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The effects of sedative music of test-anxiety in college students : presented to the graduate faculty of the University of the Pacific in partial fulfillment of the requirements for the degree of Master of Arts

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THE UNIVERSITY OF THE PACIFIC

CONSERVATORY OF MUSIC

THE EFFECTS OF SEDATIVE MUSIC ON TEST-ANXIETY IN COLLEGE STUDENTS

AUDREE SIMER O'CONNELL

Presented to the Graduate Faculty
of the
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Department Chairman or Dean:

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ABSTRACT

Thirty-seven volunteers participated in a study examining the effects of sedative music on test anxiety in college students. The experimental group used sedative music with progressive muscle relaxation and a suggestion of imagery before the scheduled hour of a final examination. The control group had self selected relaxation with no music. Baseline measurements were taken in blood pressure and pulse rates. These measurements were repeated and an anxiety inventory was administered before and after treatment. Results indicated no significant differences between the two groups in the physiological measurements. Verbal report from the anxiety inventory gave significant results at the .05 level.

ACKNOWLEDGMENTS

There are many people who have been a supporting and cooperative force throughout this study: Dr. George Nemeth and his Fall Semester, 1983 Music History students; the Music Therapy students who aided in data tabulations;, and Jan Black who created such clean, clear figures for data. My friends in the Graduate Music Therapy division, Patrick Martin, who energetically and consistently trained the students in physiological measurements; and, Sharon Larson, who graciously aided in videotaping, have lovingly been with me since the beginning.

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I also want to express my love and appreciation to my family: the memory of my mother, Annabel; my father, T. W. Simer; my brother Scott; my sisters and

their husbands, Sandra and John Walper, Betty and Joel Rowley, and the most loving and creatively curious three children, Daniel, Erin and Brian. Their good humor and loving acceptance and forgiveness have been a strong foundation for my growth.

I am also greatful to a nameless man in an intensive care unit who, in a semi-comatose state, thought a middle-aged Music Therapy intern with her autoharp, was "a blond angel who played her harp and sang me to a lovely sleep".

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Introduction

Music has been used to aid in relaxation and stress reduction since David's playing and singing of Psalms to King Solomon. It has been noted that music and medicine were integral in the training and practice of physicians from 800-1800 A.D. (Taylor, 1981). Music has been observed and researched during the process of modifying stressful or anxious behavior in dental offices (Hanser, Martin, & Bradstreet, 1982) surgical units (Taylor, 1981) and more recently in labor and delivery rooms in the medical setting (Hanser, Larson, & O'Connell, 1983). Music has been used in similar ways to modify behavior and aid in anxiety reduction with psychiatric patients. Results of research on anxiety assessment have appeared in psychiatric and psychological literature since 1894 (Hamann, 1982). We are all made aware in our newspapers and periodicals of the importance of stress reduction and relaxation in our complex society.

The effects of stress and anxiety on our young people have become very alarming. Every year approximately 5,000 teen-agers commit suicide; as many as half a million more make the attempt. A

three hundred percent increase has occured since 1955. Suicide is the second leading cause of death between the ages of fifteen and twenty-four, after traffic accidents; many of these are suspected suicides. The pressure to perform or "measure up" is building in the elementary grades and the pressure to excel in school and be accepted by a prestigious college is overwhelming to many as they leave secondary school.

One of the predominant areas for heightened anxiety and stress in the life of a college student occurs at examination time. Therefore, finding ways to lower test anxiety among college students is an important area of research. This study will test the effectiveness of sedative music on test anxiety for a final college examination.

Review of Literature

In recent years, a variety of behavioral techniques has been developed to treat anxiety reactions and induce relaxation. Some anxiety reduction methods include systematic desensitization, cue controlled relaxation, electromyograph (EMG) biofeedback training, anxiety management training, use of hypnotic elements, imagery, and practice examinations (Kinch, 1983).

Musically induced relaxation, including music with some combination of the above, has been widely observed and well researched from physiological and psychological as well as behavioral standards. The anxiety reducing effects of music have been measured by galvanic skin response (GSR) (Jellison, 1975; Peretti & Swanson; Zimny & Wiedenfeller, as cited by Rohner, 1980). Rohner also cites Landreth & Landreth (1974) concerning effects on decreased heart rate; Foster & Gamble (1906)on increased respiration; Webster (1973) on pulse rate and blood pressure; and increased stomach contractions (Sears, 1959).

Historically, some of these techniques were observed in the early 1900's. In 1914, a phonograph was first used in the operating room of one Dr. Evan O'Neill Kane for "calming and distracting patients from the horror of the situation". According to Light, Love, Benson, & Morch (1954) laboratory experiments with animals and humans around the turn of the century documented physiological effects of music in cardiac output, respiration rate and volume, pulse rate, blood pressure and body secretions. In 1920, music was shown to effect change in mood and attitude (Gatewood, 1921).

In 1926, the National Association for Music in Hospitals was formed. Pickrell, et al. (1954) installed radio reception by each patient bed in the Duke University Hospital and in wall units on the Pediatric Unit. Music has successfully aided in reducing anxiety then; in the medical setting: dental offices (Gardner, Licklieder, & Weisz, 1960; Hanser, Martin, & Bradstreet, 1980); surgical units (Taylor, 1981); and more recently in the labor and delivery room (Burt & Korn, 1964; Clark, McCorkle, & Williams, 1981; Hanser, Larson & O'Connell, 1983). In the latter study, comments such as "I couldn't have made it without the music", and, "The music really made a difference", were noted. In the Hanser, Martin, Bradstreet study (1982) verbal report was very positive but physiological data were inconclusive.

Music has been used with biofeedback to aid in relaxation training of spastic cerebral palsied adults (Scartelli, 1982). Music and biofeedback training significantly reduced the degree of muscle tension as compared to biofeedback alone. The use of sedative music in the tension and anxiety experience with mental patients during dental procedures was researched by Jacobson (1956). Again, verbal report supported the use of sedative music in relaxation of

anxiety.

Psychological measurements of relaxation due to music have been varied and somewhat contradictory (Bilder, Olson, & Breen, 1974; Fisher & Greenberg, 1972; Middleton, Fay, Kerr & Amft, 1944; Smith & Norris, 1976; Taylor, 1973).

Relaxation alone has been used to aid in anxiety reduction. Benson (1975) and Bernstein & Borkovec (1973) have researched areas of: comparative effects, influence on personality, stressful imagery, tape recorded versus live presentation, etc. Since 1948, there has been a trend toward more refined measurement of physiological effects of relaxation and the determination of behavioral problems most suited to treatment by relaxation training. Progressive muscle relaxation has been used in many anxiety reduction training programs.

Dr. Robert S. Eliot, who addressed the American College of Cardiology in Dallas, Texas recently was quoted by the Associated Press. "Stress helps cause 1,200 sudden deaths each year and contributes to heart disease in people whose bodies react strongly to stressful situations....Stress can cause death from heart disease just as much as obesity, a high cholesterol diet, high blood pressure or diabetes".

Dr. Berger (1984) describes a new field of medical research-psychoneuroimmunology-which is exploring the link between stress and disease. He states that Dr. Steven Locke of the Psychology Department of Beth Israel Hospital at the Harvard Medical School studied healthy Harvard undergraduates and found that the white blood cells in students who felt they had a high degree of stress possessed only one-third the tumor-fighting abilities of the white blood cells in students who did not perceive their lives as stressful.

Stress and anxiety also lead to extreme psychological breakdown. A high school in Plano, Texas and another on the East Coast have suffered epidemics of student suicides. Several major cities have set aside millions of dollars for studies leading to the understanding and prevention of suicide.

Because the effects of stress and anxiety in high school and college students are so prevalent, prevention is a significant concern. Awareness of stress and anxiety precedes prevention and can begin early in life. Emery & Krumboltz (1967) have stated a classical conditioning paradigm:

1 - a child brings home an exam with a lower grade than parents expected and s/he is punished;

2 - the repeated association with exams and punishment produces anxiety;

3 - the freshman year in college heightens it; thus there is increased level of competition with more complex subject matter.

When the fear becomes overly intense, it adversely affects learning and can cause a distortion of the subject matter even though a student may be adequately prepared.

According to Hyman (1975), the anxiety response: 1) narrows considerably the perceptual field; and, 2) precludes an adequate assessment of the problem solving task.

Several researchers have examined the effect of music on anxiety responses. Hyman's (1975) summary of research concerning autonomic stress measures cited the following conclusions:

1) There appears to be an interaction between anxiety level and some types of music stimuli;

2) This interaction is more apparent by means of verbal report measures than by means of physiological measures; and,

3) The effects of pre-classified sedative music on anxiety tend toward verbal reports of a decrease in anxiety level, but these effects are

unpredictable due to the numerous factors influencing an individual's response to music.

In a more recent study, Rohner (1980) observed the effects of familiar and affective music on state anxiety. Although there were no significant differences between the effects of familiar versus affective music, a trend was noted that sedative music had some anxiety reducing effects upon high state anxiety subjects. Rohner suggests "a less structured composition with instructors to use the music as a relaxant and a suggestion of peaceful, calming imagery would help suggest another research result." He suggested further research pairing music with relaxation training and/or the effects of music on all students whether high or low anxiety.

Statement of the Problem

Will sedative music paired with progressive muscle relaxation and the suggestion of peaceful, calming imagery, have an effect on test anxiety levels of college students? The purpose of this study is to examine the possibility of these effects.

Operational Definitions

Dependent measures used for pre-post treatment assessment of anxiety are:

1) Physiological measurements of blood pressure and pulse rates
2) A-State Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1968)
3) Behavioral measurements by videotape.

Physiological measurements of blood pressure and pulse rates were chosen because most studies observing the effects of music in relaxation consistently used these measurements. Other measurements of galvanic skin response, respiration, pupillary action and muscle tonus appear to be less reliable, given the difficulty of measurement.

Blood pressure was measured by using ten different blood pressure cuffs obtained from the School of Pharmacy of the University of the Pacific. Pulse rates were measured by stopwatch for the duration of a minute.

The A-State form of the Test Anxiety Questionnaire designed by Spielberger, Gorsuch, and Lushene (1968), was used in this study to measure anxiety. It consists of a rating scale for each of twenty statements describing various feeling levels pertaining to "right now, at this moment"; "I feel calm"; "I feel secure"; "I feel self confident"; "I am relaxed", etc. The students were required to respond "not at all",

"somewhat", "moderately so", and "very much so".

The complete STAI (State-Trait Anxiety Inventory) was designed as a research instrument for investigating anxiety in normal adults. It has also been useful in measuring anxiety in different populations such as junior and senior high school students and medical and neuropsychiatric patients (Spielberger, Gorsuch, and Lushene, 1968).

Levitt (1967, as cited by Hyman, 1975) cited the STAI as the most carefully developed instrument for investigating anxiety from a theoretical and methodological viewpoint. Hyman points out that stability coefficients for the A-State scale tend to be low as would be expected for a measure that is influenced by situational factors.

Fidgeting, nail biting, playing with beards or other facial parts, playing with pencils, drumming fingers, keeping eyes open or any extraneous movements that were non-functional to the task constituted an operational definition of anxious behavior.

The independent variables were:

1) Sedative music with relaxation/imagery (for the experimental group) versus
2) Self-selected relaxation (for the control group).

Music used in the experimental group was "Tarashanti" (Georgia Kelly, harpist; Heru Records). This composition filled requirements of the definition of sedative music by Gaston (1951): "Sedative music is of a sustained melodic nature, with strong, rhythmic and percussive elements largely lacking. This results in physical sedation, and responses of an intellectual and contemplative nature rather than physical".

Null Hypotheses

The null hypotheses used in this study are the following:

1) There will be no difference in blood pressure between the sedative music and relaxation group, and the self-selected relaxation group without music;
2) There will be no difference in pulse rates between the sedative music and relaxation group, and the self-selected relaxation group without music;
3) There will be no difference in behavioral observations between the sedative music and relaxation group, and the self-selected

relaxation group without music; and,

4) There will be no difference in self report of anxiety between the sedative music and relaxation group, and the self-selected relaxation group.

Method

Subjects

Thirty-seven undergraduate music history students (25 female, 12 male) participated in the study. All students had been advised that: 1) they would be cooperating in a project to measure test anxiety among college students; 2) their blood pressures and pulse rates would be taken; 3) they would be asked to respond to a short anxiety inventory; and, 4) they would be videotaped prior to and during the pre-examination measures. They were further advised that three baseline measurements would be needed for physiological measures and those would be taken on Monday, Wednesday, and Thursday of the week prior to the examination on Saturday. Volunteer participation notices were signed by all students (Appendix B).

Setting

The setting was a Music History classroom at the

University of the Pacific, Stockton, California. After randomly assigning students to two groups, (19 in the experimental and 18 in the control group) the control group moved to a neighboring Music Theory room. Room temperatures, University maintenance procedures and other possible interruptions were controlled as much as possible. No late arrivals were allowed to participate.

Apparatus

Music, "Tarashanti", by Georgia Kelly, harpist, on Heru Records, Topanga, CA, was provided by a Sony Stereo Cassette-Corder CFS 55. The blood pressure and pulse rates were measured by blood pressure cuffs and stopwatch. Videotape analysis was attempted by two Panasonic Omnivision II VHS Video Recorders and color video cameras.

Design

The design used in this study was the Experimental Group - Control Group: Randomized Subjects (See Table I).

Training of Examiners

Fifteen undergraduate student examiners were trained by a graduate student who was experienced in blood pressure measurements. During three sessions student examiners became proficient in proper

TABLE I

EXPERIMENTAL DESIGN

Group	Pre-Treatment Measurements	Treatment	Post-Treatment Measurements
Sedative music with progressive muscle relaxation and a suggestion of imagery	Blood pressure and pulse rates A-State Anxiety Inventory	Sedative music with progressive muscle relaxation and a suggestion of imagery	Blood pressure and pulse rates A-State Anxiety Inventory
Self-selected relaxation	Blood pressure and pulse rates A-State Anxiety Inventory	Self-selected relaxation	Blood pressure and pulse rates A-State Anxiety Inventory

placement and use of blood pressure cuff and stethescope, accurate reporting of systolic and dyastolic measurements. Accurate taking and recording of pulse rates were discussed and practiced until the graduate trainer's measurements were duplicated within three points.

Procedure

The experiment took place in neighboring music classrooms in a University annex building. The week preceding the examination, baseline blood pressure and pulse rates were taken.

On the day of the final examination, all students were offered free breakfast by the University Food Service Department, as the examination was scheduled at 8:00 a.m. Subjects/students met one hour earlier than the scheduled examination time.

As students entered the classroom, they were randomly assigned to one of two groups: 1) progressive muscle relaxation followed by a suggestion of peaceful, calming imagery and fifteen minutes of sedative music; or, 2) self-selected relaxation without music.

When all students were assigned and seated, video cameras began taping procedures. Physiological

measures were taken and recorded as quickly and quietly as possible in both groups by the trainees. When completed, the A-State form of the Anxiety Questionnaire was circulated and directions were read aloud (See Appendix C). Five minutes was allowed for completion.

The experimental group, seated in desk chairs in the classroom, was guided through progressive muscle relaxation (See Appendix D). Relaxation was followed by fifteen minutes of sedative music with a suggestion to imagine a peaceful, restful place. The control group, also seated in desk chairs in a neighboring classroom, was advised to "relax in the easiest way you can in the remaining fifteen minutes".

At the completion of music or relaxation time, physiological measures were repeated and the A-State form was again administered. At this time videotaping was concluded, and the experimenter thanked both groups for their participation.

The groups were quietly united in their regular classroom and the final examination began.

Results

Test anxiety of college students was measured by blood pressure and pulse rates, and the A-State Anxiety

Questionnaire. The physiological measurements were analyzed by the Mann-Whitney U statistical test.

Null Hypothesis One stated: There will be no difference in blood pressure between the music/relaxation group and the self-selected relaxation group without music. This study showed no significant results in systolic measurements of blood pressure (U = 119.5, N.S.) (See Figures I and II).

Null Hypothesis Two stated: There will be no difference in pulse rates between the music/relaxation group and the self-selected relaxation group without music. This study showed no significant results in pulse rate measurement (U = 156, N.S.) (See Figures III and IV).

Null Hypothesis Three stated: There will be no difference in behavioral observations between the music/relaxation group and the self-selected relaxation group without music. Two video cameras were screened previous to the examination and operated by graduate students experienced in their use. Due to failure of the University owned camera we were unable to record any behavioral observations on that videotape.

FIGURE I

MEAN BASELINE, PRE & POST-TEST CONTROL GROUP COMPARISONS FOR SYSTOLIC BLOOD PRESSURE

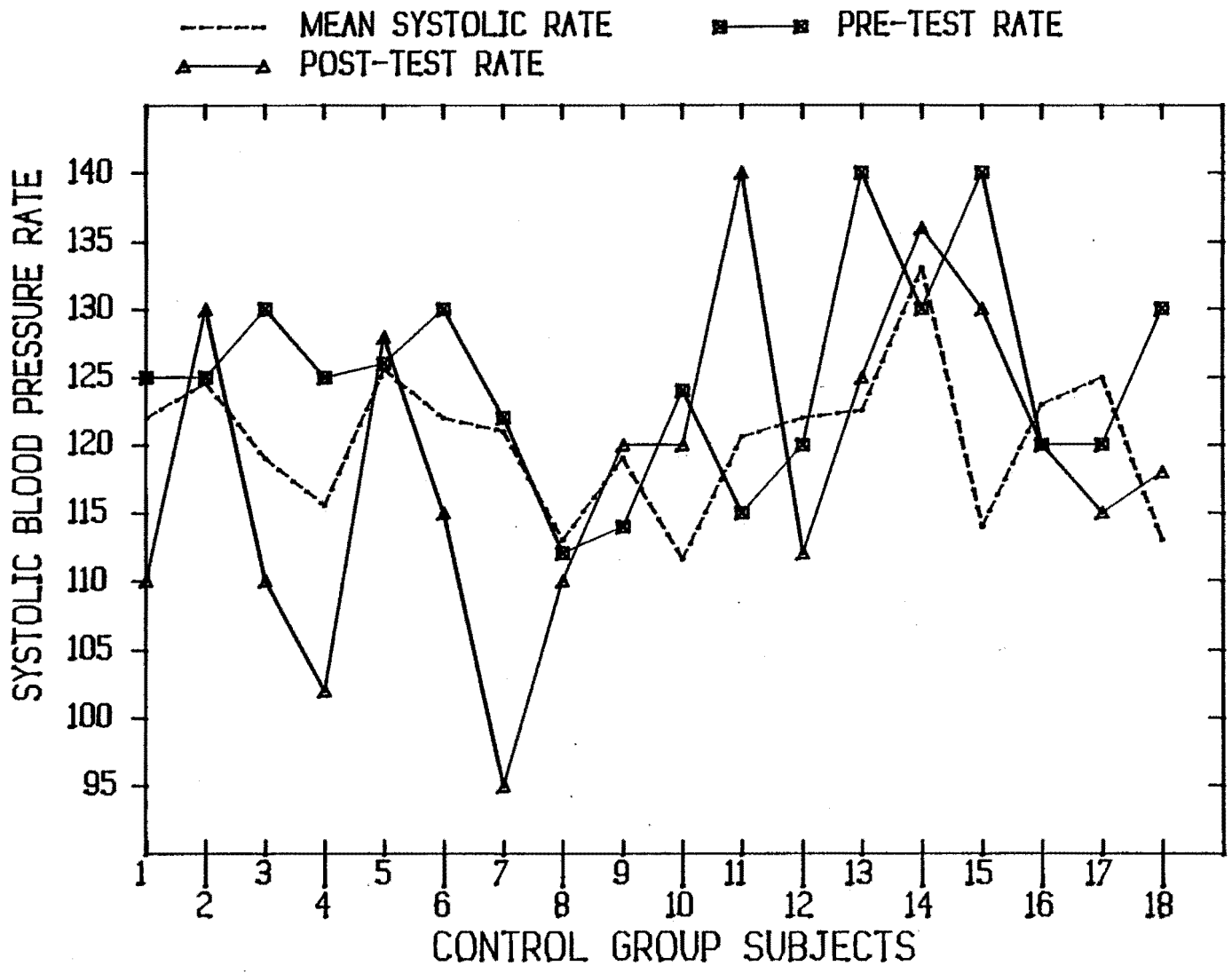
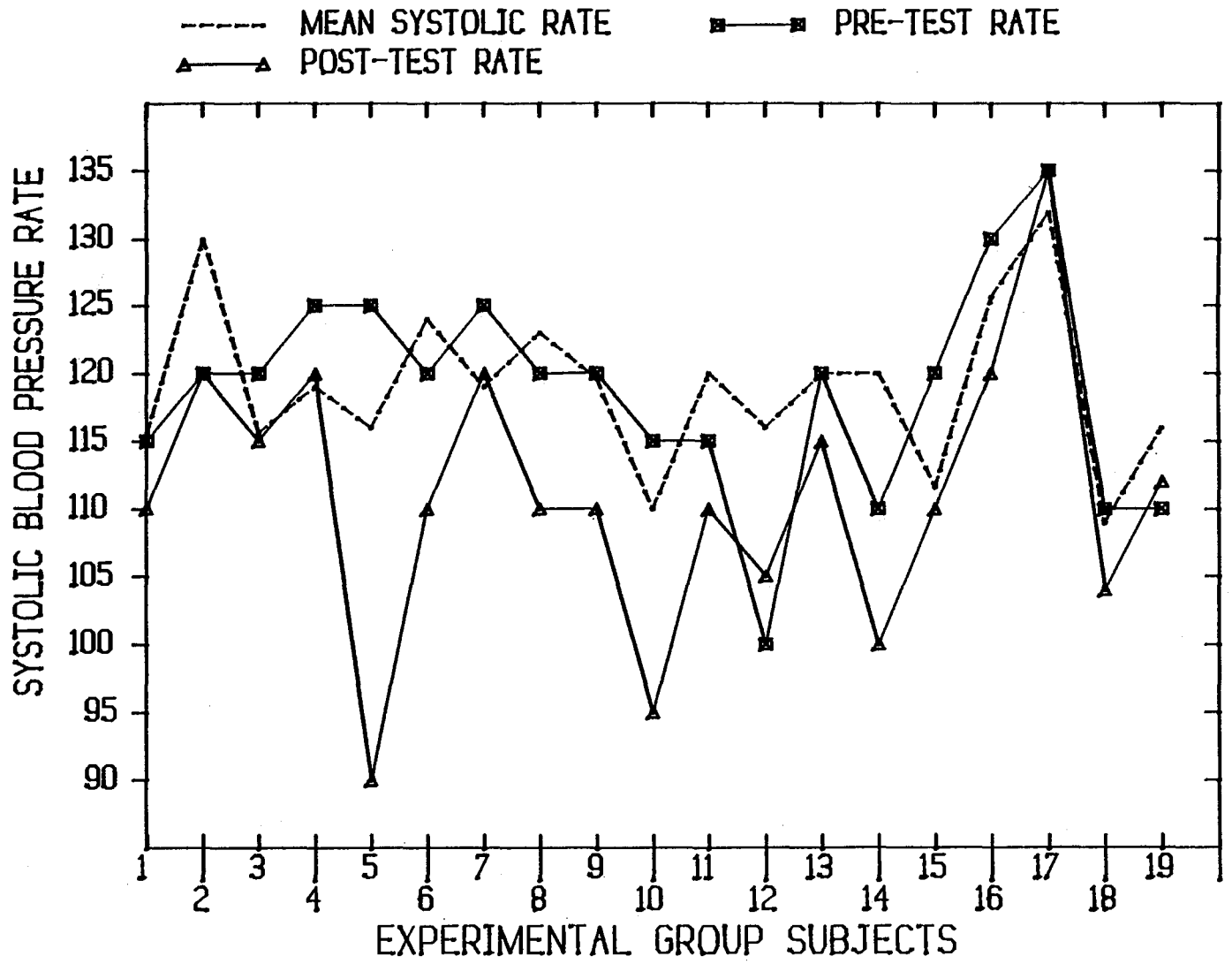
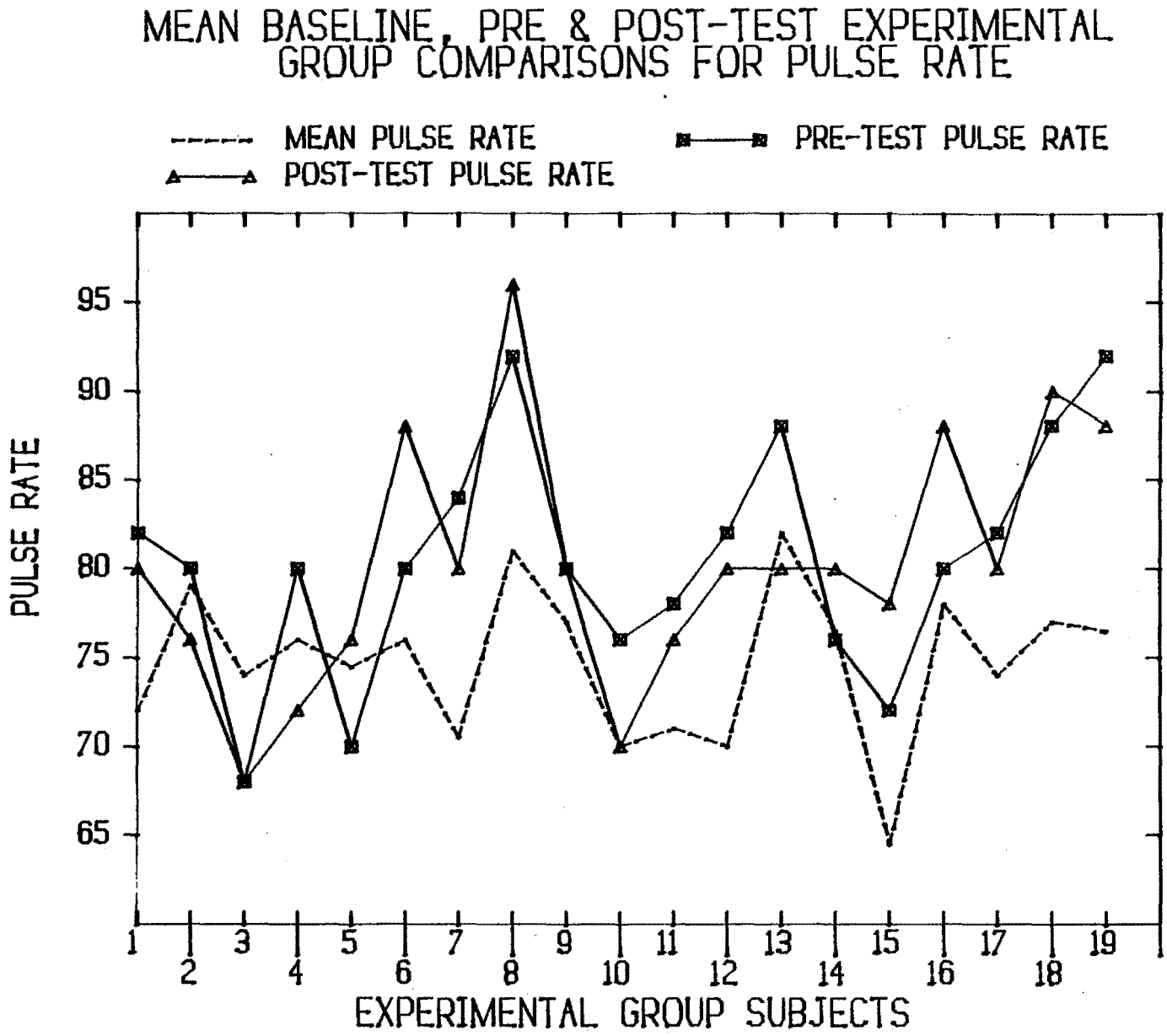


FIGURE II

MEAN BASELINE, PRE & POST-TEST EXPERIMENTAL GROUP COMPARISONS FOR SYSTOLIC BLOOD PRESSURE




MEAN BASELINE, PRE & POST-TEST EXPERIMENTAL GROUP COMPARISONS FOR PULSE RATE
MEAN PULSE RATE
PRE-TEST PULSE RATE
POST-TEST PULSE RATE
PULSE RATE
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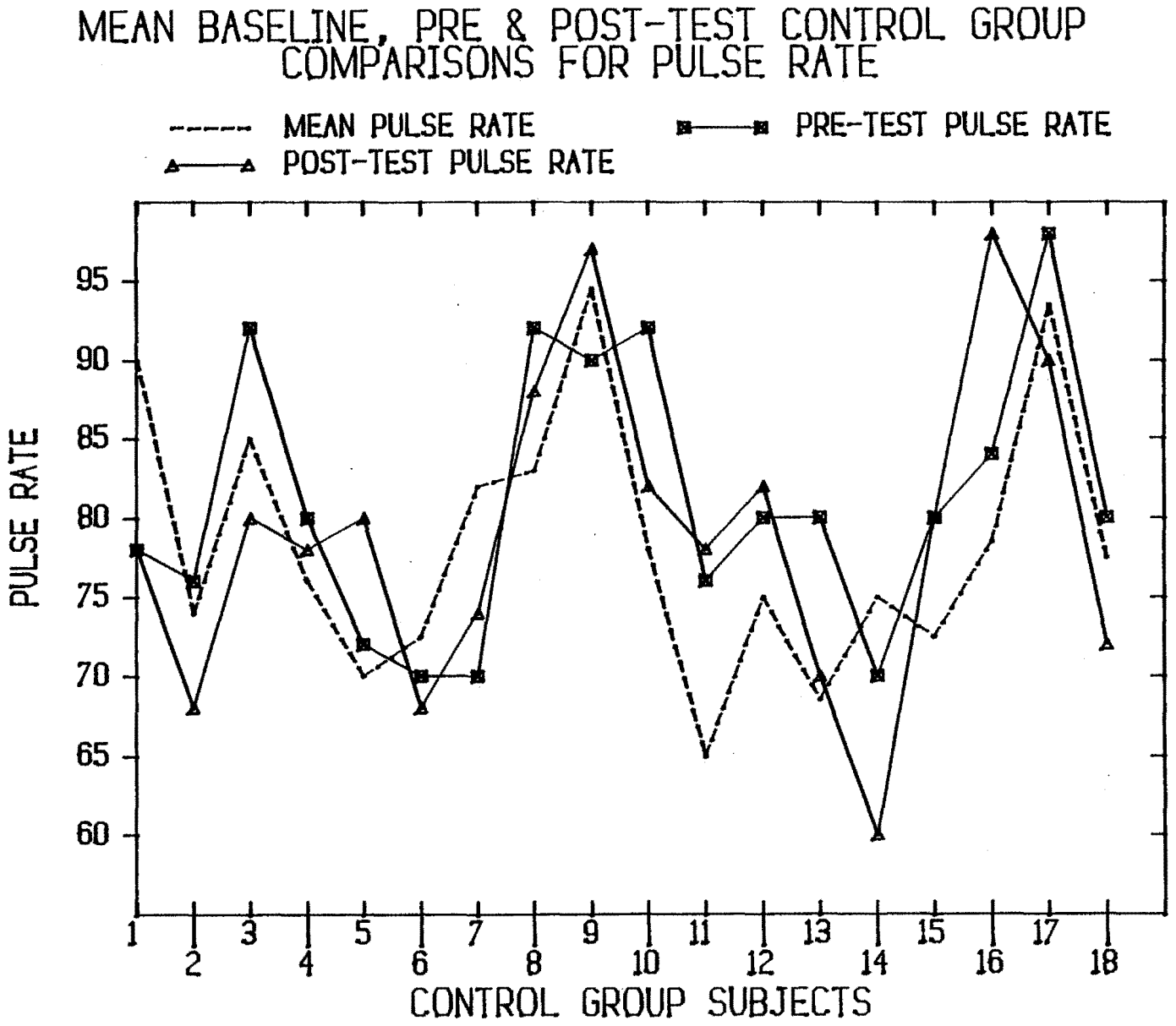
EXPERIMENTAL GROUP SUBJECTS

FIGURE III


MEAN BASELINE, PRE & POST-TEST CONTROL GROUP COMPARISONS FOR PULSE RATE
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PRE-TEST PULSE RATE
POST-TEST PULSE RATE
PULSE RATE
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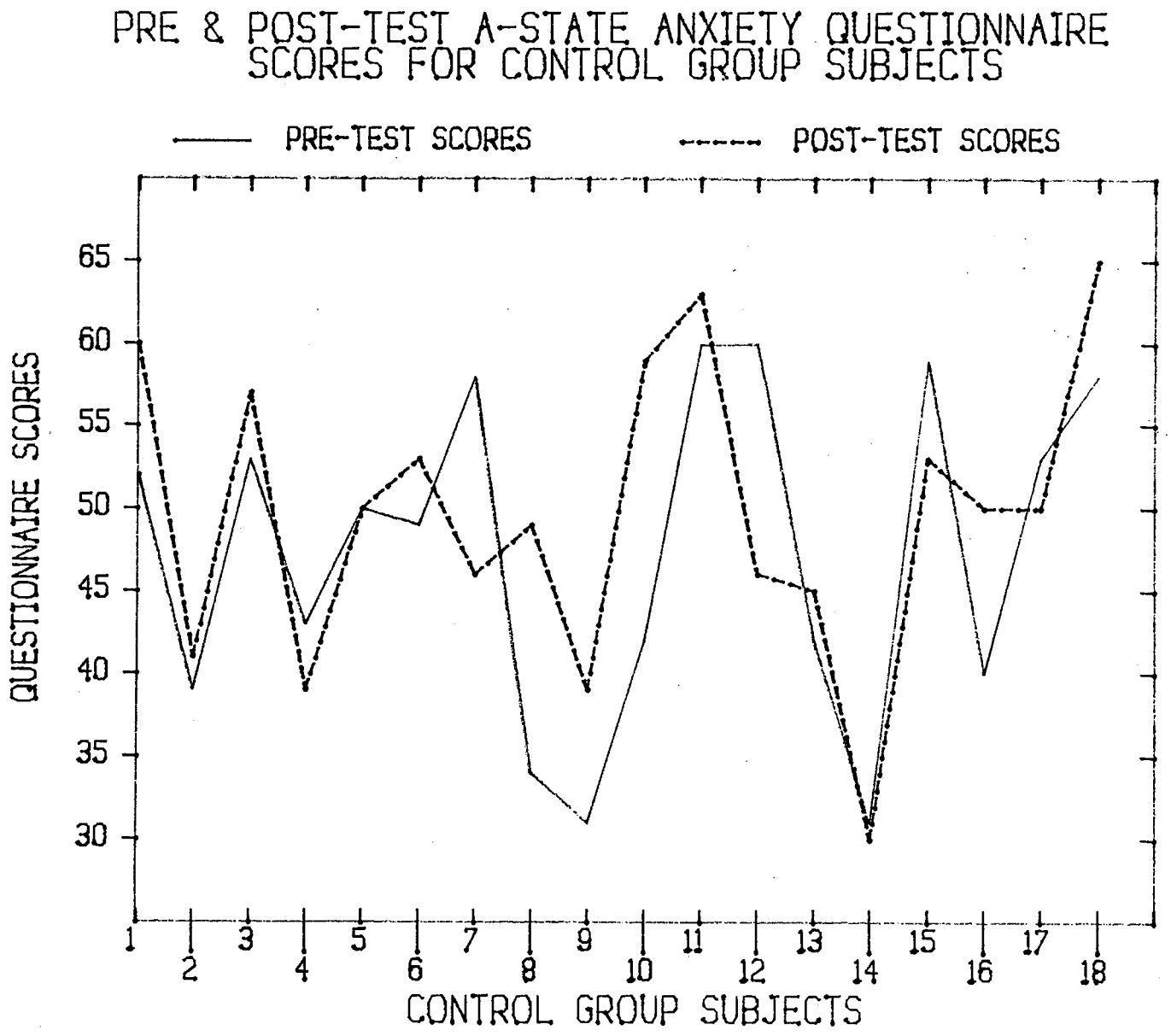
CONTROL GROUP SUBJECTS

FIGURE IV


PRE & POST-TEST A-STATE ANXIETY QUESTIONNAIRE SCORES FOR CONTROL GROUP SUBJECTS
PRE-TEST SCORES
POST-TEST SCORES
QUESTIONNAIRE SCORES
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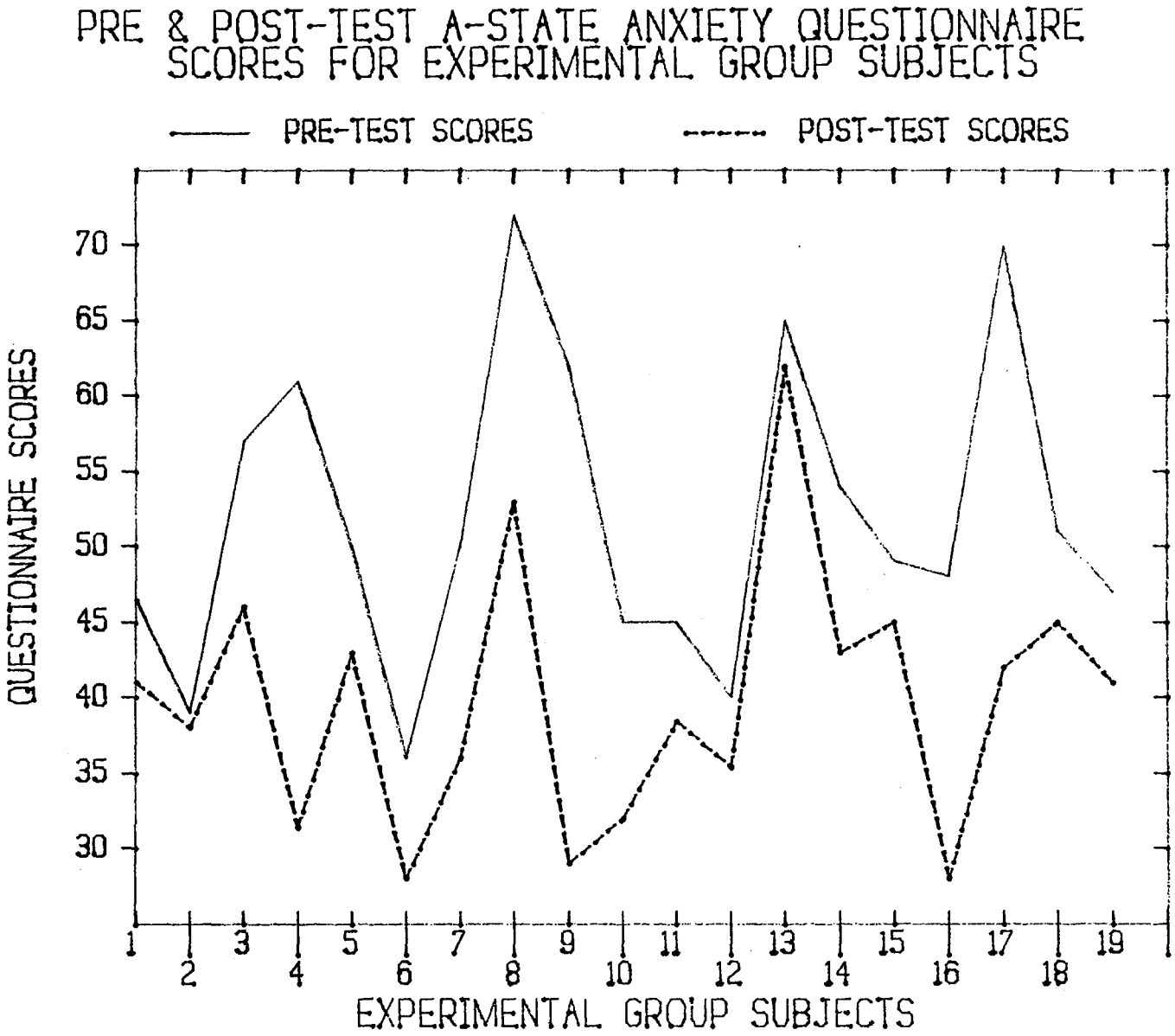
CONTROL GROUP SUBJECTS

FIGURE V


PRE & POST-TEST A-STATE ANXIETY QUESTIONNAIRE SCORES FOR EXPERIMENTAL GROUP SUBJECTS
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POST-TEST SCORES
QUESTIONNAIRE SCORES
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EXPERIMENTAL GROUP SUBJECTS

FIGURE VI

Null Hypothesis Four stated: There will be no difference in self-report of anxiety between the music/relaxation group without music. This study did show significant results ($U = 68$, $p < .05$). These are significant differences. (See Figures V and VI).

The post-test scores of the Anxiety Questionnaire for the music group gave evidence of lower anxiety after music/relaxation. The non-music group gave evidence of higher anxiety after self-selected relaxation. Table of Means follows.

Discussion

This study's null hypotheses stated there would be no difference in anxiety levels as measured by pulse, blood pressure rates and verbal report, between an experimental group of college students receiving sedative music with relaxation/imagery, and a control group with self-selected relaxation. Volunteer undergraduate students were chosen to participate in a particularly anxiety producing situation: the hour preceding their final examination. Results indicate no differential effects between

TABLE II

TABLE OF MEANS

	Control		Experimental		
	Pre	Post	Pre	Post	
Blood Pressure	124.9	118.1	118.1	111	*
Pulse	81	79	80.5	80	
A-State Anxiety Inventory	47.4	55.8	51.9	30.5	**

* = N.S.

** = p .05

groups on blood pressure and pulse rates. However, significant differences between verbal report ratings of the experimental and control groups were observed.

There were three systolic blood pressure rates (1 in the control group and 2 in the experimental) which were measured in the 90 to 100 range on pre or posttests. The reliability of these measurements is questioned due to the possible iatrogenic influence of the examiners.

In studies by Jellison (1972), Hyman (1975), and Hanser, Martin and Bradstreet (1982), physiological measurements of systolic blood pressure, galvanic skin response and/or pulse were not significantly increased or decreased by music stimuli. According to verbal report of subjects, however, music resulted in significan changes in verbal report. The present study also replicates positive effects of music reported by subjects in research by Hanser, Larson and O'Connell (1983).

Landreth & Landreth (1974) showed no apparent changes in heart rates but suggest, "The sound may stimulate involuntary centers in the central nervous system (CNS) that, in turn, bring about physiological reactions that later become involved with conscious

thought. The music may be transmitted first to the higher levels of the listener's brain, where the sound becomes involved with emotion and abstract thought before affecting the physiology". In making the decision to conclude sedative music before the examination begins, Stanton (1975) suggests that it "seemed reasonable to hypothesize that the beneficial influence of background music on highly test-anxious students might well be concentrated in the initial period of task preparation and that continuance of the music while the task was being performed would contribute no additional facilitative effect".

In looking at possibilities for reducing heart rates, lowering blood pressure, and learning to limit anxiety levels through the use of music, an interesting question is posed: Assume a normal "average" resting heart rate of 60 beats a minute. This makes 3,600 per hour; 86,400 per day; 31,536,000 per year. If this rate is reduced by only 1%, a nominal reduction which could be detected by a manual palpation, we would have 3,564 beats per hour; 85,536 per day; 31,220,640 per year. The number of beats per year is now 315,360 less than before. If this reduction continues for 20 years, the heart would beat 6,307,200 times less. This means 73 days

less work for the slightly slower heart. This is significant (Note 1).

Future work might consider similar design with videotaping procedures for behavioral measurements. In informal observations during videotaping, many anxious behaviors were noticed. Hanser, Larson, & O'Connell (1983) showed significant differences in behavioral observations. This might be a significant area for future researchers, given the problems cited regarding physiological measurements.

Research efforts could examine: 1) music students of high anxiety levels; 2) non-music students with all levels of anxiety; or, 3) high anxiety students only. The effects of imagery were not tabulated specifically. This area could be considered in future study. Post-test measurements at the termination of the examination time might also be feasible.

If we seek to reduce the stress and anxiety of our daily lives in a complex society; if we seek to avoid the effects of stress and anxiety which lead to early death from high blood pressure and other heart diseases; and, if we seek to aid in the training of a less anxiety ridden younger population,

it is vital that we see all our options for a more relaxing environment. This study adds to the research in this field.

APPENDIX A

RAW DATA

RAW DATA

FIGURE I

SYSTOLIC BLOOD PRESSURE RATE

CONTROL GROUP

Subject	Baseline 1	2	3	Mean	Pre-Test	Post-Test
1	120	120	127	122	125	110
2	120	125	129	124.6	125	130
3	115	122	120	119	130	110
4	120	110	120	115.6	125	102
5	120	130	130	125.6	126	128
6	122	120	125	122	130	115
7	123	120	120	121	122	95
8	110	110	112	113	112	110
9	115	120	120	119	114	120
10	115	110	110	111.6	124	120
11	118	118	126	120.6	115	140
12	126	130	110	122	120	112
13	120	118	130	122.6	140	125
14	145	130	125	133	130	136
15	120	120	122	114	140	130
16	125	120	125	123	120	120
17	130	125	120	125	120	115
18	120	110	110	113	120	118

RAW DATA

FIGURE II

SYSTOLIC BLOOD PRESSURE RATE

EXPERIMENTAL GROUP

Subject	Baseline 1	2	3	Mean	Pre-Test	Post-Test
1	118	120	112	115.6	115	110
2	130	130	130	130	120	120
3	120	115	115	115.6	120	115
4	120	120	115	119	125	120
5	120	110	118	116	125	90
6	120	120	132	124	120	110
7	125	110	120	119	125	120
8	120	130	120	123	120	110
9	120	120	116	119.6	120	110
10	110	112	118	110	115	95
11	125	118	118	120	115	110
12	110	120	118	116	100	105
13	120	120	120	120	120	115
14	120	115	125	120	110	100
15	110	110	115	111.6	120	110
16	132	120	125	125.6	130	120
17	140	125	135	132	135	135
18	120	105	100	109	110	104
19	120	110	118	116	110	112

RAW DATA

FIGURE III

PULSE RATE

CONTROL GROUP

Subject	Baseline 1	2	3	Mean	Pre-Test	Post-Test
1	88	96	90	90	78	78
2	74	74	74	74	76	68
3	86	84	86	85	92	80
4	72	76	80	76	80	78
5	68	72	70	70	72	80
6	68	70	80	72.5	70	68
7	78	90	78	82	70	74
8	84	78	88	83	92	88
9	90	98	96	94.5	90	97
10	76	80	78	78	92	82
11	60	68	68	65	76	78
12	72	76	78	75	80	82
13	62	66	78	68.5	80	70
14	80	70	76	75	70	60
15	68	78	72	72.5	80	80
16	78	78	80	78.5	84	98
17	90	97	94	93.5	98	90
18	78	70	85	77.5	80	72

RAW DATA

FIGURE IV

PULSE RATE

EXPERIMENTAL GROUP

Subject	Baseline 1	2	3	Mean	Pre-Test	Post-Test
1	74	70	72	72	82	80
2	74	84	80	79	80	76
3	70	78	74	74	68	68
4	72	68	88	76	80	72
5	78	60	86	74.5	70	76
6	74	72	82	76	80	88
7	74	70	68	70.5	84	80
8	72	82	90	81	92	96
9	72	90	70	77	80	80
10	72	68	70	70	76	70
11	72	72	70	71	78	76
12	70	70	70	70	82	80
13	86	79	82	82	88	80
14	82	76	72	76.5	76	80
15	68	64	62	64.5	72	78
16	76	80	78	78	80	88
17	70	80	72	74	82	80
18	78	86	68	77	88	90
19	80	78	72	76.5	92	88

RAW DATA

FIGURE V & VI

A-STATE ANXIETY QUESTIONNAIRE

Subject	Control Group		Experimental Group	
	Pre-Test	Post-Test	Pre-Test	Post-Test
1	52	60	46.4	41
2	39	41	39	38
3	53	57	57	46
4	43	39	61	31.4
5	50	50	50	43
6	49	53	36	28
7	58	46	50	36
8	34	49	72	53
9	31	39	62	29
10	42	59	45	32
11	60	63	45	38.4
12	60	46	40	35.4
13	42	45	65	62
14	31	30	54	43
15	59	53	49	45
16	40	50	48	28
17	53	50	70	42
18	58	65	51	45
19			47	41

Control Group

Mean Average Pre-Test = 47.4

Mean Average Post-Test= 55.8

Experimental Group

Mean Average Pre-Test = 51.9

Mean Average Post-Test= 30.5

APPENDIX B

VOLUNTARY PARTICIPATION FORM

VOLUNTEER PARTICIPATION FORM

I, _____ volunteer to participate in a research project investigating test anxiety in college students. I understand the following:

1) that I will have my blood pressure and pulse rates taken;
2) that I will be asked to complete a short anxiety inventory; and,
3) that I will be videotaped just prior to the examination.

I understand that I must be at the examination site at 7:00 a.m. on December 12, 1983, and that if I arrive late, I will not be allowed to participate.

APPENDIX C

INSTRUCTIONS TO STUDENTS

INSTRUCTIONS

BEGIN VIDEOTAPING

"Good Morning. We are going to begin taking your blood pressure and pulse rates at this time.

TAKE MEASUREMENTS

Anxiety Inventory questionnaires are being passed to you at this time. I would like to read through the directions with you. Please look at the inventories for a moment.

READ INSTRUCTIONS AND ADMINISTER QUESTIONNAIRE

Are there any questions?
We would appreciate no talking from this time on."

At this time I am going to ask you to make yourselves as comfortable as possible.

Please close your eyes and let your body relax as much as you can.

Loosen any tight clothing and uncross your arms and/or legs.

I would like you to pay attention to your breathing now and just breathe normally.

Pay attention to my voice only, and your slow, deep, inhaling and exhaling.

We will begin by relaxing your feet and move up through the body.

Please tighten feet muscles now and hold tight.
Ready?
Tighten, tight, tight - - - relax. Let's do that again. (Repeat)

Please tighten calf muscles now and hold tight.
Ready?
Tighten, tight, tight - - - relax. Let's do that again. (Repeat)

Please tighten thigh muscles now and hold tight.
Ready?
Tighten, tight, tight - - - relax. Let's do that again.
(Repeat)

Please tighten buttocks muscles now and hold tight.
Ready?
Tighten, tight, tight - - - relax. Let's do that again.
(Repeat)

Please tighten stomach muscles now and hold tight.
Ready?
Tighten, tight, tight - - - relax. Let's do that again.
(Repeat)

Please tighten chest muscles now and hold tight.
Ready?
Tighten, tight, tight - - - relax. Let's do that again.
(Repeat)

Please tighten fingers and hand muscles now and hold tight.
Ready?
Tighten, tight, tight - - - relax. Let's do that again.
(Repeat)

Please tighten lower arm muscles now and hold tight.
Ready?
Tighten, tight, right - - - relax. Let's do that again.
(Repeat)

Please tighten upper arm muscles now and hold tight.
Ready?
Tighten, tight, tight - - - relax. Let's do that again.
(Repeat)

Please tighten shoulder muscles now and hold tight.
Ready?
Tighten, tight, tight - - - relax. Let's do that again.
(Repeat)

Please tighten neck muscles now and hold tight.
Ready?
Tighten, tight, tight - - - relax. Let's do that again.
(Repeat)

Please tighten neck muscles now and hold tight.
Ready?
Tighten, tight, tight - - - relax. Let's do that again.
(Repeat)

Please tighten eye muscles now and hold tight.
Ready?
Tighten, tight, tight - - - relax. Let's do that again.
(Repeat)

Please tighten forehead muscles now and hold tight.
Ready?
Tighten, tight, tight - - - relax. Let's do that again.
(Repeat)

Your muscles now are fully relaxed. Please continue to pay attention to your deep easy breathing. It might be helpful to visualize a quiet, peaceful, restful scene - - - perhaps a favorite place of yours.

As you do this I will begin playing music which will continue for approximately fifteen minutes.

MUSIC BEGINS AND CONTINUES FOR FIFTEEN MINUTES

I would like for you to begin focusing again on this room.

I will begin by counting backward from ten to one, and you will gradually awaken from your relaxed state feeling more alive and more creative and able to face this day with assurance.

Ready? 10-----9-----8-----7 (you are feeling energy flow into your body)-----6-----5 (you are feeling more awake and your breathing is still relaxed and easy)-----4-----3 (you are coming back to this room and this group and you are almost entirely back with us)-----2-----1.

And now you are fully awake and feeling refreshed and ready to begin your day in a relaxed way.

We will now begin taking your blood pressure and pulse rates for the last time. We will ask you to complete the anxiety inventory one last time.

FINISH ALL MEASUREMENTS

I would like to thank you for your participation in this study. I hope that what you have experienced will be of help.
Good luck."

END VIDEOTAPING

APPENDIX D

A-STATE ANXIETY INVENTORY

STATE TRAIT ANXIETY INVENTORY

A-STATE FORM

Developed by C. D. Spielberger, R. L. Gorsuch and R. Lushene

NAME _____ DATE _____

Directions:

A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you FEEL right now, that is, AT THIS MOMENT. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

1 - Not at all
2 - Somewhat
3 - Moderately so
4 - Very much so

1.	I feel calm	1 2 3 4
2.	I feel secure	1 2 3 4
3.	I am tense	1 2 3 4
4.	I am regretful	1 2 3 4
5.	I feel at ease	1 2 3 4
6.	I feel upset	1 2 3 4
7.	I am presently worrying over possible misfortunes	1 2 3 4
8.	I feel rested	1 2 3 4
9.	I feel anxious	1 2 3 4
10.	I feel comfortable	1 2 3 4
11.	I feel self-confident	1 2 3 4
12.	I feel nervous	1 2 3 4
13.	I am jittery	1 2 3 4
14.	I feel "high strung"	1 2 3 4
15.	I feel relaxed	1 2 3 4
16.	I feel content	1 2 3 4
17.	I am worried	1 2 3 4
18.	I feel over-excited and rattled	1 2 3 4
19.	I feel joyful	1 2 3 4
20.	I feel pleasant	1 2 3 4

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Reference Note

A. Funkhouser (personal communication, April 2, 1984)

VITA

The author was born in Harvey, Illinois where she attended elementary and secondary schools. She was on the Dean's list at Northern State College in Aberdeen, SD, where she received a Bachelor's degree in Music and English Literature in 1954.

In January, 1980, after marriage and three grown children, the author entered the Music Therapy program at the University of the Pacific as the first registered graduate student. She fulfilled degree requirements in 1981. During this time she was an adjunct faculty member in the Voice Department of the Conservatory. She was also asked to participate in Evaluation and Search Committees for the University faculty. Ms. O'Connell's six-month clinical internship was conducted at Stockton State Hospital, Alan Short Center, and St. Joseph's Hospital in Stockton, where she worked with the developmentally disabled, psychiatric, and medical patients.

In 1981, the author was elected to Pi Kappa Lamda, the Music Honor Society. She also served as adjunct faculty member while the Department Chairperson, Dr. Suzanne B. Hanser was on medical leave.

The author is a professional musician with voice as her major concentration. She has performed as soloist with choral groups in performance with the San Francisco, National, and New Haven, CT Symphonies. She has also performed with the University of the Pacific's Orchestra on several occasions. She has served as Director of Music at churches in Townshend, VT, Rockville, MD, and Stockton, CA. Ms. O'Connell served as Lecturer in Voice at Montgomery College in Rockville, MD and at the University of the Pacific Conservatory.

In 1975, Ms. O'Connell toured the midwest to eastern half of the United States for a six week's tour of thirty-seven concerts, with the Paul Hill Chorale as part of a Community Concert Series. During the summer of 1983, she performed with the Pacific Repertory Chorus as soloist and choral member during a European tour of France, Germany, Austria, and Switzerland.

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