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STRESS MANAGEMENT: A COMPARISON OF
EDUCATIONAL, AEROBIC AND AUTOSUGGESTIVE
APPROACHES.

THE UNIVERSITY OF ARIZONA, PH.D., 1979

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STRESS MANAGEMENT: A COMPARISON OF EDUCATIONAL,
AEROBIC AND AUTOSUGGESTIVE APPROACHES

by

Sandra Mary Sylvester

A Dissertation Submitted to the Faculty of the
DEPARTMENT OF COUNSELING AND GUIDANCE
In Partial Fulfillment of the Requirements
For the Degree of
DOCTOR OF PHILOSOPHY
In the Graduate College
THE UNIVERSITY OF ARIZONA

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ABSTRACT

In Western society, with its pressure to produce more in the shortest possible time, the need to develop effective ways of managing the accompanying stress has become a necessity. The purpose of the present study was to compare three commonly used procedures for managing stress: 1) Stress Education, 2) Aerobics, and 3) Autosuggestion as to their relative effectiveness. These specific procedures were chosen on the criterion of practicality: they can be conducted in a group setting; they require neither specialized equipment nor facilities; they can be easily implemented. It was hypothesized that subjects who participate in any of the treatments would show less stress than those who have not received the treatment and that the treatments would have the following ranking in effectiveness: 1) Autosuggestion, 2) Aerobics, and 3) Stress Education.

Traditionally, education has been the universal treatment for most of the ills of society including stress. The use of education for stress management is based on a common belief that if one is informed about the nature of stress and taught specific procedures to cope more effectively with stress, then a rational person will utilize these procedures to reduce his personal stress level.

The Aerobics procedure which emphasizes physical exercise rather than cognitive education and is a system of strengthening the cardiovascular and respiratory systems. As the body's cardiovascular and respiratory systems become strengthened through exercise the body

is able to handle more psychophysiological stress and promptly recover its pre-exercise equilibrium.

In Autosuggestion or self-hypnosis, subjects are taught to couple deep psychophysiological relaxation with ego strengthening suggestions regarding strengths and competencies in handling stress.

Subjects were recruited from graduate and undergraduate classes and staff at The University of Arizona. They were selected on the basis of summative scores on a screening instrument, the Petersen "Stress Management Questionnaire" and on their willingness to serve in the project.

Each treatment group met for one hour twice a week for four weeks. The treatment groups were compared to a no-treatment control group.

The results indicated participants in the treatment groups significantly reduced their levels of Trait Anxiety over controls. The most effective being Autosuggestion, followed by Aerobics and then Stress Education. Participants in the Autosuggestion group significantly reduced State Anxiety over controls. All groups, including controls, reduced their stress levels as measured by the "Stress Management Questionnaire" and the "Daily Life Change Questionnaire."

CHAPTER 1

INTRODUCTION

Purpose of Study

Stress experiences seem to be an inevitable aspect of life affecting both sexes and all ages. Stress is a common factor in 50 percent to 80 percent of all diseases and is always present in cardiovascular disease, cancer, arthritis, and respiratory disease (the four most prevalent disorders in modern cultures). In view of this a comparative study of selected methods of coping with stress has been undertaken.

The following literature review examines the nature and effects of prolonged stress and the three treatment modalities compared in this study (i.e., stress education, aerobics, and autosuggestion).

Nature of Stress

Stress is any action or situation that places special physical or psychological demands upon the body; anything that can upset an individual's equilibrium (Selye, 1956, 1974; Davis, 1954; Tanner, 1976; McQuade and Aikman, 1974). The actions or situations that cause stress are collectively called stressors and they represent an excess or a deficiency of influences to which the body is normally exposed (e.g., oxygen, nutrition, warmth, air pressure) or the introduction of something new and foreign (e.g., bacteria, viruses, poisons, accidents).

The above stressors are all physical and environmental. They can damage or destroy the body irrespective of how we experience them psychologically. However, man reacts not only to the actual existence of dangers, but also to threats and symbols of dangers experienced in the past (Levi, 1967). This creates a situation in which organ function is adjusted not only to the needs of the organism in present conditions but to anticipated needs as well.

Mental stressors (i.e., financial insecurity, strained working conditions with a difficult boss, an unhappy marriage) as well as inexplicable variations in sleeping or eating patterns and muscular tensions, may present themselves as psychological and social dangers in our lives and may bring on persistent discontent and anxiety. Moreover, stressful situations have different effects upon different people. This is based upon a large number of variables in the person's emotional and physical makeup, past experiences, and the constellation of factors defining his current life situation (Pelletier, 1977). One person may show improved ability to concentrate, whereas another may become distracted and unable to organize himself. One person shows stress by changes in heart rate; another shows it by changes in galvanic skin response; another shows it through changes in respiratory patterns (Shontz, 1975). A difficult mother-in-law, a strict and demanding employer, or heartlessly joking companions may cause stress or even precipitate disease in many individuals as effectively as bacteria, poor nutrition, or exposure (Levi, 1967).

The body responds to both physical and mental stressors with the same universal defense reaction. The most important factors in this response are the endocrine glands and the autonomic nervous system. This defense reaction, a three phase stress reaction, has been called the General Adaptation Syndrome (G.A.S.) by Hans Selye (1956). The three essential phases of the G.A.S. can be described as follows:

1. The Alarm Reaction: When the body is attacked, the initial reaction is alarm, which consists of two phases. Phase one comprises a series of somatic disturbances, indicating that the body is faltering under the attack. Phase two consists of the defensive phase in which the body's defenses are rapidly mobilized. Specifically, the sympathetic and parasympathetic parts of the autonomic nervous system adjust the various body functions to meet the stressor. The adrenal gland, stimulated by the sympathetic nervous system increase the production of adrenaline. This in turn stimulates the pituitary to release its hormones, the most important of which is ACTH. These hormones, in turn, influence the other endocrine glands and their hormones, thereby regulating the somatic defenses and adaptation so that the damaging effect of the attack is neutralized.

In the case of mental stressors, the course of events is slightly different. However, the adjustment of the body's processes are approximately the same. In other words, mental stressors activate the same general adaptation syndrome as physical stressors.

2. Resisting the Invasion: Usually the assault is of short duration and the body's defense is rapid and emphatic. In some cases,

however, the assault may be so powerful that the organism succumbs before the defense can intervene. When both the assault and the defense are of approximately equal strength, the struggle develops into the second stage of the adaptation syndrome, the stage of resistance. The fight continues on a more defensive level making use of the hormones of the adrenal cortex, the corticosteroids; their production is stepped up upon order from the pituitary gland. During this stage there is some adjustment to the stressor. Specific resistance to the stressor may be high during this period, but because of the effects of the G.A.S. and the fact that resources are diverted away from other areas, general body resistance may be low.

3. Exhaustion: If the assault persists, the organ system handling the stressor gives way and breaks down. This is the stage of exhaustion. The stressor again inflicts the same damage on the organism as during the first phase of the alarm reaction. The defense is no longer able to sustain the process of adjustment and the organism succumbs (Selye, 1956; Pelletier, 1977; Levi, 1967; McQuade and Aikman, 1974). On the physiological level, the stage of exhaustion ultimately ends in death. The psychological equivalent is functional psychosis (Shontz, 1975).

It is well to note that not all stress is necessarily bad. Stress is a major factor behind the achievements of many great artists. Instead of merely adapting to their environment, they deliberately expose themselves to stressful conditions. Professional athletes, trial lawyers, surgeons, laborers, etc., all place themselves in

stressful circumstances to improve their strength and/or skill (Klausner, 1968; Shontz, 1975). People join high stress programs like Outward Bound and learn to tolerate stress in moderate amounts that are gradually increased as the individual's capacity for stress is increased. It is through the stretching influence of stress that people find unexpected resources within themselves and develop the capacity to meet new challenges (Tanner, 1976). Stress is an integral element in the biological scheme of any living organism. Without stress there would be very little constructive activity or positive change. Life without the challenges which induce stress would be no life at all (Pelletier, 1977).

Effects of Prolonged Stress

Man has lived with stress since prehistoric times. The stress response, termed the "fight-or-flight" response often was a life-saving reaction which supplied early man with the adrenaline and other hormones he needed to ward off intruders (McQuade and Aikman, 1974). Physiologically, man shares the same stress response systems as the lower animals, with this added complication in human stress reactivity: information perceived through the higher centers of the brain also generate a physical stress response. This information is of a psychological and emotional nature, based upon the individual's perceptions of events in the environment. Basically, when human beings are subjected to major stress, they are roused to a "fight-or-flight" reaction in the same way that animals are. But where an animal can deal with a threat through fight or flight, man often cannot. Much of the stress

he experiences cannot be dealt with by fighting or running away, although his initial inclination may be to do so. In this complex society with its highly refined codes of acceptable behavior, fighting and fleeing often are not viable or appropriate reactions to stressful situations. There may be no socially acceptable action to take. Since the negative psychological state persists, the physiological stress response also continues. It is under these prolonged and unabated periods of stress that the resulting biochemical changes become potentially detrimental to health, and over time, disease producing.

Obviously, not all stress can or should be avoided. In fact, some responses to stress are not only non-injurious but beneficial as well. A normal adaptive stress reaction occurs when the source of stress is identifiable and clear. When the particular challenge is met an individual returns to a level of normal functioning relatively quickly. However, when the source of stress is ambiguous, undefined, or prolonged, or when several sources of stress exists simultaneously, the individual does not return to a normal mental and physiological baseline as rapidly. He may, in fact, continue to manifest a stress reaction for hours, days, or weeks (Pelletier, 1977).

To clarify this concept, when an individual is in jeopardy as in a car accident, or when driving through an electrical storm in the mountains (Sylvester, 1974), there is a sense of psychophysical excitation during the stress reaction. When the danger passes, the relaxation rebound occurs and equilibrium is reestablished. When the dangerous event is vague and ambiguous, as the events during a

stressful day, the physiological response pattern is identical even though psychologically the events may seem very different. Most of our daily threats are ambiguous, and this prevents a sufficient recovery from the stress-alarm reaction which they induce. This prolonged unabated stress from which the individual has no relief is primarily responsible for the development of stress related disorders, making them the number one health problem in this decade (Pelletier, 1977).

Selected Methods of Controlling Stress

So it is stress of a peculiarly subjective sort that is the principal marauder in our society: not the pressure of a gun against the ribs, but a nagging worry about being mugged; not outright competition from a rival stalking the same forest for game, but a cutting memo circulating in a quiet office organization; not the dreaded appearance of diphtheria symptoms in a member of the family, but the uneasy feeling that one's child is out in the city courting unhappiness and destruction. Our instinctive body responses are of little use against problems such as these. Nevertheless, we go right on responding, with the result that we not only stew in the problems--we stew in the responses too. Can these responses be changed (McQuade and Aikman, 1974, p. 125)?

Although much has been written on methods of controlling or alleviating stress, further research is needed to confirm their effectiveness. Among the methods cited are exercise (Tanner, 1976; Selye, 1974; McQuade and Aikman, 1974), diet and nutrition (Davis, 1954; McQuade and Aikman, 1974), meditation, autogenic training, biofeedback (Pelletier, 1977; McQuade and Aikman, 1974), psychotherapy, drugs, encounter groups, hypnosis (McQuade and Aikman, 1974), deep relaxation (Jacobson, 1957; Benson, 1975).

This study will concern itself with three of these treatments: education, exercise, and autosuggestion or hypnosis. These three

specific procedures have been chosen because they can be conducted in a group setting, they are reasonably simple, requiring neither specialized equipment nor facilities, and they can be easily implemented.

Stress Education

Historically, Americans have responded to social problems with the assumption that if one informs the population that a certain behavior is dangerous or destructive and also informs them of what is safe and beneficial, they will choose the latter. Some current examples are: the surgeon general's warning regarding smoking; educational programs to combat alcoholism, drug abuse, and venereal disease; fire prevention, rape prevention, and burglary prevention clinics.

Stress education programs, in which the public is informed about the nature of stress, its effects, and ways of coping with stress, fall under this genre.

The rationale for holding the assumption that man is rational and if properly informed will act in his best interests, dates back to the ancient Greeks and continues to be supported today by cognitive-field theorists.

Socrates held that no one would wittingly do wrong. He is often quoted as saying that knowledge is virtue, and to know the right is to do it. Aristotle further extolled his reasoning in Politics, Book VII, Chapter 13 stating that there are three things which make man good and virtuous; these are nature, habit, and reason. He further states that: man's unique excellence is his capacity for rational thought. The activity of reason operates in conjunction with the

activity of the appetites in such a way as to maintain a mean between the extremes of excessive and deficient activity.

Both Aristotle and, later, St. Thomas Aquinas agreed that reason required sensory experience in order to function. Nihil in intellectu quod non prius in sensu. Once underway, reason enabled the individual to perform 1) abstraction, 2) synthesis, and 3) intellectual intuition or insight. It is this last capability that formed the basis of Gestalt field theory, namely, the ability to grasp at once axioms that could not be demonstrated.

Learning by insight was pursued in the laboratory by Tolman and Honzik (1925), Kohler (1925), and Wheeler and Perkins (1932) who found that animals could "size up a situation" and apply new and creative solutions to problems.

Cognitive field psychologists (Dewey, 1922; Lewin, 1942; Bigge, 1954; Combs and Snygg, 1959) view an intelligently behaving person as one who acts as if he is pursuing a purpose and has some foresight as to how it is to be achieved.

Aerobics

Opinions about the psychological effects of exercise have been a part of the literature on psychosomatic medicine for over 2,000 years. However it is only within the last two decades that empirical research in the field of sport psychology has contributed scientific evidence supporting psychological benefits of physical activity. This discussion will be limited to a review of the effects of physical activity on anxiety.

The question: "What effect does physical activity have on anxiety?" is difficult to answer for a number of reasons: 1) the generic term "anxiety" encompasses several constructs, such as "nervousness" (Ikegami, 1970), "disturbed state" (Johnson, 1951), "emotional reactivity" (Harmon and Johnson, 1952), "arousal" (Skubic, 1956), and "neuroticism" (Kane, 1970); 2) the conceptualization of anxiety itself is ambiguous, with different studies dealing with anxiety states (Harmon and Johnson, 1952; Morgan, 1976), chronic anxiety as a personality trait (Breen, 1959; Booth, 1958), "manifest anxiety" (Smith, 1970; Hammer, 1970) and "specific" anxiety or fear (Daugert, 1966; Karbe, 1966); 3) studies employing physiological indicators of anxiety may, in fact, be measuring the effects on other emotions as well.

In attempting to clarify the confusion with reference to the meaning and types of anxiety, Spielberger, Gorsuch, and Lushene (1970) have submitted that all types of anxiety be grouped into two classifications: state anxiety and trait anxiety. According to this differentiation state anxiety is a transitory experience that fluctuates over time and is "characterized by subjective consciously perceived feelings of apprehension and tension, accompanied by or associated with activation or arousal of the autonomic nervous system" (Spielberger et al., 1970, p. 17).

Anxiety as a personality trait is defined as "a motive or acquired behavioral disposition that predisposes an individual to perceive a wide range of objectively non-dangerous circumstances as

threatening, and to respond to these with state anxiety reactions disproportional in intensity to the magnitude of the objective danger" (Speilberger et al., 1970, p. 17). Research directed toward the decrease of anxiety by physical activity has not discriminated between the two types of anxiety, thus compounding the confusion. The present study measures state anxiety and trait anxiety separately.

A high level of physical activity reduces anxiety (Warburton and Kane, 1966). Several more recent studies support this statement (Hutson, 1965; Daugert, 1966; Karbe, 1966). Others suggest that participating in physical conditioning programs also may reduce anxiety (Cureton, 1960; Popejoy, 1967; Hanson, 1970).

Franks and Jette (1970) hypothesize that regular physical exercise will decrease manifest anxiety when the following three criteria are present: 1) subjects must start with relatively high anxiety; 2) training must be long enough and vigorous enough to make important physical fitness changes; 3) training must be at such an intensity that subjects be required to adapt to it.

The current study employs aerobic exercises which fit the preceding criteria. "Aerobics refers to a variety of exercises that stimulate heart and lung activity for a time period sufficiently long enough to produce beneficial changes in the body" (Cooper, 1970, p. 15).

Morgan et al. (1973) found that vigorous exercise reduces anxiety and that exercise can have psychological benefits which may equal or outweigh the physiological benefits since exercise may

ameliorate stress and anxiety levels. In four later studies, Morgan (1976) found that light physical activity did not influence anxiety of men and women, however vigorous physical activity consistently produced a decrease in anxiety. Further, he concluded that vigorous physical activity is an effective coping strategy for adapting to stress.

Autosuggestion or Hypnosis

Hypnosis as a means of controlling stress seems to be based on two factors: 1) relaxation and 2) the inhibition of the stress response primarily through cognitive reappraisal and psychophysiological changes.

Hypnosis as Relaxation. "It has been evident for two centuries that relaxation is an inseparable part of what is traditionally known as hypnotic procedures, and the response to these procedures has been one of relaxation" (Edmonston, 1972, p. 227). Standard induction techniques 1) place extensive limits on sensory intake, 2) limit bodily activity, 3) restrict attention, 4) provide narrow and monotonous stimulation, and 5) alter the quality of bodily awareness (Gill and Brenman, 1959). Further, most hypnotic induction procedures include administering suggestions of relaxation, drowsiness, and sleep, making hypnosis one of the most widely used methods of inducing relaxation (Barber and Calverly, 1965; Lader and Mathews, 1971).

Studies which compared hypnosis and relaxation provide physiological evidence for a "hypnosis = relaxation" equation (Grossberg, 1965; Paul, 1969a; Starr and Tobin, 1970; Ham and Edmonston, 1971;

McAmmond, Davidson, and Kovitz, 1971). The physiological response found in hypnotic subjects is similar to the relaxation response described by Benson, Beary and Carol (1974) and to autogenic training (Luthe and Schultz, 1959; Snider and Oetting, 1966; Wilcox, 1968). In fact, autogenic training is considered by many investigators (e.g., Orne, 1965) to be a particular form of self-hypnosis. O'Connell and Orne (1968) suggest that in hypnotic relaxation, some kind of "central relaxation," not simply muscular relaxation is involved since electrodermal activity is altered.

Hypnosis as an Inhibitor of the Stress Response. The majority of existing psychological theories posit that maladjusted behavior consists of various stimulus-response and response-response relationships acquired for the purpose of preventing, decreasing, and terminating distressing affects, classified as anxiety, or more popularly as "tension" (Lader and Mathews, 1971). Dollard and Miller (1950) and Sullivan (1953) write that adjustment difficulties arise when anxiety or tension becomes too intense, too frequent, and is elicited by inappropriate stimuli. Lazarus (1974) argues that self-regulatory processes as well as cognitive appraisal of a stressful encounter are key mediators of the outcome.

Paul (1969b), in studying physiological responses to stressful imagery, found that both relaxation training and hypnotic suggestion inhibit the physiological stress response. Moreover, the degree of stress-response-suppression is related to the degree of induced

relaxation. Paul theorizes, as does Wolpe (1958), that stress and relaxation are antagonistic to one another.

Hypnosis as a Means of Inducing Psychophysiological Changes.

Reported physiological phenomena accompanying hypnosis include: decreased oxygen consumption, respiratory rate and heart rate (Dudley, 1964; Barber, 1970) and increased EEG intensity of slow alpha and theta waves and skin resistance (Estabrooks, 1930; Davis and Kantor, 1935). Further, Reid and Curtsinger (1968) report an increase in skin temperature and a slight (0.6° F) increase in oral temperature with hypnosis. These results of vasodilation and increased skin temperature were confirmed by Peters and Stern (1973) in a follow-up study.

Some of the more interesting psychophysiological changes reported through the use of hypnosis are those of hypnoanesthesia. When exposed to a physiological stressor (i.e., cold pressor, ischemia, and bicycle ergometry), subjects report reductions in subjective distress or pain even though objective monitoring of the physiological stress was the same. When Evans and Paul (1970) applied ice water as a physical stressor to hypnotic subjects who were given analgesia suggestions, they found that: 1) analgesia suggestions produced reductions in self-report of distress and 2) the degree of reduction was related to hypnotic susceptibility. However, there was no reduction in the physiological stress responses of heart rate and pulse volume monitored throughout the study.

Similar results were found in further cold pressor tests by Hilgard et al. (1974a, 1974b) in ischemic pain tests by Knox, Morgan, and Hilgard (1974) and in bicycle ergometry by Morgan et al. (1973).

Thus the literature indicates that the potency of hypnosis lies in enabling the subject 1) to effectively relax the muscles and the nervous system thereby inhibiting the physiological stress response and 2) to selectively change the perception of an event as "stressful" to one that is manageable.

Research Hypotheses

Hence the literature yields three fundamental premises from which research hypotheses can be drawn:

1. Man is rational and therefore, if informed, will act in his own best interest.
2. Physical exercise reduces psychological anxiety.
3. Autosuggestion can be employed as a means of gaining voluntary control over involuntary or autonomic processes.

From these, the following research hypotheses can be drawn:

1. Participants in a Stress Education, Aerobics, and Autosuggestion program will demonstrate less stress as measured by the "Stress Management Questionnaire" than subjects who did not participate in one of these three groups.
2. Participants in the Stress Education, Aerobics, and Autosuggestion programs will exhibit less State Anxiety than controls.

3. Participants in the Stress Education, Aerobics, and Autosuggestion programs will exhibit less Trait Anxiety than controls.

4. Participants in the Stress Education, Aerobics, and Autosuggestion programs will have lower scores on the "Daily Life Change Questionnaire" at the conclusion of their programs than controls.

5. The greatest degree of stress reduction will be found for those who participate in the Autosuggestion program.

CHAPTER 2

METHOD

Subjects

Subjects were 40 adult males and females recruited from graduate and undergraduate classes and from The University of Arizona staff members. They were selected on the basis of summative scores on a screening instrument, the Petersen "Stress Management Questionnaire" (SMQ) and willingness to participate in the project. The SMQ was given to 267 volunteers in the greater University community. The mean score was 158.26 (range 121 to 279). Of the persons who took the questionnaire, 40 of those who scored above 160 on this stress measure were selected as the sample for the study. The mean score for the sample was 195.55. The 40 subjects were randomly assigned to each of the three treatment groups and one control group, i.e., ten to each cell.

Experimenters

Three experimenters served as instructors for the treatment groups. Each experimenter was experienced in the specific treatment administered and was chosen on the basis of competence.

Testing Instruments

One screening measure and three evaluative measures were used. The Petersen "Stress Management Questionnaire" (1976) assessed personal stress appraisal, psychophysiological factors, height/weight ratio, job

or school satisfaction, level of physical activity, and smoking. This instrument was used both as a screening device to define the individual's level of stress and also provided demographic data for the study. A copy of the SMQ is found in Appendix A.

The State-Trait Anxiety Inventories measure two distinct anxiety concepts: state anxiety and trait anxiety, and thus were considered as separate instruments for this study. Both scales consist of twenty statements. The State scale (SAI) instructs the subjects to respond to the statements with how they feel at that particular moment in time whereas the Trait scale (TAI) instructs the subject to describe how he generally feels about each of the statements (Spielberger et al., 1970). The State Anxiety scale assesses the fluctuating subjective feelings of tension and/or apprehension that accompany heightened autonomic nervous system activity. The Trait Anxiety scale measures the disposition to respond to stressful situations with varying degrees of intensity. Alpha reliability for the State and Trait Anxiety scales are .87 and .88 respectively. Concurrent validity when compared with the C.P.A.T. and T.M.A.S. is .76 and .80 respectively. A description of the SAI and TAI can be found in Appendix B.

For this study the "Daily Life Change Questionnaire" (DLCQ) was adapted from Rahe's "Recent Life Change Questionnaire" (1974, with update 1975) and Holmes' "Schedule of Daily Experience" (1970). It consists of a checklist of 38 items monitoring the modifications of an individual's daily eating, sleeping, social, personal, and interpersonal habits. Modifications of these events require adaptation

which in turn constitutes stress (Pelletier, 1977; Dohrenwend and Dohrenwend, 1974). No reliability and validity data are available. Research is currently evaluating these instruments. The DLCQ can be found in Appendix C.

The time sequence for the administration of the treatment and assessment instruments follows in Table 1.

Treatment Procedure

The three treatment programs were 1) Stress education: classes on the origins of stress, immediate and long range effects of stress on health, and techniques for the reduction of stress. 2) Aerobics: physical education classes of running exercises designed to strengthen the cardiovascular and respiratory systems according to the method of Kenneth Cooper. 3) Autosuggestion: sessions in experiencing hypnotic trances employing deep relaxation and ego strengthening techniques. Each of the three groups met for one hour twice each week for four weeks. The control group did not meet as a group and was given the option to join a treatment group after the completion of the study.

Table 1. Experimental Time Sequence

	Week:														
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	
Stress Education	SMQ		SAI TAI DLCQ	Treatment SAI	Treatment SAI	Treatment SAI	Treatment SAI								SMQ
Aerobics	SMQ		SAI TAI DLCQ	Treatment SAI	Treatment SAI	Treatment SAI	Treatment SAI								SMQ
Autosuggestion	SMQ		SAI TAI DLCQ	Treatment SAI	Treatment SAI	Treatment SAI	Treatment SAI								SMQ
Control	SMQ		SAI TAI DLCQ	Treatment SAI	Treatment SAI	Treatment SAI	Treatment SAI								SMQ

CHAPTER 3

RESULTS

Demographic Information

The final sample consisted of 40 subjects (13 males and 27 females) with a mean age of 26.4 years (range 18-48). All of the participants in the study were selected on the basis of being high-stressed individuals as measured on the "Stress Management Questionnaire." Each scored above the mean of 158.26 and thus were on the high end of a stress continuum. Only 20 percent of the sample smoked cigarettes regularly, the remaining 80 percent were non-smokers. Sixty-five percent of the sample were single, 30 percent were married and 5 percent were divorced.

In a self-assessment of the level of job satisfaction and physical activity on a five-point scale, 22 percent reported that they were very satisfied with their jobs, 41 percent were satisfied, 19 percent were dissatisfied and no subjects reported being very dissatisfied with their jobs. Most participants (53 percent) reported that they were moderately active in physical activity, 8 percent were very active, 12 percent were active, 22 percent were inactive, and 5 percent were very inactive.

Pretreatment stress measures on each of the instruments used in the study (i.e., "Stress Management Questionnaire," Trait Anxiety.

Inventory, State Anxiety Inventory and "Daily Life Change Questionnaire") showed all participants to be a homogeneous group.

Correlation Matrix

Table 2 presents the intercorrelations of the measuring instruments used in the study. Moderate correlations were exhibited among the instruments indicating some shared variance on one hand and relative independence of the instruments of the other hand.

Stress Management Questionnaire

The "Stress Management Questionnaire" was administered twice to all subjects. The first administration occurred one week prior to treatment commencement, the second administration occurred six weeks after treatment conclusion (i.e., eleven weeks after the first administration). An analysis of variance with repeated measures was performed on the data. Results indicate that: 1) all groups decreased stress pre to post, and 2) there was no interaction effect nor was there a difference in performance between groups (Table 3).

A graph of the data on the "Stress Management Questionnaire" illustrates all groups decreasing in stress over time. It is also noted that the most dramatic slope occurs in the Autosuggestion group, even though this slope is not statistically significant (Fig. 1).

Since there was no estimate of reliability available on the "Stress Management Questionnaire," the only indication of reliability was pre-to-post correlations of the instrument. The relatively low correlation (.3242) could be due either to low reliability of the instrument

Table 2. Correlation Matrix of Evaluation Instruments

	Stress Management Questionnaire	Trait Anxiety Inventory	State Anxiety Inventory	Daily Life Change Questionnaire
Stress Management Questionnaire	————	.3300 (.01)	.4634 (.001)	.5314 (.001)
Trait Anxiety Inventory		————	.5664 (.001)	.5122 (.001)
State Anxiety Inventory			————	.2740 (.05)
Daily Life Change Questionnaire				————

Table 3. Summary Table for Repeated Measures: Stress Management Questionnaire

Source	df	MS	F
Between-subjects	26	694.4758	
Treatment methods	(3)	1045.3387	1.611
Error-between	(23)	648.7111	
Within-subjects	27	822.0741	
Trials	(1)	12880.6667	41.252*
Interaction	(3)	711.2550	2.278
Error-within	(23)	312.2421	
Total	53	759.4787	

*p < .001

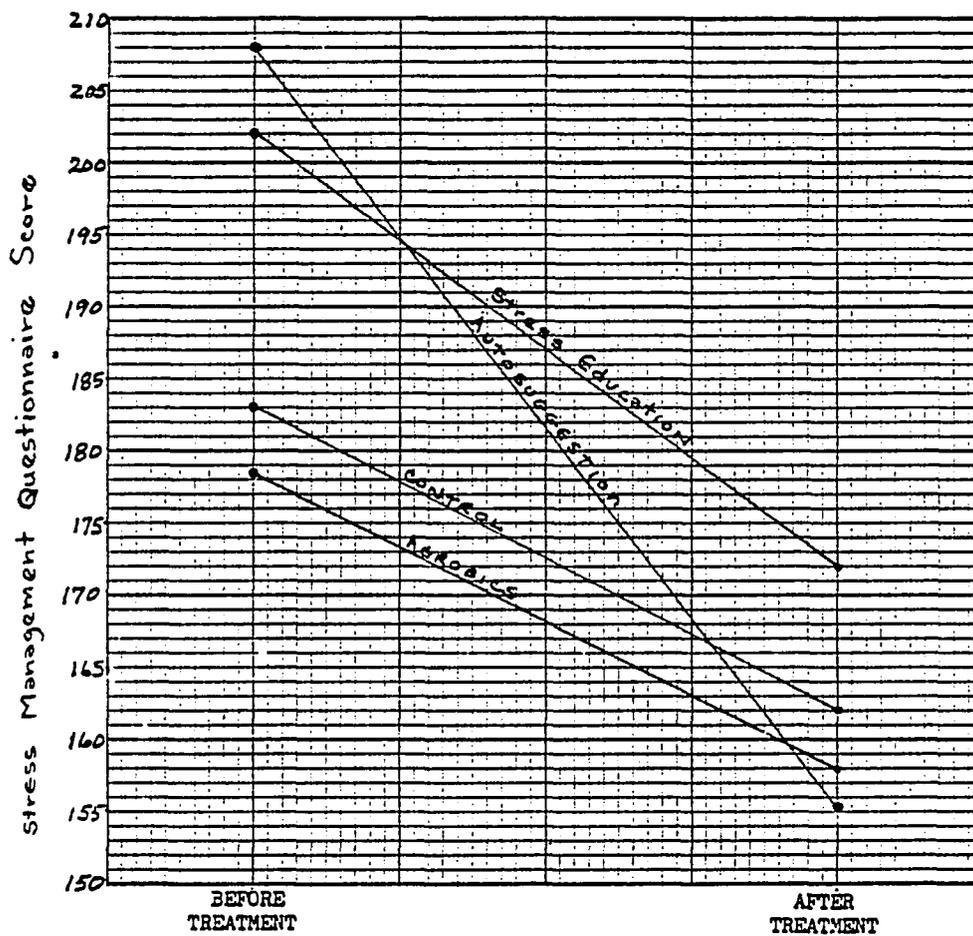


Fig. 1. Mean Stress Management Questionnaire Scores for Experimental Groups before Treatment and Six Weeks after Treatment

itself or the intervention effect of the treatment. If this low correlation was due to unreliability, then we may be able to detect differences by either increasing the reliability of the instrument or increasing sample size.

State Anxiety Inventory

The State Anxiety Inventory was administered five times to all subjects; once before treatment and the remaining four at the end of each week of treatment. An analysis of variance with repeated measures was performed on the data. Results indicate that: 1) subjects in any one treatment group did not perform significantly better or worse than subjects in any other group, when performance was averaged across all levels of the variable (state anxiety), 2) subjects did differ significantly from trial to trial, and 3) there is a significant interaction effect (Table 4).

A Tukey post-hoc test of cell means was performed on pretreatment data. No significant difference was found between groups prior to treatment, thus it could be assumed that all groups were homogeneous.

A Tukey post-hoc test of cell means on the post-treatment data indicates that Autosuggestion is significantly different from the control group in reducing state anxiety (Table 5). Further, in comparing all groups pre to post, all treatment groups reduced state anxiety when compared with controls.

The results indicated graphically in Fig. 2 show the average measure of state anxiety emitted by experimental and control subjects

Table 4. Summary Table for Repeated Measures: State Anxiety Inventory

Source	df	MS	F
Between-subjects	39	336.2210	
Treatment methods	(3)	415.2200	1.260
Error-between	(36)	329.6378	
Within-subjects	160	93.8025	
Trials	(4)	472.7675	6.703*
Interaction	(12)	246.7408	3.498*
Error-within	(144)	70.5308	
Total	199	141.3117	

*p < .001

Table 5. Tukey Post-Hoc Test of Cell Means: Post-Treatment Data, State Anxiety

	Autosuggestion 29.3	Aerobics 32.8	Stress Education 36.5	Control 46.5
Autosuggestion 29.3	_____	3.5	7.2	16.3*
Aerobics 32.8		_____	3.7	12.8
Stress Education 36.5			_____	9.1
Control 46.5				_____

*Critical difference ≥ 13.57

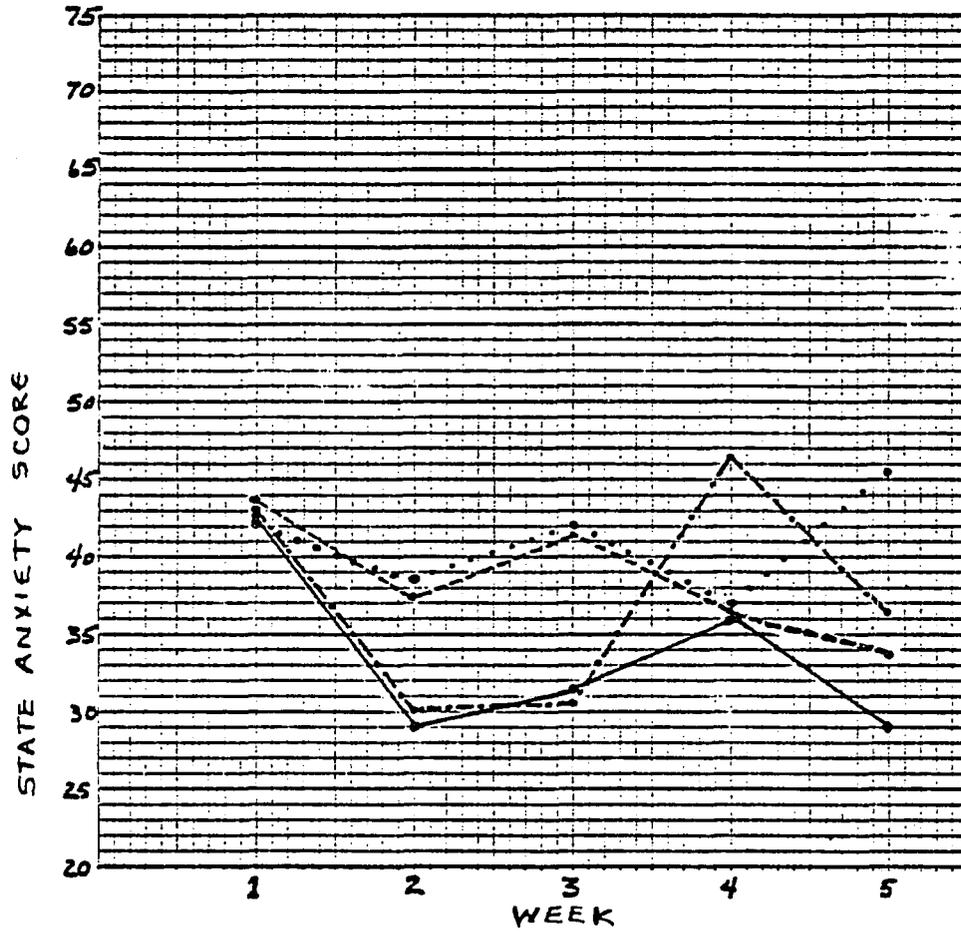


Fig. 2. Mean State Anxiety Scores for Experimental Groups before Treatment and Each Week during Treatment

- Stress Education
- - - - Aerobics
- Autosuggestion
- · · · · Control

for five consecutive one week periods. The first measure being a pre-treatment measure and measures 2 through 5 during treatment measures.

This graph illustrates groups were similar prior to treatment and quite different at the end of treatment. The state anxiety level for the control group being essentially the same before and after a five week interval, whereas each of the experimental groups experienced some reductions in state anxiety level. The curious rise of state anxiety during weeks 3 and 4 prompted a graph of each individual by group to determine whether the rise was attributed to individuals within the group or to the process within the treatment (Figs. 3-6). If the rise in state anxiety is manifested by one or two individuals, the rise may be considered ideosyncratic. However, if the rise is manifested by the majority of the individuals in the group, the rise may be attributed to something within the group itself or by some combination of variables.

It was observed that in the Autosuggestion Group the rise in state anxiety during weeks 3 and 4 was attributed to two individuals. The Aerobics group was influenced by one individual who maintained a high stress level throughout treatment whereas most others in the group experienced a dramatic drop in state anxiety. The rise in stress level in week 4 for the Stress Education group appeared to be related to the within-group experience that day. The Control group fluctuation remained random throughout treatment.

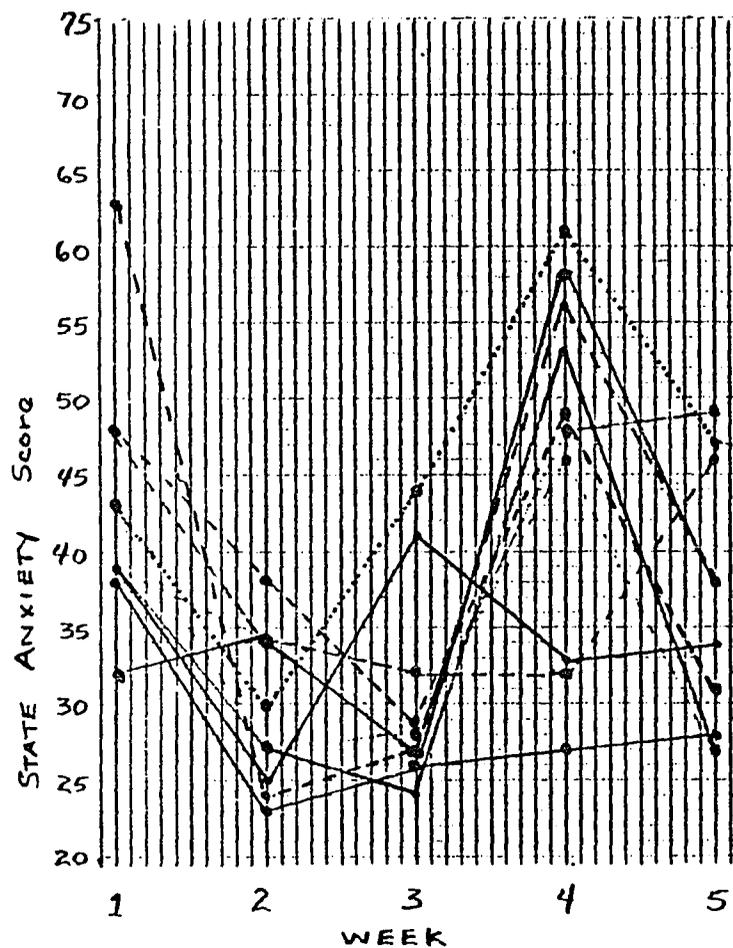


Fig. 3. Weekly Individual Scores on State Anxiety Inventory for the Stress Education Group before Treatment and Each Week during Treatment

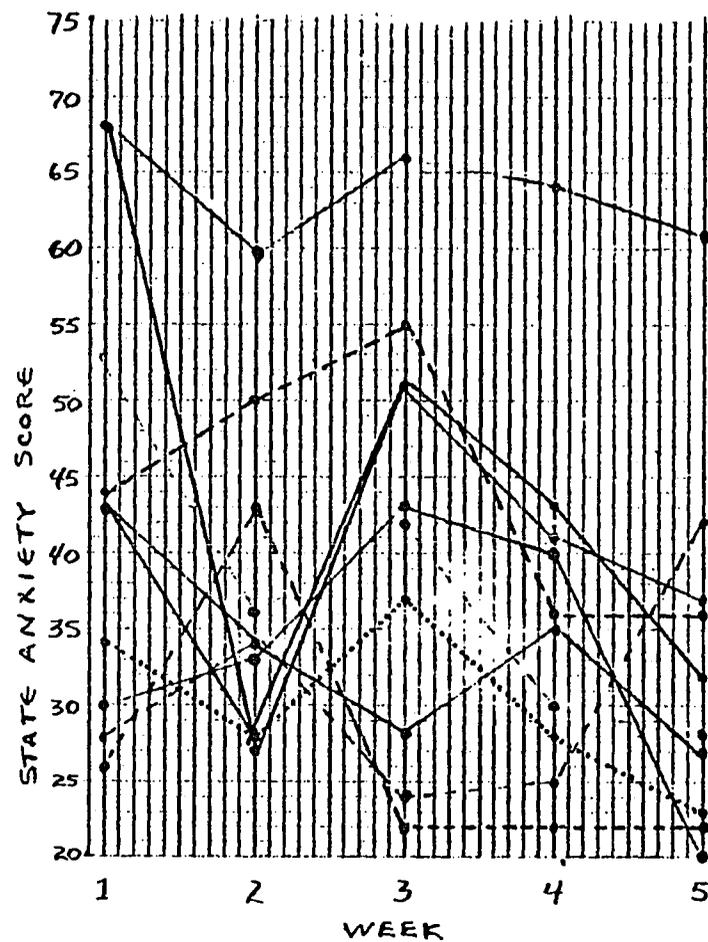


Fig. 4. Weekly Individual Scores on State Anxiety Inventory for the Aerobics Group before Treatment and Each Week during Treatment

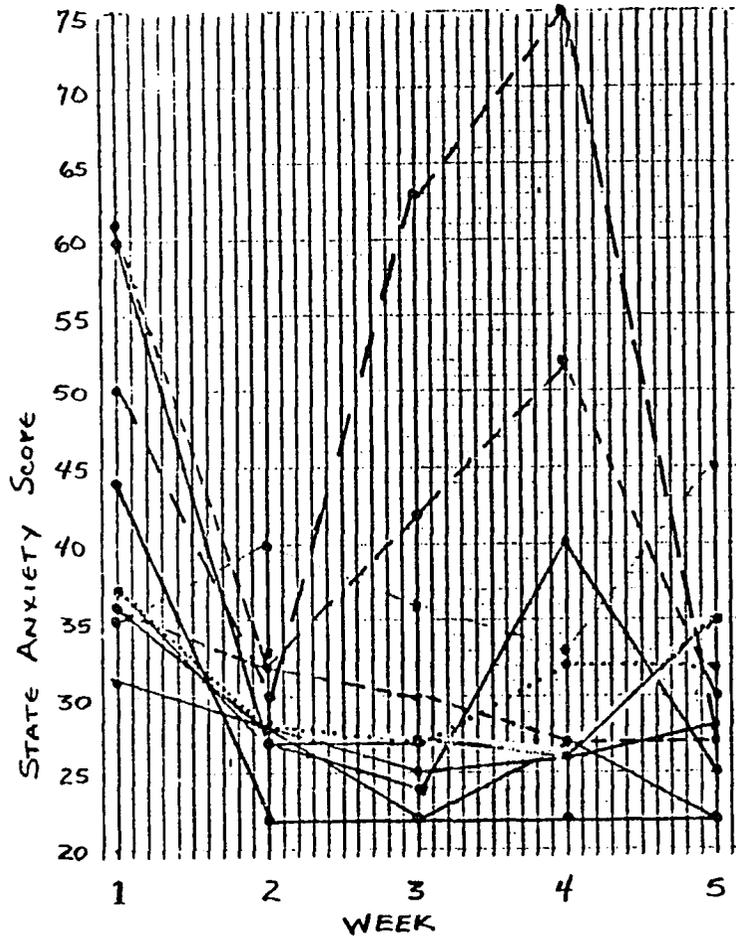


Fig. 5. Weekly Individual Scores on State Anxiety Inventory for the Autosuggestion Group before Treatment and Each Week during Treatment

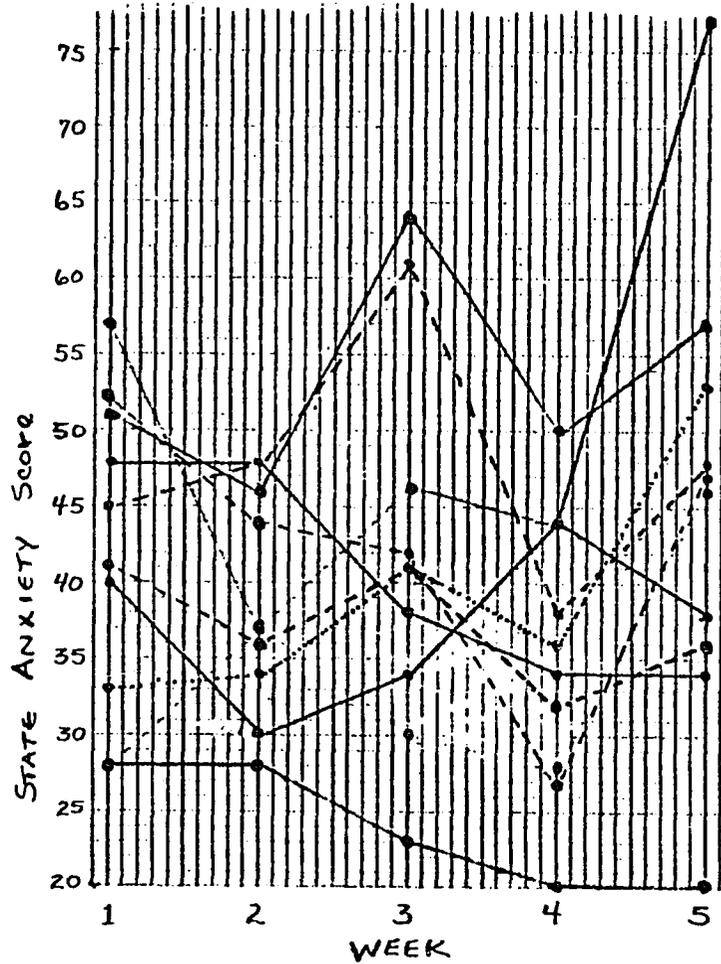


Fig. 6. Weekly Individual Scores on State Anxiety Inventory for the Control Group before Treatment and Each Week during Treatment

Trait Anxiety Inventory

An analysis of variance with repeated measures was made on measures of trait anxiety before and after treatment. Results indicate that: 1) before treatment no significant differences occurred between groups and 2) all groups showed a reduction in trait anxiety pre to post whereas no reduction was noted in controls (Table 6).

A Tukey post-hoc test of cell means was performed on pretreatment data. No significant difference was found between groups prior to treatment, thus it could be assumed that all groups were homogeneous.

Next comparisons pre-to-post were performed for each group. Significant findings required a critical difference of 3.44 or greater.

As noted in Table 7, all experimental groups show significant trait anxiety reduction pre- to post-treatment. No significant reduction in trait anxiety was noted in the control group.

The graph of the Trait Anxiety levels pre- and post- illustrate some interesting data: 1) Control levels remain virtually unchanged. 2) Autosuggestion exhibits the most dramatic reduction in trait anxiety pre- to post. 3) The trait anxiety levels before treatment are the inverse of those after treatment (Fig. 7). Of the graphs of individuals in each treatment, the Autosuggestion group is again the most dramatic showing both a drop in trait anxiety for all individuals within the group as well as a tighter concentration at the lower end of the stress measure (Figs. 8-11).

Table 6. Summary Table for Repeated Measures: Trait Anxiety Inventory

Source	df	MS	F
Between-subjects	39	131.5782	
Treatment methods	(3)	9.3833	.066
Error-between	(36)	141.7611	
Within-subjects	40	51.5	
Trials	(1)	966.05	48.049*
Interaction	(3)	123.3833	6.137*
Error-within	(36)	20.1056	
Total	79	91.0323	

* $p < .01$

Table 7. Tukey Post-Hoc Test of Cell Means: Trait Anxiety Inventory

	Pre-	Post	Difference
Autosuggestion	50.8	37.3	13.5*
Aerobics	46.5	38.8	7.7*
Stress Education	44.9	40.2	4.7*
Control	44.0	42.1	1.9

*C.D. ≥ 3.44

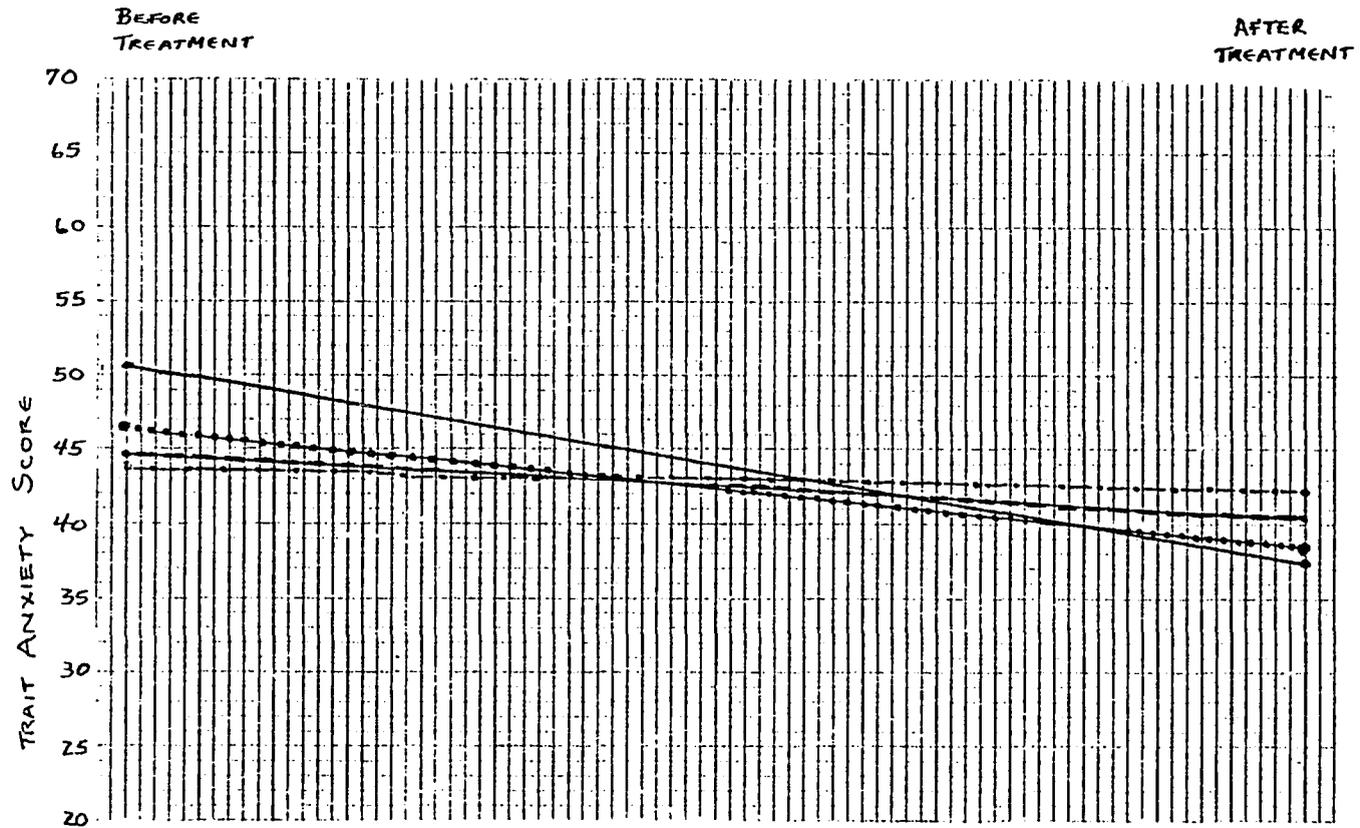


Fig. 7. Mean Trait Anxiety Scores for Experimental Groups before and after Treatment

Stress Education
 Aerobics
 Autosuggestion
 Control

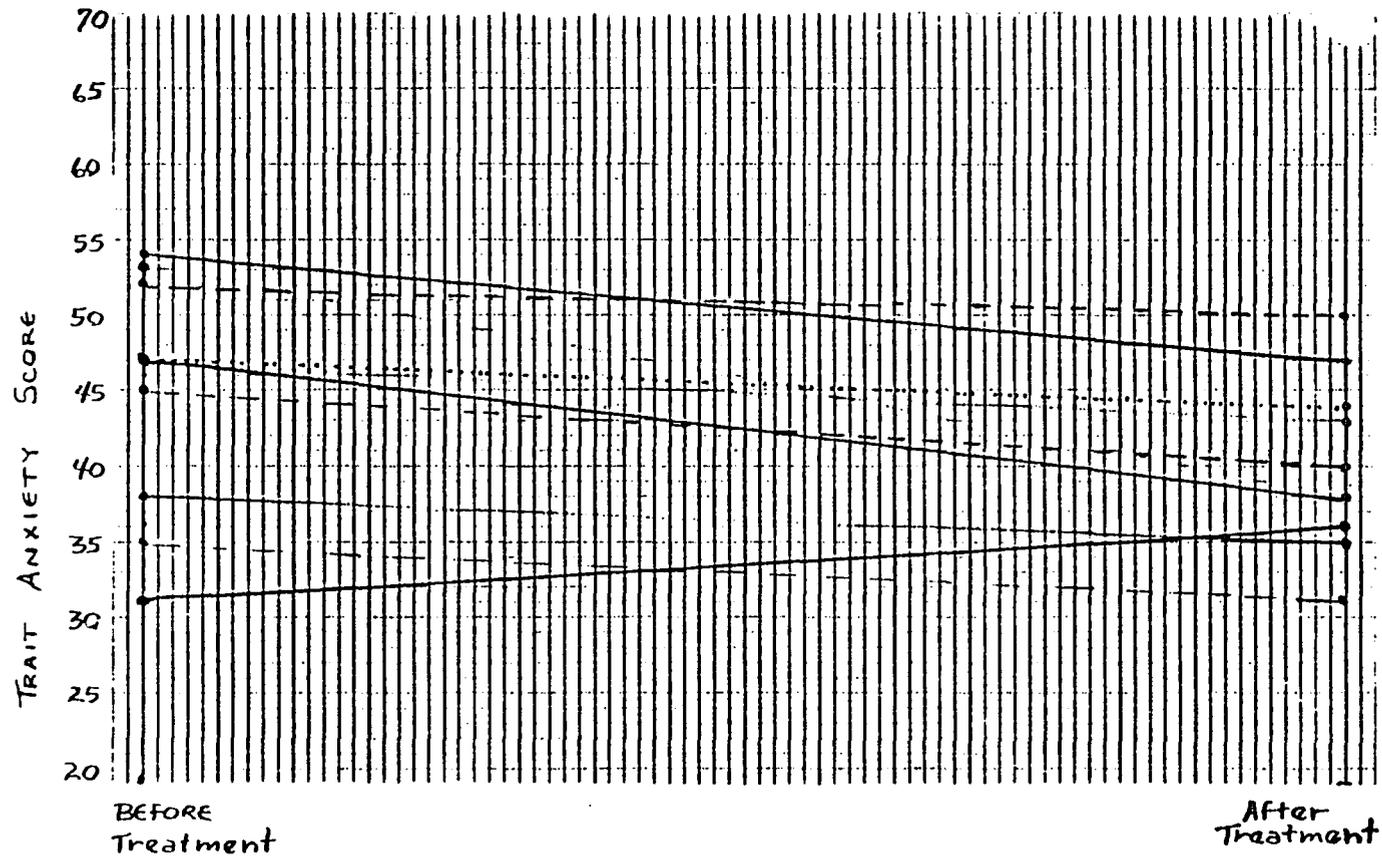


Fig. 8. Individual Scores on Trait Anxiety Inventory for the Stress Education Group before and after Treatment



Fig. 9. Individual Scores on Trait Anxiety Inventory for the Aerobics Group before and after Treatment

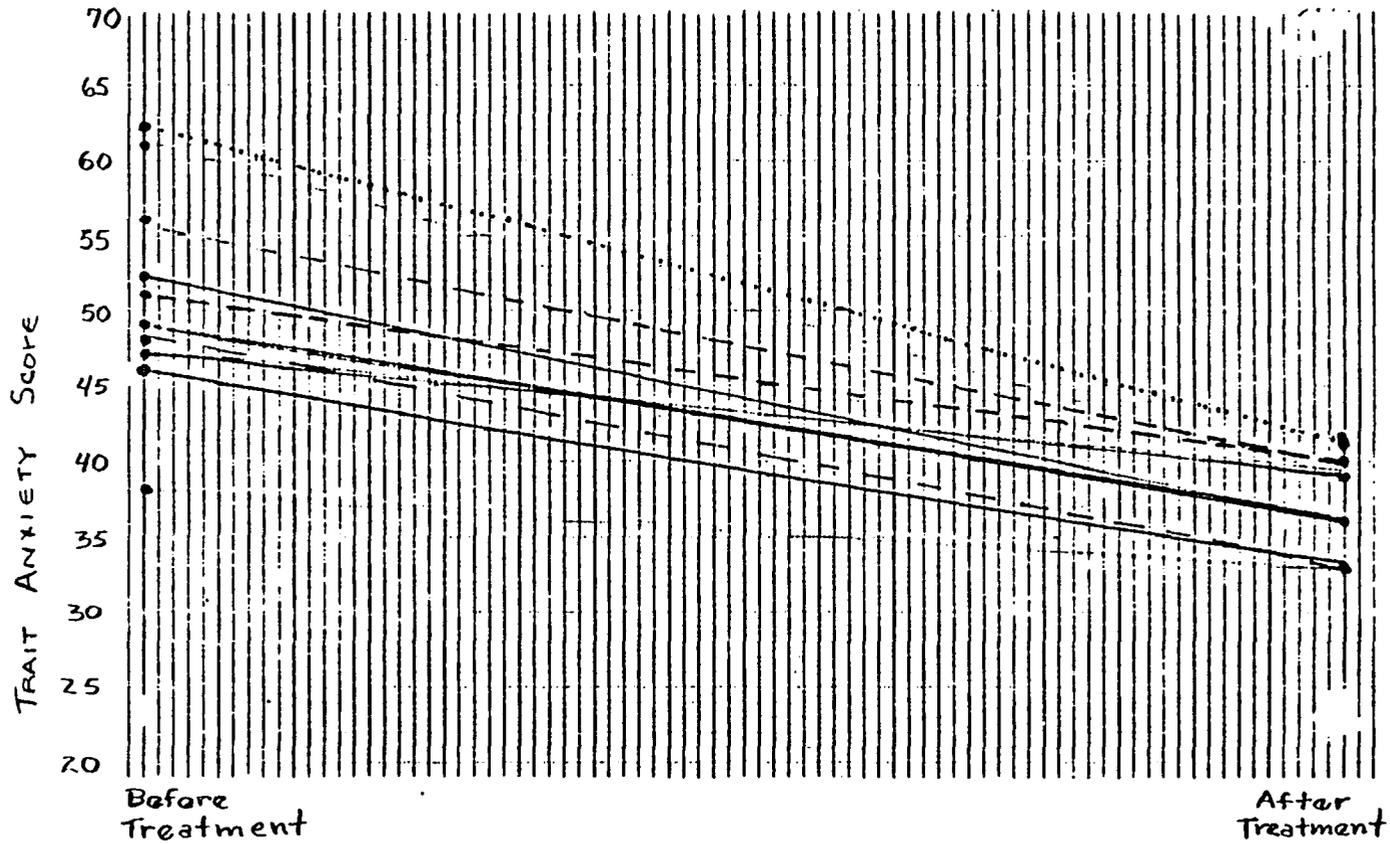


Fig. 10. Individual Scores on Trait Anxiety Inventory for the Autosuggestion Group before and after Treatment

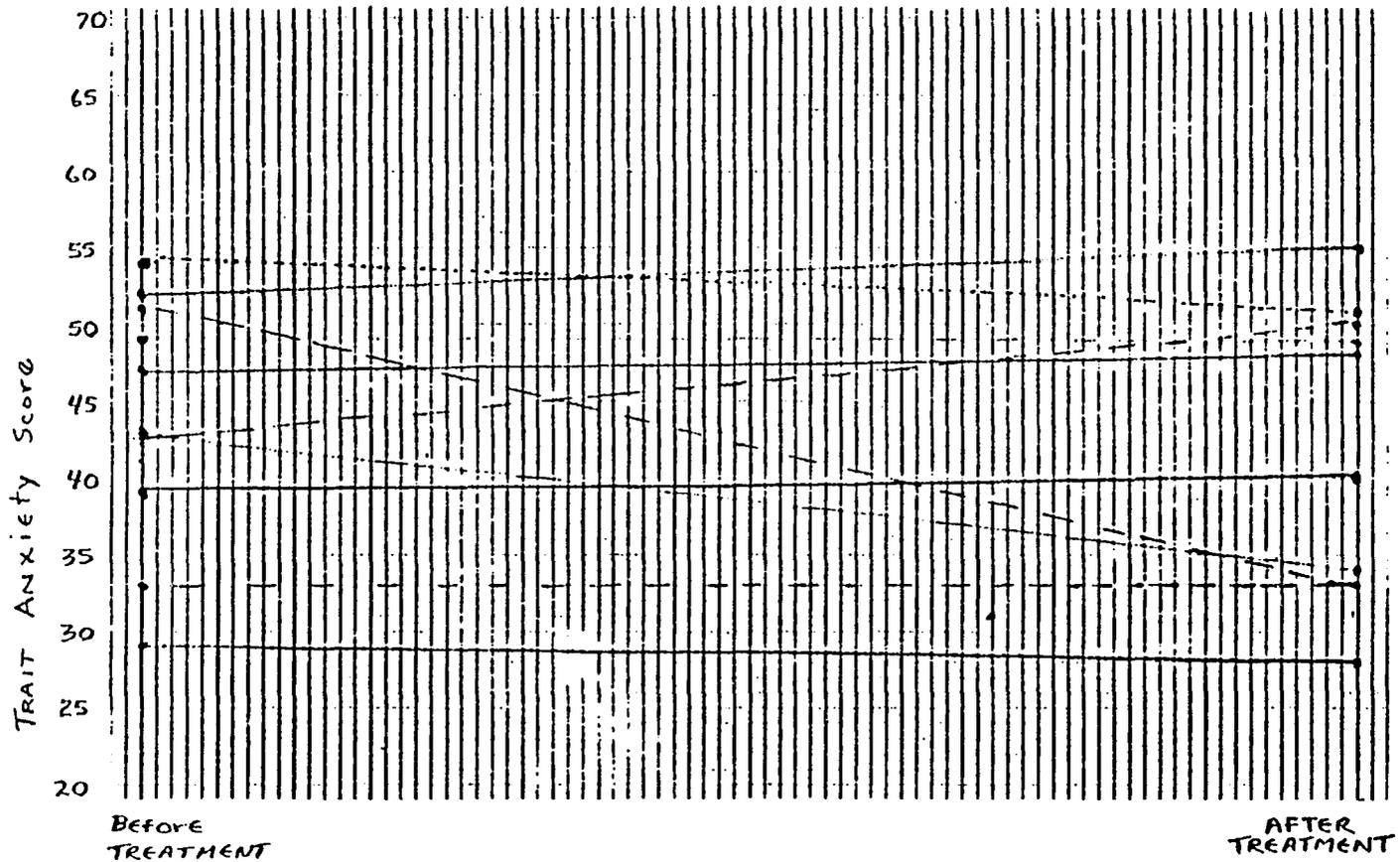


Fig. 11. Individual Scores on Trait Anxiety Inventory for the Control Group before and after Treatment

Daily Life Change Questionnaire

An analysis of variance with repeated measures was performed on the data obtained from the pre- and post-administration of the "Daily Life Change Questionnaire." Results indicate that all groups improved by reducing their Daily Life Change Score (Table 8).

Table 8. Summary Table for Repeated Measures: Daily Life Change Questionnaire

Source	df	MS	F
Between-subjects	33	317614.1003	
Treatment methods	(3)	389735.2723	1.256
Error-between	(30)	310401.9831	
Within-subjects	34	75456.0147	
Trials	(1)	324714.7206	4.570*
Interactions	(3)	36459.7889	.513
Error-within	(30)	71047.0138	
Total	67	194727.9076	

*p < .05

Summary of Results

1. Participants in each of the treatment groups (i.e., Stress Education, Aerobics, Autosuggestion) and the control group reduced their stress levels as measured by the "Stress Management Questionnaire." No single group was statistically significantly any better or worse than any other group.

2. At the completion of the study, participants in each of the treatment groups reduced their levels of State Anxiety when compared with controls. The Autosuggestion group differed significantly from the controls.

3. At the completion of the study, participants in each of the treatment groups reduced their levels of Trait Anxiety significantly when compared with controls.

4. Participants in all groups, treatment and controls, reduced their levels of stress as measured by the "Daily Life Change Questionnaire."

5. Of the three treatments employed in this study, Autosuggestion was the treatment that was most effective over all.

CHAPTER 4

DISCUSSION

The aim of the present study was to compare the effectiveness of three treatment methods in helping subjects to reduce their stress levels. In general, this study found that all groups, including the controls, reduced their levels of stress as measured by the "Stress Management Questionnaire" and the "Daily Life Change Questionnaire." Thus it is possible that mere exposure to the experimental procedures may have influenced the scores on the dependent measures in some unknown manner. All subjects were highly stressed individuals, who in the absence of a stress treatment, may have devised their own methods to reduce stress.

In the measures where discrimination between groups after treatment was noted (i.e., State Anxiety and Trait Anxiety), the Autosuggestion group was the most effective in reducing anxiety, followed by Aerobics and Stress Education. Since the Autosuggestion treatment dealt explicitly with suggestions of relaxation and comfort, this would understandably be an effective treatment for "State" Anxiety. The fact that it was also the most effective treatment for Trait Anxiety suggests that hypnosis may have a long term effectiveness in reducing the disposition to respond to stressful situations with anxiety as well.

While having no bearing on the tested hypotheses, of particular interest were participants' anecdotal comments made at the end of

treatment. All of the participants in the Aerobics and Autosuggestion groups spoke positively about their group experiences and gave some indication of personalizing and utilizing the skills learned. The following comments were made by those in the Aerobics group:

"I learned that if I really want to do something (run), I can do it."

"I found that I am stronger than I thought I was."

"I have a better idea of how much I can do physically and how fast I can improve. . . . I plan to continue on my own now that I've started."

"I never thought I could do it! I feel better, do more, don't sit around much, wake up more refreshed, sleep soundly."

"Breathing is easier. I feel better, stronger."

"I feel like I've accomplished something. I feel like I'm in better shape."

"I'm committing myself to a new regimen--one that isn't nearly as bad as I had imagined."

"Making time to exercise is something I need and want to do."

"Aerobics works for me."

Energy, enthusiasm, and vitality is evident in these comments.

The comments made by the members of the Autosuggestion group were positive as well:

"I feel that the relaxing techniques I have learned are very valuable skills to have. I have also become more aware of the fact that I can control the way I feel and how things affect me."

"I am aware of the power I have within me that I can use and experiment with to help myself. I would like to go on with this and take another course like this."

"Now, I take a couple of deep breaths and plunge forward, to the delight of everyone, especially me. I find I can actually do more. I really found this experience more rewarding and exciting than I expected."

"I have generally slowed down, accomplished more, become more aware of my mind and of my body."

"I am aware that I am responsible for my own stress. I choose to stress myself, therefore I can choose to unstress or relax myself. This gives me a sense of power and I have gained more control over my life as a result."

"Autosuggestion helped me to practice and refine skills I already have, and it gave me a few new ones. The content was immediately applicable to my life situation."

"I am much more relaxed on an ongoing everyday basis than I was before. I especially benefited by learning how to relax my stomach muscles so that now they rarely tense up. When I do get tense, I am able to relax by one of several methods taught in the group. Also the length of time I get tense is less and less. I also feel more self-confident as a result of the group."

The Stress Education group had some inherent problems, possibly because the population for the study was a university population. First, the format of the stress education program resembled that of a class in its structure, methods, and content. As such it may have been perceived by subjects differently than the other two treatments. The focus was on the experimenter as teacher rather than on the task, as with Aerobics and Autosuggestion. Following are some of the comments made by the members of the Stress Education treatment:

"I felt it was important to know the physical causes of stress."

"I learned a great deal about nutrition and stress and also good stress exercises."

"I learned to take deep breaths in stressful situations, deal with my feelings as soon as possible instead of worrying over them, watching what I eat."

"I obtained an awareness of the things which cause stress, even little things which I would not have otherwise perceived as stress. Before, when I encountered stressful conditions, I would eat. Now when I encounter stress I think about more positive things rather than

feeling like a failure. I have been trying to change my intake of foods, trying not to eat too much junk foods."

Limitations of the Study

Methodological aspects of this study which limit generalization of results are: first, the number of subjects in each cell was small (N = 10). Thus each subject accounted for 10 percent of the effect on the group. Having a larger N would have increased the power of the experiment and reduced the error term. Secondly, two of the instruments, the "Stress Management Questionnaire" and the "Daily Life Change Questionnaire," have not been adequately validated in the literature. Better testing of the instruments would improve their usefulness for research purposes. Additionally, all of the instruments used in the study were self-report scales, thus excluding direct behavioral and physiological measures. Their inclusion would enhance the study. Thirdly, having a different experimenter for each treatment group confounded the treatment variable making it impossible to ascribe the results to treatment alone. Finally, the design of this experiment could be improved by a combination of the following: increasing the number of subjects, adding several sections of each treatment with different experimenters, having subjects participate in each of the three treatments to examine the interaction between treatments, include a six-month and one year follow-up.

Conclusion

Stress has always been a concomitant of life and will continue to be so. Therefore, further research is needed not only to study the

nature and effects of stress but the coping mechanisms as well. There is a need to abstract the common threads of each of the successful coping methods and use this data to construct appropriate life style changes which enhance the human condition. To this end, self-help methods need to be developed and implemented for these methods are preventative rather than remedial. Also more refined measures are needed to assess the efficacy of existing methods of coping with stress. The method of using self-report scales exclusively needs to be revised since other factors may significantly affect the obtained results. These factors include: the need to portray oneself in a positive manner, the capacity to be selective in the reporting, emphasis, and omission of subjective data, the fear of self-disclosure and possible negative judgment. Supplementing and validating information gathered through self-report measures could be achieved by using physiological measures (e.g., biofeedback, blood pressure, pulse, respiration), and behavioral rating including reports of significant others (e.g., family, colleagues, employers).

APPENDIX A

STRESS MANAGEMENT QUESTIONNAIRE*

*Permission to use this instrument for research purposes has been granted by the author, James Petersen.

STRESS MANAGEMENT QUESTIONNAIRE (SMQ)

I am requesting your voluntary participation in the completion of a questionnaire for a study entitled, "Three Methods of Controlling Stress: A Comparison." The purposes and objectives of the study are to compare three different treatments for stress and to investigate various measuring instruments for stress. This instrument is designed to indicate the level of stress under which you are currently functioning and the degree to which you cope with stress, in general. Completion of this questionnaire will require approximately 20 minutes of your time and will be an indication of your consent as a willing participant in the study. All data received will be treated with anonymity and confidentiality. There are no costs, benefits, or risks to you from your participation in this study. You are free to withdraw from the study at any time without incurring ill will.

Sandra M. Sylvester
Researcher

Name: _____ Date: _____

Address: _____ Phone: _____
(days) (evenings)

Age: _____ Sex: _____ Height: _____ Weight: _____
(now) (1 year ago)

1. Marital Status: _____

2. Education: High School: 1 2 3 4
College: 1 2 3 4 5 Degree? _____ Graduate: Degree? _____

3. Do you smoke cigarets, cigars, or pipe? Yes: ___ No: ___ If yes, how many per day? _____

4. How many hours do you work per week? _____

5. Rate your level of job satisfaction: (Please check)
Very Satisfied Satisfied Neutral Dissatisfied Very Dissatisfied
() () () () ()

6. If you are a student, rate your level of satisfaction with your performance:
Very Satisfied Satisfied Neutral Dissatisfied Very Dissatisfied
() () () () ()

7. What is your level of physical activity?
Very Active Active Moderate Inactive Very Inactive
() () () () ()

8. What specific physical activities do you engage in on a weekly basis?
() Tennis () Swimming () Jogging () Walking () Other: list
() Racquetball () Bicycling () Hiking () _____

9. Do you know your blood pressure? Yes: ___ No: ___ If yes, please give _____

10. Do you have any chronic medical conditions? Yes: ___ No: ___ If yes, please explain: _____

11. What medications do you commonly take? _____

Personal Stress Appraisal _____ Height/Weight Ratio _____ Job Satisfaction _____
Psychophysiological Factors _____ Physical Activities _____ School Satisfaction _____
Smoking _____

Part B: For each of the following, please check the category which best describes you. Please think of your behaviors and feelings as you are, not how you used to be or would like to be.

1 2 3 4 5

How frequently do you . . .	Never	Rarely	Occasionally	Frequently	Very Frequently
1. Over emphasize key words in your speech?					
2. Rush the last words in a sentence by saying them more rapidly than the first words?					
3. Move or walk rapidly?					
4. Feel impatient at which the rate of events take place?					
5. Hurry the speech of others by physical gestures or by saying "uh-huh, uh-huh" or "yes, yes, yes"?					
6. Feel frustrated at others' behaviors; for example, becoming very irritated at your progress behind a slow driver or in a line of customers waiting to be served?					
7. Write your signature very rapidly without taking care to form the letters?					
8. Become impatient when required to perform repetitious acts (e.g., filling out bank deposit slips, writing checks, washing and cleaning dishes, etc.)?					
9. Find yourself hurrying your own reading or attempting to obtain condensations or summaries of truly interesting and worthwhile literature or articles?					
10. Engage in thinking about several different things while you are trying to do one task?					
11. Eat rapidly?					
12. Involve yourself in other activities while someone is talking to you?					
13. Find yourself dwelling on problems of a business or personal nature?					
14. Try to do two things at one time (for example, while driving your car, dictate a letter; while drinking a cup of coffee at a restaurant, feel the need to read a newspaper or a book, etc.)?					
15. Find it difficult to refrain from bringing the topic of conversation around to a subject which especially interests and intrigues you?					

1 2 3 4 5

How frequently do you . . .	Never	Rarely	Occasionally	Frequently	Very Frequently
16. Find yourself unable to listen to others when you are preoccupied with your own thoughts?					
17. Feel guilty or uncomfortable when you relax and do absolutely nothing either for several hours or several days?					
18. Find it difficult to simply take time and do something which you enjoy?					
19. Find that after leaving an office, room, or home for the first time, you cannot recall what was in them?					
20. Find that you are more preoccupied with having something than doing something (for example, you are more interested in the outcome than in the process of an act)?					
21. Find that you have certain gestures or nervous characteristics which other people have recognized; for example, any of the following: facial ticks, repetitious hand gestures, clenching your fist, banging your hand on the table to make a point, etc.?					
22. Find that you have a chronic sense of time urgency (for example, are you lost without a watch)?					
23. Talk rapidly?					
24. Feel that life is a struggle?					
25. Believe that whatever success you have enjoyed has been due in good part to your ability to get things done faster and more efficiently than others?					
26. Find that you are unable to slow down?					
27. Find that you are increasingly committed to translating or evaluating not only your own but the activities of others in terms of "numbers"?					
28. Notice that you are becoming more and more under pressure at work or school?					
29. Notice that you are becoming more and more under pressure at home?					
30. Lose your temper at home?					
31. Lose your temper at work or school?					

1 2 3 4 5

How frequently do you . . .	Never	Rarely	Occasionally	Frequently	Very Frequently
32. Demonstrate that you are a perfectionist at what you do?					
33. Think about the past?					
34. Feel afraid?					
35. Drink alcohol or use drugs?					
36. Find you need to use drugs or have a drink in order to relax?					
37. Find yourself being critical of others?					
38. Bite your fingernails?					
39. Pull at hair, mustache, or beard?					
40. Drink coffee, tea, or other stimulant drinks?					
Total Part B:					
1. Have headaches?					
2. Have difficulty falling asleep?					
3. Awaken several times during the night?					
4. Awaken earlier than you wish in the morning?					
5. Have dizzy spells?					
6. Have heart palpitations, skipping or fluttering of heart?					
7. Have moist palms or feet?					
8. Become moody or depressed?					
9. Have a tendency to perspire at various parts of the body?					
10. Notice that you have a fast pulse?					
11. Stutter your words?					
12. Have indigestion after eating (e.g., acid stomach)?					
13. Have shortness of breath?					
14. Feel anxious (for example, butterflies in the stomach or tight stomach muscles)?					
15. Have cold hand or feet?					

	1	2	3	4	5
How frequently do you . . .	Never	Rarely	Occasionally	Frequently	Very Frequently
16. Have oily skin?					
17. Burp?					
18. Urinate?					
19. Have gassiness?					
20. Have constipation?					
21. Have face flushing or blushing?					
22. Have diarrhea?					
23. Have muscle twitching?					
24. Have shakey hands?					
25. Take shallow rapid breaths?					
Total Part C:					

APPENDIX B

STATE-TRAIT ANXIETY INVENTORIES

The State Anxiety Inventory is a series of 20 statements describing emotional experience at the present moment. Subjects rate these according to four degrees of intensity.

The Trait Anxiety Inventory is a series of 20 statements describing general emotional experiences. Subjects rate these according to four degrees of intensity.

APPENDIX C

DAILY LIFE CHANGE QUESTIONNAIRE*

*Adapted for this study from Richard Rahe's "Recent Life Change Questionnaire" (1974, with update 1975) and Thomas Holmes' "Schedule of Daily Experience" (1970).

Daily Life Change Questionnaire

Each of the following items has a space beside it for each day of the coming week. If, during the course of the week, any of the items applies to you, put an X in the appropriate box. If one should apply more than once in a single day, indicate this by putting the number of occurrences in that box. Begin the chart on the day you receive it, and indicate the day by circling it and writing in the date. If you come to the end of the chart before a week is up, continue by going back to Monday on the left hand side. Do not mark any space which does not apply.

Name _____

Date _____

ITEM:	MON	TUE	WED	THU	FRI	SAT	SUN
A. HEALTH:							
1. Have you had an illness or injury which kept you in bed today or was less serious than described above?							
2. Have you had a change in eating habits?							
3. Have you had a change in sleeping habits?							
4. Have you had a change in your usual type and/or amount of recreation?							
5. Have you had dental work?							
B. WORK/SCHOOL:							
6. Have you done a new type of work within your current job?							
7. Have you changed your work hours or conditions?							
8. Have you had a change in your responsibilities at work/school, foreexample: more or less responsibilities?							
9. Have you experienced troubles at work or school with your boss or teachers or with co-workers or co-students?							
C. HOME AND FAMILY:							
10. Have you had a change in residence?							
11. Have you had a change in family "get-togethers"?							
12. Has there been a change in health or behavior of a family member (illness, accident, drug or disciplinary problems)?							
13. Has there been a change in arguments with your spouse?							
14. Have you experienced in-law problems?							
15. Have you experienced a separation from your spouse due to work, travel, or marital problems?							
16. Have you experienced a reconciliation with your spouse?							

ITEM:	MON	TUE	WED	THU	FRI	SAT	SUN
17. Have you had a gain of a new family member through the birth of a child, adoption of a child, or a relative moving in with you?							
18. Has your spouse begun or ceased work outside the home?							
19. Has a child left home due to marriage, to attend school, or for some other reason?							
D. PERSONAL AND SOCIAL:							
20. Have you experienced a major personal achievement?							
21. Have you make a change in your personal habits? For example, have you changed your type of dress, friends, or life-style?							
22. Have you experienced sexual difficulties?							
23. Have you begun, ceased or changed schools or colleges?							
24. Have you had a vacation?							
25. Have you experienced a change in your religious beliefs?							
26. Have you changed your frequency or type of social activities (i.e., clubs, movies, etc.)?							
27. Have you had a minor violation of the law (i.e., speeding ticket, traffic warning)?							
28. Have you had legal troubles?							
29. Have you changed your political beliefs?							
30. Are you beginning a new, close, personal relationship?							
31. Have you had a "falling out" of a close personal relationship?							
32. Have you had girlfriend/boyfriend problems?							
33. Have you had a loss or damage to personal property?							
34. Have you had an accident?							
35. Have you made a major decision regarding your immediate future?							
E. FINANCIAL:							
36. Have you made a moderate purchase such as a T.V., stereo, etc.?							
37. Have you taken on a major purchase such as a car, a home, business property, etc.?							
38. Have you experienced a major change in finances, such as increased or decreased income or credit rating difficulties?							

In the spaces below, record briefly the day to day health changes which you experience. These might include minor accidents, injuries, cuts, bruises, eyestrain, backache, headache, toothache, earache, stomach ache, muscle strain, coughing, sneezing, running nose, bloody nose, allergic reactions, nausea, vomiting, diarrhea, shortness of breath, skin rash, acne, athlete's foot, hay fever, sunburn and the like. If you can, give some brief reason for a symptom, such as: "Sore eye due to irritation of contact lens," or "Sore muscles due to hiking yesterday."

Also give some general indication of your general state of thought, feeling, and behavior, for example: nervousness, tension; elation, moodiness, irritability, anxiety, anger, fatigue, etc. In general, include the signs, symptoms, and inconveniences of everyday life which usually pass unnoticed. Be as complete as possible.

MONDAY: HEALTH CHANGES	GENERAL EMOTIONAL & BEHAVIORAL STATE.
TUESDAY: HEALTH CHANGES	GENERAL EMOTIONAL & BEHAVIORAL STATE.
WEDNESDAY: HEALTH CHANGES	GENERAL EMOTIONAL & BEHAVIORAL STATE.
THURSDAY: HEALTH CHANGES	GENERAL EMOTIONAL & BEHAVIORAL STATE.
FRIDAY: HEALTH CHANGES	GENERAL EMOTIONAL & BEHAVIORAL STATE.
SATURDAY: HEALTH CHANGES	GENERAL EMOTIONAL & BEHAVIORAL STATE.
SUNDAY: HEALTH CHANGES	GENERAL EMOTIONAL & BEHAVIORAL STATE.

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