

THE EFFECTS OF PRECATEGORIZED JAZZ AND CLASSICAL MUSIC AND
SILENCE ON STATE ANXIETY IN MENTAL HEALTH PROFESSIONALS

A THESIS

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The Effects of Precategorized Jazz and Classical Music and Silence On State Anxiety in Mental Health Professionals

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Abstract

This study examined the effects of precategorized jazz and classical music and silence on state anxiety in mental health professionals. Ten staff members (music therapists, occupational therapists, recreational therapists, and a mental health worker) from Terrell State Hospital volunteered for the study. First, a 52 question initial listening test was administered to the group to determine the music to use for the experimental phase of the study. A 5-point Likert scale evaluated emotional responses to the initial listening test. The experimental phase of the study involved each subject's meeting individually with the researcher to experience each condition. The three condition orders were: (a) jazz, classical, and silence; (b) silence, classical, and jazz; and (c) classical, jazz, and silence. These condition orders were randomly assigned to each subject and introduced one at a time for three consecutive weeks. The State-Trait Anxiety Inventory (STAI), State Form, was administered before and after each condition as pre and posttest measures. Change scores were computed

by subtracting posttest raw scores from pretest raw scores. Data was analyzed using the Analysis of Variance for Repeated Measures. Results showed no significant difference in state anxiety scores among the three conditions (i.e., jazz, classical, and silence.) Although results were not significant, most subjects reported lower posttest raw scores as compared to the pretest raw scores showing that the subjects exhibited lower state anxiety after all three conditions.

Four subjects reported higher posttest raw scores under classical and silence conditions, indicating higher state anxiety after these conditions. No one reported higher state anxiety after experiencing the jazz music condition.

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CHAPTER I

Introduction

Effects of Music on Mood

In the time of Queen Elizabeth I, Shakespeare wrote about the effects of music on human emotions. Shakespeare understood the influence of music on human emotions and wrote in his play Merchant of Venice:

The man that hath no music in himself,
Nor is not mov'd with concord of sweet sounds
Is fit for treasons, strategems and spoils;
The motions of his spirit are dull as night,
And his affections dark as Erebus:
Let no such man be trusted.

George Heller (1987) reviewed several articles documenting the use of music in the treatment of various ailments and the importance of music in 18th century America. Through his historical research he found evidence of music's being used to relieve depression and to excite the spirits of soldiers. In summarizing these various articles he concluded that their authors found that: (a) music was pleasurable and tended to excite; (b) changes in mental states

could excite or depress the nervous system; and (c) only properly trained people should implement music therapy. The 19th century brought forth medical articles and dissertations which added to the repertoire of information concerning music therapy of those times. Authors of these works showed an interest in using music as an alternative and more holistic form of medical treatment.

Davis (1987) reviewed several of these writings and summarized their contributions to the field. Two of them, medical dissertations written by students at the University of Pennsylvania, explored music's capability to heal. The first suggested the use of what we currently call the "iso-principle." (This principle suggests matching a person's present mood with a musical selection and then slowly changing the type of music to alter that mood.) The second dissertation discovered that patient-preferred music was more effective in enhancing medical treatment. Another article described the first music therapy experiment which used music and visual images to treat mental and nervous diseases by positively influencing feelings.

Thus it is apparent that the interest in using music to complement various medical treatments has been well documented from Elizabethan times in England to modern day America. Later research delved more deeply into specific ways in which music could benefit clients.

Effects of State Anxiety on Mental Health Professionals

Several researchers studied the effects of patient violence toward staff in mental hospital facilities. Caldwell (1992) noted the incidence of Post Traumatic Stress Disorder (PTSD) among staff victims of patient violence. He also found similarities between hospital staff victims of violence and victims of street violence and other natural or man-made disasters. He found even closer similarities in reactions among hospital staff and police, fire, and rescue professionals. Caldwell concluded that: (a) 28 percent of clinical staff members in the study had experienced physical and/or verbal abuse from patients within the six months prior to the study; (b) 61 percent of staff members reported symptoms of PTSD; and (c) 23 percent would have been given the diagnosis of PTSD.

Post-traumatic stress disorder and burnout occur in people with careers involving human services such as hospital staff and police, fire, and rescue workers (Caldwell, 1992). According to Maslach (1982), three components of burnout include emotional exhaustion, depersonalization of one's clients, and lack of personal accomplishment. Burnout exhibits these key features: (a) it occurs at the individual level; (b) it is an internal psychological experience; and (c) it is a negative experience that involves problems, distress, discomfort, dysfunction, and/or negative consequences.

Skills in coping with stress may influence the onset and severity of burnout and PTSD. Lazarus and Folkman (1984) propose the cognitive-phenomenological theory of stress that includes two critical processes: cognitive appraisal and coping. Cognitive appraisal deals with a person's evaluation of whether an encounter with the environment is relevant to his or her own well-being. Coping is defined as "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (p.141). These authors propose that using effective coping mechanisms can reduce the occurrence of burnout.

Jazz and Classical Music

Classical music (i.e., Western Art Music) has been commonly used in music therapy studies. Music therapy studies involving Jazz music have been reported less frequently. Jazz is a broad category of music composed through the use of non-traditional rhythmic and scale patterns. Examples of categories of jazz music include bossa nova, swing, blues, jazz fusion, funk, and big band music. Improvisation, an aspect of jazz music, allows the expression of feelings through playing music within certain structural boundaries. The tempos used in jazz vary just as they do in classical music. Although most people consider jazz music to be fast in tempo, some jazz is calm and soothing. Listening to

soothing jazz might be helpful to people who enjoy jazz as a preferred form of music.

In a guest article for the Journal of Music Therapy, Jules H. Masserman (1970) discusses jazz and its relationship to humanity. Dr. Masserman notes these qualities of jazz music: (a) its measures are usually 2 or 4 beats in length; (b) the tempo of jazz often mimics the speed of the human heart beat; and (c) jazz music often involves percussive characteristics. He notes that these aspects of jazz imitate primitive rituals dating back to the beginning of human existence. He also points out that there are more varieties of jazz than there are schools of psychiatric practice. Masserman describes several jazz styles including Memphis Blues, New Orleans Dixieland, big band, and avante garde-new age. He refers to a parallelism between jazz and humanity by relating the African origins of jazz and the kinship of all races.

Purpose of the Study

The purpose of this study is to determine the effect of precategorized jazz and classical music and silence on state anxiety in mental health professionals (MHP's). The State-Trait Anxiety Inventory (STAI), State Form (Spielberger, 1983), will be used as a pre and posttest measure to determine if there is a difference in participants' state anxiety among listening and silence conditions.

Need for the Study

Mental Health Professionals (MHP's) include social workers, psychiatric nurses, mental health workers, recreational therapists, occupational therapists, music therapists, and psychologists. Such professional staff members in a psychiatric setting work with patients who have a wide range and severity of mental disorders. Working in a psychiatric hospital exposes staff to constant stress. As noted previously, physical and verbal assault by patients is common. Effective coping with the stress of such encounters increases job satisfaction and productivity as well as physical and psychological health (Hiscott and Connop, 1990).

The health and well being of MHP's needs to be addressed to reduce personal and organizational costs caused by such stress. These costs include increased staff turn over, absenteeism, job dissatisfaction, increased depression, and alcohol and drug dependency. Several indicators of these problems are job dissatisfaction, occupational burnout, and reported physical and mental health dysfunctions (Hiscott and Connop, 1990).

Definition of State Anxiety

Spielberger (1983) defines anxiety states as "...characterized by subjective feelings of tension, apprehension, nervousness, and worry, and by activation or arousal of the autonomic nervous system" (p.1). He also describes

personality states as “...relatively enduring differences among people in specifiable tendencies to perceive the world in a certain way and in disposition to react and behave in a specified manner with predictable regularity” (p. 1). Thus, state anxiety refers to the transient state of a person that can vary, and personality states can be evoked by appropriate stimuli especially when stimuli persist. In contrast to personality states, personality traits refer to “acquired behavioral dispositions” (p. 1). Thus, trait anxiety describes the relatively stable individual differences in anxiety-proneness.

Limitations of the Study

This study was conducted on the campus of Terrell State Hospital during the researcher's music therapy internship. Participants were nine staff members from the Rehabilitation Department and one from the Child/Adolescent Unit. During the course of the study, the Rehabilitation Department underwent extensive reorganization of its programming. This reorganization could have affected the responses of the nine volunteers from this department to the musical stimuli presented. In addition, participants were professionals who, collectively, might not have accurately represented the overall population of mental hospital staff. Instead, participants represented the professions in a specific mental hospital rehabilitation department. Musical preferences of individual subjects were not considered in designing this study because only 10 subjects were used and only a limited amount of time for listening was available.

However, a preliminary music selection process was used to select music which was perceived to be relaxing by the individuals involved in the study.

CHAPTER II

Review of Literature

Effects of Stress on Mental Health Professionals

Stress can occur in all workplaces, but the level of stress for staff members in mental health facilities has been examined on many occasions. Many factors can contribute to the level of stress experienced by Mental Health Professional's (MHP's).

For example, in a correlational study a questionnaire distributed to the clinical staff of a 225-bed mental hospital explored the relationships between the variables of organizational commitment and perceived job stress with job satisfaction, intention to quit, work-related depression, work-related irritation, and somatic complaints during an organizational restructuring. The independent variables were organizational commitment and stress. The dependent variables were job satisfaction, intent to quit, depression related to work, work-related irritation, and somatic complaints. Data was collected on two occasions, three months apart. Results after the second session, indicated an overall reporting of lower job satisfaction, higher intention to quit, and fewer somatic complaints. Other implications showed an increase in stress and job displeasure when subjects had a lower level of committment (Begley & Czajka, 1993).

While restructuring can be one source of stress for Mental Health Professional's, the threat of lay-offs is another. Farley (1991) explored the responses of MHP's to lay-offs. Thirty-nine laid-off MHP's answered a questionnaire focusing on emotional stress and coping as they related to the experience of having been laid-off. Shortly after being laid-off feelings of shock, disbelief, anger, and sadness surfaced. These feelings gave way to depression, anxiety, and feelings of betrayal and of having been discounted. Two coping mechanisms used to deal with these emotions were: (a) talking to other people who had been laid-off and (b) focusing attention on finding a new job.

Hiscott and Connop (1990) examined the job satisfaction, occupational burnout, and general health of 123 mental health professionals at a psychiatric hospital. Subjects included 41 psychiatric nurses, 37 nursing assistants, and 45 other professionals including social workers, occupational and recreational therapists, and psychologists. Results of personal interviews showed an overall low level of job satisfaction for mental health workers. Nursing assistants showed the lowest levels of job satisfaction and the highest levels of burnout; they also reported more health problems.

Oppenheim (1987) collected data pertaining to occupational stress or burnout among music therapists. Demographic data was collected from 500 randomly selected music therapists. Of the 250 responses, 239 were

appropriate for use in the analysis. The Maslach Burnout Inventory (MBI) measured occupational stress and burnout on six subscales. Multiple correlation and multiple regression strategies were used to analyze the following: (a) hours worked per week; (b) number of years as an RMT; (c) type of institution; (d) sex; (e) age; and (f) years at current job. Results of the study showed low correlations among these variables. These results could have been affected by the fact that 184 of the survey respondents had fewer than five years of experience, possibly not enough time to experience burnout. A medium range of burnout for the entire group was reported on five of the six subscales. Sixty-eight subjects had worked more than five years as music therapists at their present jobs. Of these, 52 showed moderate burnout on at least one subscale, and 29 scored high degrees of burnout on at least one subscale. Respondents' criticisms of their work included minimal pay, lack of respect and support from administrators, and being asked to perform duties outside their specific job descriptions.

Corrigan (1993) conducted a correlational survey at both a developmental center and a state mental hospital. It revealed two sources of stress contributing to staff dissatisfaction: lack of administrative control and practice-related stress. This study used a 332 Inpatient Job Stress Questionnaires completed by staff members. Results indicated that one predictor of job stress was philosophical

opposition to behavior therapy. No significant differences between stress levels of staff who worked with mentally retarded and those who worked with the mentally ill were found. Further implications of the study showed that higher stress levels existed for nurses, developmental specialists, and psychiatric technicians than for other staff members (Corrigan, 1993).

Another aspect of job stress is patient violence toward staff members. Lanza, Kayne, Hicks, and Milner (1991) determined characteristics of staff victims and compared them to other staff members who had not been assaulted. The study also documented the effects of patient assaults on the affected staff members. Results showed no difference between assaulted and nonassaulted staff members in socio-demographic factors, except for marital status. Fewer married staff members had been assaulted. Job related factors showed higher occurrences of assault as the victim's job placement moved further down the administrative hierarchy. The amount of time spent in direct patient care activities between assaulted and non-assaulted staff members was not a significant factor. Non-assaulted staff members reported 100% more time in classes that taught how to cope with assault and 74% more time in regular refresher job training than staff members who were assaulted. Most injuries reported involved the head. Staff members often did not take leave after their

assaults, returned to work before they had fully recovered, and/or reported emotional stress.

Whittington and Wykes (1992) explored staff strain and social support following assault in a psychiatric hospital. Twenty-four staff members were interviewed within 72 hours of their experiencing assault by a patient. Follow-up interviews took place twice within the following two weeks. Amounts of experienced strain and support were measured during the three interviews. Strain was measured by the State Form of the STAI and a Strain questionnaire created by the researchers. Support was measured using a Victim Support Questionnaire, also created by the researchers. Results indicated some victims of patient assault experienced high levels of strain. Support for these staff members was provided informally and was concentrated immediately following the incident.

It is apparent that mental health professionals experience significant stress related to their jobs and that a number of factors can influence the amount of stress perceived. Coping strategies to assist these workers in dealing with the stressors they encounter would be helpful in improving their quality of life.

Coping Strategies for Mental Health Professionals

Lanza (1992) explored the effects of counseling as a coping strategy following staff assault by patients. Available upon request, victim assault

support services were provided. The counseling was designed to deal with episodes of unexpected fear and crying following assault. Victims participated in two interviews. During the first interview, victims were encouraged to express their feelings and to review their emotional symptoms. Counselors then helped them to understand their emotions by explaining that these were normal responses following a traumatic event such as an assault. Coping strategies were then explored with the counselor. Returning to work was presumed to be essential to complete recovery for victims. Victims were also encouraged to talk with family members about concerns following the assault. After one week, a second interview focused on coping strategies tried and their effectiveness as well as on any remaining symptoms.

McCarthy (1992) conducted a pilot program to determine what types of music therapy interventions may lower stress levels in staff members at a nursing home. The first part of the study involved a questionnaire to retrieve information concerning: (a) how much stress the staff was experiencing regularly; (b) sources of the stress staff members were experiencing; and (c) how staff currently dealt with their stress. The amount of stress staff members endured was reported through the following signs of stress: (a) reluctance to work; (b) irritability with family and friends; (c) irritability with patients; (d) headaches; (e) spending fewer than 15 minutes to eat lunch; (f) unmet personal

needs; and (g) drinking or smoking. Results of this questionnaire revealed common sources of stress for staff were: (a) not having enough time to complete their job properly; (b) aggressive behavior from clients; and (c) difficulties with staff communication. Phase two of this pilot program involved an intervention with various music therapy sessions including: (a) a stress management class combined with the viewing of Ocean Reefs; (b) group discussion; (c) music listening; (d) simple yoga with music; (e) imagery with music; and (f) massage therapy. Results of the pilot program showed higher attendance at stress reduction sessions when staff members were allowed to take them during working hours and positive reactions to the idea of learning how to handle stress.

Kunkler and Whittick (1991) discussed stress-management groups as another effective coping strategy for mental health professionals. They suggested workshops for psychiatric staff which might involve : (a) helping staff identify their own sources of stress and finding ways to manage them effectively; (b) identifying the best organizational structure for such groups within a facility; and (c) providing staff support on all units in the hospital.

A coping mechanism close to the field of music therapy is psychodrama. Costa (1992) explored psychodrama for mental health professionals as another method of dealing with stress related to work. He defines psychodrama as

“...an action method of group psychotherapy...{which} allows people to enact real life and imaginary events, offering the individual a unique opportunity to examine human relationships” (p. 30). He outlined his five goals which included : (a) enabling staff to experience ongoing psychodrama; (b) promoting their understanding of psychodrama; (c) providing them with an alternative treatment option; (d) increasing staff awareness of other therapeutic media; and (e) providing basic psychodrama therapeutic skills for use in clinical practice. He conducted sessions with clinical staff members which included group-building, individual protagonist-centered work, and focusing on group dynamics.

The research described above indicates that job stress is a potential problem for many mental health professionals. Many attempts have been made to address the needs of these individuals and to improve their ability to cope with stressors such as job dissatisfaction, patient assault, lay-offs, and institutional bureaucracy.

Effects of Music on State Anxiety

The music therapy literature contains numerous studies outlining ways in which music has been used to reduce stress and anxiety. Although most of these involved client populations, some of these have shown promising results which may generalize to those who work with clients.

Stoudenmire (1975) studied the effects of muscle relaxation and music listening on state and trait anxiety. He randomly assigned 108 subjects to two groups: a muscle relaxation training group and a music listening group. The STAI was used to determine pre-treatment state and trait anxiety scores for all subjects. The muscle relaxation training group listened to a long-playing record while undergoing training, and the music group listened to Music for Relaxation, a recording of instrumental music. Using a 2x2 analysis of variance with one repeated measure, computations for state anxiety scores showed significant differences between the groups at $p < .01$. The same analysis of trait anxiety scores showed no significant results between groups for the sessions, treatments, or their interactions at $p > .05$. These findings lend support to Spielberger's ideas concerning the changeability of state anxiety in contrast to the relative stability of trait anxiety.

A study examining the effects of music on medical patients in coronary care units yielded similar results. Zimmerman and Pierson (1988) examined the effects of listening to relaxing music on self-reported anxiety as well as on physiological measures in heart patients. Seventy-five participants were assigned to three groups; music, white-noise, and silence. The STAI was administered before and after each 30 minute session. Physiological measures of heart rate, blood pressure, and digital skin temperature were all measured at

baseline and at 10-minute intervals during each session. No significant differences were found among the three groups for subjective state anxiety or on any of the individual physiological measures. Significant improvement was found between pre and posttest when data from all groups on the physiological measures were combined.

Other methods of reducing stress have also been shown to be effective. For example, Kibler and Rider (1983) documented the effects of progressive muscle relaxation and music on stress. Three groups (N=76) received either sedative music, progressive muscle relaxation, or both as treatment conditions. Finger temperature was measured before and after each session as an indicator of stress. Results showed significant increases in skin temperature (indicating decreased tension) from pre to post treatment, but no significant differences were found among the three groups.

Reynolds (1984) monitored the effects of four relaxation training procedures on subjects' ability to cope with stress effectively. Sixteen subjects were randomly assigned to five relaxation training procedures: (a) biofeedback, (b) autogenic phrases training, (c) music listening, (d) autogenic phrases with music listening, and (e) control. Eight 25-minute training sessions were conducted over a four week period. Subjects were asked to witness stressful imagery and then undergo treatment. Results showed the music listening and

the autogenic phrases with music listening groups experienced significant anxiety reduction when compared to the control group. This study supports music's effectiveness as an aid to relaxation training.

Biller, Olson, and Breen (1974) examined the effects of music and level of participation on state and trait anxiety. Two pieces of music, chosen by the researcher, were used in this study. The experimental conditions were: (a) happy music-percussive accompaniment (HM-PA), (b) happy music-no percussive accompaniment (HM-NPA), (c) no music-percussive accompaniment (NM-PA), (d) no music-no percussive accompaniment (NM-NPA), (e) sad music-percussive accompaniment (SM-PA), and (f) sad music-no percussive accompaniment (SM-NPA). A 2x3 analysis of variance of state anxiety scores showed no significant difference for percussive accompaniment versus no percussive accompaniment. A multiple comparison of the means of the six treatment conditions using Duncan's multiple range test showed that state anxiety was significantly greater under HM-NPA, HM-PA, NM-NPA, NM-PA, and SM-PA conditions than under the SM-NPA condition. For trait anxiety a 2x3 analysis of variance showed no significant differences: (a) between percussive versus non-percussive accompaniment groups, (b) among happy, sad, or no music conditions, or (c) in the interaction between the PA-NPA x HM-NM-SM conditions.

Thaut and Davis (1993) investigated the effects of subject-selected music versus experimenter-selected music on affect, anxiety, and relaxation. They found that subjects in both groups showed significant increases in relaxation as measured by the STAI and a visual analog scale (VAS). The VAS showed no changes in depression scores under any of the treatment conditions, but all subjects had reduced hostility scores in all conditions.

Personality type can be a factor which contributes to an individual's response to music as a stress reducer. Traits of personality which may prove influential could include Type-A and Type-B personality or general anxiety-proneness. Three studies have looked at the effects of music on stress reduction in high anxiety subjects.

One study by Strube, Turner, Patrick, and Perrillo, (1983) examined the effects of music on individuals with Type-A and Type-B personalities. Type-A personalities have a tendency to focus on a task while actively inhibiting peripheral stimuli. This tendency can be maladaptive when solving difficult cognitive tasks, particularly when the peripheral information being screened out is needed for task completion. When music was introduced into the environment, Type-A personalities were not affected by it possibly because of their heightened screening ability. Type-B personalities improved affect and performance on a difficult cognitive task while listening to simple melodies.

Page and Schaub (1978) investigated the effects of music and relaxation training on individuals with different personality types within an alcoholic population. Thirty-two male subjects were assigned to two groups based on scores from the Minnesota Multiphasic Personality Inventory (MMPI) : (a) a tense and anxious group and (b) a more heterogeneous group. Over a 14-day period, eight subjects from each group received treatment while the remaining subjects received control sessions of taped music and electromyographic (EMG) monitoring. Group A (i.e., high anxiety) experimental subjects achieved greater relaxation than: (a) Group A control subjects; (b) Group B (heterogeneous) experimental subjects; and (c) Group B control subjects. The Profile of Mood States (POMS) scores showed significant differences in improved mood states over time for all subjects. No significant difference in improved mood states was found between groups A and B. This study shows that people exhibiting high anxiety states may achieve greater reductions in tension levels during relaxation training than those whose anxiety states are already lower at the start of the training.

Rohner and Miller (1980) also studied the effects of familiar versus unfamiliar music and stimulative versus sedative music on anxiety reduction in high-anxiety subjects. Music for the study was selected by subjects using a 5-point Likert scale. Music conditions included: (a) familiar-stimulating, (b)

familiar-sedative, (c) unfamiliar-stimulating, and (d) unfamiliar-sedative. The Eight State Questionnaire (8SQ), parts A and B, were administered before and after each music condition. Although the statistical analysis using transformed z scores from raw scores of the 8SQ yielded no significant differences among the conditions, a tendency for high anxiety subjects to experience greater anxiety reduction than low-anxiety subjects was observed.

These three studies show that anxiety reduction is greater for individuals who already experience high levels of anxiety. Since state anxiety is, by its definition, a labile emotional condition, this is not surprising.

In summary, many studies have been conducted which provide evidence for music's ability to aid in stress reduction. Music listening alone and in combination with other stress reduction techniques has also been effective. As would be expected, state anxiety has been more easily reduced through stress reduction techniques than has trait anxiety, and those with high anxiety levels typically experienced the greatest improvement. Further studies are needed to determine what types of stress reduction techniques are most effective with different personalities and in varied job situations.

CHAPTER III

Method

Subjects

Subjects for the study were 10 Caucasian staff members from Terrell State Hospital in Terrell, Texas. Nine of the 10 participants worked in the Rehabilitation Department of Terrell State Hospital, while the remaining volunteer worked on the Child/Adolescent Unit. All those who completed the initial music listening test finished the study. The group consisted of eight females and two males ranging in age from 24 to 50 years old. Their occupations included music therapist, occupational therapist, therapeutic recreation specialist, and mental health worker.

Researcher

The researcher was a graduate student student at Texas Woman's University pursuing a Master of Arts degree in music therapy. She was employed by Terrell State Hospital as a music therapy intern at the time of the research. All sessions were conducted by this reseacher outside of normal working hours.

Setting

The research for most participants was conducted in the rehabilitation training room located in the rehabilitation department at Terrell State Hospital.

Participants chose research times to fit their individual schedules; these included their lunch hours or blocks of time immediately following work. The training room was 10 feet by 20 feet with a front door and windows with curtains along the back wall. A conference table was situated lengthwise down the middle of the room with blue cushioned rolling arm chairs surrounding the table. The air conditioner ran during all sessions and added to the noise level in the room. The researcher chose this location for its easy accessibility by the participants. Because of unforeseen scheduling difficulties, sessions for one volunteer were conducted in the room adjacent to the training room, but this room was similar in content, size, and air conditioning background noise.

Music Selection

Music for the experimental phase of the research was chosen by asking the subjects to rate their emotional reaction to fifty-two 45-second musical excerpts (see Appendix A). Twenty-six precategorized jazz and 26 precategorized classical excerpts were presented to subjects with 5 seconds of silence interposed between them for marking responses. Subjects rated their emotional response to each excerpt on a 5-point Likert scale ranging from 1 (anxious) to 5 (relaxed) (see Appendix B). Selections for this test were chosen from the researcher's personal compact disc collection, and consisted of a variety of musical styles including blues, chamber blues, bossa nova, jazz, and

“classical” (i.e., Baroque, Classical, and Romantic era pieces). After the completion of the test, average ratings for each excerpt were calculated (see Appendix C). Only those which received average ratings between 4 (at ease) and 5 (relaxed) were chosen for use in the study (see Appendix D-Classical and Appendix E-Jazz).

Each musical condition consisted of 20 minutes of either jazz or classical music chosen from these selections. Musical selections were played in their entirety.

Procedure

The researcher recruited subjects by making announcements at rehabilitation department and child/adolescent unit meetings. Further recruiting involved the researcher’s approaching staff members individually. After 10 subjects volunteered, the initial listening session was scheduled for all volunteers. At this meeting subjects first received an explanation of the study and signed consent forms required by the Human Subjects Review Committee at Texas Woman’s University (see Appendix F). They then rated musical excerpts on the Likert scale to determine their emotional reactions to them. Eight subjects attended this preliminary group listening session, while musical excerpts were presented to two other volunteers individually under similar conditions because of scheduling conflicts.

Once the music for the study had been chosen, each subject met individually with the researcher for three sessions. Each session took place at the same time of day for three consecutive weeks. One condition was administered during each of these three sessions starting the week following the preliminary session. Each 40-minute experimental session consisted of approximately 10 minutes for taking the STAI pretest, 20 minutes for listening to the randomly assigned condition, and 10 minutes for completing the STAI posttest.

Subjects were randomly assigned to the following three orders of conditions by picking letters out of a basket: (a) jazz, classical, silence; (b) silence, classical, and jazz; and (c) classical, jazz, and silence. Three participants received condition order A; five received condition order B; and two participants received condition order C.

When subjects first arrived, they were seated in a chair designated for the study. They then took the STAI pretest and were instructed to get comfortable and listen to the music. After completing the experimental condition, each subject took the STAI again as a posttest. During the first week of research, each person listened to the first assigned condition. At subsequent sessions a similar format was used during which the other experimental conditions were presented.

The sound level for all musical conditions remained constant throughout all sessions. All music was played on the same equipment located in the same position on a table approximately six feet from the subjects. During the “silence” condition subjects were told to “Relax on your own” before the silence began.

Following completion of their final session, subjects were asked to give their names and addresses if they desired a report of the study results. They were also allowed to ask questions they might have about the research, and these were answered. After all data was obtained, raw scores for all tests were calculated (see Appendix G).

Dependent Measure

State anxiety was measured by the STAI, Form Y-1 (Spielberger, 1983). The State Form of the STAI contains 20 questions regarding how the subject feels at the moment of taking the test. Subjects respond to the questions by filling in circles on a 4-point scale. The STAI is self-administered and may be given in groups or individually. It requires approximately 6 minutes for college students to finish.

Reliability and validity of the State Form of the STAI have been well documented. State anxiety scores are generally higher when given under stressful situations and lower when given under relaxed ones. Sensitivity of the

effects of different amounts and types of stress on State Anxiety scores was demonstrated in research on reactions to surgery (Spielberger, 1983).

Generally, State Anxiety scores rose before surgery and declined after surgery. The test-retest reliability coefficient for the State Form at a one hour interval is .16 for college female students. The alpha coefficient for validity on the State Form of the STAI for male and female working adults is .93 (Spielberger, 1983).

Correlations between the STAI and the Minnesota Multiphasic Personality Inventory (MMPI) and the Cornell Medical Index (CMI) provide further information concerning convergent and divergent validity with correlations of between -.64 and .81 for the MMPI and .70 for the CMI (Spielberger, 1983).

Design

The Counterbalanced Repeated Measures design (Isaac & Michals, 1981) was used for this study. Subjects served as their own controls while undergoing each of three conditions: jazz music, classical music, and silence.

The State Form of the STAI was administered twice during each session first as a pretest and then as a posttest measure. The researcher calculated change scores between pretest and posttest measures for each subject under each of the three conditions. Change scores were calculated by subtracting posttest raw scores from the pretest raw scores (see Appendix H and Appendix I-bar graph). These data were then analyzed using the Analysis of Variance for

Repeated Measures. The alpha level for the significance of differences among the three conditions was set at $p < .05$.

Null Hypothesis

The null hypothesis for the study was: There will be no significant difference in state anxiety scores reported under conditions of listening to jazz music, classical music, and silence.

CHAPTER IV

Results

Change Score Data Analysis

Pre/posttest STAI change scores were computed for the jazz and classical music and silence conditions (see Appendix H and Appendix I-bar graph). These change scores were found by subtracting the posttest scores from the pretest scores.

The change scores were analyzed using the method for calculating Analysis of Variance for Repeated Measures recommended by Bruning and Kintz (1977). Results of this computation are presented in Table 1. They indicate no significant difference in state anxiety change scores among the three conditions (i.e., jazz music, classical music, and silence) at the $p < .05$.

Table 1

Repeated Measures Analysis of Variance for Pretest/Posttest Change Scores on the STAI, State Form (N=10)

| Source | SS | df | ms | F | p |
|----------|-------|----|-------|--------|------|
| Between | 22.5 | 2 | 11.23 | 0.2767 | >.05 |
| Within | 730.9 | 18 | 40.60 | -- | -- |
| Subjects | 992 | 9 | -- | -- | -- |
| Total | 1745 | 29 | -- | -- | -- |

CHAPTER V

Conclusions

This study investigated the effects of precategorized jazz and classical music and silence on state anxiety in Mental Health Professionals (MHP's). Subjects were 8 female and 2 male Caucasian MHP's, nine of whom were members of the rehabilitation staff at Terrell State Hospital and one who worked on the child/adolescent unit. The two experimental conditions included listening to pre-categorized jazz music and classical music, while silence served as the control condition. The dependent variable consisted of change scores on the State Form of the STAI (1983). Before the research began, a preliminary music listening session was held with the subjects to select music from each category which they experienced as emotionally relaxing. This session took place one week prior to the experimental treatments. The order of presentation for the three conditions was determined randomly prior to the beginning of the study. Each subject met individually with the researcher once a week at the same time each week for three consecutive weeks; one condition was introduced each week. All research took place in the training room of the Rehabilitation Building at Terrell State Hospital in Terrell, Texas, or in the room next to it, which provided similar listening conditions.

Results were determined by Analysis of Variance for Repeated Measures using the calculation method recommended by Bruning and Kintz (1987). Anxiety change scores were computed by subtracting posttest scores from pretest scores and subsequently used for the Analysis of Variance. No significant difference was found among jazz music, classical music, and silence conditions. Therefore, the null hypothesis of no difference was accepted at the $p > .05$ level.

Several extraneous variables should be examined in interpreting this result. Two subjects were not present during the initial music listening session. This probably had little effect on the outcome of the music chosen for research because the listening conditions for these subjects were matched as closely as possible to those under which the remainder of the group took the test; however, exact similarity can never be assumed.

Another variable which might have interfered with the way subjects were affected by the experimental listening conditions was the noise of the air conditioning unit. This confounding variable could have affected listening results by adding to the atmosphere of the setting. Although this sound was present for all subjects during all sessions and thus should not have affected differences among the conditions, it was still described by several volunteers as

distracting. However, no one complained regarding an inability to hear the music at any time.

The length of the musical excerpts during the initial music listening session could have affected the outcome of the study. The researcher arbitrarily chose 45-second lengths of time for each selection with five seconds of silence between them so that subjects could mark their responses. Musical compositions do change as they progress, and the outcome of the music selection process might have been different if each song had been played in its entirety. Several subjects commented that they were unsure about their initial music listening responses because they felt the excerpt was moving in a different emotional direction when it was interrupted.

Another variable which could have affected the study results was that the entire Rehabilitation Department staff was undergoing a restructuring program throughout the time frame under which the research was conducted. Many subjects were in the midst of changing job responsibilities, offices, co-workers, and programming. Nine of the 10 participants indicated on various occasions that they were under unusual amounts of stress. This could have made it harder or easier for them to benefit from any potentially relaxing situation than they would have under more normal circumstances. If a specific week had been

more stressful than others, the effects of the experimental condition for that week might not have been the same as it would have been otherwise.

Another variable which could have affected the outcome of the study was that the final session for two subjects was unavoidably delayed for two days. Although these sessions were conducted under as similar conditions to the others as possible to the others, the lapse of two days might have affected the data from these sessions.

The final variable for discussion relates to the musical background of the subjects involved in the experiment. Although a survey was not conducted to determine "musical background," the researcher was aware that some subjects had an extensive musical background and/or training. Several participants were music therapists. Others initiated conversations with the researcher making their musical backgrounds known. Some subjects might have been more familiar with the music used in the experimental conditions which could have skewed the results if others were not familiar with it. Also, some musically trained people might have concentrated more on musical form and style and the use of musical critique skills than those less trained in music; their responses might have been affected as a result.

Despite these variables, one can look at the raw anxiety change scores and note that many people reported lower anxiety after listening (see Appendix

H and Appendix I-bar graph). For example, subject #4 showed anxiety reductions of 18, 22, and 23 points for jazz, classical, and silence respectively. Subject #8 reported change scores of 17, 15, and 20 for jazz, classical, and silence scores respectively. These changes show reductions in anxiety. It is interesting to note that only one subject, volunteer #5, had positive change scores for the two music conditions but a negative change score for the silence condition. This shows that both music conditions were more effective in reducing anxiety than no music for this subject. This study does not allow one to generalize the statistical results of this study to the general population of Mental Health Professionals .

Another interesting fact to note concerning the anxiety change scores is that they were slightly higher and all positive for the entire group in the jazz music listening condition. Finally, under the classical music condition three negative change scores were obtained, indicating a rise in anxiety for those subjects under the classical music listening condition. Other studies should be conducted to explore further whether jazz has the potential to reduce anxiety.

Despite the non-significance of the statistical results, most change scores were positive indicating that state anxiety reduction generally occurred under all three conditions. The length of the listening time, the small sample size, and any of the variables discussed previously could have contributed to the lack of

significance of these results. These non-significant results indicate that all three conditions were equally effective in producing changes in anxiety and that most of these changes were in the direction of decreasing anxiety.

Since the raw scores showed some differences, although not significant, in subjects' responses to jazz and classical styles, further exploration of the effects of specific types of jazz music versus other categories of music might be worth pursuing. In addition, the effects of longer periods of listening and listening with and without relaxation training of various types might also be explored.

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APPENDIX A
Initial Listening Music

INITIAL LISTENING MUSIC

(Listed in order played during Initial Listening)

1. Joshua Redman Quartet (1994). Sweet Sorrow. On Mood Swing [CD].
New York: Warner Bros.
2. Tchaikovsky (1991). Swan Lake - Scene. On Meditation - Classical Relaxation Vol.6 [CD]. Los Angeles: Delta Music.
Bavarian Radio Symphony Orchestra
Hans Vonk, conductor
3. Antonio Carlos Jobim (1994). O Morro (Once I Loved). On Jazz 'Round Midnight - Bossa Nova [CD]. New York: Polygram Records.
4. Brahms (1991). Cradle Song. On Meditation - Classical Relaxation Vol.7 [CD]. Los Angeles: Delta Music.
Budapest Strings
5. Mendelssohn (1991). Notturmo from "A Midsummer Night's Dream." On Meditation - Classical Relaxation Vol.6 [CD]. Los Angeles: Delta Music.
Budapest Philharmonic Orchestra
Janos Kovacs, conductor
6. Hooker (1993). I'm In The Mood. On Best of the Blues: Hooker Hopkins Reed [CD]. Venice, CA: Michael Ochs Archives.

7. Jackie Cain and Roy Kral (1994). Corcovado (Quiet Nights of Quiet Stars).
On Jazz 'Round Midnight - Bossa Nova [CD]. New York: Polygram Records.
8. Debussy (1991). Clair de lune. On Meditation - Classical Relaxation Vol.8.
[CD]. Los Angeles: Delta Music.
Leipzig Radio Symphony Orchestra
Max Pommer, conductor
9. Kenny Burrell (1994). Moon and Sand. On Jazz 'Round Midnight - Bossa Nova [CD]. New York: Polygram Records.
10. Schubert (1991). Piano Sonata in B flat major, D960 - andante sostenuto.
On Meditation - Classical Relaxation Vol.6 [CD]. Los Angeles: Delta Music.
Peter Rosel, piano
11. Reed (1993). Little Rain. On Best of the Blues: Hooker Hopkins Reed
[CD]. Venice, CA: Michael Ochs Archives.
12. Donizetti (1991). Andante. On Meditation - Classical Relaxation Vol.8
[CD]. Los Angeles: Delta Music.
Evert van Trigt, oboe
Benno Pierweijer, piano

13. Bizet (1991). Carmen Suite No. 1 - intermezzo. On Meditation - Classical Relaxation Vol.6 [CD]. Los Angeles: Delta Music.
Budapest Philharmonic Orchestra
Janos Sandor, conductor
14. Cal Tjader (1994). Vai Querer. On Jazz 'Round Midnight - Bossa Nova [CD]. New York: Polygram Records
15. Grieg (1991). Piano Concerto in A minor - adagio. On Meditation - Classical Relaxation Vol.8 [CD]. Los Angeles: Delta Music.
Daniel Gerard, piano
Berlin Radio Symphony Orchestra
Peter Wohlert, conductor
16. Gerry Mulligan (1994). Prelude In E minor. On Jazz 'Round Midnight - Bossa Nova [CD]. New York: Polygram Records.
17. Joshua Redman Quartet (1994). Obsession. On Mood Swing [CD]. New York: Warner Bros.
18. Puccini (1991). Humming Chorus from "Madama Butterfly." On Meditation - Classical Relaxation Vol.6 [CD]. Los Angeles: Delta Music.
Sofia National Opera Chorus and Orchestra
Rouslan Raychev, conductor

19. Hopkins (1993). Shining Moon. On Best of the Blues: Hooker Hopkins Reed [CD]. Venice, CA: Michael Ochs Archives.
20. Giordani (1991). Caro Mio Ben. On Meditation - Classical Relaxation Vol.8 [CD]. Los Angeles: Delta Music.

Budapest Strings
21. Chopin (1991). Piano Concerto No.2 - larghetto. On Meditation - Classical Relaxation Vol.6 [CD]. Los Angeles: Delta Music.

Adam Harasiewicz, piano

Warsaw National Philharmonic

Kazimierz Kord, conductor
22. Antonio Carlos Jobim (1994). O Morro (Once I Loved). On Jazz 'Round Midnight - Bossa Nova [CD]. New York: Polygram Records.
23. Mozart (1991). Eine kleine Nachtmusik - Romance. On Meditation - Classical Relaxation Vol.6 [CD]. Los Angeles: Delta Music.

Berlin Chamber Orchestra

Peter Wohlert, conductor
24. Joshua Redman Quartet (1994). Dialogue. On Mood Swing [CD]. New York: Warner Bros.
25. Hopkins (1993). Shaggy Dog. On Best of the Blues: Hooker Hopkins Reed [CD]. Venice, CA: Michael Ochs Archives.

26. Schubert (1991). Impromptu in B flat major. On Meditation - Classical Relaxation Vol.8 [CD]. Los Angeles: Delta Music.
Jeno Jando, piano
27. Rheinberger (1991). Evening Song. On Meditation - Classical Relaxation Vol.7 [CD]. Los Angeles: Delta Music.
Erno Sebestyen, violin
Andreas Juffinger, organ
28. Corky Siegel (1994). Unfinished Jump (Opus 13). On Chamber Blues [CD]. Chicago: Alligator Records.
29. Vivaldi (1990). The Winter - largo. On The Four Seasons [CD]. Roswell, GA: Intersound.
30. Corky Siegel (1994). Opus 11 for Solo Violin. On Chamber Blues [CD]. Chicago: Alligator Records.
31. Joshua Redman Quartet (1994). Alone in the Morning. On Mood Swing [CD]. New York: Warner Bros.
32. Mozart (1991). Flute Concerto No.2 - adagio no troppo. On Meditation - Classical Relaxation Vol.8 [CD]. Los Angeles: Delta Music.
Kurt Berger, flute
Vienna Mozart Ensemble
Herbert Kraus, conductor

33. Stan Getz and Luiz Bonfa (1994). O Morro Nao Tem Vez. On Jazz 'Round Midnight - Bossa Nova [CD]. New York: Polygram Records.
34. Vivaldi (1990). The Autumn - adagio molto. On The Four Seasons [CD]. Roswell, GA: Intersound
35. Rheinberger (1991). Evening Song. On Meditation - Classical Relaxation Vol.7 [CD]. Los Angeles: Delta Music.
Erno Sebestyen, violin
Andreas Juffinger, organ
36. Corky Siegel (1994). Koulangatta. On Chamber Blues [CD]. Chicago: Alligator Records.
37. Schubert (1991). Theme and Variations from "Quartet in G major." On Meditation - Classical Relaxation Vol .7 [CD]. Los Angeles: Delta Music.
Laslo Szendrey-Karper, guitar
Zoltan Jenez, flute
Pal Lukacz, viola
Ede Banda, cello
38. Luiz Bonfa (1994). Lila. On Jazz 'Round Midnight - Bossa Nova [CD]. New York: Polygram Records.
39. Vivaldi (1990). The Summer - adagio. On The Four Seasons [CD]. Roswell, GA: Intersound.

40. Astrud Gilberto (1994). Berimbau. On Jazz 'Round Midnight - Bossa Nova [CD]. Los Angeles: Polygram Records.
41. Tchaikovsky (1991). The Seasons - "June" (Barcarolle.) On Meditation - Classical Relaxation Vol.7 [CD]. Los Angeles: Delta Music.
Jeno Jando, piano
42. Joshua Redman Quartet (1994). Chill. On Mood Swing [CD]. New York: Warner Bros.
43. Corky Siegel (1994). Slow Blues (Opus 7). On Chamber Blues [CD]. Chicago: Alligator Records.
44. Vivaldi (1990). The Spring - largo e pianissimo sempre. On The Four Seasons [CD]. Roswell, GA: Intersound.
45. Stan Getz and Charlie Byrd (1994). Samba De Uma Nota So (One Note Samba). On Jazz 'Round Midnight - Bossa Nova [CD]. New York: Polygram Records.
46. Schumann (1991). The Merry Peasant. On Meditation - Classical Relaxation Vol.7 [CD]. Los Angeles: Delta Music.
Evelyne Dubourg, piano

47. Mozart (1991). Symphony No.36 "Linz"- poco adagio. On Meditation - Classical Relaxation Vol.7 [CD]. Los Angeles: Delta Music.
Salzburg Mozarteum Orchestra
Hans Graf, conductor
48. Joshua Redman Quartet (1994). Rejoice. On Mood Swing [CD]. New York: Warner Bros.
49. Beethoven (1991). Symphony No.7 - allegretto. On Meditation - Classical Relaxation Vol.7 [CD]. Los Angeles: Delta Music.
Dresden Philharmonic
Herbert Kegel, conductor
50. Corky Siegel (1994). "Concerto for Alberti Blues Piano (Opus 6). On Chamber Blues [CD]. Chicago: Alligator Records.
51. Joshua Redman Quartet (1994). Faith. On Mood Swing [CD]. New York: Warner Bros.
52. Schubert (1991). Impromptu in G flat major. On Meditation - Classical Relaxation Vol.7 [CD]. Los Angeles: Delta Music.
Jeno Jando, piano

APPENDIX B

Initial Music Listening Test

INITIAL LISTENING TEST

You will be listening to samples of jazz and classical music in no particular order. There will be 5 seconds between samples to circle the number from 1 to 5 that most appropriately describes how the sample made you feel. There are no right or wrong answers. Please do not write your name on this answer sheet. The sample number will be stated before the sample and at the beginning of the 5 second silence. Thank you for your participation.

1=anxious, 2=tense, 3=indecisive, 4=at ease, 5=relaxed

| | | | | | | | | | | | |
|-----|---|---|---|---|---|-----|---|---|---|---|---|
| 1. | 1 | 2 | 3 | 4 | 5 | 27. | 1 | 2 | 3 | 4 | 5 |
| 2. | 1 | 2 | 3 | 4 | 5 | 28. | 1 | 2 | 3 | 4 | 5 |
| 3. | 1 | 2 | 3 | 4 | 5 | 29. | 1 | 2 | 3 | 4 | 5 |
| 4. | 1 | 2 | 3 | 4 | 5 | 30. | 1 | 2 | 3 | 4 | 5 |
| 5. | 1 | 2 | 3 | 4 | 5 | 31. | 1 | 2 | 3 | 4 | 5 |
| 6. | 1 | 2 | 3 | 4 | 5 | 32. | 1 | 2 | 3 | 4 | 5 |
| 7. | 1 | 2 | 3 | 4 | 5 | 33. | 1 | 2 | 3 | 4 | 5 |
| 8. | 1 | 2 | 3 | 4 | 5 | 34. | 1 | 2 | 3 | 4 | 5 |
| 9. | 1 | 2 | 3 | 4 | 5 | 35. | 1 | 2 | 3 | 4 | 5 |
| 10. | 1 | 2 | 3 | 4 | 5 | 36. | 1 | 2 | 3 | 4 | 5 |
| 11. | 1 | 2 | 3 | 4 | 5 | 37. | 1 | 2 | 3 | 4 | 5 |
| 12. | 1 | 2 | 3 | 4 | 5 | 38. | 1 | 2 | 3 | 4 | 5 |
| 13. | 1 | 2 | 3 | 4 | 5 | 39. | 1 | 2 | 3 | 4 | 5 |
| 14. | 1 | 2 | 3 | 4 | 5 | 40. | 1 | 2 | 3 | 4 | 5 |
| 15. | 1 | 2 | 3 | 4 | 5 | 41. | 1 | 2 | 3 | 4 | 5 |
| 16. | 1 | 2 | 3 | 4 | 5 | 42. | 1 | 2 | 3 | 4 | 5 |
| 17. | 1 | 2 | 3 | 4 | 5 | 43. | 1 | 2 | 3 | 4 | 5 |
| 18. | 1 | 2 | 3 | 4 | 5 | 44. | 1 | 2 | 3 | 4 | 5 |
| 19. | 1 | 2 | 3 | 4 | 5 | 45. | 1 | 2 | 3 | 4 | 5 |
| 20. | 1 | 2 | 3 | 4 | 5 | 46. | 1 | 2 | 3 | 4 | 5 |
| 21. | 1 | 2 | 3 | 4 | 5 | 47. | 1 | 2 | 3 | 4 | 5 |
| 22. | 1 | 2 | 3 | 4 | 5 | 48. | 1 | 2 | 3 | 4 | 5 |
| 23. | 1 | 2 | 3 | 4 | 5 | 49. | 1 | 2 | 3 | 4 | 5 |
| 24. | 1 | 2 | 3 | 4 | 5 | 50. | 1 | 2 | 3 | 4 | 5 |
| 25. | 1 | 2 | 3 | 4 | 5 | 51. | 1 | 2 | 3 | 4 | 5 |
| 26. | 1 | 2 | 3 | 4 | 5 | 52. | 1 | 2 | 3 | 4 | 5 |

APPENDIX C
Initial Music Listening Results

Initial Music Listening Results

| Initial Listening Music List | | Tally of Subject Answers For 5 Ranks | | | | |
|------------------------------|--|--------------------------------------|-------|------------|---------|---------|
| Selection Number | | 1 | 2 | 3 | 4 | 5 |
| | | anxious | tense | indecisive | at ease | relaxed |
| 1. | | 0 | 1 | 4 | 4 | 1 |
| 2. | | 0 | 0 | 2 | 4 | 4 |
| 3. | | 0 | 2 | 2 | 5 | 1 |
| 4. | | 0 | 0 | 2 | 5 | 3 |
| 5. | | 0 | 2 | 1 | 3 | 4 |
| 6. | | 3 | 1 | 2 | 3 | 1 |
| 7. | | 1 | 1 | 0 | 1 | 7 |
| 8. | | 1 | 1 | 0 | 1 | 7 |
| 9. | | 0 | 3 | 5 | 2 | 0 |
| 10. | | 0 | 2 | 1 | 4 | 3 |
| 11. | | 2 | 2 | 3 | 3 | 0 |
| 12. | | 1 | 0 | 1 | 3 | 5 |
| 13. | | 0 | 1 | 3 | 4 | 2 |
| 14. | | 0 | 2 | 2 | 3 | 3 |
| 15. | | 1 | 1 | 0 | 6 | 2 |

| Initial Music Listening List | Tally of Subject Answers For 5 Ranks | | | | |
|------------------------------|--------------------------------------|-------|------------|---------|---------|
| Selection Number | 1 | 2 | 3 | 4 | 5 |
| | anxious | tense | indecisive | at ease | relaxed |
| 16. | 1 | 3 | 1 | 5 | 0 |
| 17. | 2 | 4 | 3 | 1 | 0 |
| 18. | 1 | 2 | 2 | 3 | 2 |
| 19. | 0 | 4 | 3 | 2 | 1 |
| 20. | 0 | 2 | 0 | 5 | 3 |
| 21. | 0 | 1 | 2 | 4 | 3 |
| 22. | 1 | 2 | 3 | 4 | 0 |
| 23. | 0 | 0 | 2 | 4 | 4 |
| 24. | 1 | 3 | 4 | 2 | 0 |
| 25. | 0 | 4 | 1 | 2 | 0 |
| 26. | 0 | 1 | 1 | 7 | 1 |
| 27. | 0 | 1 | 2 | 5 | 2 |
| 28. | 1 | 4 | 1 | 4 | 0 |
| 29. | 0 | 0 | 3 | 6 | 1 |
| 30. | 3 | 4 | 2 | 1 | 0 |
| 31. | 1 | 1 | 3 | 3 | 1 |

| Initial Music Listening List | | Tally of Subject Answers For 5 Ranks | | | | |
|------------------------------|--|--------------------------------------|-------|------------|---------|---------|
| Selection Number | | 1 | 2 | 3 | 4 | 5 |
| | | anxious | tense | indecisive | at ease | relaxed |
| 32. | | 0 | 1 | 1 | 3 | 4 |
| 33. | | 0 | 5 | 1 | 4 | 0 |
| 34. | | 1 | 1 | 3 | 3 | 2 |
| 35. | | 0 | 3 | 1 | 3 | 3 |
| 36. | | 3 | 3 | 1 | 2 | 0 |
| 37. | | 0 | 1 | 0 | 6 | 3 |
| 38. | | 1 | 3 | 2 | 3 | 1 |
| 39. | | 2 | 2 | 4 | 1 | 1 |
| 40. | | 2 | 3 | 2 | 2 | 1 |
| 41. | | 0 | 0 | 0 | 5 | 5 |
| 42. | | 0 | 4 | 1 | 5 | 0 |
| 43. | | 2 | 3 | 2 | 0 | 2 |
| 44. | | 0 | 3 | 1 | 4 | 2 |
| 45. | | 0 | 3 | 0 | 7 | 0 |
| 46. | | 0 | 0 | 5 | 4 | 1 |
| 47. | | 0 | 1 | 2 | 4 | 3 |

| Initial Music Listening List | Tally of Subject Answers for 5 Ranks | | | | |
|------------------------------|--------------------------------------|-------|------------|---------|---------|
| Selection Number | 1 | 2 | 3 | 4 | 5 |
| | anxious | tense | indecisive | at ease | relaxed |
| 48. | 2 | 4 | 3 | 1 | 0 |
| 49. | 0 | 4 | 1 | 4 | 1 |
| 50. | 1 | 4 | 1 | 4 | 0 |
| 51. | 0 | 2 | 3 | 5 | 0 |
| 52. | 0 | 1 | 2 | 3 | 4 |

APPENDIX D
Classical Music Research List

Classical Music Research List

Selection Number In Initial Listening Music List and Complete Music Title

(Listed in Order Played During Research)

2. Tchaikovsky (1991). Swan Lake- Scene. On Meditation - Classical Relaxation Vol.6 [CD]. Los Angeles: Delta Music.
Bavarian Radio Symphony Orchestra
Hans Vonk, conductor
23. Mozart (1991). Eine kleine Nachtmusik - Romance. On Meditation - Classical Relaxation Vol.6 [CD]. Los Angeles: Delta Music.
Berlin Chamber Orchestra
Peter Wohlert, conductor
4. Brahms (1991). Cradle Song. On Meditation - Classical Relaxation Vol.7 [CD]. Los Angeles: Delta Music.
Budapest Strings

37. Schubert (1991). Theme and Variations from "Quartet in G major." On Meditation - Classical Relaxation Vol.7 [CD]. Los Angeles: Delta Music.
Laslo Szendrey-Karper, guitar
Zoltan Janez, flute
Pal Lukacz, viola
Ede Bada, cello
41. Tchaikovsky (1991). The Seasons - "June" (Barcarolle.) On Meditation - Classical Relaxation Vol.7 [CD]. Los Angeles: Delta Music.
Jeno Jando, piano

APPENDIX E

Jazz Music Research List

Jazz Music Research List

Number in Initial Music Listening List and Complete Music Title

(Listed in Order Played During Research)

1. Joshua Redmond Quartet (1994). Sweet Sorrow. On Mood Swing [CD].
New York: Warner Bros.

played first 7 minutes of composition
7. Jackie Cain and Roy Kral (1994). Corcovado (Quiet Nights of Quiet Stars). On Jazz 'Round Midnight - Bossa Nova [CD]. New York:
Polygram Records.
14. Cal Tjader (1994). Vai Querer. On Jazz 'Round Midnight - Bossa Nova
[CD]. New York: Polygram Records
45. Stan Getz and Charlie Byrd (1994). Samba De Uma Nota So (One Note Samba). On Jazz 'Round Midnight - Bossa Nova [CD]. New York:
Polygram Records

APPENDIX F
Consent Forms

TEXAS WOMAN'S UNIVERSITY
HUMAN SUBJECT CONSENT TO PARTICIPATE IN RESEARCH
THE EFFECTS OF JAZZ AND CLASSICAL MUSIC AND SILENCE ON
STATE ANXIETY IN MENTAL HEALTH PROFESSIONALS

This study will look at how different types of music make you feel. Participation in this study will involve a maximum of four hours over four weeks. First, you will meet with all subjects in this study and listen to music. You will rank this music on a 5 point scale. After this, you will meet with the researcher on three separate occasions. Each of these sessions will involve listening to music and circling numbers concerning how you feel. There are no right or wrong answers to this test. The researcher, who is employed as a music therapy intern at Terrell State Hospital, will be leading the sessions. A benefit of this study is the knowledge of how music affects your feelings. This will let you know which type of music is beneficial to reduce stress. The researcher has explained this consent form. The consent must be returned before the study begins.

Confidentiality will be protected by coding the data sheets with pre-assigned numbers rather than by using names. You are not to write your name on the data sheets anywhere. After the data sheets have been tabulated by the researcher, the sheets will be shredded and thrown away. During tabulation the data sheets will be secured behind a lock. If you have any questions please call me at work. Do not include the time spent in this research on your time sheet. You have the right to terminate your participation at any time. Thank You for your participation

Lori E. Chester work number x2587

TEXAS WOMAN'S UNIVERSITY

HUMAN SUBJECT CONSENT TO PARTICIPATE IN RESEARCH

THE EFFECTS OF JAZZ AND CLASSICAL MUSIC AND SILENCE ON

STATE ANXIETY IN MENTAL HEALTH PROFESSIONALS

This study will look at how different types of music make you feel. Participation in this study is totally voluntary and will involve approximately four hours of your time, over four weeks. The music used will be determined by the participants. The researcher, who is employed as a music therapy intern at Terrell State Hospital, will lead the sessions. The knowledge gained by this research could be beneficial knowing which type of music is best to reduce stress. First, you will meet with all the subjects in the study and listen to music. You will rank this music on a 5 point scale. After this, you will meet with the researcher on three separate occasions. Each of these sessions will involve listening to music and circling numbers concerning how you feel. Participant data sheets will be coded rather than using your name. These data sheets will be secured behind a lock during tabulation. After all statistics have been attained the data sheets will be shredded and thrown away. You have the right to withdraw from participation in this study at any time.

I understand that no medical service or compensation is provided to me by the university as a result from injury from participation in research. An offer to answer all of my questions regarding the study has been made and I have been given a copy of the dated and signed consent form. If alternative procedures are more advantageous to me, they have been explained. A description of the possible discomfort and risks reasonable to expect have been discussed with me. I understand that I may terminate my participation in the study at any time.

If you have any concerns about the way the research has been conducted, contact the Texas Woman's University Office of Research and Grants Administration at (817)898-3375. Contact me at work, x2587, if you want the results of this study. Thank you for your participation.

I understand each of the above items relating to participating in this research under the care of Lori E. Chester, and I hereby consent to participation in the research project. I understand that I do not put the time spent in this research on my time sheet.

_____date_____

Signature of person giving consent

I have explained the above items to _____and believe that
_____understands each of the items.

_____date_____

Investigator's signature

APPENDIX G

STAI Pre-Posttest Raw Scores For Jazz and Classical Music and Silence Conditions

**STAI Pre-Posttest Raw Scores For Jazz and Classical Music
and Silence Conditions**

| Subject No. | Raw Scores | | |
|-------------|----------------------|---------------------------|-------------------------|
| | <u>Pre-Post Jazz</u> | <u>Pre-Post Classical</u> | <u>Pre-Post Silence</u> |
| 1. | 47-45 | 43-44 | 52-50 |
| 2. | 48-36 | 38-25 | 35-29 |
| 3. | 47-33 | 34-30 | 39-34 |
| 4. | 49-31 | 46-24 | 60-37 |
| 5. | 60-55 | 62-46 | 56-59 |
| 6. | 38-29 | 35-38 | 46-34 |
| 7. | 42-35 | 63-55 | 51-37 |
| 8. | 45-28 | 47-32 | 45-25 |
| 9. | 36-28 | 29-30 | 37-26 |
| 10. | 41-36 | 42-32 | 73-47 |

APPENDIX H

**STAI Pre-Posttest Change Scores for Jazz and Classical Music
and Silence Conditions**

**STAI Pre-Posttest Change Scores for Jazz and Classical Music
and Silence Conditions**

| Subject No. | Change Scores | | |
|-------------|---------------|------------------|----------------|
| | <u>Jazz</u> | <u>Classical</u> | <u>Silence</u> |

| | | | |
|-----|----|----|----|
| 1. | 2 | -1 | 2 |
| 2. | 12 | 13 | 6 |
| 3. | 14 | 4 | 5 |
| 4. | 18 | 22 | 23 |
| 5. | 5 | 16 | -3 |
| 6. | 9 | -3 | 12 |
| 7. | 7 | 14 | 8 |
| 8. | 17 | 15 | 20 |
| 9. | 8 | -1 | 11 |
| 10. | 5 | 10 | 26 |

APPENDIX I

**Bar Graph of STAI Pre-Posttest Change Scores for
Jazz and Classical Music and Silence Conditions**

Bar Graph of STAI Pre-Posttest Change Scores for
Jazz and Classical Music and Silence

