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AN INVESTIGATION OF STRESS AND LEISURE TIME ACTIVITY BETWEEN TWO GROUPS OF STUDENTS

by

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A professional paper submitted in partial fulfillment of the requirements for the degree
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The purpose of this study was to investigate the amount of anxiety (stress) between two groups of students: (a) those who had predominantly physical recreational activity and (b) those who had predominantly non-physical leisure time activity. A questionnaire was designed to obtain a population of College of Education 1977 summer school students at Montana State University. Sixty randomly selected students who met the researcher's criteria were divided into two equal groups depending on their recreational pursuits. Each individual was then administered Zuckerman and Lubin's Multiple Affect Adjective Check List. The data received from the survey was statistically analyzed by a $t$ test of the means at the .05 level of significance.

The $t$ test value which was calculated did not approach the critical value of 2.00 and was not significant for the difference in the amount of stress between the groups. The data did not support a connection between amount of stress and type of recreational activity.

The results indicate that there is no relationship between stress and leisure use. This conclusion disagrees with the relationship between leisure and stress suggested in the available literature that was reviewed. Recommendations by the investigator include further study in this area with a larger population, more control of variables, a more sensitive instrument, and a control group or more specific recreational groups.
Chapter 1
INTRODUCTION

Modern Americans are challenged to meet an ironic situation: they are provided with vast amounts of leisure time, but they are required to effectively utilize those hours of freedom from work. They are also faced with greater physical and mental stresses and with learning to cope with or to alleviate anxieties. Robert Straus discussed the situation in a 1973 publication:

... this dilemma is the trend toward shorter and shorter working days, working weeks, working years, and earlier and earlier displacement or retirement from work. Added then to relatively meaningless working lives is the growing spectrum of leisure time. Few societies around the world have ever experienced a period when most men and women did not have to work during most of their waking hours. Leisure time, as we know it in contemporary societies, is a phenomenon to which man has as yet adjusted very poorly (Chap, 13).

John M. Cooper commented at a 1972 national conference entitled Leisure and the Quality of Life that:

... leisure may be the curse of the latter half of the 20th century... [Fortunately, however,] leisure is instinctively or knowingly selected as an antidote to the adverse effects of compulsory daily activities and the confusion and frustration arising from the densification of urbanization and population (Staley & Miller, 1972, pp. 8 & 28).

Stress, no matter what the source, is increasing in American lives and is manifested in corresponding increases in the number of mental patients, earlier and more frequent heart attacks, and psychosomatic illnesses (Dengerink, Note 1; National Recreation Association, 1960; Nolen, 1975; Selye, 1974b).
People who face these two issues: increased stress and increased leisure time, may be aided in releasing stress by learning and practicing recreation skills to fill their free time. Counseling therapy has been effective in helping individuals learn coping processes and methods to reduce stress (Horswill, Note 2; Passons, 1975; Rimm & Masters, 1974; Rogers, 1961). It was the intent of this study to investigate the dual problem of leisure time and anxiety.

Statement of the Problem

The problem of this study was to investigate the amount of anxiety (stress) between two groups of students: (a) those who had predominantly physical recreational activity and (b) those who had predominantly non-physical leisure time activity.

Need or Purpose of the Study

This study should be of value in four major ways:

1. There is little reference in the literature to the connection between leisure time use and anxiety, although much literature covers recreation and stress as individual topics. This study contributed additional research to both single subjects.

2. Based upon this study counseling services, techniques, and methods may incorporate leisure use (physical or non-physical activities) as therapy or as an adjunct to therapy. Related fields of psychology, psychiatry, and social work may also utilize the results.
3. For students and other individuals the study conclusions may be consulted as a guide for leisure-recreation selection and stress reduction.

General Questions to be Answered

1. Is there a difference in the amount of anxiety (stress) between the two groups of students?

2. Which group has a greater amount of stress?

General Procedure

College of Education 1977 summer school students at Montana State University were randomly selected and assigned to two study groups. Individuals were administered an anxiety measure, and the means of the groups were calculated for comparison.

Delimitations

The researcher delimited the population, the activities, and the time for completing the questionnaire. Only Montana State University College of Education 1977 summer school students were used. The recreational activities fit into either the physical or non-physical categories. Thirdly, individuals were required to return the questionnaires by the second contact, or they were dropped from their group, and the next person on the randomized list was contacted. This procedure insured 100% survey return.
Definition of Terms

Stress. The amount of anxiety a person generally feels as measured by the Multiple Affect Adjective Check List and as defined by Zuckerman and Lubin (1965) as one of "the emotional responses[s] which is assessed by means of verbal reports" (p. 3).

Leisure time activity. Any pursuit for purposes defined as "recreational" by the subjects (see Appendix A for specific activities).

SUMMARY

The contemporary problem of coping with high amounts of stress and filling long hours of leisure time lends itself to an investigation which was the basis of this research. By measuring individuals' general stress and noting the recreational groups to which they belong, the investigator hopefully contributed to an understanding of this American dilemma. "Human life in the 1970's in the United States includes the opportunity and the burden of the leisure time created by technology" (Mendel, 1971, p. 1691), and "we need relaxation between periods of tension. We need to intersperse work and leisure" (Dunn, 1961, p. 141). "The benefits of relaxation and exercise for all people long have been recognized as twin virtues of recreation" (Department of the Interior, 1974, p. 56).
Many authors have written about leisure, recreation, and stress from seemingly unending perspectives. Despite diversity there is one consistent factor of agreement. Leisure, in all of its categories and subdivisions, is a phenomenon of both the culture and the individual. In Martin H. Neumayer's words, "Nations as well as individuals are made or unmade by the way they use their leisure" (Staley & Miller, 1972, p. 21). Likewise, stress is a problem for both the individual and the society since "stress, as a universal human and animal phenomenon, results in intense and distressing experience and appears to be of tremendous influence in behavior" (Lazarus, 1966, p. 2).

This review of literature chapter examined the present day societal and individual concerns pertaining to leisure-recreation from the triad of American institutions: medicine, industry, and education. Additional material was reviewed to present the same three institutions in light of the topic: stress.

LEISURE-RECREATION: SOCIETY'S CONCERNS

The American society's concern with leisure is one of diversity. A definition of leisure-recreation is elusive, and leisure encompasses so many areas that several authors merely congregate fragmented parts and make a general "philosophical" statement about leisure (Staley & Miller, 1972; Kando, 1975; Murphy, 1974). The philosophical view is
usually a culmination of masses of material created by attempts to systematize, to categorize, and to define leisure through adjunct words such as recreation, leisure-time, play, games, activity, and life-style. Each of these words in turn stems from two basic, prevalent schools of thought defining leisure.

One school centers upon the Aristotelian view that leisure is a cultivation of the self, a meditation, and a development of the true spiritual freedom (Kando, 1975). This idealistic view is contrasted to the empirical approach of concretely describing recreational activities (Brightbill, 1960). Thus the literature presents two sides: a definition of leisure as a model for investigation and an ideal or philosophical basis for a second model. It is necessary, then, to look at some institutions in American culture to determine more specific information about the leisure and recreation concept.

**Medicine**

In medicine major importance is assigned to the relationship between recreation and the mental health of society. The Constitution of the World Health Organization adopted in 1946 defined health as "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (1975, p. 1). This concept is supported by the emerging redefinition of mental health and mental illness with aspirations for a community approach to meet the needs of people (Rosenblum, 1971). By considering community needs, health
service workers have identified a general response to spread the illness preventive and curative forces of recreation to all people (Neumeyer & Neumeyer, 1949; Caplan, 1964; Rosenblum, 1971) by alleviating manpower shortages and by developing more effective methods of health service delivery (Carter, 1968). In addition Mendel (1971) suggests a replacement of the 1930's value system, which still lingers today, with a modern version consistent with the 1970's including a new look at mental health and leisure.

Another concern is highlighted on the college campus where rapid change occurs. Neumeyer and Neumeyer (1949) concluded the changes of society produce profound psychological effects. The National Institute of Mental Health (1973) studied the concerns of students in America's colleges and noted a change from those concerns of a few years ago.

Leisure is important for normal individuals and plays a large part in therapy and rehabilitation of the ill. A 1970 estimate indicated one-half of the hospital beds in America were occupied by mentally disturbed patients. Meaningful activity during illness and recuperation through recreation activities coordinated by hospital and community could possibly reduce the incidence of illness (Carlson, Deppe, & MacLean, 1964).
Industry

Not only in the medical world is the concept of leisure-recreation and mental health discovered, but industry has long known of the values and the benefits of recreation for workers (Carlson, et al.). Work attitudes and recreation attitudes bear directly upon one another. A study by Kornhauser (1965) found that occupations, along with personal characteristics, affect mental health. A worker’s occupation is only part of his life, but it is an important aspect. Leisure activity must balance the work activity because "industrialism has limited freedom" (Larrabee & Meyersohn, 1958, p. 38) and because freedom is leisure.

Education

Education is a third American institution concerned with the philosophy that mental health through recreation permeates vast portions of human life. Huizinga notes that "play is to be understood not as a biological phenomenon but as a cultural phenomenon" (1950, Forward). Schools have assumed the responsibility of providing students with leisure and recreation. Program objectives strive to include everything from "wholesome-creative" activities to utilization of school facilities at a maximum level (American Association for Health, Physical Education, and Recreation, 1963). Once again the idea of society's concern in filling free time emerges.
Much like the concerns of society, an individual in America has considerations to make for his well being. Medicine, industry, and education give him information to help in his decisions. An individual cannot survive without health, without work, or without knowledge. From his most comprehensive view the individual is concerned with a philosophy and the lifestyle which comes from that philosophy. According to Dumazedier, "seeking and realizing a style of life gives leisure its greatest significance" (1967, p. 228). Havighurst and Feigenbaum in 1959 studied adult life and found that the most successful life styles included active leisure, even though modern leisure presented "mixed blessings" for the individual. Brightbill agrees that "recreation is a way of living which can and should lead to full personality development" (1961, p. 38). The element of recreation is prominent.

Medicine

An individual's self-concern often focuses upon self-preservation and self-actualization: physical and mental health. A study and classification of hospital patients by Simon and Chastain (1960) suggests patient welfare is reflected in patient activity patterns. It is suspected that any person who is ill exhibits a definite pattern of activity as does a healthy person. Shewak (1964) concurs that a
person with good mental health exhibits a capacity and a willingness to play. One psychiatrist noted the earliest signs of psychoses and neuroses are in the disturbance of natural habits of recreation. Conversely, "the first signs of recovery are shown in a return to natural recreative functioning" (Martin, 1958, p. 15). Another psychiatrist "sees recreation as an integrating experience because it represents . . . an extension of the rhythm of the individual" (Plant, 1960, p. 3). Leisure, it seems, plays an integral part in individual mental and physical health. On the level of self-actualization one quotation summarizes much of the literature: "as a mirror for reflecting our personalities, leisure is unsurpassable" (Brightbill, 1960, p. 67).

Industry

The thread of industry tied to leisure and recreation winds around the individual. A worker's good mental health is positively correlated to job satisfaction, even though the two are not equal (Kornhauser, 1965, p. 328). This study also indicates attitudes and adjustments are characteristic of categories of work and life. Vocational guidance and job placement key upon this aspect of the man and his work. Another study suggests white-collar workers emphasize the character of work itself and job freedom, whereas blue-collar workers are attracted to the physical labor easiness, economic regard, and cleanliness of jobs (Lyman, 1966). There is a thread, "If I am happy
and healthy, I work harder and better."

**Education**

Last of the concerns for the individual to be considered in this review of literature on the topic of leisure and recreation is that of education as related to mental health. Education programs in leisure time activities extrapolate valuable qualities from "pure" recreation, valuable because the "pure" factors enable leisure education programs to draw more people, to help more people, and to teach more people than previous programs. The qualities are the voluntary choice of activity, the emotionalized content of the endeavor, and the practical applications to life (Kraus, 1964). Outdoor recreation is one phase of leisure and recreation in which it was found by Lamphear (1970) that selected recreation activities are a function of personality. Also in this type of leisure activity, Gunn (1973) concluded recreation is a need-fulfilling behavior and found significant interrelationships among need states, personality traits, and outdoor recreation activities. The implication for the individual is that through his choice of activity in leisure education he may fulfill some psychological needs as well as meet educational requirements.

Much akin to the literature of leisure the volume and content of material written on stress is gigantic and diverse. Authors covering the spectrum of advertizers and analysts, philosophers and physicians, reporters and researchers have scribed countless thoughts on the
subject. In this collection of information the viewpoints of both society and individuals is available. Stress is not limited to one group or to one person; stress is prevalent in present-day American society and touches every member of that society in some manner.

STRESS: SOCIETY'S CONCERNS

The first use of the term "stress" in the field of psychology was as an index reference in the 1944 edition of Psychological Abstracts. The term came from engineering as a replacement for using the word emotion in which the idea of pressure was missing. Since this first use of the term the American society has developed a wide range of definitions for stress and its components. A common definition does not exist. Present-day meanings include (a) extreme situations, (b) conflict, (c) force, strain or pressure, (d) frustration, (e) psychological threat, (f) physical assault by a noxious stimulus on tissue systems, and (g) disequilibrium (Lazarus, 1966).

More elaborate definitions are formulated by an author depending on his particular line of investigation or interest such as:

(a) Psychological stress: "a nonspecific response to any type of demand, pleasant or unpleasant, made on the body" (Selye, 1974a, p. 75).

(b) Stress: the perceived imbalance between the environment's demands and the individual's response capacity to meet those demands
(McGrath, 1970).

(c) Stress: "the body's physical, mental, and chemical reactions to events or circumstances that frighten, excite, confuse, endanger, or irritate, or the sum total of all those things the body does to prepare for 'fight or flight'" (Nolen, 1975, p. 48).

Choosing one term to represent all of the definitions noted above may not cover all of the ideas specifically. However, stress is the most encompassing of the terms and is generally accurate as a title for this phenomenon.

Medicine

The primary concentration of research on stress has been in the field of medicine. Since health is inextricably linked to stress, society has invested much time in the investigation of this relationship. Dr. Hal A. Dengerink (Note 1) listed in a Montana State University lecture important aspects of stress and its health influence in American society. His major thesis was that as a phenomenon, stress contributes to disease and poor health in both acute and chronic forms.

Life crises increase the likelihood of disease and illness. Stressful lifestyles are related to illness and psycho-physiological disorders. Stressful medical interventions can reduce the level of health and major cultural stresses influence autonomic disorders.

Important in this review was the fact that if individuals in a society were ill, potentially the society as a whole would not function fully.
A relatively recent study by Manuck, Hinrichsen, and Ross (1975) illuminates the role of stress in a segment of the larger population. Undergraduate college students were used to investigate the relationship between life-stress, locus of control, and illness-related treatment seeking behavior. It was found that the high-stressed group of individuals was more likely to seek treatment during "risk" times than the low-stressed group of people. Students who looked for external control of their stress sought treatment more often than students who established internal controls for their stress. Medicine, then, plays a role of thermometer for society's measure of its well-being which in turn is influenced by the amount of stress incident in the population.

Industry

Alexis de Tocqueville once remarked that Americans are constantly and feverishly busy. He also noted that as parity is reached, disparity is more and more evident (Kerr, 1965). The disparity caused by productivity in industry is evidenced in the widening distribution of increased disposable time, increased quantities of disposable human energy, and increased disposable income (Carlson, et al., 1964). Despite disparity pressure is applied by society for continued economic growth.

Men and women . . . find their jobs empty, meaningless and intrinsically unsatisfying and their tasks so fragmented that they have little or no identification with the purpose or with the end product and can feel no loyalty and no sense of pride.
Their jobs become hateful necessities, leaving a large unfilled void (Straus, 1973, Chap. 13).

In many cases work is indistinguishable from other activity, and work is used as a measure of man's value. Linder (1970) believes such a measure dehumanizes an individual, and notes, in addition, that a society cannot grow without productive, strong individuals.

Industry is concerned with what work means to the workers and what consequences work produces in society since industry cannot function without manpower and since society provides industry with its raison d'être. Stress emerges in this vein: stressed workers reduce output through a decline in interest and an increase in illness. Toffler (1970) suggested that technological change will increase the level of psychological stress in society. The demands and pressures of coping with automation, masses of new information, and rapid change reshapes normal methods of reaction. Society is thrust into developing new responses in short amounts of time. This relationship of economic growth to the scarcity of time is reflected in heightened levels of stress.

**Education**

Public interests and needs are reflected in the curriculum of educational institutions. If a void develops in society, education provides training of and materials for individuals to fill the space. Such is the case with stress. As the topic became more and more
popular, education turned to teaching people about stress. Prevention programs surfaced with suggestions for the control of stress and the control of situations which are conducive to stress. The Task Force on Community Mental Health (Rosenblum, 1971) outlined three types of preventive programs: (a) a program aimed at a total population in a defined geographic area, (b) a milestone program, and (c) an anticipatory program for high risk groups.

One physician says that "stress needs to be learned to be handled wisely" (Selye, 1974a, p. 145). Another doctor claims stress is both positive and negative; the negative kind must learn to be controlled. He believes that prolonged and unproductive stress is hazardous, and he therefore teaches his patients how to control their stress. Educational guidelines include (a) look for a reason for being "up-tight," (b) express anger, (c) take three to four, 5 to 10 minute breaks a day, (d) learn to relax and use relaxation techniques if necessary, and (e) use no alcohol or tranquilizers during stressful times (Nolen, 1975).

Two cardiologists, Holmes and Rahe (1967), extensively studied stress. They found that excessive changes are difficult to manage and cause stress; too many switches at once should be avoided. By rating themselves on a life changes chart people can learn what stresses to avoid. "As we shape the community towards meeting the needs of individuals for safety, security, and personal significance throughout the
life cycle, we become truly engaged with mental health rather than mental disorder" (Rosenblum, 1971, p. x).

In addition to helping society learn necessary new information, education teaches lifelong skills. Career education specifically delineates for the school population what can be expected "on the job" and how to prepare mentally and physically for a desired position. It is already known that differential psychological effects correspond to positions in occupational structure (Kornhauser, 1965) and that ballooning job complexity entails similar amounts of stress in concert (Thompson, 1966). Society, then, supports and is enhanced by its educational content.

STRESS: INDIVIDUAL'S CONCERNS

Medicine

In the review of literature on stress much of the medical material is concerned with the individual. There seems to be a consensus that future answers lie in investigation of (a) what stress is, (b) how it is created, (c) how to avoid stress, or (d) how to handle stress. If single cases can be analyzed and any of the questions completed, the possibility of understanding stress in the general society will be increased. The simplest approach is to look at single incidences of symptoms. Nolen (1975) said the physically weakest organ or body system will be troublesome when a person is under emotional stress.
Response patterns are examined by researchers to learn about individual stress reactions. The strength of a stress response is determined by the strength or degree of threat the person perceives; the quality of the response depends on the type of coping process an individual uses, which in turn depends on cognitive appraisal of the stress. Altogether the appraisal plus the coping process plus the degree of threat equals the strength of the response to stress (Lazarus, 1966). One type of specific response pattern is frustration. In a 1972 study subjects who described severe crises and subsequent reactions were examined. Response flexibility did not account for the consistency of the reactions found; however, frustration seemed to be the reason for the crises reactions. It appeared to this researcher that frustration tends to sensitize an individual to perceive subsequent crises similarly to previous crises when actually the two crises are different (Pollack, 1972).

As Lazarus (1966) cited previously, commented, "stress ... results in intense and distressing experiences and appears to be of tremendous influence in behavior." By evaluating both physical and emotional systems a comprehensive view of stress can be obtained. "[The] important role of personality factors in producing stress reactions requires that we define stress in terms of transactions between individuals and situations, rather than of either one in isolation" (Lazarus, 1966, p. 5). Added to an evaluation of an
individual's stress responses or symptoms, analysis of interaction with outside variables is necessary. One definition of stress views it as a function of both the individual and the environment. The author wrote, stress is the "perceived imbalance between environmental demands and [the] response capacity of [the] individual to meet [those demands]" (McGrath, 1970, p. 17). In 1948, Menninger wrote that as personality disturbances increase in personal relationships, in family and community interaction, and in work there is a greater need to reduce stress. A balance is required.

Mental health becomes synonymous with physical health, spiritual health, and social health, and can be defined as balance maintained between the interacting and interrelated energy fields of body-mind-spirit and the environment . . . . We need relaxation between periods of tension (Dunn, 1961, p. 141).

If individuals lead balanced lives, good health is a likely result.

Well-being calls for zest in life. High-level wellness for the individual is defined as an integrated method of functioning which is oriented toward maximizing the potential of which the individual is capable. It requires that the individual maintain a continuum of balance and purposeful direction within the environment where he is functioning (Dunn, 1961, p. 4).

A prolific writer and medical researcher, Hans Selye, in 1975 commented that the "human body is constructed to maintain physical and mental health—to work for a purpose which can be accepted as worth the effort" (Selye, 1974a, p. 75).
Industry

As Toffler (1970) suggested, automation has led to less need in industry for the individual and has consequated less room for work-self-identification. Work is a job, but to find fulfillment there is frustrating (Neulinger, 1974). Stress is produced by this frustrating situation, and men must find ways to handle the tension and frustration. Human-resources planning has come to the attention of corporations. It is felt that a healthy person will likely enjoy his job more and therefore be more productive; this is the company's goal. In response to the health imperative, some businesses made fitness programs available to their employees. Individuals are coping with job frustration in their culture which values work and which provides outlets for work tension.

Education

An important role of education is to teach alternatives of several kinds for life situations. Concomitant in such a role is the thread of this review: stress. If other outlets are available, stress can be alleviated. A situation is less likely to be perceived as a threat and reacted to stressfully when alternatives to threat are present (Lazarus, 1966). Variable responses can be learned, and consequently an individual may construct answers to these queries.

1. What are the conditions and processes that determine when stress reactions will be produced and when they will not?
2. What happens when a stimulus is reacted to as stressful?

3. What are the patterns of reaction that define the presence of stress? (Lazarus, 1966).

"Faced with high-density living, few chores, frozen meals, canned or frozen entertainment, crowded highways, [education faces] a major challenge to provide some active, participating, and meaningful things for people to do" (Straus, 1973, Chap. 13).

SUMMARY

The literature reviewed for this paper presents society and the individual with pertinent concerns in the areas of recreation and stress. These concerns are highlighted in view of medicine, industry, and education—three American institutions. Each area presented leisure and recreation ideas congregated from relative studies. Stress material was gleaned from research and discussed. It is from these aspects of leisure and stress in society and in individual life that an investigation of stress between students who have a majority of physical leisure activity as compared to students who have predominantly non-physical recreational activity was formulated.
Chapter 3

PROCEDURES

The general stress or anxiety of students who participate in leisure time recreational activities was the focus of this investigation. A comparison of the amounts of stress generally felt by those who have predominantly physical leisure activities and those who have a majority of non-physical recreational pastimes was made. Contained in this chapter is a description of the population, the method of collecting data, the statistical hypothesis, and the statistical measure and analysis that were used in this investigation.

Population Description and Sampling Procedure

Some Montana State University 1977 summer school students were the population of this study. Students in the College of Education were asked at registration on June 20, 1977, to complete a questionnaire (see Appendix A). The questionnaires returned that day met three criteria: (a) the name was legible, (b) the address and/or phone number was given, and (c) the difference between the physical activities checked and the non-physical activities checked was greater than or equal to one.

Usable questionnaires were grouped into physical and non-physical categories which were then coded and randomized. The first 30 students of each of these two groups were selected to participate in the study. If any of the 30 students in a group did not respond to the Multiple
Affect Adjective Check List survey after two contacts (via mail or personal visit), they were deleted from the group. The next person on the randomized list was inserted as a replacement. This method was continued until 30 individuals in each group responded. The physical group required one replacement individual; the non-physical group required five replacement members.

**Control of the Variables**

Any contaminating variables such as age, sex, educational level, economic level, marital status, health status, and the amount of time spent in any recreational activity were controlled through randomization.

**Data Collection**

A questionnaire was designed to obtain names, addresses, and/or phone numbers, and recreational activity participation from students. Sixty individuals were contacted by mail or personal visit from the researcher to complete the In General form of the Multiple Affect Adjective Check List. This instrument, developed by Zuckerman and Lubin, "was designed to fill the need for a self-administered test which would provide valid measures of three of the clinically relevant negative affects: anxiety, depression, and hostility" (1965, p. 3). The inventory is brief, requiring only five minutes to administer, measures either state or trait (general) anxiety, and is reasonably
valid (Buros, 1972). "Odd-even and plus-minus reliabilities for both the General and Today forms range from .17 to .92 (median .72) for different groups of subjects. Retest reliabilities (7-8 days) tend to be moderate (.54 to .70) for the General form (Buros, p. 271)." The anxiety measures for the Today form and the In General form correlate at .43 for a college sample (Buros, 1972). The Multiple Affect Adjective Check List is subject to response sets, although Zuckerman's data "suggest that response sets do not appear to be an important influence in [the] Multiple Affect Adjective Check List" (p. 18).

Normative data has been established for groups of normal individuals and for groups of patients on the Today form. These groups are (a) job applicants, (b) college students, and (c) five different hospital patient groups. The studies indicated no relationship between age and education. Research has been conducted on the following stressful situations: (a) examination anxiety, (b) perceptual isolation, (c) stage fright, (d) changes induced by pictorial stimuli, (e) clinical observations, and (f) drug use. "One of the possibilities offered by . . . the Multiple Affect Adjective Check List is the bridging of the theoretical chasm between affect as a clinical phenomenon and affect as a normal stress phenomenon" (Zuckerman & Lubin, 1965, p. 22). The lower the score on the inventory the less anxiety an individual generally feels.
The Multiple Affect Adjective Check List was accompanied by a cover letter (see Appendix B, page 35), and the mailed surveys also contained a self-addressed stamped envelope. Instructions for completion were printed on the survey.

Statistical Hypothesis

The two general questions posed in Chapter 1 are repeated here.

1. Is there a difference in the amount of anxiety (stress) between the two groups?

2. Which group has a greater amount of stress?

Null hypothesis. There is no significant difference in the amount of anxiety (stress) between students who have predominantly physical recreational activity and students who have predominantly non-physical recreational activity.

Analysis of Data

Means were computed for both groups, then a t test of the means was calculated. The .05 level of significance was used.

Precautions for Accuracy

The data received from the questionnaire and the Multiple Affect Adjective Check List inventory was compiled by hand. The totals were rechecked to insure accuracy and completeness. Mathematical calculations were double checked for errors.
SUMMARY

In this chapter the researcher has discussed procedures used for obtaining and analyzing information obtained in this investigation on stress of 60 College of Education students at Montana State University during the summer of 1977. These students reported a predominance of either physical or non-physical recreational activities.
Chapter 4

RESULTS OF DATA

The purpose of this study was to determine if there was a significant difference in the amount of anxiety (stress) between students who have a majority of physical recreational, leisure activity and students who have predominantly non-physical, sedate recreational activity. Means and a t test of the means were calculated for the study. A significance level of .05 was chosen.

Null hypothesis. There is no significant difference in the amount of anxiety (stress) between students who have predominantly physical recreational activity and students who have predominantly non-physical recreational activity.

The physical recreation group had a mean of 4.27 on the Multiple Affect Adjective Check List; the non-physical group had a mean of 4.40 and a greater amount of stress than the physical activity group. The t test value calculated for the amount of stress was -.17*. This value does not approach the critical value of 2.00. The null hypothesis was accepted. It appears that the amount of stress experienced by students is not associated with the difference in their recreational activity.

*df = 58, critical value of t = 2.00 for df = 60 at .05 level of significance
The data obtained from the Multiple Affect Adjective Check List was analyzed by a $t$ test of the means. The difference in the amount of stress of the two groups of students was not found to be significant at the .05 level of significance.
Chapter 5
SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

SUMMARY

The investigation of this research was to determine the amount of anxiety (stress) students who reported a majority of physical leisure time pursuits experienced in relation to students who had a predominance of non-physical recreational activity. The Multiple Affect Adjective Check List was used to measure the individual's anxiety. This instrument was administered through the mail or during a personal visit by the researcher to 60 College of Education students at Montana State University who were randomly selected at 1977 summer quarter registration and who subsequently met several criteria.

The data received from the questionnaire was statistically analyzed by a t test of the means. The .05 level of significance was used in this analysis. Non-significant findings resulted in retention of the null hypothesis.

CONCLUSIONS

The null hypothesis was that the amount of anxiety (stress) between students who have predominantly physical recreational activity and students who have predominantly non-physical recreational activity is of no significant difference. It was accepted and retained. Stress and types of recreational pursuits in the physical and non-
The literature cited in Chapter 2 discussed leisure and stress as concerns for society and individuals in terms of medicine, industry, and education. This study does not support a connection between the topics. Possible explanations for these results may be that the study population was too small, the test instrument was not sensitive enough to measure stress in normal individuals, or some variable other than recreational activity type interfered with the amount of anxiety students experienced. If there really is a connection between leisure and stress, future research should be able to uncover it.

RECOMMENDATIONS

The researcher suggests these recommendations for further study:

1. Replicate the investigation with a larger population.

2. Extend the research to include specific control of variables such as: age, sex, education level, economic level, occupation, marital status, health status, and amount of time spent in any recreational activity.

3. Expand the number of groups in the study to include a control group and/or more specific recreational activity groups.

4. Utilize a different test instrument to measure the anxiety (stress) of individuals. An instrument more specific to the variable of stress and/or an instrument with higher validity and reliability
would be preferred.
Appendix A

POPULATION DIFFERENTIATING QUESTIONNAIRE

June 20, 1977

Dear College of Education Student,

This questionnaire is being given to you in order to obtain information for developing a population to be studied in a Master's project. Please take a moment to complete the form and then place it in the box by the exit. Any comments will be appreciated. Thank you.

Ruthie Mizner
Educational Services

Name: ________________________________

MSU phone and/or address: ________________________________

Please check the recreational activities in which you participate during your leisure time. If you do not spend any time in leisure activity, leave the spaces blank. Insert any activity I have missed.

( ) Tennis
( ) Swimming
( ) Racket/Handball
( ) Skiing (snow/water)
( ) Softball/Baseball
( ) Basketball/Volleyball
( ) Running/Jogging/Walking
( ) Backpacking/Hiking
( ) Biking
( ) Reading
( ) Writing (poetry, etc.)

( ) Crochet/Knit/Needlepoint
( ) Sewing
( ) Macrame'/Crafts
( ) Watching T.V.
( ) Listening to music
( ) Musical Instrument
( ) Painting/Sculpting
( ) Woodworking/Leather
( ) Gardening
( ) Other (specify) __________________

Comments:
Subjects' Additions to "Other" Category of Questionnaire

1. Physical activities:
   - Climbing
   - Hunting
   - Bowling
   - Dancing
   - Golf
   - Tubing
   - Badminton
   - Fencing
   - Canoeing
   - Archery
   - Camping
   - Car driving
   - Motorcycling
   - Spelunking
   - Rifle shooting
   - Riding horses
   - Scuba diving
   - Snowmobiling
   - Lifting weights

2. Non-physical activities:
   - Fishing
   - Sauna
   - Chess
   - Singing
   - Drawing
   - Ceramics
   - Card games
   - Fly-tying
   - Photography
   - Pool shooting
   - Raising dogs/other animals
   - Cooking/Baking
   - Visiting friends
   - Movie/Drive-In
Dear College of Education Student:

During summer quarter registration you filled out my questionnaire. From your response you have been selected as a member of one of two comparison populations for my Master's professional project: people who have predominantly physical recreational activity or people who have more non-physical activity.

I would appreciate your cooperation once again in completing the enclosed adjective check list. It will only require five minutes of your time. I have provided a stamped, self-addressed envelope for return of the check list to me. Please mail it by July 20th.

Your identity is unnecessary for the study. The coding you see by your name is simply for recontacting purposes. I will be happy to share the survey results with you; just sign the form below and enclose it with the check list. If you have any questions, please call me at 994-4484.

I am looking forward to hearing from you. Thanks for helping me with the study.

Sincerely,

Ruthie Mizner
Graduate Student
Guidance and Counseling

I would like to know how this all comes out. Please send me the results of this survey.

NAME: ____________________________________________________________

ADDRESS: ________________________________________________________
November 4, 1977

Ruthie Mizner
P.O. Box 512
East Helena, MT 59635

Dear Ms. Mizner:

Thank you for your recent communication regarding inclusion in your dissertation of copyright instruments published by our company.

Due to the restricted nature of psychological tests it is the general policy that these not be bound with theses and dissertations. Our company adheres to this policy which I am certain will be understood by your committee.

I look forward to seeing the results of your research and to receiving a copy of your dissertation. In the meantime if I can be of assistance in any other way please do not hesitate to contact me.

Sincerely,

Robert R. Knapp

RRK/nss
REFERENCES
REFERENCES

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