characteristics result in longevity and/or stress related medical problems. Their longitudinal research initiated in 1948 classified John Hopkins medical students into three personality groups on the basis of psychological testing and questionnaires. The students were listed either as "Alphas" described as cautious and reserved; "Betas," active, spontaneous, outgoing--seeking the most from life; or "Gammas," emotional moody, and either over or under demanding.
Thirty years later, in looking at the health records of the students, they found that 77.3% of the Gamma group suffered from major disorders, including cancer, heart disease and emotional disturbances. With the self-actualized Beta group, the incidence of disorders was only 26.7% and in the Alpha group, 25%. This same study was then repeated with data from subjects measured between the years 1949 and 1964. In this study, 61.7% of the Gamma group suffered from major disorders, 46.4% of the Alpha group had disorders and only 33.3% of the Beta group developed disorders. The Gamma group also reported a 21.7% mortality rate as opposed to a 10.7% rate for the Alpha group and a 0.0% rate for the Beta group. More specifically, the Gamma group had the highest incidence of cancer (20.1% vs. Alpha 14.7% and Beta 10.2%) and the highest proportion of coronary occlusion (18.3% vs. Alpha 11.1% and Beta 0.0%).

Based on the longitudinal data just discussed, we could postulate that principals who are self-actualized as described by Maslow (1954) might have greater tolerance for stressors evidenced by a lower incidence of stress related medical problems. A lack of research in the field of education dealing with this very aspect of stress has prompted the present investigation.

Statement of the Problem

The purpose of this study was to examine the moderating affect of the self-actualized personality on stressors. Would principals exhibiting a self-actualized personality, but experiencing a large number of stressors, still report a low incidence of stress related
medical problems? Would those principals exhibiting a lack of self-actualization demonstrate a high incidence of stress related medical problems? These are the questions towards which this investigation was directed.

**Rationale and Significance of the Study**

Studies demonstrating the moderating affect of certain personality types are quite limited. Much of the emphasis concerns itself with linking stressors and medical problems without emphasizing the importance of the personality as a moderator. However, Friedman and Rosenman (1958) reported that individuals with thinking and personality characteristics associated with the stereotyped executive (i.e., ambitious, aggressive, intensive, power oriented) suffered from a high incidence of coronary disease, heavy cigarette smoking, hypertension, high blood cholesterol, and triglycerides.

The mind-body health link was also reported by Vaillant (1979) in a longitudinal study conducted at Harvard University. He found that even physically healthy persons who psychologically react poorly to stressors run a significantly higher risk of becoming chronically ill. He controlled such factors as alcohol, tobacco, obesity, and ancestral longevity, indicating even more strongly that mental health deficiencies are causative factors in illness.

Based on these findings, it would appear that stress related diseases could have two major etiologies: (1) the stressor itself, and (2) how the stressor is perceived contingent upon the personality or mental health of the individual.
Since all principals experience stressors in this day and age, identifying personality characteristics which do not yield to stress related medical problems seems timely. Educational, social, and economic benefits could be realized if administrators were chosen and trained to deal successfully with stressors. This training could focus on developing the most advantageous personality and perceptual styles available.

The importance of developing future administrators who have the necessary capabilities and tolerance cannot be overstated. Johnson (1967), Napier (1966), Adair (1967), Buerkens (1973), and Ontjes (1974) all delineated leader behavior as influencing satisfaction and productivity of subordinates. Stodgill (1974) reviewed over 25 studies dealing with the relationship between leader behavior/personality and subordinate productivity and satisfaction.

It was within this framework that the moderating affect of the self-actualized personality in handling stressors has come under investigation. It would seem important that those individuals seeking the principalship would be able to demonstrate a high threshold for successfully dealing with stressors evidenced by a lack of stress related medical problems. The brevity of information and confusion surrounding the moderating affect of personality, in the stressor--perception of stressor--resultant stress paradigm within the field of education prompted the following questions:

Question 1: Are the number of stressors experienced by the principal associated with the incidence of stress related medical problems?
Question 2: Is the degree of self-actualization of the principal associated with the incidence of stress related medical problems?

Question 3: Is the interaction between the degree of self-actualization and number of stressors associated with the incidence of stress related medical problems?

Data such as sex, educational level, salary, and the number of teachers supervised were used to help explain and interpret the results.

Limitation of the Study

This study did not attempt to answer all of the questions administrators normally have in regard to stressors, tolerance, and stress management. It was simply an attempt to focus the attention of principals upon themselves as important moderators dealing with stressors. How they perceived themselves in terms of self-actualization and the resultant incidence of stress related medical problems was the focal point of the investigation. No attempt was made to categorize stressors or the importance of one stressor as compared to another. Also, attempting to focus on only job stressors was ignored because of the empirical impossibility of controlling extraneous variables.

The population sample used for this study was representative of the elementary and middle school principals belonging to the Michigan Elementary and Middle School Principals Association. Therefore, a generalization of results to other groups of people should be done with caution or not at all.
Data gathered for this study were obtained from survey instruments. As a result, no experimental manipulation of independent variables occurred. Findings should be considered associative in nature rather than casual. Also, the study was limited by the conscientiousness of the principals as they responded to the survey instruments. In conclusion, the focus of this study has been narrow and applies to a select group of people. The variables in question are correlative in nature. These factors should be considered when analyzing the data.

Theoretical-Operational Definitions

To aid in the comprehension of this investigation, the definitions below are provided:

Stressor

Theoretical: a change in life which has the potential to disrupt psychological and physiological homeostasis.

Operational: those life events from The Social Readjustment Rating Scale as developed by Holmes and Rahe, found on the Human Synergistics' Evaluation System Level I: Life Styles.

Stress related medical problems

Theoretical: the physiological response to a stressor which results in medical pathology.

Operational: medical problems as checked on the Human Synergistics' Evaluation System Level I: Life Styles as developed by Lafferty.
Self-actualized personality

Theoretical: a basic pattern of thinking which manifests itself as an individual who fully invests himself/herself in striving to gain inner goals more than those either imposed or dictated by others.

Operational: the subtest concepts found on the Human Synergistics' Evaluation System Level I: Life Styles—entitled "Self-Actualizing" as developed by Lafferty.

Principal

Theoretical: a middle manager in education with line responsibility for an instructional unit.

Operational: members of the Michigan Elementary and Middle School Principals Association who participated in the study.
CHAPTER II

REVIEW OF SELECTED RELATED LITERATURE

Introduction

Some authorities hypothesize that medical problems are influenced to a great extent by the number of life stressors encountered. They also contend that perception of the stressor may account more for the homeostatic change in bodily response than the stressor itself. As Elmer Green of the Menninger Clinic once said, "It is not life that kills us, but rather it's our reaction to it." With this framework in mind, the review of the literature is organized under the following headings: 1) Stress Overview; 2) Physiological Stress; 3) Life Stressors and Medical Problems; 4) Personality as a Moderator of Life Stressors; 5) Conclusions.

Although research in the area of stress has recently increased, "the study of stress, especially of the social and psychological aspects of human stress, is still in a fairly primitive state" (McGrath, 1970, p.3). Stress literature available in terms of middle management education, personality, and self-actualization was very limited. Therefore, much of the review was borrowed from disciplines other than education.

Stress Overview

The definitions of stress and the focus of stress research has been confusing since the advent of a "bandwagon effect" in terms of
research (Appley & Trumbull, 1967). Cofer and Appley (1964) note that the terms stress "has all but preempted a field previously shared by a number of other concepts" (p. 441). These concepts included such topics as anxiety, frustration, conflict, and role ambiguity. They further state: "It is as though, when the word stress came into vogue, each investigator, who had been working with a concept he felt was closely related, substituted the word stress for it and continued in his same line of investigation" (p. 449).

The definitions of stress and the focus of stress research could be broadly placed into two categories: 1) social-psychological stress; 2) physiological stress. Generally speaking, social-psychological stress concerned itself with the emotional and psychological state of the organism when it perceived a threat. Physiological (systemic) stress usually described the biological responses to a stressor. However, the distinction between physical and psychological factors was not always clear in that some of the points of view dealt with a combination of both (e.g., Altman & Lett, 1970; Hass & Drabek, 1970; Kahn & French, 1970; Steiner, 1970).

Social-psychological stress was described by some authors as those characteristics in the environment which might affect people adversely (e.g., Bechr, 1976; Kahn, Wolfe, Quinn, Snoeck, & Rosenthal, 1964; French & Caplan, 1973). McGrath (1976) stated, "There is a potential for stress when a situation is perceived as presenting a demand which threatens to exceed the person's capabilities and resources for meeting it, under conditions where he expects a substantial differential in the rewards and costs from meeting demand..."
versus not meeting it" (p. 1352). These definitions implied stress as a stimulus having psychological consequences.

Along this same vein, Caplan, Cobb, French, Van Harrison, and Pinneau (1975) viewed stress as an employment phenomena. Any part of the job environment which posed a threat to the person was considered a stress. According to the authors, two types of job stress could threaten the person: "either demands which he may not be able to meet or insufficient 'supplies' to meet his needs" (p. 3).

Earlier, French, Rogers, and Cobb (1974) developed a person-environment fit (or misfit). The degree to which a person's skills and abilities matched the demands and requirements of the job represented one kind of fit. The extent to which the person's needs were supplied in the job environment was another kind of fit. Job stress was then conceptualized as a misfit of either of these relationships between employee and job environment. Both Caplan, et al. and French, et al. explicated strain as the result of this misfit.

Caplan, et al., (1975) defined this strain as "any deviation from normal responses in the person: (a) psychological strains such as job dissatisfaction, anxiety, and low self-esteem; (b) physiological strains such as blood pressure and elevated serum cholesterol; and (c) behavioral symptoms of strain such as smoking and dispensary visits" (p. 3). The authors in effect used the word strain to mean stress if we were to view stress from a response point of view. They viewed stress as the stimulus and strain as the response to this stimulus. Although they were attempting to measure the
effects of the work environment, they ignored the possibility that much of the strain demonstrated at work might have been caused by an environment other than work.

The conceptualization of stress as strain began with McLean (1974). He viewed stress in engineering terms, where stress was a force induced strain or deformation to that which it was applied. An external load caused overloading which produced irreversible strain or yielding. He felt that such yielding might not necessarily prevent functioning although in time, it could cause a rupture and breakdown. McLean noted that his engineering analogy had been considerably distorted by other authors in the field.

Margolis, Knoes, and Quinn (1974) also defined stress in terms of a work setting. They described stress as a condition within the working environment which interacted with worker characteristics to disrupt psychological and physiological homeostasis. The causal situations and conditions they labeled as stressors and the disrupted homeostasis as job-related strain. Their concept of stressors and resulting strain provided a stimulus—response model. Margolis, Knoes, and Quinn suggested five dimensions of job related strain: short-term subjective states (e.g., anxiety, tension, and anger), long-term and more chronic psychological responses (e.g., depression, general malaise, and alienation), transient physiological changes (e.g., gastro-intestinal disorders, coronary heart disease, and asthmatic attacks), and work performance decrease.

Generally consistent with this approach, McLean's (1974) indicated that for years he considered an occupational "stressor" or
"stress" as any work-related factor which produced a maladaptive response (including an adverse effect on work performance and interpersonal relationships). Therefore, he agreed to a stressor-response model although he confusingly used the terms stress and stressor interchangeably.

It was the physiological approach to stress that resulted in the most attention in terms of research. From this point of view, stress was defined as a reaction to a stressor. Selye (1950) described stress as a general bodily response to any demand. This demand placed on the individual was the stressor. The respondent behavior which occurred contingent and subsequent to the stressor was the stress. Hence stressors were viewed as stimuli and stress as the response.

Oken (1967) pointed out the importance of making such a distinction with the following comment:

Before proceeding further, it is important to recall another distinction which Selye makes. This concerns the proper use of stress as a term which denotes response and not a stimulus (the correct term for the latter being stressor). This is more than a matter of semantic confusion. There is no a priori way to know whether any given stimulus effectively will provoke the stress reaction in a given subject. . . . The point is a crucial one, deserving great emphasis, since it is all too easy to slip into the vernacular use of the term to characterize a stimulus situation (p. 44).

Such a point of view was not made distinct in much of the literature when addressing itself to psychological stress. An example was McLean's (1974) conclusion that stress was neither a stimulus, response, or intervening variable, but rather a collective term for an area of study which was distinct from other areas of

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study because it dealt with demands which strained the system (e.g., physiological, sociological, and psychological) and the response of that system to the demands.

Physiological Stress

The earliest description of stress as a physical phenomena was provided by a London physician named Johnson (cited in Tanner, 1976). He characterized London as a modern day Babylon where the "chafing tide of human existence" resulted in increased tension (p. 10). He argued that this tension caused a condition of "body and mind intermediate between that of sickness and health, but much nearer to the former" (p. 10).

Johnson called this physical condition the "wear and tear" complaint and suggested that it was a disease indigenous to the English, for whom business was the only pleasure, in comparison to the French, who considered pleasure the only business. The final outcome of the disease was premature old age. He coined the appearance of such victims as "careworn countenance."

Johnson at this time in history was well ahead of his contemporaries because of their inability to combine the mind and the body into what we now call a psychosomatic approach. His description of an individual's physical reaction provided an overview which would be accurate even today:

A sudden gust of passion, a transient sense of fear, an unexpected piece of intelligence—in short, any strong emotion of mind, will cause the heart to palpitate, the muscles to tremble, the digestive organs to suspend their functions, and the blood to rush in vague and irregular currents through the living machine (cited in Tanner, 1976, pp. 10-11).
Nearly a hundred years later, Cannon (1932) completed the first research describing the basic automatic response to stress. Working with cats and dogs, he demonstrated that a complex animal exhibited a single fundamental pattern of response to any challenge to its equilibrium. The animal responses varied in force and strength, depending on how important the challenge was perceived to be. However, the responses always followed the same general pattern.

Cannon was interested in the challenge of danger. He theorized that when an animal or primitive man was faced by an enemy, he would either prepare for battle or run to safety. It was based on this research that Cannon called the basic response to stress the "fight or flight pattern."

This primal stress response, according to Cannon, had its beginning in the very center of the brain in the hypothalamus. The hypothalamus appeared active in directing the basic physiological changes involved in the stress reaction. First it controlled the autonomic nervous system and the involuntary body functions within the autonomic framework. Secondly, it activated the pituitary gland to order the release of chemical messengers or hormones directly into the bloodstream. The two systems, hormones and nerves, reinforced each other to produce the fight or flight response. Taken together, they appeared to alter the functioning of nearly every part of the body.

The significance of all of these instantaneous physiological changes was explored and greatly expanded by the work of Selye (1946). While Cannon worked on cats and dogs, Selye used rats to
study the effects of stress. Not only did he subject the rats to traumatic aversive chemical injections, but also to less severe stresses such as nervous irritation. He found, for example, that rats when firmly held down, exhibited clear symptoms of fear and rage. These responses were very similar to the fight or flight pattern demonstrated by Cannon.

From observing injured and immobilized rats, Selye (1946) developed a sequence of behavior that he felt was the result or consequence of encountering stressors. He described this phenomena as the "General Adaptation Syndrome" (G.A.S.).

It consisted of three specific components. The first he entitled the "alarm reaction" which included all the automatic physiological responses. This part of his paradigm roughly corresponded to Cannon's "fight or flight." The second part of the stress response was called the "stage of resistance" during which the organism's functioning returned to normal, and its resistance to further stressors increased.

If stressors were continually encountered, the third and final "stage of exhaustion" occurred. This happened when the symptoms of the alarm reaction reappeared and physiological effects were irreversible. The outcome was death. According to Selye, death occurred because the organism had exhausted its fund of "adaptive energy" and had not found a suitable way in which to accommodate the stressor.

When animals which had disease from stress were dissected, they invariably had "enlarged adrenal glands; shrunken lymphatic nodes"
and thymus (organs that play a vital role in immunity to disease); and—most ominous of all to modern man—a stomach covered by bleeding ulcers" (Tanner, 1976, p. 15).

Douglass (1977) provided a thorough description of the many physiological activities which were altered as a result of stress in the human body. With the command of the autonomic nervous system, the muscles of the body began to tense and tighten. As a result of this muscle activity, the heart rate increased, blood vessels constricted and blood pressure heightened. Those blood vessels lying close to the skin became nearly cut off—hence the drop in temperature of the limbs. Breathing became deeper and faster, the muscles of the face contorted, and nostril and throat passages opened wide.

Other muscles terminated their activities, such as those in the stomach and intestines. This caused a cessation in digestion. Also, the muscles controlling the bowels and the bladder loosened.

Other more subtler changes were also occurring. The amount of perspiration increased, while the secretion of saliva and mucus decreased. Hearing and smell became more acute and the pupils of the eyes dilated to admit light for more sensitive seeing.

Further research indicated that the pituitary-adrenal system activated as a response to stressors (Selye, 1950; Mason, 1968; Levine, Goldman, & Coover, 1972). The response patterns of the pituitary-adrenal system depended on both the quality and strength of the stressor.

The adrenal glands were stimulated by the autonomic nervous
system to release the hormones epinephrine and norepinephrine. The giddiness and anxiety felt when the adrenalin is flowing was due to these hormones. Together, these hormones affected circulation by reinforcing the autonomic action of increasing both heartbeat and blood pressure. This also caused the spleen to release more red blood corpuscles, increase the clotting time of blood, and raise the count of white blood corpuscles in the blood.

At the time that these actions were being set in motion, the pituitary, too, reacted to the hypothalamus. Mason (1959) and Mason, Bradley, and Sidman (1957) described two hormones as playing major roles in the physiological stress response. The first was thyrotrophic hormone or TTH. This hormone stimulated the thyroid which in turn increased the rate at which the body produced energy. The second was adrenocorticotrophic hormone, or ACTH, which reinforced the signals sent the adrenal glands through the autonomic nervous system. The ACTH hormone caused 30 other hormones to be produced by the outer layers of the adrenals. In laboratory experiments, their concentration in the blood was among the surest signs of stress (Sayers & Sayers, 1949; Sayers, 1950; Ingle, 1950; and Dallman, Englewood, & McBride, 1977).

The existence of the alarm reaction or fight or flight response might have served man well at an earlier time when more primitive physical activity or behavior was allowed, but to modern day man, it has served as a nemesis when allowed to go unchecked. It is a highly physiological response. Unbated use of the alarm reaction has morbidity and mortality implications. Hence, the importance of
understanding stress from a physiological point of view and using medical problems as a barometer.

In summary, stress was traditionally viewed from a physiological or psychological point of view. Several investigators defined stress in terms of the work setting. Others focused on the more obvious emotional and behavioral responses to stress. All of these positions inherently ignored the physiological etiology or body explanation for how we react. However, a look at the development of physiological stress demonstrated the innate mechanisms at work in response to a stressor. The debilitating consequences of stress via the General Adaptation Syndrome (Selye, 1976) emphasized the importance of understanding the underlying physiological mechanisms at work.

A lack of common language in the literature has been detrimental to basic research problems and understandings of stress. As Dohrenwend and Dohrenwend (1974) point out, "the use of the term is somewhat hazardous because of the lack of consensus that prevails in the stress research" (p. 2).

With this in mind, and as a basis for this investigation, the following conclusions based on the physiological stress literature were made:

1) A stressor is whatever produces stress. It may be a somatic demand such as an athletic event; but it may be purely psychological, such as putting up with an intolerable business partner or a change in life such as death, divorce, or a large mortgage. Stressors make specific demands that are not common to anything but the situation
under consideration.

2) Stress is the common (non-specific) response to any demand upon the body. These demands (stressors) may be mental or somatic. Stress cannot be produced without a stressor. The common response to a stressor is the General Adaptation Syndrome (G.A.S.). Hormonal production during the G.A.S. has been the most reliable indicator for showing a state of stress exists. However, internal and external conditioning factors can modify this common response (heredity, previous exposure to stress, traditions, education, or seasonal variations).

3) Stress can be both helpful and harmful. Good stress is eustress, bad stress is distress. As such stress can exist in various degrees.

4) Stress diseases are a matter of degree. Certain maladies or medical complaints are directly connected to the stress response (e.g., high blood pressure, heart problems, mental breakdowns, migraines, and insomnia) while others have no connection whatsoever. Medical complaints are a good indicator of stress because the majority of maladies for which people seek medical attention are due to stress (which is the basis for psychosomatic medicine).

Life Stressors and Medical Problems

Cannon (1929) was the pioneer who first argued that stressful life events could be medically harmful. He showed that stimuli associated with emotional arousal caused changes in basic physiological processes. However, he failed to specify those life events or conditions under which physiological changes resulted in pathological conditions.
It was Meyer (1951) who first advocated the life event chart as a tool in medical diagnosis. Describing this technique he wrote:

We begin with the entering of date and year of birth . . . ; we next enter the periods of disorders of the various organs, and after this, the data concerning the situations and reactions of the patient (p. 53).

He described situations that were important as:

. . . the changes of habitat, of school entrance, graduations or changes or failures; the various "jobs"; the dates of possible important births and deaths in the family, and other fundamentally important environmental incidents (p. 53).

Therefore, Meyer taught that life events may be an important part of the etiology of a disorder and that these events need not be catastrophic or bizarre. He suggested that normal change could be a potential contributor to the development of a pathological condition.

Wolff (1950) was also interested in the relationship between life events and psychophysiological reactions. He took the concepts of Pavlov, Freud, Cannon and Skinner and incorporated them into the Meyerian scheme. His research and that of others demonstrated evidence that stressful life events played an important causative role in the natural history of many diseases (Holmes, Goodell, Wolf & Wolff, 1950; Wolff, Wolf, & Hare, 1950; Grace, Wolf, & Wolff, 1951; Wolf, Cardon, Shepard, & Wolff, 1950; Wolf, 1965; Holmes & Rahe, 1967; Rahe, 1968).

The research of Rahe, Meyer, Smith, Kjaer, and Holmes (1964) also established that changes in life were associated with the onset of illness. Subsequent to this finding, Rahe and Holmes (cited in
Dohrenwend & Dohrenwend, 1974) demonstrated a correlation between the intensity of stressful life events and reported health changes with a group of 88 physicians. The 93% association of reported health changes with a life crisis was significantly greater than chance association. A follow-up study (cited in Dohrenwend & Dohrenwend, 1974) with the same set of physicians also produced relationships which were significant.

In other studies, an increased amount of life change was positively related to fractures (Tollefson, 1972). Hong and Holmes (cited in Dohrenwend & Dohrenwend, 1974) also related the magnitude of life change to a case report of transient diabetes. Wold (1968) demonstrated that a life crisis was present in families at the time their children were first diagnosed as having leukemia.

In 1970, Casey, Thorensen, and Smith investigated the relationship between life change magnitude and reporting for sick call. Their studies found no significant relationship. These findings were supported by Zilmer, Kogan, and Holmes (1971) who could find no relationship between life change magnitude and utilization of health care facilities in a large population of members of a prepaid health care clinic.

Another dimension was added to the life change—onset of illness paradigm by Wyler, Masuda, and Holmes (1971). They designed an instrument to compare the magnitude of life change with seriousness of illness. The correlation was highly significant for chronic (long standing) diseases and insignificant for infectious diseases of acute onset. This data suggested that the greater the life change
or adaptive requirement, the greater the lowering of resistance to disease, and the more serious the disease that developed. The difference in individual threshold to resistance and the need for a special pathogen to be present could have accounted for the differences observed in the acute infectious diseases.

In looking extensively at a chronic disease like coronary illness, three general classes of psychological stressors were studied: (1) overall dissatisfaction with various aspects of life; (2) long-term life events (chronic) defined by the individual as stressful; (3) acute life events defined by both the individual and the culture.

Studies surveyed agreed that coronary patients reported more dissatisfaction in many areas of their lives (Jenkins, 1971; 1976). Bruhn, McGrady, and duPlesis (1968) found more job difficulties among 64 workers with coronary disease than matched controls in Oklahoma. Inability to derive satisfaction from leisure activities as well as job dissatisfaction was implicated in myocardial infarction and sudden death in the United States (Wolf, 1969). Studies from Holland (Kits van Heijningen & Treurniet, 1966) and Israel (Groen & Drory, 1967) concluded that individuals with atherosclerosis were described by close relatives as having severe work problems.

Sales and House (1971) in their job-dissatisfaction surveys, found that groups with greater dislike for their work had consistently higher rates of mortality due to coronary disease. This occurred regardless of socioeconomic class.

Dissatisfaction with level of education, adult interpersonal relationships, and marital relations was found to be more frequent.

In reviewing the literature in terms of chronic life events, Sales (1969) and House (1975) suggested that excessive work and responsibility, when it approached the individual's limit, precipitated the development of coronary disease. Epidemiological research reviewed by Smith (1967) and Jenkins (1971; 1976) supported this hypothesis. Ongoing work overload and elevated serum cholesterol were demonstrated by several authors to increase the incidence of coronary disease (French & Caplan, 1973; French, Rodgers, & Cobb, 1974; French, Tupper, & Mueller, 1965).

In observing the relationship between acute life events (which are situational) and coronary disease, death of a close relative appeared to be a catalyst (Parkes, Benjamin, & Fitzgerald, 1969). Myocardial infarctions were also preceded by rejection of a loved one or a sudden loss in self-esteem (Engle, 1970). Brenner's 1971 study showed that abrupt economic downturns were associated with increased mortality from heart disease and, conversely, that heart diseases declined in good economic times.

Rahe and Lind (1971) demonstrated a positive relationship between mounting life change and sudden cardiac death. Studies conducted in Sweden found similar relationships between stressful life changes and myocardial infarction (Theorell & Rahe, 1971; Rahe & Pasikivi, 1971).
A more recent study in this same series (Rahe, Romo, Bennett, & Siltanen, 1974) gathered acute life change data from 275 survivors of myocardial infarctions and 22 cases of coronary death in Finland. Wives of the victims provided life change information to the researchers. The findings indicated a large degree of total life changes six months prior to the infarction or death as compared to the same time interval one year earlier.

Although the research to this point appears impressive, it is retrospective in nature. It is contaminated by the victims' knowledge of their own illnesses. Also, the statistical analyses involved in the studies were usually correlative. Cause and effect in the stressor (life event) -- medical health conceptualization should therefore be cautiously applied. Longitudinal studies support this speculation.

A series of such studies is being conducted by Hinkle (1973). He is comparing the medical histories of 838 men to their specific social-psychological records for a period of more than ten years. The findings to date do not support the data of many of his colleagues. Hinkle is interested in the relation between discrete and defineable life changes and acute and fatal coronary heart disease. His research can be summarized as follows:

1. The only new cases of heart disease for the men followed were those who already had some combination of medical problems, smoked cigarettes or had a family history of heart problems. Many of those affected had preexisting evidence of atherosclerosis in other blood vessels. Rarely did others have problems.

2. Unexpected death rarely occurred in men who did not have
preexisting evidence of heart problems and were not alcoholics, especially if they were heavy cigarette smokers.

(3) The experiences in life for those who had coronaries or died were very similar to the experiences of matched controls who did not die or develop disease.

(4) Coronary disease and death often occurred in settings of hard work, difficult interpersonal relationships and fatigue. Events such as arguments, unexpected exertion, or sexual intercourse served as catalysts for those already predisposed towards disease or death but had no consequences for those who were already healthy.

Hinkle's findings for this group of men negate much of the work already described by others. However, extensive research on other large populations were summarized by Hinkle (1974) as follows:

1. Exposure to cultural change, social change, and change in interpersonal relations may lead to a significant change in health if (a) a person has preexisting illness or susceptibility to illness, and he perceives the change as important to him, or (b) there is a significant change in his activities, habits, ingestants, exposure to disease-causing agents, or in the physical characteristics of his environment.

2. Exposure to culture change, social change, and change in interpersonal relations may lead to no significant change in health if (a) a person has no significant preexisting illness or susceptibility to illness, or if he does not perceive the change as important to him, and (b) there is no significant change in his activities, habits, ingestants, exposure to disease-causing agents, or in the physical characteristics of his environment.

3. If a culture change, social change, or change in interpersonal relations is not associated with a significant change in the activities, habits, ingestants, exposure to disease-causing agents, or in the physical characteristics of the environment of a person, then its effect upon his health cannot be defined solely by its nature, its magnitude, its acuteness or chronicity, or its apparent importance in the eyes of others (p. 42).

Hinkle's (1974) findings identified a particular group of
people who remained free from illness in the face of major life changes. They appeared to have psychological characteristics which helped to insulate them from the effects of some of their life experiences. "The loss of a husband or wife, the separation from one's family, the isolation from one's friends, community, or country, the frustration or apparently important desires, or the failure to attain apparently important goals produced no profound or lasting reaction" (Hinkle, 1974, p. 41). He described them as having almost a "sociopathic" flavor to them.

A review of the literature in regards to the legitimacy of life event changes as stressors which would consistently lead to medical problems appeared to have some empirical basis. This approach assumed that the impact of a life event was determined by the normative expectancy concerning the stressfulness of that event. This expectancy was directly or vicariously learned but could vary from group to group or could change over time.

This position, however, was challenged by other studies in the literature which are reviewed in the next section of this chapter. The conclusion of Appley and Trumbull served as a catalyst for the first research hypothesis in this investigation: "With the exception of extreme life-threatening situations, it is reasonable to say that no stimulus is a stressor to all individuals exposed to it" (1967, p. 7). This statement is contradictory to much of the research just cited and therefore Major Research Hypothesis 1 was generated which stated that the number of reported medical problems of principals indicating a high number of life stressors would be greater than
Personality as a Moderator of Life Stressors

A review of the literature investigating the importance of personality as a moderator in the perception of stressors was best characterized by the following comment of Lazarus, Deese, and Osler (1952):

Very little information has been obtained about the relationship between various measures of personality and reaction to stress. The problem has theoretical as well as practical importance. On the one hand, while great individual differences in response to stress have been recognized, few fruitful attempts have been made to discover their nature. On the other hand, it would be most useful to be able to predict which people will be adversely affected by a stressful situation (p. 307).

Attempts at investigating the relationship between stressful situations and psychological factors were conducted by several authors. Stopol (1954) used Rorschach responses as the basis for twelve hypotheses concerning personality characteristics of his subjects. He found no relationships with his hypotheses. In 1955, Lofchie found that subjects who scored high on the Rorschach index of perceptual maturity performed better on a psychomotor task under distraction stress than those who scored low on the index.

In a similar design but using a different measure of personality, Katchmar (1953) selected anxious and non-anxious subjects based on scores from the Taylor Manifest Anxiety Scale. Under failure stress conditions, the highly anxious group performed more poorly than the non-anxious.

In more recent studies, in examining the personality from a needs
point of view, Kahn, Wolfe, Quinn, Snoek, and Rosenthal (1964) found that need for clarity moderated the relationship between the perceived role ambiguity and job-related stress. Lyons (1971) conducted a similar study and demonstrated that the moderating effects were strongest for dissatisfaction, propensity to leave and voluntary turnover.

A study (Beehr, Walsh, & Taber, 1976) examining employees higher order ego needs as a potential moderator, found a significant trend between three stressors (non-participation, role ambiguity, and role overload) and three human consequences (dissatisfaction, tension, and fatigue). Brief and Aldag (1976) did not find any moderating effect for the relationship between (1) role conflict and ambiguity, and (2) tension, anxiety and satisfaction. In a laboratory, using objectively manipulated stressors, Sales (1970) found an interaction between test anxiety and workload in predicting heart rate.

In looking at specific characteristics of personality, Type A's described by Jenkins, Rosenman, and Zynanski (1974) appeared to perceive stressors in a very serious light. Type A behavior patterns included aggressiveness, a sense of time urgency, polyphasic thinking, explosiveness of speech and tenseness of facial musculature. The authors demonstrated that this pattern of behavior was positively and consistently related to the incidence of coronary heart disease.

The interpretation that Type A behavior directly caused physiological changes is overly simplified. Its role appeared to be more that of a moderator, meeting and interpreting the daily stressors of life in such a manner that reinforced any negative physical predispositions.
The longitudinal work of Betz and Thomas (1979), which was cited in Chapter I, provided the cornerstone for hypothesizing that those individuals with a positive and self-actualized outlook on life would have fewer medical problems. Also, positive emotions were found to be linked to psychological well being (Bradburn & Caplowitz, 1965), marital happiness (Orden & Bradburn, 1968) and life tedium (Kanner, Kafry, & Pines, 1977).

Although it is many times assumed that negative emotions may result in greater social problems as well as medical difficulties, the evidence is hardly conclusive. The antithesis of this thought would conclude that positive emotions could prevent or moderate stress linked psychological and medical disorders.

Cousins (1976) raised this question when he described his fight with collagen disease which usually causes rapid physical deterioration. He suggested that his programs of laughter and positive emotions were instrumental in helping him get over his illness. Although he recognized that a single case had little validity, he reported his rationale as follows:

The inevitable question rose in my mind: What about the positive emotions? If negative emotions produce negative chemical changes in the body, wouldn't the positive emotions produce positive chemical changes? It is possible that love, hope, faith, laughter, confidence, and the will to live have therapeutic value? Do chemical changes occur only on the downside? (p. 1438).

In conclusion, the importance of studying personality factors in relationship to stress and medical problems was cited more often in the literature than research proper. The lack of information in this area is to a degree a reflection of the methodological problems...
in studying personality correlates of stress.

As McGrath (1970) pointed out, the variance obtained on a set of individuals in response to a given stressor might have little to do with individual differences in personality. The variance could be due to the particulars of the situation itself or variance in the stress measures. He recommended measuring the subjects on one or more personality measures as well as the stress response measure and then correlating the two measures together. These correlations would then include the unwanted (and unmeasured) differences among individuals that are related to the methods component of the particular stress response measure.

This rationale led to the development of Research Hypothesis 2 which stated that the number of reported medical problems of principals exhibiting a high degree of self-actualization would be lower than that of principals exhibiting moderate or little self-actualization. The lack of research and the need for more understanding of personality as a moderator also led to the generation of Major Research Hypothesis 3 which stated: the number of reported medical problems of principals indicating a high number of stressors and exhibiting a high degree of self-actualization would be lower than that of principals reporting a high number of stressors and moderate or little self-actualization.

Conclusions

Based upon this literature review which examined the relationship between stressors, medical problems, and personality, the
following conclusions can be made: (1) there was much confusion in the literature as to what stress really was; (2) the historical physiological explanation of stressors and stress provided the most consistent framework upon which to build further research; (3) at times, mounting life changes resulted in an increase in medical problems; (4) at other times, certain individuals or groups appeared to have immunity to medical problems in the face of many life changes; (5) personality as a moderator of stressors had face validity but had been difficult to study; (6) little controversy existed over the importance of personality as a moderator between stressors and subsequent medical problems because of the limited number of studies; (7) there was scientific need to expand the literature in this area.

These findings provided the foundation for the research hypotheses presented in Chapter III. Although they do not exhaust all the problems presented in this literature review, an attempt was made to address the central issues of concern.
CHAPTER III

METHODOLOGY

Introduction

This investigation was primarily constructed to investigate the moderating affect the self-actualized personality had on the incidence of medical problems. A random sample of 325 principals from the membership of the Michigan Elementary and Middle School Principals Association was utilized. Information and data were obtained by sending the Human Synergistics' Evaluation System Level I: Life Styles as developed by Lafferty (1978) to each principal. The two-way Analysis of Variance was utilized to examine the relationships between the variables in question.

Major Research Hypotheses

A review of the literature suggested that stressors encountered in daily living were debilitating to health. How one perceived stressors also appeared to dictate the incidence of health problems. Since how the world is perceived is largely contingent upon personality styles, it was reasonable to assume that certain personality characteristics provide immunity to stress related diseases. Self-actualization was thought to be such a style. It was from this position that the following hypotheses were established:

Research Hypothesis 1: The number of reported medical problems of
principals indicating a high number of life stressors will be greater than that of principals reporting a low number of life stressors.

Research Hypothesis 2: The number of reported medical problems of principals exhibiting a high degree of self-actualization will be lower than that of principals exhibiting moderate or little self-actualization.

Research Hypothesis 3: The number of reported medical problems of principals indicating a high number of life stressors and exhibiting a high degree of self-actualization will be lower than that of principals indicating a high number of life stressors and moderate or little self-actualization.

Fifteen ancillary hypotheses were also developed which, although not established by their own review of the literature, were felt to be pertinent in furthering the understanding and interpretation of the Major Research Hypotheses. These non-directional hypotheses were developed to analyze the effect of staff size, sex, salary, age, and education on the variables of life stressors, self-actualization, and medical problems. A comparison of these smaller subgroups provided a more specific look at the differences which were being "masked out" by the Major Research Hypotheses. Of particular interest was the effect of staff size, sex, and age on the number of life stressors and medical problems reported.

Descriptive data including number of work days missed, number of days in the hospital, number of teachers supervised and other personal characteristics of the principals were also useful in helping to interpret the Major Research Hypotheses. All findings,
both inferential and descriptive are discussed in Chapter IV.

Population

The population consisted of the 1979-80 mailing list of the Michigan Elementary and Middle School Principals Association (MEMSPA). This organization consists of approximately 1,700 members representing all parts of Michigan. A card for each principal was prepared by MEMSPA and assigned a number. Three hundred and twenty-five random numbers were then computer-generated. Those principals with numbers matching the computer-generated numbers served as the sample.

Data Collection

A cover letter (see Appendix A), the survey instrument (Human Synergistics' Evaluation System Level I: Life Styles Inventory), and a stamped self-addressed envelope were sent through the United States mail to each participating principal. The mailing address provided by MEMSPA was used for each principal. Participation was strictly voluntary although endorsed by the Michigan Elementary and Middle School Principals Association through its Leadership Activities Commission and the MEMSPA Board of Directors.

Two weeks after the initial mailing, the original letter and a reminder letter (see Appendix B) were sent to those principals who had not yet responded. The same reminder letter was sent again approximately one month after the first mailing to those who had still not responded. Finally, a self-addressed stamped post card was sent to the non-respondents. The post card asked:
1) "Please state your reason for not participating in the recent stress survey"; 2) "Describe the degree of stressful situations you encounter daily. Circle only one: high, moderate, low." These questions were asked as an aid to learning something of the characteristics of the non-participants.

Instrumentation

The three instruments used for the purpose of this investigation included: the Human Synergistics' Evaluation System Level I: Life Styles Inventory (Lafferty, 1978), The Social Readjustment Rating Scale (Holmes & Rahe, 1967), and the Medical Problems Checklist (Lafferty, 1978). All three instruments as well as demographics are included in the Human Synergistics' Evaluation System Level I: Life Styles therefore negating the need for three separate protocols (see Appendix C). Although the entire Life Styles Inventory was administered, only the Self-Actualized Scale was used for the purpose of testing the null hypotheses.

Life Styles Inventory

The Human Synergistics' Evaluation System Level I: Life Styles Inventory (LSI) is a self-administered, self-scored personality assessment instrument. The items on the test are phrases or descriptive words which the individual can respond to with "2" (strongly like me most of the time), "1" (like me quite often), or "0" (essentially unlike me). Contained within the LSI are 12 categories or dimensions of personality of which the Self Actualization
Scale is one. Each category consists of 20 items which provide the score for that dimension. A total score can be obtained by combining all 12 categories or dimensions.

Each of the items on this instrument were selected to provide a succinct description applicable to the aspect of personality which each scale was designed to measure. The items comprising the Self-Actualization Scale can be found in Appendix D.

The Self-Actualization Scale is primarily a measure of psychological self-esteem. Lafferty (1978) described this scale in the following way: "The self-actualizing person has a more efficient perception of reality; an acceptance of self, others, and the world around him/her; believes that self-effort produces better results; and uses creativity effectively" (p. 11).

The scales of the LSI were initially normed on 354 adults drawn from the general population. The sampling procedure used maximized heterogeneity as manifested in the general population. Subsequent norms were established for supervisory, mid-level, and top-level management types.

Validity of the LSI was demonstrated by Lafferty (1971) using a blind study technique comparing judgments based on the LSI profile to the judgements of expert personnel managers. The personnel managers utilized more traditional techniques such as extensive interviews, problem-solving tasks, psychometric measures of intelligence, and skill levels in reading and specific job requirements. In 82 percent of the cases, the LSI was capable of making the same judgements as the six day assessments performed by the personnel.
experts. The Kendall partial rank correlation equaled .73. The long
term prediction of the LSI proved to be more accurate than the panel
of experts.

Reliability of the LSI was established by using the Spearman
Brown Reliability Formula and Spearman Brown Correction Formula.
The internal reliability for each category or dimension of the test
exceeded .90. The average Spearman Brown corrected reliability
coefficient was .92.

The Social Readjustment Rating Scale

The Social Readjustment Rating Scale (hereafter called the SRRS)
(Holmes & Rahe, 1967) is a series of 40 statements involving a
representative number of significant life changes or alterations
in life styles that were empirically derived from clinical experience
(Rahe, Meyer, Smith, Kjaer, & Holmes, 1964). Other similar
studies (Greene, 1954; Smith, 1962; Stevenson & Graham, 1963;
Fischer, Olin, Winters, Hagner, Russell, & Weiss, 1964) had also
demonstrated the significance of these life events as a significant
factor at the time of onset of a disease.

The interview or questionnaire technique used in these studies
yielded only the number and types of events. The magnitude
of these life event changes was established by having 39th subjects
rate the 40 life events as to their relative degree of necessary
adjustment. The subjects were told that the life event "marriage"
had an arbitrary value of 500 and that the remaining events were to
be assigned values (numbers) by comparing them to marriage. They
were asked if the readjustment to each event was greater or less than the readjustment to marriage.

Values for the life events were obtained by dividing each life event mean by ten. Values for life changes ranged numerically from "death of spouse" (100 points) to "minor violations of the law" (11 points). Consensus was high concerning the relative order and magnitude of the means of items. This was demonstrated by the high coefficients of correlation between the discrete groups in the sample.

Such comparisons were male versus female (.96), single versus married (.96), age lower than 30 versus ages 30 through 60 (.95), and Protestant versus Catholic (.91). All comparisons were above .90 except white versus black (.82).

Replication of the scaling method by Ruch and Holmes (1971) and Parsley (1969) found a high correlation with the original sample. Both Parsley and Ruch and Holmes used younger population possibly indicating that consensus about life-change events was established by the beginning of adolescence.

Subsequently, Rahe and Holmes (cited in Dohrenwend & Dohrenwend, 1974), studied the relationship of life crisis magnitude to health changes. The 93% association between health changes and life crisis which they found was significantly greater than chance association. The chi-square value for the difference between that observed (93%) and that expected (35%) was 95.9, significant at the .001 level.

Eighty-eight physicians served as the sample for this study.
It was found that as life change scores increased, so did the percentage of illness associated with the life crisis. Of those with scores between 150 and 199, 37% had had a health change. This association rose to 51% for scores ranging between 200 and 299. For 300 points or more, 79% association was noted. These ranges of scores were used to describe a mild (150-199), moderate (200-299), and major (300 or more) life crisis.

Medical Problem Checklist

The Medical Problem Checklist (MPC) is found on the Life Styles Inventory protocol as developed by Lafferty (1978). It is a list of 20 medical problems or complaints assigned a value of one point each resulting in a possible score of zero to twenty.

Each of the items on the checklist was chosen by Lafferty because of the etiological relationship stress had to them. Validation and reliability was represented by the research of Hinkle, Christenson, Kand, Ostfeld, Thetford, and Wolff (1958), Rahe, Meyer, Smith, Kjaer, and Holmes (1964), Holmes and Rahe (1967), Vinokur and Selzer (1973), and Weinman (1977). Each item was consistently demonstrated to be a significant indicator of stress. Health change as a legitimate barometer of stress was also demonstrated by Friedman, Rosenman, and Carroll (1958), Kahn, Wolfe, Quinn, Snoeck, and Rosenthal (1964), Selye (1971), and French and Caplan (1973). It was on the basis of these data that the items of the MPC were chosen and placed on the LSI protocol. A lack of empirical evidence negated the assignment of weighted values to the medical problem list.
Research Design and Statistical Analysis

The Major Research Hypotheses were tested inferentially in the null form. The two-way Analysis of Variance (ANOVA) was the statistical procedure utilized. The .05 level of significance was used to test all null hypotheses. The nulls for Research Hypotheses 1 and 2 were represented by the main effects and the null for Hypothesis 3 was represented by the interaction effect.

The "high" and "low" group for the independent variable "life stressor" was determined by assigning principals with scores of 200 or more points on the SRRS to the high group and 199 or fewer points to the low group. These assignments were based on the research of Holmes and Rahe (1967) who found that an accumulation of 200 points or more resulted in a 51% chance of a health change and a score of 300 or more, a 79% chance of change. A score of 199 points or less resulted in a probability of .37.

The assignment of principals to the "high" and "low" groups for self-actualization was based on the normed scores of 4,500 mid-level managers. Those principals with a score at or higher than the 70th percentile were placed in the "high" group. Those principals with a score at the 30th percentile or lower were placed in the "low" group. Those principals scoring between the 31st and 69th percentile formed a third group.

The fixed model for testing the Major Research Hypotheses was as follows:

\[ X_{ijk} = M + P_i + R_j + P_R_{ij} + E_{K(ij)} \]

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M represents the grand mean
P represents the level of life stressors
R represents the level of self-actualization
PR represents the interaction of life stressors and self-actualization
E represents the error variance

i = 1 . . . 2 (column/life stressor)
j = 1 . . . 3 (row/self-actualization)
k = 1 . . . n (n represents cell size)

Symbolically, the three null hypotheses were represented in the following way (Glass & Stanley, 1970):

Null Hypothesis 1 \((H_0^1)\): \(M_{1.} = \ldots = M_{i.}\)
Null Hypothesis 2 \((H_0^2)\): \(M_{.1} = M_{.2} = \ldots = M_{.j}\)
Null Hypothesis 3 \((H_0^3)\): all \((M_{ij} - M_{i.} - M_{.j} + M) = 0\)

\(M_{i.}\): represents the population mean number of reported medical problems for the ith level of life stressors.

\(M_{.j}\): represents the population mean number of reported medical problems for the jth level of self-actualization.

\(M_{ij}\): represents the population mean number of medical problems for the ijth level of interaction between life stressors and self-actualization.

The assumptions for this test were recognized in terms of the experimental design. The assumption that the error be independent for both within and between treatment combinations was assured by the fact that no sample group was simultaneously in more than one cell of the factorial design described earlier. The assumption that the treatment combination have homogeneity of
variance in terms of errors was met to some degree by the fact that
the ANOVA is robust when sample sizes are large and independent.
Overall, the assumptions surrounding the ANOVA were not ignored in
the research paradigm for Major Research Hypotheses 1, 2, and 3.

The ancillary hypotheses were concerned with differences in
the subgroups in relationship to stressors, self-actualization, and
medical problems. Would there be a difference between male and
female principals or young and old principals in terms of reported
medical problems? This was the kind of comparison made. They were
generated to enhance the understanding of the sample in terms of
the Major Research Hypotheses. The non-directional t-test was
used for each comparison. The .10 level of significance was
required in order to report the nulls of the ancillary hypotheses
as rejected.

All appropriate descriptive statistics were generated in order
to assist in the interpretation of the inferential statistical
choices. The statistical analysis was performed at the Western
Michigan University Computer Center making use of the Statistical
Package for the Social Sciences program. All findings are reported
in Chapter IV.

Summary

A random sample of 325 principals was drawn from the membership
of the Michigan Elementary and Middle School Principals Association.
The initial mail survey was followed by two more requests for
participation. Principals who had not responded after these
requests were mailed a self-addressed stamped post card to
determine the reason for their lack of participation and the degree
of stressful events they perceived in daily living.

The Life Styles Inventory was used to ascertain the degree of
self-actualization. The Social Readjustment Rating Scale obtained
information about life stressors and the Medical Problems Checklist
provided data about perceived medical problems.

The interrelationship of self-actualization and life stressors
to the reported number of medical problems was the main area of
investigation. That self-actualization would act as a buffer
between life stressors and potential medical problems was the central
hypothesis. The two-way ANOVA was used to investigate this position.
T-tests were used to evaluate the ancillary hypotheses. Descriptive
statistics of subgroups and the total group were used in understanding
the inferences involved.
CHAPTER IV

FINDINGS

Introduction

The purpose of this study was to examine the interrelationship of self-actualization and life stressors to reported medical problems. The sample was the elementary and middle school principals in the state of Michigan. Chapter I provided a rationale for the problem and research questions. Chapter II provided a conceptual framework for defining stressors and stress as well as describing and critiqueing writings pertinent to the methodological aspects discussed in Chapter III.

Chapter IV begins with a description of the principals, both participants and nonparticipants. Then the results of the Major Research Hypotheses and ancillary hypotheses are discussed. The .05 level of significance was required in order to report the nulls of the Major Research Hypotheses as being rejected. The .10 level of significance was required in order to report the nulls of the ancillary hypotheses as rejected. The chapter ends with a summation of findings.

Description of the Principals

Of the 325 principals randomly selected for participation in this study, 195 completed and returned the instruments, representing 60% of the sample. Fourteen other instruments were also returned.
but were not useable because the majority of them represented retired principals.

One hundred and sixteen principals chose not to participate in the study. Out of this group of 116 nonrespondents, 29 of them returned post cards which had asked them about their reasons for nonparticipation. A review of these reasons demonstrated that the majority of these principals had no particular bias against the study.

The reasons given by the principals were categorized into six general areas. These categories included: (1) did not receive the stress survey; (2) completed and mailed the survey and apparently the material was lost in the U.S. mail; (3) did not have time to do the survey and expressed their apologies; (4) misplaced the survey materials either at home or at school; (5) did not like the survey. Over 40% of the principals cited lack of time as their reason for not participating. Seventeen percent reported that they had completed and mailed the survey with the survey apparently becoming lost in the mail.

The reasons for not participating appeared legitimate except for those principals stating that no materials were ever received. Three separate mailings occurred prior to the sending of the post card, with the same address being used each time. Overall, the principals demonstrated a sincerity in their responses and, as stated earlier, did not appear to be biased against the study. Table 4.1 summarizes the frequency and percentages of the responses given by the principals.
Table 4.1

Statements Given for Nonparticipation in the Study
by Frequency and Percentage

<table>
<thead>
<tr>
<th>Reason Given</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did Not Receive the Survey</td>
<td>4</td>
<td>13.8</td>
</tr>
<tr>
<td>Completed Survey and Lost in the U.S. Mail</td>
<td>5</td>
<td>17.2</td>
</tr>
<tr>
<td>Not Enough Time to Complete</td>
<td>13</td>
<td>44.8</td>
</tr>
<tr>
<td>Misplaced the Survey</td>
<td>3</td>
<td>10.4</td>
</tr>
<tr>
<td>Did Not Like the Survey</td>
<td>4</td>
<td>13.8</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>100.0</td>
</tr>
<tr>
<td>Did Not Give a Reason</td>
<td>87</td>
<td></td>
</tr>
</tbody>
</table>

The post card had also asked the nonparticipating principals to rate their level of life stressors as an attempt to compare their level of stress to that of the 195 participating principals. Only 29 out of the 116 responded to this question which made a comparison of the participating and nonparticipating groups difficult. Of those principals who did respond, nearly 38% rated their level of life stressors as high and 55% rated it as moderate. Only two percent rated it as low. Table 4.2 provides a summary of how the nonparticipating principals perceived their levels of life stressors.
Perception of Nonparticipating Principals of the Level of Stressors in Their Lives by Frequency and Percentage

<table>
<thead>
<tr>
<th>Level of Life Stressors</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>High</td>
<td>11</td>
<td>37.9</td>
</tr>
<tr>
<td>Moderate</td>
<td>16</td>
<td>55.2</td>
</tr>
<tr>
<td>Low</td>
<td>2</td>
<td>6.9</td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>100.0</td>
</tr>
<tr>
<td>Did Not Rate Themselves</td>
<td>87</td>
<td></td>
</tr>
</tbody>
</table>

In looking at the 195 principals who completed the instruments and formed the sample of this study, they were represented by 42 females and 153 males. They supervised on an average twenty teachers. The principals were generally middle age with the 40-49 age bracket representing 40% of the sample. The next most frequent age range was 30-39 representing 30% of the sample. The question concerning age was apparently sensitive because 41% of the principals chose not to answer it, even though they were only checking a range. Table 4.3 summarizes the frequencies and percentages for the age ranges.
<table>
<thead>
<tr>
<th>Age</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-29</td>
<td>4</td>
<td>3.5</td>
</tr>
<tr>
<td>30-39</td>
<td>35</td>
<td>30.4</td>
</tr>
<tr>
<td>40-49</td>
<td>47</td>
<td>40.9</td>
</tr>
<tr>
<td>50-59</td>
<td>24</td>
<td>20.9</td>
</tr>
<tr>
<td>60 and Over</td>
<td>5</td>
<td>4.3</td>
</tr>
<tr>
<td>Total</td>
<td>115</td>
<td>100.0</td>
</tr>
<tr>
<td>Did Not Respond</td>
<td>80</td>
<td></td>
</tr>
</tbody>
</table>

The educational levels of the principals ranged from four years of college to having advanced degrees beyond the Masters. Seventy-two percent of the principals were at the masters degree level. As a group they were also well represented by advanced degrees, either the specialist or the doctorate, with 26% functioning at this level. Three principals were working without the masters which is somewhat surprising. The fact that two principals failed to respond to the question was possibly more of an oversight than sensitivity to the request about education. Table 4.4 demonstrates the educational profile of the principals in the sample.
Table 4.4

Educational Levels of Principals by Frequency and Percentage

<table>
<thead>
<tr>
<th>Education</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less Than Four Years of College</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>College Degree</td>
<td>1</td>
<td>0.5</td>
</tr>
<tr>
<td>Some Graduate Work</td>
<td>2</td>
<td>1.0</td>
</tr>
<tr>
<td>Masters Degree</td>
<td>139</td>
<td>72.0</td>
</tr>
<tr>
<td>Advanced Degree</td>
<td>51</td>
<td>26.5</td>
</tr>
<tr>
<td>Total</td>
<td>193</td>
<td>100.0</td>
</tr>
<tr>
<td>Did Not Respond</td>
<td>2</td>
<td></td>
</tr>
</tbody>
</table>

The socioeconomic level of the principals was represented most by the $25,000 to $35,000 salary range with 61.5% of the principals at that level. The next most frequent salary range was $18,001 to $25,000 representing 34% of the principals. Two principals made $18,000 or less. Although salary is normally a sensitive question, all principals responded to it which is somewhat surprising in light of their sensitivity to the age range question. Table 4.5 provides a frequency and percentage for each salary range.
Table 4.5
Salary Levels of Principals by Frequency and Percentage

<table>
<thead>
<tr>
<th>Salary</th>
<th>Frequency</th>
<th>Percentages</th>
</tr>
</thead>
<tbody>
<tr>
<td>$10,001 to $18,000</td>
<td>2</td>
<td>1.0</td>
</tr>
<tr>
<td>$18,001 to $25,000</td>
<td>67</td>
<td>34.4</td>
</tr>
<tr>
<td>$25,001 to $35,000</td>
<td>120</td>
<td>61.5</td>
</tr>
<tr>
<td>$35,001 to $50,000</td>
<td>6</td>
<td>3.1</td>
</tr>
<tr>
<td>Total</td>
<td>195</td>
<td>100.0</td>
</tr>
</tbody>
</table>

In summary, the majority of principals in the sample were male and approximately 45 years of age. Educationally, they were represented most by the masters degree level although many had degrees beyond the masters. They supervised on an average 20 teachers with the majority getting paid $25,000 to $35,000 for their responsibilities.

Analysis of the Major Research Hypotheses

The results of the 2-way ANOVA presented in Table 4.6 indicate that Null Hypothesis 1 could not be rejected at the .05 level. The portion of the table representing this hypothesis is the "Main Effect" entitled "Level of Life Stressors". The difference between means of the "high life stressor" and "low life stressor" groups for reported medical problems was not significant.
Table 4.6

Two-Way Analysis of Variance: Incidence of Reported Medical Problems by Level of Life Stressors and Degree of Self-Actualization

<table>
<thead>
<tr>
<th>Source of Variation</th>
<th>Sum of Squares</th>
<th>Degrees of Freedom</th>
<th>Mean Square</th>
<th>F Value</th>
<th>Level of Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Effects</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Level of Life Stressors</td>
<td>3.4</td>
<td>1</td>
<td>3.4</td>
<td>1.31</td>
<td>.2547*</td>
</tr>
<tr>
<td>Degree of Self-Actualization</td>
<td>5.0</td>
<td>2</td>
<td>2.5</td>
<td>0.95</td>
<td>.3869*</td>
</tr>
<tr>
<td>Two-Way Interaction</td>
<td>3.3</td>
<td>2</td>
<td>1.6</td>
<td>0.63</td>
<td>.5356*</td>
</tr>
<tr>
<td>Within</td>
<td>490.4</td>
<td>189</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>502.2</td>
<td>194</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Not significant at the .05 level
Therefore there is no evidence to support the position of Major Research Hypothesis 1 which predicted that an increase in life stressors would result in an increase in reported medical problems.

The principals from the "high" life stressor group had a mean of 1.80 for reported medical problems as opposed to 1.39 for the "low" life stressor group, which was in the hypothesized direction. However, the difference was not large enough to support the position of Research Hypothesis 1. Table 4.7 reports the means and standard deviations for the two life stressors groups.

Table 4.7

Descriptive Incidence of Reported Medical Problems: High and Low Life Stressor Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>Frequency</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Life Stressor</td>
<td>25</td>
<td>1.80</td>
<td>1.78</td>
</tr>
<tr>
<td>Low Life Stressor</td>
<td>170</td>
<td>1.39</td>
<td>1.58</td>
</tr>
</tbody>
</table>

An examination of Table 4.6 also indicates that Null Hypothesis 2 could not be rejected at the .05 level. The portion of the table representing this hypothesis is the "Main Effect" entitled "Degree of Self-Actualization." Because the null was not rejected there is no basis for supporting Research Hypothesis 2. Those principals exhibiting a high degree of self-actualization did not have a significantly fewer number of medical problems as predicted.
based on the longitudinal studies reviewed.

Inspection of Table 4.8 provides a descriptive picture of the comparisons between the three levels of self-actualization for the incidence of medical problems. The highest self-actualized group had the largest mean (1.58) which is the antithesis of the direction of Research Hypothesis 2. The low self-actualized group was only slightly lower with a mean of 1.50 for reported medical problems. The moderate group of principals reported the fewest number of medical problems.

Table 4.8

Descriptive Incidence of Reported Medical Problems: High, Moderate, and Low Self-Actualized Groups

<table>
<thead>
<tr>
<th>Groups</th>
<th>Frequency</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Self-Actualization</td>
<td>88</td>
<td>1.58</td>
<td>1.70</td>
</tr>
<tr>
<td>Moderate Self-Actualization</td>
<td>56</td>
<td>1.20</td>
<td>1.56</td>
</tr>
<tr>
<td>Low Self-Actualization</td>
<td>76</td>
<td>1.50</td>
<td>1.47</td>
</tr>
</tbody>
</table>

Referring again to Table 4.6 would indicate that Null Hypothesis 3 could not be rejected at the .05 level of significance. This null stated that there would be no interaction effect related to the means of reported medical problems between subgroups according to their degree of self-actualization and level of life stressors. The six subgroups being compared were: (1) low life stressor and low
self-actualized principals; (2) low life stressor and moderately self-actualized principals; (3) low life stressor and highly self-actualized principals; (4) high life stressor and low self-actualized principals; (5) high life stressor and moderately self-actualized principals; and (6) high life stressor and highly self-actualized principals. Table 4.9 provides the means and standard deviations for each of the six subgroups in terms of reported medical problems.

Table 4.9
Means and Standard Deviations of the Six Subgroups for Reported Medical Problems

<table>
<thead>
<tr>
<th>Subgroup</th>
<th>Number</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low Life Stressor</td>
<td>170</td>
<td>1.39</td>
<td>1.58</td>
</tr>
<tr>
<td>Low Self-Actualization</td>
<td>47</td>
<td>1.40</td>
<td>1.34</td>
</tr>
<tr>
<td>Moderate Self-Actualization</td>
<td>49</td>
<td>1.12</td>
<td>1.43</td>
</tr>
<tr>
<td>High Self-Actualization</td>
<td>71</td>
<td>1.56</td>
<td>1.79</td>
</tr>
<tr>
<td>High Life Stressor</td>
<td>25</td>
<td>1.80</td>
<td>1.78</td>
</tr>
<tr>
<td>Low Self-Actualization</td>
<td>4</td>
<td>2.50</td>
<td>2.64</td>
</tr>
<tr>
<td>Moderate Self-Actualization</td>
<td>7</td>
<td>1.71</td>
<td>2.36</td>
</tr>
<tr>
<td>High Self-Actualization</td>
<td>14</td>
<td>1.64</td>
<td>1.21</td>
</tr>
</tbody>
</table>

The mean of medical problems for the high life stressor/high self-actualized group was 1.64 as compared to a mean of 2.50 for the high life stressor/low self-actualized group. This difference was in the direction predicted by Research Hypothesis 3 but in itself
did not result in the rejection of the null for this hypothesis. Figure 4.1 provides a graphic view of the lack of interaction between life stressors and self-actualization and its effect on the mean number of medical problems reported.

Analysis of the Ancillary Hypotheses

As mentioned in Chapter III, the ancillary hypotheses were generated to enhance the understanding of the Major Research Hypotheses. The effects of staff size, sex, salary, age, and level of education, on the three major variables of life stressors, self-actualization and medical problems are treated separately in this section. Since each hypothesis was nondirectionally comparing only two independent means with the t-test, the need for a posteriori tests was negated. A level of significance of .10 was chosen for these hypotheses because they did not represent the major purpose of the investigation and even minor differences should be noted.

Ancillary Hypotheses: Staff Size

The ancillary hypothesis comparing principals by the size of their staffs was investigated to determine if staff size made a significant difference in the level of life stressors, degree of self-actualization and incidence of medical problems. Principals were divided into two groups. Those who supervised more than 20 teachers were placed into one group. Those who supervised 19 or fewer teachers formed the other group. The rationale for dividing
Figure 4.1

Deficiency of Interaction Effect Between the Subgroups and the Medical Problems Variable

Note: ———Low Life Stressor Group

—High Life Stressor Group
them this way was based on the fact that the mean number of teachers supervised by the sample was 20. The t-test was used to compare the means of the two groups for the variables, life stressors, self-actualization, and medical problems. An examination of Table 4.10 demonstrates that life stressors and medical problems were significant at the .10 level.

Table 4.10

Summary Table of the t-Test for Ancillary Hypotheses: Life Stressors, Self-Actualization and Medical Problems by Size of Staff Supervised by Principal

<table>
<thead>
<tr>
<th>Category</th>
<th>t-Value</th>
<th>2-Tail Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Stressor Scores With Staff Size</td>
<td>-1.81</td>
<td>.076*</td>
</tr>
<tr>
<td>Self-Actualization Scores With Staff Size</td>
<td>-0.71</td>
<td>.482</td>
</tr>
<tr>
<td>Medical Problems Incidence With Staff Size</td>
<td>-1.68</td>
<td>.094*</td>
</tr>
</tbody>
</table>

*Significant at the .10 level

Principals with staffs smaller than 19 had a mean of 120.8 for their life stressor scores as opposed to a mean of 97.0 of those principals with larger staffs. Also, principals with smaller staffs had a mean of 1.7 for reported medical problems as opposed to a mean of 1.3 for those with larger staffs. If we were to interpret having a larger staff as an increase in life stressors, then these data support the findings of Null Hypothesis 1 which demonstrated that a high number of life stressors did not result in

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a significant increase in the number of reported medical problems. Principals with the smaller staffs had the most difficulty. Table 4.11 provides the descriptive comparisons for each group and variable.

Table 4.11

Descriptive Statistics for Staff Size Supervised for the Variables: Life Stressors, Self-Actualization and Medical Problems

<table>
<thead>
<tr>
<th>Staff Size Supervised</th>
<th>Variable</th>
<th>Frequency</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Large</td>
<td>Life Stressor Score</td>
<td>107</td>
<td>97.8</td>
<td>87.1</td>
</tr>
<tr>
<td>Small</td>
<td>Life Stressor Score</td>
<td>88</td>
<td>120.8</td>
<td>93.0</td>
</tr>
<tr>
<td>Large</td>
<td>Self-Actualization Score</td>
<td>107</td>
<td>24.5</td>
<td>8.0</td>
</tr>
<tr>
<td>Small</td>
<td>Self-Actualization Score</td>
<td>88</td>
<td>25.3</td>
<td>7.2</td>
</tr>
<tr>
<td>Large</td>
<td>Medical Problems Incidence</td>
<td>107</td>
<td>1.3</td>
<td>1.4</td>
</tr>
<tr>
<td>Small</td>
<td>Medical Problems Incidence</td>
<td>88</td>
<td>1.7</td>
<td>1.8</td>
</tr>
</tbody>
</table>

Ancillary Hypotheses: Sex

It was of interest to this investigator to determine if males and females were significantly different for the variables life stressors, self-actualization, and medical problems. An examination of Table 4.12 indicates that only the relationship between sex and self-actualization resulted in significant differences in means and that being male or female did not result in a significant difference for the number of medical problems or life stressors reported. This
was of interest because the sample had nearly four times as many males as females.

Table 4.12

Summary Table of the t-Test for Ancillary Hypotheses:
Life Stressors, Self-Actualization and Medical Problems by Sex

<table>
<thead>
<tr>
<th>Category</th>
<th>t-Value</th>
<th>2-Tail Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Stressor Scores With Sex</td>
<td>0.22</td>
<td>.824</td>
</tr>
<tr>
<td>Self-Actualization Scores With Sex</td>
<td>-1.86</td>
<td>.058*</td>
</tr>
<tr>
<td>Medical Problems Incidence With Sex</td>
<td>0.95</td>
<td>.345</td>
</tr>
</tbody>
</table>

*Significant at the .10 level

Female principals had a mean self-actualization score of 26.8 as opposed to 24.3 for males. Their self-actualization mean was also higher than the national norm (23.5). An examination of Table 4.13 provides the group means compared by the t-tests for each variable. In summary, being male or female was not a factor in terms of level of life stressors or incidence of reported medical problems and therefore probably did not unduly influence the results in relationship to the Major Research Hypotheses.
Table 4.13
Descriptive Statistics for Sex for the Variables
Life Stressors, Self-Actualization
and Medical Problems

<table>
<thead>
<tr>
<th>Sex</th>
<th>Variable</th>
<th>Frequency</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Life Stressor Score</td>
<td>153</td>
<td>109.0</td>
<td>90.3</td>
</tr>
<tr>
<td>Female</td>
<td>Life Stressor Score</td>
<td>42</td>
<td>105.5</td>
<td>91.6</td>
</tr>
<tr>
<td>Male</td>
<td>Self-Actualization Score</td>
<td>153</td>
<td>24.3</td>
<td>7.6</td>
</tr>
<tr>
<td>Female</td>
<td>Self-Actualization Score</td>
<td>42</td>
<td>26.8</td>
<td>7.5</td>
</tr>
<tr>
<td>Male</td>
<td>Medical Problems Incidence</td>
<td>153</td>
<td>1.5</td>
<td>1.7</td>
</tr>
<tr>
<td>Female</td>
<td>Medical Problems Incidence</td>
<td>43</td>
<td>1.2</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Ancillary Hypotheses: Income

The amount of income of the principals was investigated to determine its effect in relationship to the variables life stressors, self-actualization, and medical problems. The principals were divided into two groups with those making $10,000 to $25,000 forming a low income group and those in the $25,001 to $50,000 range forming the high income group. A comparison of means using the t-test indicated only self-actualization as being significant. There was not a significant difference in the income groups for variables life stressors and medical problems. Therefore, high or low income did not appear to be a factor in terms of level of life stressors or incidence of reported medical problems. Table 4.14 summarizes these data.
Table 4.14
Summary Table of the t-Test for Ancillary Hypotheses:
Life Stressors, Self-Actualization and Medical Problems by Income

<table>
<thead>
<tr>
<th>Category</th>
<th>t-Value</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Stressor Scores With Income</td>
<td>1.27</td>
<td>.207</td>
</tr>
<tr>
<td>Self-Actualization Scores With Income</td>
<td>-2.49</td>
<td>.014*</td>
</tr>
<tr>
<td>Medical Problems Incidence With Income</td>
<td>-0.63</td>
<td>.529</td>
</tr>
</tbody>
</table>

*Significant at the .10 level

Table 4.15 demonstrates that principals in the high income group earned a self-actualization mean of 25.9 compared to a mean of 23.1 for those in the low income group. It could be concluded that those principals with the highest self-actualization scores were more willing or able to find employment in those school systems offering the highest salaries. It also may be concluded that they became more self-actualized as a result of higher pay.

Ancillary Hypotheses: Age

To study the effects of age on the variables life stressors, self-actualization and medical problems, the principals were divided into two groups. Those 20 to 39 years of age formed the younger principal group and those 49 and over formed the older principal group. It was of interest to determine if age would be a significant factor in the number of life stressors and medical problems reported. Also of interest was the degree of self-
Table 4.15
Descriptive Statistics for Income for the Variables
Life Stressors, Self-Actualization
and Medical Problems

<table>
<thead>
<tr>
<th>Income</th>
<th>Variable</th>
<th>Frequency</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>$10,000-$25,000</td>
<td>Life Stressor Score</td>
<td>69</td>
<td>119.3</td>
<td>100.6</td>
</tr>
<tr>
<td>$25,000-$50,000</td>
<td>Life Stressor Score</td>
<td>126</td>
<td>102.2</td>
<td>84.0</td>
</tr>
<tr>
<td>$10,000-$25,000</td>
<td>Self-Actualization Score</td>
<td>69</td>
<td>23.1</td>
<td>7.7</td>
</tr>
<tr>
<td>$25,000-$50,000</td>
<td>Self-Actualization Score</td>
<td>126</td>
<td>25.9</td>
<td>7.4</td>
</tr>
<tr>
<td>$10,000-$25,000</td>
<td>Medical Problems Incidence</td>
<td>69</td>
<td>1.3</td>
<td>1.5</td>
</tr>
<tr>
<td>$25,000-$50,000</td>
<td>Medical Problems Incidence</td>
<td>126</td>
<td>1.5</td>
<td>1.7</td>
</tr>
</tbody>
</table>
actualization reported by the different age groups. Table 4.16 indicates that life stressor means for the two age groups differed significantly. Self-actualization means and medical problems means did not differ significantly.

Table 4.16
Summary Table of the t-Test for Ancillary Hypotheses:
Life Stressors, Self-Actualization and Medical Problems by Age

<table>
<thead>
<tr>
<th>Category</th>
<th>t-Value</th>
<th>2-Tail Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Stressor Scores With Age</td>
<td>2.71</td>
<td>.008*</td>
</tr>
<tr>
<td>Self-Actualization Scores With Age</td>
<td>0.18</td>
<td>.855</td>
</tr>
<tr>
<td>Medical Problems Incidence With Age</td>
<td>-0.19</td>
<td>.849</td>
</tr>
</tbody>
</table>

*Significant at the .10 level

Table 4.17 illustrates that the group mean for the younger principals for life stressors was 139.3 compared to a mean of 91.3 for those 40 and over. Therefore, being young appeared to be a factor in the number of life stressors reported. Possibly younger principals were experiencing more frequent changes in their home and work lives because of the natural development that occurs in both environments. However, the fact that the younger principals did not report a significantly larger number of medical problems substantiates the findings already established for Research Hypothesis 1, which found that an increase in life stressors did not result significantly in an increase in reported medical problems. In fact, even though the younger principals had higher life stressor
scores, they reported fewer medical problems. Their mean for medical problems was 1.3 as opposed to 1.4 for the older principals. Table 4.17 provides the descriptive summary for the two age groups for the variables life stressors, self-actualization, and medical problems.

Table 4.17
Descriptive Statistics for Age for the Variables Life Stressors, Self-Actualization and Medical Problems

<table>
<thead>
<tr>
<th>Age</th>
<th>Variable</th>
<th>Frequency</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-39</td>
<td>Life Stressor Score</td>
<td>39</td>
<td>139.3</td>
<td>110.2</td>
</tr>
<tr>
<td>40 and over</td>
<td>Life Stressor Score</td>
<td>76</td>
<td>91.3</td>
<td>77.9</td>
</tr>
<tr>
<td>20-39</td>
<td>Self-Actualization Score</td>
<td>39</td>
<td>25.2</td>
<td>8.3</td>
</tr>
<tr>
<td>40 and over</td>
<td>Self-Actualization Score</td>
<td>76</td>
<td>25.5</td>
<td>7.0</td>
</tr>
<tr>
<td>20-39</td>
<td>Medical Problems Incidence</td>
<td>39</td>
<td>1.3</td>
<td>1.9</td>
</tr>
<tr>
<td>40 and over</td>
<td>Medical Problems Incidence</td>
<td>76</td>
<td>1.4</td>
<td>1.5</td>
</tr>
</tbody>
</table>

Ancillary Hypotheses: Education

The principals for this comparison were divided into two groups: (1) those with a masters degree or less; (2) those with a specialist or doctorate. It was of interest to determine if educational level would be a factor in the number of life stressors and medical problems reported. Also, a comparison of self-actualization means based on education was of interest.
Testing these relationships with the \( t \)-test resulted in no significant differences. Table 4.18 summarizes the \( t \)-test values and associated probabilities.

**Table 4.18**

Summary Table of the \( t \)-Test for Ancillary Hypotheses: Life Stressors, Self-Actualization and Medical Problems by Education

<table>
<thead>
<tr>
<th>Category</th>
<th>( t )-Value</th>
<th>2-Tail Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life Stressor Scores With Education</td>
<td>-0.62</td>
<td>.538</td>
</tr>
<tr>
<td>Self-Actualization Scores With Education</td>
<td>-1.38</td>
<td>.170</td>
</tr>
<tr>
<td>Medical Problems Incidence With Education</td>
<td>0.71</td>
<td>.482</td>
</tr>
</tbody>
</table>

A comparison of means for the educational groups is provided in Table 4.19 and clearly delineates the similarity between means for the educational levels. Therefore, education probably was not a factor that influenced the results as they related to the Major Research Hypotheses.

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Table 4.19
Descriptive Statistics for Education for the Variables
Life Stressors, Self-Actualization and
Medical Problems

<table>
<thead>
<tr>
<th>Education</th>
<th>Variable</th>
<th>Frequency</th>
<th>Mean</th>
<th>Standard Deviation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Masters or Less</td>
<td>Life Stressor Score</td>
<td>142</td>
<td>106.7</td>
<td>88.6</td>
</tr>
<tr>
<td>Specialist or Doctorate</td>
<td>Life Stressor Score</td>
<td>51</td>
<td>115.8</td>
<td>95.4</td>
</tr>
<tr>
<td>Masters or Less</td>
<td>Self-Actualization Score</td>
<td>142</td>
<td>24.5</td>
<td>7.6</td>
</tr>
<tr>
<td>Specialist or Doctorate</td>
<td>Self-Actualization Score</td>
<td>51</td>
<td>26.2</td>
<td>7.2</td>
</tr>
<tr>
<td>Masters or Less</td>
<td>Medical Problems Incidence</td>
<td>142</td>
<td>1.5</td>
<td>1.6</td>
</tr>
<tr>
<td>Specialist or Doctorate</td>
<td>Medical Problems Incidence</td>
<td>51</td>
<td>1.3</td>
<td>1.7</td>
</tr>
</tbody>
</table>
Chapter IV reviewed the results of the two-way ANOVA for the three Major Research Hypotheses and the t-tests for the fifteen ancillary hypotheses. In summary, it was found that mounting life stressors did not significantly increase the number of reported medical problems. It was also established that principals who demonstrated a high degree of self-actualization did not have a significantly lower number of reported medical problems as expected. Also, self-actualization did not appear to serve as a moderator between mounting life stressors and reported medical problems. These findings were substantiated by the results of testing the ancillary hypotheses which in several instances showed the lack of relationship between life stressors, self-actualization, and medical problems.

Descriptively, the principals as a group were healthy. The average number of medical problems reported was 1. The range was zero to seven. The most frequently reported medical problem was excessive weight followed by cigarette smoking. Appendix E provides a frequency distribution for the Medical Problems Checklist.

The health of the principals was also exhibited by their lack of missed school days and days in the hospital. The principals reported missing an average of only three days last year. They also reported being hospitalized an average of one-half day for the same year.

The self-actualized scores from the Life Styles Inventory...
demonstrated that the principal group was higher than the average provided by Lafferty (1978) for 4,500 middle managers. The mean of the principal group was 24.9 as opposed to the 23.5 average nationally. The scores ranged from four to thirty-seven indicating a rather broad range of feelings on the part of the principals.

In terms of life stressors reported by the principals, very few scored in the range which statistically would have predicted the onset of illness. A score of 300 was required to predict a 79% chance of illness onset. Only seven principals responded at this level. Only 18 responded with a score between 200 and 299 which was required for a 51% chance of illness onset. Therefore, the principals were not only healthy to begin with, but also had not reported enough life stressors to predict illness onset.

The most frequent life stressor (life event) chosen by the principals was "change in responsibilities at work," responded to by 22.6% of the sample. The next most frequent event was "son or daughter leaving home." A complete frequency distribution for the 40 life events is provided in Appendix F.

The findings as a whole were contrary to much of the research reviewed in Chapter II. Reasons for these differences and the resulting implications are explored in Chapter V which begins by reviewing this investigation. Similarities and differences are explored between this study and those used in comparison. Recommendations of how this study could be restructured are also examined.
CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Introduction

Chapters I and II conceptualized the foundation and identified the problem statement of this study. Chapter III presented the methodological approach facilitated in analyzing and responding to the major questions raised in Chapter I. Chapter IV reviewed the results of the analyses in testing the major and ancillary hypotheses.

Chapter V is concerned with a summarization of the complete work and the conclusions and implications which can be made. This chapter is divided into five major sections: (1) Summary of the Study; (2) Summary of the Findings; (3) Limitations and Conclusions; (4) Implications; (5) Recommendations.

Summary of the Study

This summary is divided into three subparts which include: (1) Purpose and Rationale; (2) Literature Review and Major Research Hypotheses Generated; (3) Methodology.

Purpose and Rationale

Schools, being a part of the larger social system have not escaped the pressures that our society imposes on organizations and individuals. The principalship as an important component of the educational process has not enjoyed immunity from this same problem.

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As Gmelch (1978) pointed out, the challenge of principals in the 20th century will be the "art of managing stress" (p. 5).

Because principals are individuals, they react differently to life stressors. Some appear to have the ability to handle all stressors without suffering any onset of medical problems. Others appear not to have this immunity and as a result, have medical difficulties. Because of this seeming difference, and because of a lack of research of this type in the educational arena, the relationship between life stressors, personality and stress related medical problems was investigated.

The purpose of the study was to examine the moderating affect of the self-actualized personality on stressors. Would principals exhibiting a highly self-actualized personality, but experiencing a large number of stressors, still report a low incidence of stress related medical problems? Would those principals exhibiting a lack of self-actualization demonstrate a high incidence of stress related medical problems? These are the kind of questions towards which this investigation was directed.

Review of the Literature and Major Research Hypotheses Generated

A review of the literature indicated that research investigating the moderating affect of personality as a specific entity was limited although often cited as an important area of study. Further review demonstrated that such research with a population of principals was even more severely limited. This resulted in a journal review of disciplines other than education.

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The literature reviewed lacked consistency in its treatment of the words stressor and stress. At times, stress implied a stimulus, at others, a response. The words stressors and stress were used interchangeably although stressor was usually referring to a stimulus event.

A review of physiological stress provided a model that was consistent and defensible. This view modeled the following constructs: (1) a stressor is a stimulus event and produces stress; (2) stress is the overall bodily reaction to a stressor and therefore is viewed as a response; (3) stress is both good and bad; (4) stress can result in disease and the presence of certain hormones is a good indicator of the continued presence of stress.

The review of the literature pertaining to life stressors and medical problems demonstrated absence or lack of consistency regarding their cause and effect relationship. Many studies indicated that mounting life changes coincided with the onset of illness (Wyler, Masauda & Holmes, 1971; Rahe, 1968; Holmes & Rahe, 1967; Wolf, 1965). Other studies demonstrated that chronic life events could precipitate the development of cardiac disease (Smith, 1967; Jenkins, 1976; and House, 1975). Rahe and Lind (1971) demonstrated a positive relationship between mounting life change and sudden cardiac death.

In contrast, Hinkle's (1974) ongoing longitudinal studies suggested that either a pre-existing ailment or a physiological change in the environment must accompany the life stressor event before a medical problem would occur. It was out of this controversy that
Research Hypothesis 1 was developed. It stated that the number of reported medical problems of school principals indicating a high number of stressors in their lives would be greater than that of principals reporting a low number of life stressors.

The literature concerned with personality as a moderator of life stressors was best exemplified by the longitudinal work of Vaillant (1974), Jenkins, Rosenman, and Zysanski (1974) and Betz and Thomas (1979), although they did not link the self-actualized personality per se to medical problems. Their findings generally indicated that individuals with a more relaxed and positive outlook on life had significantly fewer medical problems. Also the incidence of mortality was lower.

These results, although not conclusive, did provide the impetus for Research Hypothesis 2. It stated that the number of reported medical problems of principals exhibiting a high degree of self-actualization would be lower than that of principals exhibiting moderate or little self-actualization.

Research Hypothesis 3 was also generated out of this same body of research which stated: the number of reported medical problems of principals reporting a high number of stressors and exhibiting a high degree of self-actualization would be lower than those reporting a high number of stressors and moderate or little self-actualization. Of interest was the interaction effect between stressors and personality to the resultant incidence of reported medical problems.
Methodology

The population investigated for this research was the membership of the Michigan Elementary and Middle School Association. A sample was obtained through a random selection process. Data were accumulated by means of a mail survey utilizing three follow-up mailings.

Several instruments were used in the survey. The Life Styles Inventory measured the degree of self-actualization of the principals on a continuum as described by Lafferty (1978). The Social Readjustment Rating Scale determined the level of life stressors experienced by the principals. The number of medical problems experienced by the principals was reported on the Medical Problem Checklist. All three instruments were part of the Human Synergistics' Evaluation System Level I: Life Styles Inventory, therefore negating the need for three separate protocols.

The nulls of the three Major Research Hypotheses were tested by the two-way ANOVA. Null Hypotheses 1 and 2 represented the main effects of the analysis and Null Hypothesis 3 the interaction effect. The ancillary hypotheses were evaluated by the t-test.

Summary of the Findings

The subparts of the findings are under the following headings: (1) Characteristics of the Sample; (2) Major Research Hypotheses.

Characteristics of the Sample

The population investigated for this research was the membership...
of the Michigan Elementary and Middle School Association. A sample
of 325 principals was randomly chosen using a mail survey to
accumulate data. Of those principals contacted, 60% participated by
completing the survey instruments as requested.

The sample of 195 respondents indicated a group predominantly
male (153 males vs. 42 females) and generally middle age. As a
group, most principals were at the masters degree level educationally
with the next largest group being those with either a specialist
or a doctorate. Their educational level and job responsibilities
were reflected in their income with 62% reporting salaries between
$25,000 and $35,000. Three percent had salaries over $35,000.

The principals described themselves in a highly self-actualized
manner. The scores ranged from four to thirty-seven.

In terms of life stressors encountered, few principals scored
into the range which would statistically result in illness onset.
A score of 300 was required to predict a 79% chance of illness onset.
Only seven principals responded at this level. The most frequent
life stressors were "change in responsibilities at work" and "son
or daughter leaving home." As a whole, the principals did not have
as many life changes occur as would have been expected for a group
with their responsibilities.

Major Research Hypotheses

Three Major Research Hypotheses investigated the relationship
of the independent variables "life stressors" and "self-actualization"
to the dependent variable "reported medical problems." The results of hypothesis testing indicated that the directions taken by the Major Research Hypotheses could not be supported. The mean of reported medical problems of principals indicating a high number of life stressors was not significantly greater than that of principals reporting a low number of life stressors. Also, principals exhibiting a high degree of self-actualization did not have a mean of reported medical problems that was significantly lower than that of principals exhibiting moderate or little self-actualization. Finally, the mean of reported medical problems of principals indicating a high number of life stressors and exhibiting a high degree of self-actualization was not significantly lower than that of principals indicating a high number of stressors and moderate or little self-actualization.

Limitations and Conclusions

This section analyzes the three Major Research Hypotheses from the perspective of the literature involved, the methodology of the study, and the findings of the study including the ancillary hypotheses where appropriate. Limitations of the study are made prior to the concluding statements.

Limitations

Although the design of this investigation called for a random sample, true randomness did not occur because of the 116 non-respondents. To state that the sample of 195 principals was without
bias and truly representative of the Michigan Elementary and Middle School Association is not probably factual. It is within the realm of possibility that those 116 principals who did not respond had a greater incidence of medical problems which might have affected the total outcome of the investigation had they participated.

An attempt to ascertain the level of life stressors for the nonrespondent group was inconclusive. The information obtained appeared to indicate that the nonrespondents might be experiencing a somewhat higher level of stress. However, because data was obtained on only 26% of the nonrespondent principals, any conclusions about them was limited. Those nonrespondents who did return the post card did not appear biased against the study. The overall generalizability of findings in the study was limited by the lack of true randomness created by the presence of 116 nonrespondents.

Another limitation of the study was presented by the methodological design. Because of the ex post facto nature of the study, direct control of the independent variables was not possible; either experimental manipulation of the independent variables or random assignment of subjects to treatment groups to prevent self selection. This lack of control limited the "truth" of the hypothesized relationships between the independent variables "life stressors" and "self-actualization" and the dependent variable "reported medical problems." To have implied cause and effect without controlling other plausible extraneous variables would have been inappropriate. Therefore all statements made about the findings were limited by their correlative nature.
The choice of instruments also added to the limitations of this investigation. They relied on memory and the willingness of the principal to report objectively to questions which were of a highly personal nature. Ego involvement was possibly an unwanted reality at times. An indication of this was the unwillingness of 80 principals to answer the question about age, even though an age range was being asked rather than a specific age. Also the area concerned with reporting medical problems was an area of discomfort and anxiety. Admitting to physical problems, however small, requires a point of view that is mature, secure, and not easily threatened by having to admit to imperfections. The recent health consciousness of this nation may have raised the sensitivity of this part of the study in an unwanted direction.

One further limitation was possibly the limited choices of life stressors and medical problems presented to the principals by the survey instruments. Although the choice of survey instruments was ascertained as valid and reliable, they were nevertheless limited as to the choice of life stressors or medical problems that could occur. It was within the realm of possibility that life stressors or medical problems being experienced by the principals were unique to the survey instruments implemented. This, of course, is the anathema of most survey instruments.

Conclusions: Research Hypothesis 1

Although Research Hypothesis 1 had taken the direction that mounting life stressors would increase the number of reported medical
problems, the data of the present investigation could not support
the acceptance of this position. Those principals with a high
number of life stressors did not differ significantly from those
with a small number of life stressors in terms of the incidence of
reported medical problems. Therefore, we would have to conclude
that this relationship between life stressors and medical problems
so strongly purported by Holmes and Rahe (1967) was not evident
with the principal group studied.

This position was also supported by the results of the
alternative hypotheses. For example, those principals with larger
staffs and inherently more problems did not report significantly
more medical problems but actually fewer. Also, having less
education which would normally be thought of as a professional
disadvantage and therefore a life stressor, did not result in
significantly more medical problems.

However, younger principals, whose lack of experience might
be interpreted as a life stressor did report a significantly larger
number of life stressors but not a significantly larger number of
reported medical problems. This lack of relationship between life
stressors and medical problems once again reinforces the lack of
support for Research Hypothesis 1, and agrees with the position
supported by Hinkle (1972).

It could well be that as Lazarus (1979) pointed out, measuring
stressors in terms of life events that add up is too simplistic. He
recommended using a scale that measures the everyday "hassles" as well
as the "uplifts". In his opinion, the ratio between "hassles" and

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"uplifts" may be a better prediction of stress related health problems. At present he is working on such a scale using the longitudinal approach in its development.

Conclusions: Research Hypotheses 2 and 3

Research Hypotheses 2 and 3 were both concerned with the moderating affect the self-actualized personality would have on life stressors. Hypothesis 2 stated that principals exhibiting a high degree of self-actualization would report fewer medical problems than those exhibiting moderate or low self-actualization. Hypothesis 3 represented the interaction effect of Hypotheses 1 and 2. It stated that high stressor principals who were highly self-actualized would report fewer medical problems than high stressor principals who were moderately or minimally self-actualized. Although this position concerning self-actualization was not discussed in the literature, several studies did indicate that a positive and controlled outlook on life would moderate the effects of life stressors that all people experience.

The findings of the present investigation did not support the positions of Research Hypotheses 2 and 3. Principals exhibiting a high degree of self-actualization did not report a significantly fewer number of medical problems. Therefore, it must be concluded that for principals in this study self-actualization did not moderate the effects of mounting life stressors. This position was in direct opposition to the works of Vaillant (1979) and Betz and Thomas (1979) and adds to the controversy surrounding the link between personality
Although the results of this investigation did not support the mind/body link that was being sought, the self-actualized personality as described by Lafferty (1978) is still viewed as a rational choice as a moderator of life stressors. The lack of replication of results possibly indicated as much a difference in sampling and methodology as it did the rejection of previous studies. In the absence of any well established theory linking personality and medical problems, it is difficult to know. "Stress and coping is a much more complex and intricate process than a single set of rules can explain," stated Lazarus (1979, p. 51). This complexity makes methodology in stress studies difficult to design. Possibly the outcomes of this investigation are reflecting this resistance to measurement.

Several important differences between this investigation and those cited in the literature should be noted to help keep the findings of this investigation in proper perspective. First of all, the studies cited in the literature were longitudinal and utilized the actual medical records of subjects involved. Secondly, the studies cited directly compared the personality trait to the onset of medical problems without any kind of grouping or matching based on the number of life stressors encountered. Finally, the literature reviewed studied primarily industrial and medical settings. The subjects from these settings were those in management and the medical professions in the private sector. Possibly the mind/body link found with these populations was not transferable to the educational setting with principals. The life stressors experienced by principals may be
unique and not comparable to those in industry and other professions. The demands placed on school principals as compared to those placed on managers and the medical profession may not be as intense. Also, the methods for coping for the groups may be different. All of these distinctions may well have influenced the lack of continuity in outcomes and therefore adds further uncertainties to the mind/body link.

**Conclusions: Principals as a Group**

It can be concluded that the principals as a group were very healthy, averaging only 1.4 medical problems the past two years. This lack of medical problems was plausible because the work of Hinkle, Pinsky, Bross and Plummer (1956) has demonstrated that from a statistical point of view, medical problems experienced among a group of "healthy" people were nonrandomly distributed. The findings with the principal sample appeared to suggest such a nonrandomness. This possibly led to disparity in making subgroup comparisons between high and low stressor groups and between high, moderate, and low self-actualized groups. This lack of medical problems may also suggest that a "self selection" process had occurred whereby those who could not handle the job were no longer employed as school principals. Those remaining on the job had learned to adapt and cope and as a result did not have a high incidence of medical problems.

The principals, as a group, also did not report the number of life stressors that were theoretically needed to stimulate the onset of illness, even though measurement of life stressors occurred in the spring when stressors are usually thought of as being highest. Only
25 principals reported the level of mounting life stressors that, based on the research of Rahe and Holmes (cited in Dohrenwend, 1974), precipitated significant health changes. The remaining 170 principals reported life stressors that would normally result in only a 37% chance of a health change in the coming year. The lack of medical problems as well as life stressors when analyzing the group as a whole seemingly gave descriptive support to the mounting life stressors — illness onset argument. Although this conclusion was not found inferentially, the lack of life stressors and medical problems may well have effected the investigatory outcomes.

The principals as a group were also highly self-actualized scoring above the national norm. Once again this observation "fits the fact" that the principals reported few medical problems and life stressors. However, attempting to draw conclusions concerning the Major Research Hypotheses can not be done on the basis of descriptive statistics but does provide an interesting observation. We could conclude that the principals' educational and socioeconomic status provided them with the kind of feedback that resulted in a self analysis reflecting substantial self esteem and ego strength.

Implications

Principals as a group presented an excellent profile in terms of health and self-actualization. The increasing societal pressures that are so often spoken of they seemed to be adapting to quite well. Their level of health alone suggested that they were coping with their employment specifically and their lives generally. The lack
of reported stress disease was so evident that they must be considered as a rather select group.

The implications of this are good. It would appear that school boards and central administration have at their disposal a group of managers who have made a commitment and are handling that commitment. Only the lack of randomness of the sample studied can dampen this positive profile. Their self-actualization scores are of particular interest to this examiner. To have principals score higher than the national average represented mostly by those in industry should be gratifying to those responsible for education and also consumers of education. Also, the fact that female principals scored the highest of any group should not go unnoticed. Their lack of representation in the sample should be of concern to those responsible for such decisions.

In summary, the membership of Michigan Elementary and Middle School Association can be viewed as a rather select group who demonstrated such little pathology that studying them was limited by their strength in adapting. These are the kind of findings that, while from a research point of view can be frustrating, are gratifying especially to those who are the beneficiaries of this level of adjustment.

Recommendations

The linking of personality and the ability to handle stress is increasingly becoming a more active area of research. The mind/body link and its importance in terms of medical treatment and psychotherapy should not be minimized. The failure to demonstrate this
link with the principal group does not negate the potential for such relationships from this investigator's point of view. In fact, the exact replication of this study with a different sample may well have resulted in very different findings.

The problems of standardization in stress research are in many ways exemplified by this present study. When studies use different samples, different methods of measurement, and terminology with different meanings, their results cannot always be compared meaningfully in the absence of a strong "stress theory." Since established theories relating stress and personality are non-existent, a comparison of the present investigation to those mentioned in the review of the literature are probably not fair comparisons. Therefore the lack of comparable results is not perceived as being negative. Only replications of studies similar to the present investigation would possibly provide fair comparisons in the absence of a theory.

In making recommendations for conducting similar research, further studies should look carefully at their methods of gathering data. Information on any set of observations is part of a function of the techniques used to obtain those observations. Therefore, using forced choice self report instruments as the present investigation did may have their limitations. Admitting to medical problems of a highly personal nature possibly may have been too ego threatening, therefore biasing the data. The studies used as a foundation for this study had medical records available to them that ruled out this type of bias. This may be a more advisable methodology when collecting medical data.
Also, the use of a medical inventory utilizing differential levels of responses may be advisable. A scale such as the Likert model provides several different levels of responding to a single question or stimulus word. Therefore, the test taker is not forced into "yes" or "no" choices. Although medical problems may appear to be events that are either/or, respondents may not have the same point of view.

Future studies should also look at the merit of longitudinal designs when attempting to relate personality and medical problems. Although such studies are many times prohibitively expensive and time consuming, they may be justified. It is possible that life stressors encountered by an individual may not manifest themselves in terms of stress disease for many years to come. Hence, a survey gathering data in one sitting would not be measuring this relationship. Longitudinal studies would.

It is further recommended that because of the difficulty in getting a truly random sample when using mail surveys, a greater degree of "randomness" may be obtained by randomly selecting school systems in a given geographic area and then administering the instruments to all of the elementary and middle school principals in that system. Although this limits the amount of generalization that can be done to other school systems, having 60% to 70% returns via a mail survey also restricts the degree of generalization.

The absence of a theory relating stress and personality mentioned earlier has been debilitating to research efforts. A lack of common language as well as a lack of standardization in research
design has delayed the development of such a theory. However, studies that are only replications of one another and highly standardized reduce the degree of generalizations that can be made about the findings with conclusions being limited to stress of the particular sort induced by and measured by the particular techniques used. The development of a theory broad enough to encompass all aspects of personality yet narrow enough to provide direction and predict relationships is needed. The implications for such a theory are both exciting and threatening. The implications for principals is no exception.

If we are to believe the reoccurring premise that school environments are becoming more turbulent with the passage of time, then the need for unique administrators is near. The future for the security-minded risk-fearing principal appears bleak and the need for psychological screening is possibly at hand. Therefore, the selection of principals who can handle stressors and not succumb physically or psychologically is not too far off in the future.

Certainly the administrator of the future will be quite different from those that are presently employed. As Hunsaker, Mudgett, and Wynne (1975) point out, the profile of the successful administrator of the future will probably need to have the following characteristics in order to deal successfully with the turbulence of their employment:

1. They must have attitudes directed toward inquiry and novelty rather than the particular content of the job.
2. They must be willing to remain flexible so that changing circumstances can be handled in whatever way is most appropriate.
3. They must have the proclivity to commit themselves to the active pursuit of complexity and variety, and to actions whose
consequences are uncertain and ambiguous. They must have a high tolerance of ambiguity and a high degree of independence (p. 319).

It may well be that extensive psychological screening and behavioral assessment are needed in procuring the kind of school principals who can effectively cope with the demands of the future. In view of this, it is recommended that further stress research with principals identify or design screening instruments or behavioral assessments that are successful in predicting which principals will have immunity to stress. Individuals who possess the necessary behavioral and cognitive qualities for coping with the specified work environments can be expected to be more productive and satisfied than those who are not (Baulgarides, 1973). This realization may make studies relating personality and stress more of a necessity than an academic luxury.
Dear MEMSPA Member:

MEMSPA is sponsoring a research project to investigate the amount of stress encountered by principals and their ability to deal with it successfully. As you know, the subject of stress has become of paramount importance in terms of successfully facilitating our roles as principals.

Data collected from the survey will be compiled and interpreted by Mr. John S. Thatcher, Chairman of Psychological Services for the Wyoming Public Schools and a member of our Association. Mr. Thatcher is particularly interested in stress as it relates to the middle manager in education.

We would appreciate it greatly if you would complete the survey instrument entitled Human Synergistics! Evaluation System Level 1: Life Styles. It is equally important to complete the Personal Data Sheet found on the last page of the instrument. No individual references will be made from the data and any material containing personal names will be destroyed once the data has been assembled.

In order for the survey to be successful it is important that all directions be followed carefully and the Personal Data Sheet be completed accurately. It is also important that the NCR paper is not separated. Please return the survey instrument as soon as possible in the self addressed, stamped envelope. Your cooperation in this matter is greatly appreciated. The results of the survey will be shared as soon as the project is finished.

Yours sincerely,

William Mays, Jr.  
Executive Secretary

Samuel LoPresto, Chairman  
Leadership Activities Commission

P.S. The code number found at the top of the Personal Data Sheet is for follow-up purposes only. If there are any concerns about the survey please contact Mr. John S. Thatcher at (616) 538-8800.
APPENDIX B

Reminder Letter

Dear MEMSPA Member:

We are writing this brief letter to remind you of the importance of completing the survey dealing with stress which you recently received from our office (Human Synergistics' Evaluation System Level I: Life Styles). We feel that this survey has important future implications for our organization and therefore your cooperation is needed. Please take the time to complete the survey (it can be done in less than 20 minutes) and return it in the self-addressed stamped envelope that you received.

If you have already done so, we thank you for your cooperation!

Yours sincerely,

William Mays, Jr.  Samuel LoPresto, Chairman
Executive Secretary  Leadership Activities Commission
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95-100
### Table E.1

Frequency Distribution for Medical Problems

<table>
<thead>
<tr>
<th>Medical Problem</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ulcers</td>
<td>4</td>
<td>2.1</td>
</tr>
<tr>
<td>Frequent Headaches</td>
<td>19</td>
<td>9.7</td>
</tr>
<tr>
<td>High Blood Pressure</td>
<td>25</td>
<td>12.8</td>
</tr>
<tr>
<td>Overweight, 20 Pounds or More</td>
<td>53</td>
<td>27.2</td>
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<tr>
<td>Nervousness</td>
<td>21</td>
<td>10.8</td>
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<tr>
<td>Depression</td>
<td>22</td>
<td>11.3</td>
</tr>
<tr>
<td>Allergies</td>
<td>19</td>
<td>9.7</td>
</tr>
<tr>
<td>Sleeplessness</td>
<td>20</td>
<td>10.3</td>
</tr>
<tr>
<td>Asthma</td>
<td>2</td>
<td>1.0</td>
</tr>
<tr>
<td>Hypertension</td>
<td>12</td>
<td>6.2</td>
</tr>
<tr>
<td>Excessive Smoking (1 Pack or more)</td>
<td>36</td>
<td>18.5</td>
</tr>
<tr>
<td>Arthritis</td>
<td>17</td>
<td>8.7</td>
</tr>
<tr>
<td>Acute Dermatitis</td>
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<td>--</td>
</tr>
<tr>
<td>Diabetes</td>
<td>2</td>
<td>1.0</td>
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<tr>
<td>Anemia</td>
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<td>--</td>
</tr>
<tr>
<td>Coronary Disease</td>
<td>3</td>
<td>1.5</td>
</tr>
<tr>
<td>Colitis</td>
<td>5</td>
<td>2.6</td>
</tr>
<tr>
<td>Glaucoma</td>
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<td>--</td>
</tr>
<tr>
<td>Hyperacidity</td>
<td>17</td>
<td>8.7</td>
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<tr>
<td>Recurring Bronchitis</td>
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<td>0.5</td>
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## Table F.1

Frequency Distribution for Life Stressors

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<tr>
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<th>Frequency</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Death of Spouse</td>
<td>1</td>
<td>0.5</td>
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<tr>
<td>Divorce</td>
<td>4</td>
<td>2.1</td>
</tr>
<tr>
<td>Marital Separation</td>
<td>4</td>
<td>2.1</td>
</tr>
<tr>
<td>Severe Legal Difficulties</td>
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<td>3.6</td>
</tr>
<tr>
<td>Death of Close Family Member</td>
<td>35</td>
<td>17.9</td>
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<tr>
<td>Personal Injury or Illness</td>
<td>27</td>
<td>13.8</td>
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<tr>
<td>Marriage</td>
<td>9</td>
<td>4.6</td>
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<tr>
<td>Fired at Work</td>
<td>--</td>
<td>--</td>
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<tr>
<td>Marital Reconciliation</td>
<td>3</td>
<td>1.5</td>
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<tr>
<td>Demotion in Position</td>
<td>1</td>
<td>0.5</td>
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<tr>
<td>Change in Health of Family Member</td>
<td>16</td>
<td>8.2</td>
</tr>
<tr>
<td>Pregnancy</td>
<td>3</td>
<td>1.5</td>
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<tr>
<td>Sex Difficulties</td>
<td>8</td>
<td>4.1</td>
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<tr>
<td>Gain of New Family Member</td>
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<td>9.7</td>
</tr>
<tr>
<td>Changed Jobs</td>
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</tr>
<tr>
<td>Change in Financial State</td>
<td>31</td>
<td>15.9</td>
</tr>
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<td>Death of Close Friend</td>
<td>19</td>
<td>9.7</td>
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<tr>
<td>Change to Different Line of Work</td>
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<td>5.1</td>
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<tr>
<td>Change in Number of Arguments</td>
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<td>With Spouse</td>
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<td>3.6</td>
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<tr>
<td>New Mortgage, $15,000 plus</td>
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<td>17.4</td>
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<tr>
<td>Foreclosure of Mortgage or Loan</td>
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<td>Change in Responsibilities at Work</td>
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<td>22.6</td>
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<tr>
<td>Son or Daughter Leaving Home</td>
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<td>19.0</td>
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<tr>
<td>Trouble With In-Laws</td>
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<td>1.0</td>
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<tr>
<td>Outstanding Personal Achievement</td>
<td>26</td>
<td>13.3</td>
</tr>
<tr>
<td>Spouse Begins or Stops Work</td>
<td>33</td>
<td>16.9</td>
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<tr>
<td>Begin or End School</td>
<td>15</td>
<td>7.7</td>
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<tr>
<td>Change in Living Conditions</td>
<td>20</td>
<td>10.3</td>
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<tr>
<td>Revision of Personal Habits</td>
<td>19</td>
<td>9.7</td>
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<tr>
<td>Trouble With Boss</td>
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<td>6.2</td>
</tr>
<tr>
<td>Change in Work Hours or Conditions</td>
<td>36</td>
<td>18.5</td>
</tr>
<tr>
<td>Change in Residence</td>
<td>30</td>
<td>15.4</td>
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<tr>
<td>Change in Recreation</td>
<td>16</td>
<td>8.2</td>
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<td>Change in Church Activities</td>
<td>30</td>
<td>15.4</td>
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Continued
<table>
<thead>
<tr>
<th>Life Stressor</th>
<th>Frequency</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Change in Social Activities</td>
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<tr>
<td>New Mortgage or Loan, $14,000 or Less</td>
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<td>4.1</td>
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<td>Change in Sleeping Habits</td>
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<td>Change in Number of Family Get-Togethers</td>
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<td>Change in Eating Habits</td>
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<td>11.8</td>
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<td>Minor Violations of the Law</td>
<td>3</td>
<td>1.5</td>
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