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The effect of music therapy on depression and anxiety in institutionalized adolescent females

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institutionalized adolescent females**

Kampfer, Karen M., M.A.

University of Nevada, Las Vegas, 1989

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The Effect Of Music Therapy On Depression
And Anxiety In Institutionalized
Adolescent Females

by

Karen M. Kampfer

A thesis submitted in partial fulfillment
of the requirements for the degree of

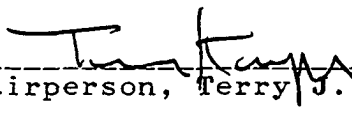
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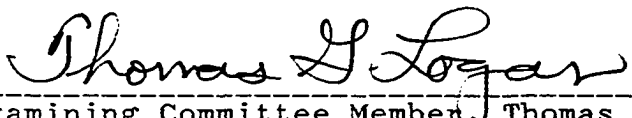
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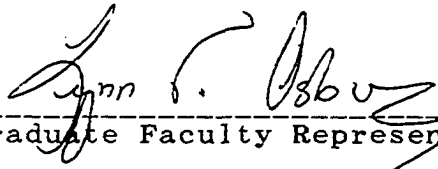
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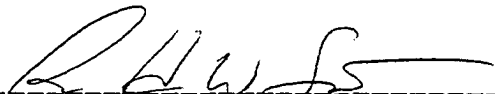
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April 1989

Abstract

This study examined the effect of music therapy on the reduction of depression and anxiety in adolescent females. A literature review with a focus on music therapy is presented. In this study "music therapy" consisted of weekly group sessions in which subjects selected, listened to, and discussed pieces of music according to a particular theme assigned by the experimenter. A quasi-experimental, nonequivalent control group design was utilized. Pre- and post-test measures consisted of the Beck Depression Inventory and the State-Trait Anxiety Inventory. A final questionnaire measuring subject opinion regarding music therapy was administered to the experimental group. No significant difference was found on either of the measures between the experimental and the control groups. Possible limitations of the study are discussed.

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Introduction

Expressive treatment modalities such as art, music, and dance therapies are receiving increased attention in the psychological literature. Art therapy is, perhaps, the most widely investigated of the expressive therapies, though music therapy is rapidly becoming visible in the forefront of the literature as well.

Although the powerful nature of music is recognized almost universally, permeating cultures from primitive to technological, the systematic investigation of the therapeutic effect of music has only begun within the last century. Jellison (1973) reviewed the frequency and general mode of inquiry in research on music therapy from 1952-1972, and noted the importance of identifying historical trends as the field of music therapy matures. Solomon and Heller (1982) discussed the importance of the establishment of the National Association of Music Therapy (NAMT) in 1950 as a crucial turning point for music therapy in America, giving it credibility and initiating music therapy into the modern era. During the same decade, a similar organization was begun in Great Britain. The British Society for Music Therapy, founded in 1958, was designed to promote the use of music in the treatment of mental, emotional, and physical disorders

(Krout & Tischler, 1986). Gilbert (1979), while acknowledging the movement toward formal organization as a sign of objectivity within the field, suggested a need for continued philosophical and historical research to examine changes and trends in music therapy.

History

Despite the recent entry of music therapy into the body of scientific literature, the role of music and its therapeutic value is evident throughout anthropological and sociological accounts of a variety of peoples and cultures. The use of music for healing has been reported in historical accounts dating back to Biblical writings as well as sources of ancient Arabic, Chinese, and Hebrew history (Hughes, 1948). Music, particularly with dominant rhythm patterns, has been used throughout history to motivate ritualistic dancing, military marching, fencing techniques, and muscular coordination. Rouget (1985) in an ethnological work on the relationship of music and trance across cultures discussed the importance of music in a variety of rituals associated with physical and psychological healing. Radin (1948) cited numerous examples of ways in which primitive peoples utilized music and singing along with healing and folk medicine. He asserts that the psychotherapeutic value of music is in

promoting a kind of joint participation in the process of treatment between the medicine man or priest/practitioner and patient. He also suggests that primitive peoples somehow recognized music as a culturally acceptable adjunct to promote relaxation and concentration in facilitating the healing process.

In an ethnological review of the use of music by American Indians, Densmore (1948) described the close relation between music and medicine, and the belief in the healing powers of music among numerous tribes including the Navajo, Seminoles, Cherokee, Algonkins, and Chippewa, as well as many other tribes ranging across North America.

Music was associated with health and well-being among the ancient Greeks and Romans (Meinecke, 1948) who strongly believed there was an association between physical health and psychological well-being -- body and soul. Music, they asserted, was a balancing factor, promoting harmony and reducing fear, anger, sorrow, and worry. Plato, Aristotle, Pythagoras, and others stressed the importance of such concepts. Meinecke describes Aristides' assertion that music is essentially a form of psychotherapy with both curative and preventive properties promoting psychological health and serving as a catalyst for social interaction. Meinecke also

makes reference to the Alexandrian physician, Herophilus "who is reported to have regulated the arterial pulsation according to the musical scale correspondingly with the age of the patient" (p. 68). Perhaps Herophilus was one of the first physicians to investigate the effect of music on physiological response.

During the Middle Ages, tarantism, an unusual and complex sociological-pathological phenomena induced by social and cultural factors was reported in Italy. Folk legend asserts that affected persons had been bitten by a tarantula and driven into a frenzied and trance-like state. Music was thought to be the most effective treatment for this alleged dancing madness (Rouget, 1985; Sigerist, 1948).

Carapetyan (1948) discussed the role of music and medicine during the Renaissance and into the 17th and 18th centuries, citing many cases of physicians who investigated music's effect upon physical and psychological health. The logic of much of their writing was based upon the theory of the four humors, the corresponding four cosmic elements, and four component musical elements that were all believed to blend and interact resulting in a state of well-being if balanced. This naturalistic view and blending of components

echoes the view of physiology and the mode of scientific inquiry during the Renaissance period.

During the 19th century, the role of music in special education, particularly the utilization of music in the assessment of hearing and speech development, introduced music as a modality in another therapeutic area (Soloman, 1980). Soloman cites numerous references supporting the important role of music in this area. Taylor (1981) reviewing some of the historical aspects of music therapy cited Edison's invention of the phonograph in 1877 and the introduction of commercial phonograph records in 1896 as important markers in music history. Recorded music made music stimuli more readily available in situations conducive to scientific investigation.

Early scientific investigation of music's effect on behavior was mainly directed toward physiological responses (Standley, 1986). Standley presents a review of physiological laboratory studies citing pioneering efforts on research examining the relationship between music and physiological responses including pulse rate, blood pressure, respiration and heart rate, and muscle tension. This research accelerated at the turn-of-the-century and most studies were done in laboratory rather than clinical

contexts. He describes the use of music as an audio-analgesic in medical and dental settings as one of the earliest clinical applications. Taylor (1981) cited initial clinical utilization of music as an audio-analgesic in the early 1900's.

By the 1940's, an increased interest in music therapy research suggested a need for greater organization (Solomon & Heller, 1982). Scientific investigation of music therapy was emerging in the psychological literature. Both civilian and military hospitals began utilizing music in surgical rooms and other hospital departments to reduce fear and create a more relaxing atmosphere (Taylor, 1981). Altschuler (1948) conducted an experiment to study the effect of hydrotherapy with and without music on verbalization in hospitalized psychotic patients. Results indicated that music had a quieting effect on subjects, facilitating a more pleasant atmosphere for both patients and staff. Kerr (1944) found music to be a factor favorable to the quantity of production in the industrial workplace, citing the importance of music preference. Middleton, Ray, and Kerry (1944) found that subjects in their study reported that listening to music made them feel less tired and more pleasant.

The above brief historical review of music therapy is intended to provide a basic framework for a better understanding of the extent to which music has become an integral part of contemporary psychological intervention and sociological phenomenon. Whether music and its effects on behavior are considered as magic or science ultimately depends upon the framework of one's beliefs and values. In our society where scientific inquiry is viewed as the preferred method for validation of a theory, it seems that the systematic investigation of music therapy is an appropriate and worthwhile endeavor. The majority of recent published research (1974-1986) on music therapy has originated from university settings (James, 1985). Siegel, Cartwright, and Katz (1986) examined the current status of music therapy research through a survey of registered music therapists in the Southeast region of the U.S. They recommend research to substantiate and confirm current clinical work. Investigations measuring behavioral responses rated high in terms of research needs and interests. An emphasis on the investigation of music therapy in the areas of biofeedback/physiological responses, and imagery/relaxation, also rated high in interest for future research.

Definition

An operational definition of "music therapy" has not been established within the literature; however, there is a general underlying idea regarding the generic meaning of the term. Solomon and Heller (1982) defined music therapy as "systematic application of the symbol, activities, and styles of music to bring about desirable changes in behavior." (p. 163). Hanser (1983) defined music therapy as "the scientific application of music and musical stimuli to bring about behavior change" (p. 5). Although no exact definition is established universally, an understanding of the basic concept of music therapy as a factor that promotes physical or psychological well-being resulting in observable behavior change appears to be an acceptable assumption to most investigative or experimental studies.

The term "music therapy" can refer to a number of techniques including listening to music, playing instruments, singing, or some other activity related to music.

Applications

The utilization of music has been shown to be therapeutic in a number of situations and over a wide range of populations including: infants and toddlers (Marley,

1984); pediatric patients (Brodsky & Niedorf, 1986; Froelich, 1984; McDonnell, 1979); non-verbal developmentally handicapped children (Samanski, 1977); children with Attention Deficit Disorder (Cripe, 1986); autistic children (Nelson, Anderson, & Gonzales, 1984); children with behavior problems (Presti, 1984); emotionally disturbed children (Grossman, 1978); adolescents with Adjustment Disorder (Henderson, 1983); adolescents with Conduct Disorder (Kivland, 1986); adult psychiatric patients (Williams & Dorow, 1983); the mentally retarded (Becker, 1983; Davis Wiesler, & Hanzel, 1983; Holloway, 1980; Humphrey, 1980); the elderly (Fischer, 1984; Hamilton, 1985; Olson, 1984; Riegler, 1980; Riegler-Wolfe, 1983); expectant mothers in labor (Hanser, Larson, & O'Connell, 1983); burn patients (Christenberry, 1979); cancer patients (Bailey, 1984); chronic disease and pain patients (Levine-Gross & Swartz, 1982; Scartelli, 1982; Wolfe, 1978); patients with gait disorders (Staum, 1983); and patients with echolalia (Bruscia, 1982).

Children and Adolescents

Music therapy has been used as an adjunct therapy when working with children and adolescents. Marley (1984) found that music, plus interaction with a music therapist useful in

the reduction of behaviors such as crying and throwing things, and that it resulted in decreased body tension in hospitalized infants and toddlers. In another study involving pediatric patients, Froelich (1984) found music therapy to be helpful as a means of initiating communication with hospitalized children. McDonnell (1979) suggested paraverbal therapy as effective in determining hospitalized childrens' anxieties and emotional concerns. Samanski (1977) reported increased self-esteem, confidence, and communication in non-verbal hearing children following a program that utilized singing, signing, and dancing to stimulate emotional responses in noncommunicative children. Grossman (1978) investigated a projective technique that used autobiographical stories and musical stimuli with emotionally disturbed children. Results suggested that this type of technique can be helpful in supplying useful clinical information. Nelson et al. (1984) reviewed and discussed research literature on the use of music therapy with children with autism and other pervasive developmental disorders. The authors concluded that music can be successfully offered as a reward to enhance participation in language, social, and motor functioning activities. The utilization of structured activities involving clear expectations that demonstrate the

child's ability to have predictable, positive effects on the environment and aid in breaking patterns of learned helplessness.

Music therapy has also been found to be helpful with older children and adolescents. Mainprize (1985) used music to establish rapport and create a basis for therapeutic interaction with adolescents in a residential setting. Lyrical and symbolic identification was emphasized as an important factor in the interpretation of adolescents' self expression. In one study, Presti (1984) implemented a 6 week structured music therapy program involving a levels system approach with severely behaviorally handicapped children. Using a variety of musical experiences along with the behavioral methodology of contingency management, this study indicated that favorable behaviors increased from 75% to 95.7%. Using rock music as therapy, Cripe (1986) found children with Attention Deficit Disorder showed a significant reduction in the number of motor activities during music sessions; however, subjects' attention span did not change significantly. Kivland (1986) conducted a study involving a conduct disordered adolescent and used music to increase self-esteem. Results suggested that music therapy can be a useful part of a total treatment program. In a study

involving hospitalized adolescents with a diagnosis of adjustment disorder in reaction to adolescence, Henderson (1983) examined awareness of mood in music, group cohesion, and self-esteem. The experimental subjects scored higher on awareness of mood in music after music therapy sessions. Although the self-esteem measure did not indicate any significant difference between experimental and control groups, the group cohesion measure approached significance when the experimental group was compared to the control group.

The Elderly

Another population that appears responsive to music facilitated therapy is the elderly. In a comparison of reality orientation programs with and without music, Riegler (1980) found that music therapy facilitated the success of the reality orientation program among the geriatric residents of a nursing home. Another study utilized music in a group sensory training program for regressed geriatric patients. Sensory awareness, reality orientation, attitude, and activity participation significantly improved in the experimental group compared to the control group (Riegler-Wolfe, 1983). Fischer (1984) utilized beginning keyboard instruction as a nonverbal intervention for elderly persons and found a significant increase in reminiscence

frequency and life satisfaction within the lower socioeconomic group of elderly subjects. In another study involving the elderly, player piano music increased the physical activity of subjects as well as their participation in groups. Subjects also reported enhanced positive feelings of well-being (Olson, 1984). Hamilton (1985) studied the roles of pet and music therapy in providing sensory stimulation to institutionalized elderly persons. Results indicated both pet and music therapy significantly improved cognitive functioning during the process. However, these changes were not sustained after therapy ended. Functioning in the pet therapy group was significantly greater than in the music therapy group. Pet therapy elicited a greater number of social interactions, physical activity, and general interest than music therapy. After the study was finished, residents reported they were more interested in both pets and music than before.

Several music therapy programs for the elderly are presented in the literature. Palmer (1977) presented a review of a music therapy program at a retirement facility for the elderly with functioning levels ranging from completely independent to total care, suggesting that this type of program enhances physical and mental functioning

levels. Weissman (1982) developed a music therapy model with 50 treatment goals, 185 behavioral objectives, and 30 music activities to meet selected needs of the institutionalized elderly. Berger (1983) suggested expressive interventions such as poetry and song as effective treatment modalities with elderly persons.

It appears that the application of music therapy with the elderly is an area of research worthy of further exploration.

Imagery and Relaxation

Research into imagery and relaxation is becoming increasingly popular and music appears to be an important factor in the investigation of this area. In a study by Peach (1984), music therapy was found to facilitate some increase in relaxation perception and imagery. However, the author noted some problems in generalizing the results of the study and suggested further research. Rider (1985) found music-mediated imagery produced significant effects on pain reduction and muscle relaxation. Another study measured the effect of music, imagery, and relaxation on corticosteroids, also known as "stress hormones" and body temperature. Utilizing the State-Trait Anxiety Inventory, the authors concluded that music therapy may be useful in stress reduction and could have positive implications for physical health (Rider, Floyd, & Kirkpatrick; 1985).

Logan and Roberts (1984) examined the effects of different types of relaxation music on tension level. Although results indicated that music conditions did not affect a decrease in tension levels, the authors cited several possibilities for further research. In a study investigating musical preference and relaxation, Stratton and Zalanowski (1984) found that no single type of music was found to be more relaxing, but the single most important factor related to relaxation was the individual subjects' degree of liking of the music.

Chronic Disease and Pain Management

Josepha (1968) citing specific problems of the chronically ill and physically disabled, reviewed the utility of music therapy techniques among various illnesses. Curtis (1986) described previous research confirming the effectiveness of music as an audio-analgesic and its utilization as a distractor, pain suppressor, and relaxation agent.

Scartelli (1982) investigated the effect of sedative music on electromyographic biofeedback assisted relaxation training of spastic cerebral palsied adults. Although the sample size was small ($N = 3$), results suggested a decrease in muscle tension of 32.5% with biofeedback alone, and a 65% decrease in muscle tension using biofeedback and music,

indicating a need for further research. Another study examined the effect of music therapy on anxiety in a group of hospitalized chronically ill patients. Using the State-Trait Anxiety Inventory as the measure of anxiety, results indicated a significant reduction in both state and trait anxiety in the experimental group compared to the control group. The authors cited study limitations and suggested further research.

Hanser, Larson, and O'Connell (1983) conducted a study involving seven expectant mothers in labor. Music was cued to rhythmic breathing and results indicated that expectant mothers exhibited fewer pain responses when exposed to a music condition. Wolfe (1978) conducted two case studies involving music therapy and pain rehabilitation. The music therapy increased positive verbalizations and decreased negative verbalizations, and may be helpful in pain rehabilitation. The author cited limitations of the study, indicated caution in generalizing the results, and suggested further research. Another study conducted two case studies involving cancer patients and their families (Bailey, 1984). Music therapy facilitated family communication patterns, reduced anxiety, promoted self-expression of feelings, and reduced grief. Again, caution was indicated in the

generalization of results. In a study investigating the effect of music on pain relief and relaxation involving terminally ill patients, Curtis (1986) found no significant effect of music but suggested further research with music and the terminally ill was warranted.

The Mentally Retarded

Music therapy seems to have some mixed results with the mentally retarded. Humphrey (1980) found that music ear training significantly enhanced auditory discrimination among a choir group of trainable mentally retarded adolescents. In a comparison of passive and active music reinforcement, Holloway (1980) found that music significantly increased preacademic and motor skills in a group of severely retarded children and adolescents, although there was no difference between active and passive music reinforcements. Becker (1983), in a case study with a retarded male, found that normal music served as a positive reinforcer to stimulus whereas distorted music functioned as a neutral stimulus in the acquisition of eye contact. Another case study with a severely retarded male found music effective in reducing out-of-seat behavior (Davis, et al., 1983). Hairston (1984) analyzed responses of mentally retarded autistic and mentally retarded non-autistic children to art and music therapy.

Although art or music therapy did not have a significant effect during the experimental period, the autistic subjects improved in behavior and development after the experimental period was over indicating that therapies possibly established later gains. Spencer (1988) studied the effect of instrumental and movement activities on the development of ability to follow direction in a group of 27 trainable mentally retarded adolescents. A significant improvement occurred in the development of motor activities in the movement group; however, no significant improvement was evident in the instrumental or control groups. Another study examined the effect of distorted music versus interrupted music on self-stimulatory behaviors in a group of profoundly retarded adolescents (Greenwald, 1978). Although results were not significant, the author suggested that perhaps the contingent music stimulus was not strong enough to serve as a reinforcer in a population with an extremely low awareness of environment.

Other Clinical Utilizations

The complete range of utilizations in which music therapy can be effective is beyond the scope of this paper. However, several applications are worthy of note.

Christenberry (1979) cited the specific physical and psychological problems of burn patients, emphasizing the use of music therapy as an intervention. She asserts that music therapy can be effective in easing sensory deprivation, augmenting physical goals by acting as a pain distractor, encouraging respiratory rehabilitation through singing, and enhancing relaxation. Although Schneider (1983) did not obtain significant results in the examination of music, imagery, and relaxation with hospitalized burned children, design and measurement limitations of the study as well as the possibility that the test treatment may not have been powerful enough were considerations when reviewing the study.

In a study investigating the effect of music on patients with gait disorders resulting from stroke, spastic disorders, and arthritic or scoliotic conditions, Staum (1983) found music and rhythmic stimuli helpful in gait rehabilitation.

Bruscia (1982) found the implementation of an interdisciplinary treatment program including music was successful in reducing echolalia in a case study involving a 14-year-old, severely echolalic male.

Sacks (1985) discussed the importance and practicality of the use of music in the treatment of mentally retarded patients as well as patients with neurological damage affecting cognitive judgment abilities, and patients with severe frontal lobe damage and apraxia.

Additional applications of music therapy are possible with a variety of clinical populations. The practical use of this treatment modality appears to have the potential for expanded utilization as a treatment modality.

Hypotheses

The purpose of this study was to examine the effect of music therapy sessions on depression and anxiety in institutionalized adolescent females. The following three hypotheses were investigated:

1. Subjects in the experimental group will become less depressed following exposure to music therapy sessions compared to subjects in the control group. The Beck Depression Inventory will be utilized to obtain pre- and post-test scores of depression.

2. Subjects in the experimental group will become less anxious in terms of state-anxiety following exposure to music therapy sessions compared to subjects in the control group. The State-Trait Anxiety Inventory-State will be utilized to obtain pre- and post-test scores of state-anxiety.

3. Subjects in the experimental group will become less anxious in terms of trait-anxiety following exposure to music therapy sessions compared to subjects in the control group. The State-Trait Anxiety Inventory-Trait will be utilized to obtain pre- and post-test scores of trait-anxiety.

Rationale

The development of these hypotheses was based on several observations. First, the demonstrated ability of music to effect behavior as indicated in the research literature. The subjects recruited for this study were institutionalized adolescents with behavior problems, an indication that behavioral improvements would be desirable modifications. Second, that if music facilitates emotional expression in adolescents (Henderson, 1983; Mainprize, 1985) it may also reduce depression. Finally, the notion that if musical preference and the degree of liking for a particular kind music can promote relaxation (Stratton & Zalanowski, 1984) it may also reduce anxiety.

Assessment Measures

The assessment measures selected for this study were the Beck Depression Inventory and the State-Trait Anxiety Inventory.

The Beck Depression Inventory is one of the most widely used measures of depression with reliability and validity ratings ranging from good to excellent (Beck, Steer, & Garbin, 1988; Corcoran & Fischer, 1987).

The State-Trait Anxiety Inventory measures two concepts of anxiety: (1) state-anxiety defined as a transitory emotional condition characterized by subjective feelings of

tension and apprehension; and, (2) trait-anxiety defined as a relatively stable condition of anxiety proneness (Spielberger, Gorsuch, & Lushene, 1970). Spielberger and his associates developed this instrument and provide data to establish relatively high ratings of reliability and validity. Understandably, test-retest reliability is lower on state-anxiety compared to trait-anxiety due to the temporary nature of state-anxiety. Other studies have supported the validity of the State-Trait Anxiety Inventory-State measure (Knight, Waal-Manning, & Godfrey, 1983) and its sensitivity as a research instrument (Layton, 1987).

Method

Subjects

Thirty-five institutionalized adolescents served as voluntary subjects for the study. All subjects were female, ranging in age from 13 to 17 years of age. All subjects were selected from a single location, the Home of the Good Shepherd, a residential facility for adolescent girls with behavior problems. Subjects were randomly assigned to experimental or control groups in a non-biased manner of selection. Subjects' participation in the experiment was voluntary, with subjects reserving the right to withdraw from participation in the study without penalty.

Of the 35 subjects who initially volunteered to participate in the study, 23 completed the entire procedure. Out of the initial 18 subjects selected for the experimental group: 2 were removed for behavioral problems within the group, 3 were discharged from the institution during the term of the experiment, and 2 voluntarily withdrew from the experiment, leaving a total of 11 experimental subjects to complete the entire procedure. Out of the initial 17

subjects selected for the control group: 3 were discharged from the institution during the term of the experiment, and 2 voluntarily withdrew from the experiment, leaving a total of 12 control subjects to complete the entire procedure.

Apparatus

A Sharp model GF-4343 portable stereo radio cassette recorder supplied by the experimenter was utilized to play cassette tapes. A limited number of blank cassette tapes were supplied at the onset of the experiment for subjects' use, or subjects had to option of bringing their own cassette tapes.

Procedure

Permission for the experiment was obtained by the management of the Home of the Good Shepherd. It was agreed that, in addition to conducting music therapy sessions, the experimenter would sit in on weekly treatment assessment meetings to facilitate the experimenter's understanding of client problems that might surface in the music therapy sessions.

"Music therapy" consisted of weekly sessions in which subjects in the experimental group listened to and discussed pieces of music selected to coincide with a particular theme

(e.g., identity, significant life event, significant personal meaning, the future, the world).

A quasi-experimental, nonequivalent control group design was utilized:

<u>Treatment</u>	<u>Measurement</u> <u>Week 1</u>	<u>Weeks 2-7</u>	<u>Measurement</u> <u>Week 8</u>
Experimental	Pre-test	Music Therapy	Post-test

Control	Pre-test		Post-test

The experimenter visited the Home of the Good Shepherd to recruit volunteers for the experiment. The nature of the experiment was explained and Consent Forms (see Appendix A) were made available to all interested residents and signatures were obtained.

Pre- and post-test measures for depression and anxiety consisted of the Beck Depression Inventory (Beck, 1978; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) and the State-Trait Anxiety Inventory (Spielberger, Gorsuch, & Lushene, 1970).

The pre-test measures were administered collectively to all subjects. Following the pre-test, subjects were informed for which group, experimental or control, they were selected. Control group members were informed that their participation in the post-test would be announced on the appropriate date. In order to maintain a manageable group size and handle time

limitations, experimental subjects were divided into 2 subgroups. One subgroup met on Mondays from 8-9:30pm and the other subgroup met on Tuesdays from 8-9:30pm. Each subgroup was given identical instructions (See Appendix B). These instructions were verbalized and clarified by the experimenter. Themes for the music therapy were supplied weekly in written form and subjects were requested to bring a selected piece of music according to an assigned theme for each music therapy session. Six weekly music therapy sessions were conducted with each experimental subgroup, for a total of 12 sessions.

No activity was assigned to control group subjects other than the pre- and post-test measures. During the time slot music therapy was in session, residents' usual activities involved free time, study, or early bedtime.

Post-test measures were administered collectively to all subjects. Experimental group members were asked to complete an open-ended questionnaire regarding the music therapy (see Appendix C) in addition to the Beck Depression Inventory and the State-Trait Anxiety Inventory.

All activities were conducted on the grounds of the Home of the Good Shepherd. Pre- and post-test measures were

administered in a multi-purpose room. Music therapy sessions were conducted in Shepherd's Hall, a mobile home unit with couches and chairs, conducive to a group setting.

Results

Beck Depression Inventory (BDI), State-Trait Anxiety Inventory-State (STAI-1), and State-Trait Anxiety Inventory-Trait (STAI-2) scores were analyzed separately using a two-way, mixed effects analysis of variance (ANOVA) and an analysis of covariance (ANCOVA). Differences between experimental and control group treatments, changes in scores at time of measurement (pre- and post-test), and the interaction of these variables were examined. Mean scores and standard deviations for each measure are presented in Table 1.

Insert Table 1 About Here

Analysis of BDI Scores

A two-way treatment by time of measurement ANOVA was conducted using pre- and post-test BDI scores for subjects in both the experimental and control groups. The main effect for treatment was not significant, ($F(1,21) = .004, p > .05$). The experimental group was not less depressed in general than the control group. The main effect for time of measurement, however, was significant ($F(1,21) = 10.98, p < .05$). Post-test BDI scores for both experimental and control groups were lower than pre-test BDI scores. The treatment by time

of measurement interaction was not significant, ($F(1,21) = .004, p > .05$) (see Figure 1). BDI scores decreased equally for both the experimental and control groups. To further test the possibility of interaction, a one-way ANCOVA was computed on BDI post-test scores which indicated that the treatment effect was not significant, ($F(1,20) = .006, p > .05$), Pre- BDI scores served as the covariate. The adjusted means for experimental and control groups were 9.42 and 9.20, respectively. The experimental group did not achieve significantly lower BDI scores than the control group after treatment.

Insert Figure 1 About Here

Analysis of STAI-1 Scores

A two-way treatment by time of measurement ANOVA was conducted using pre- and post-test STAI-1 scores for subjects in both experimental and control groups. The main effect for treatment was not significant, ($F(1,21) = 2.94, p > .05$). Noteable, was the tendency toward lower state-anxiety scores in the experimental groups compared to the control group; however, this tendency was not significant. The main effect for time of measurement was not significant, ($F(1,21) = .02,$

$p > .05$), Post-test STAI-1 scores for the experimental group were slightly, but not significantly, lower whereas control group post-test scores were slightly higher than pre-test STAI-1 scores. The treatment by time of measurement interaction was not significant, ($F(1,21) = .50, p > .05$). STAI-1 scores did not significantly decrease more for the experimental group than the control group (see Figure 2). A one-way ANCOVA computed on post-test STAI-1 scores indicated that the treatment effect was not significant, ($F(1,20) = 2.00, p > .05$). Pre- STAI-1 scores served as the covariate. The adjusted means for experimental and control groups were 43.40 and 48.38, respectively.

Insert Figure 2 About Here

Analysis of STAI-2 Scores

A two-way treatment by time of measurement ANOVA was conducted using pre- and post-test STAI-2 scores for subjects in both experimental and control groups. The main effect for treatment was not significant, ($F(1,21) = 3.50, p > .05$). The experimental group did not show a significantly greater reduction in trait-anxiety than the control group. The main effect for time of measurement was not significant, ($F(1,21) = .28, p > .05$). Post-test STAI-2 scores for both

experimental and control groups were not lower than pre-test STAI-2 scores. The treatment by time of measurement interaction was not significant, ($F(1,21) = .05, p > .05$). STAI-2 scores did not significantly decrease more for the experimental group than the control group (see Figure 3). A one-way ANCOVA computed on STAI-2 scores indicated that the treatment effect was not significant, ($F(1,20) = .60, p > .05$). Pre- STAI-2 scores served as the covariate. The adjusted means for experimental and control groups were 46.32 and 49.29, respectively.

Insert Figure 3 About Here

Discussion

The purpose of this study was to determine the effect of music therapy on depression and anxiety in institutionalized adolescents. Results indicated there was no significant reduction in depression (Hypothesis 1), state-anxiety (Hypothesis 2), or trait-anxiety (Hypothesis 3) in the experimental group compared to the control group.

A significant decrease in depression level was found between BDI pre- and post-test scores for both the experimental and the control group. These reductions could be a result of external factors such as acclimation to or increased involvement in the Home of the Good Shepherd program that incorporated group and individual therapy, academic instruction, and residential supervision.

No significant difference was found between STAI-1 and STAI-2 pre- and post-test scores for either the experimental or the control group. However, STAI-1 and STAI-2 measures indicated that the control group demonstrated consistently higher levels of anxiety on both pre- and post-test measures than the experimental group. This could be a result of anxiety producing factors including personal, family, or

situational difficulties. Some subjects were awaiting finalization of pending release dates while others were unsure of future plans, aspects that could affect anxiety levels.

The quasi-experimental, nonequivalent control group design utilized in this study is one of the most widely used designs in social science research (Campbell & Stanley, 1963; Martin, 1985). Since the subjects' pre-experimental sampling equivalence was unassured, a true experimental pre- and post-test control group design was not possible. This quasi-experimental design facilitated the most feasible framework for the experimenter to conduct the study.

In addition to the BDI and the STAI, a final questionnaire was completed by the experimental group. To the question, "What did you enjoy most about the music therapy?": 10 subjects stated they enjoyed listening to the music; one stated, "Finding out how I relate to some songs"; one stated, "It made me feel better"; and another stated, "The chance to express our feelings toward music". In response to the question, "What did you enjoy least about the music therapy?": 5 subjects stated they disliked listening to some particular styles of music; 3 subjects stated they disliked criticism of particular musical styles by other

group members; 2 subjects stated, "nothing"; one subject stated she disliked some of the group members' behavior; and another indicated she wished an extra song could have been played during the session. Although these responses are subjective, they are indicative of some of the subjects' opinions that were not obtainable through the assessment measures.

Several experimental group members approached the experimenter during the course of the music therapy program and asked if they could bring a friend who had heard about the sessions. Although the experimenter was unable to grant this request due to the structure of the experimental design, these requests suggested an interest in the music therapy beyond the experimental group boundaries among some residents.

Most verbal feedback and results from the final questionnaire suggested that subjects enjoyed the music therapy sessions; however, subjects that withdrew from the experimental group did not complete the final questionnaire. Those who voluntarily withdrew could have done so due to their dissatisfaction with the music therapy. Therefore, these subjective results should be reviewed and considered within the appropriate context.

Several methodological limitations were present in this study. Since participation in the study was voluntary, a random sample representative of the population was not available. The study was limited to female subjects. The limited pool of subjects resulted in a small sample size ($N = 35$). A total of 23 subjects completed participation in the experimental and control groups, further reducing the size of the sample.

This experimental design implemented the pre- and post-test measures on days before the first and after the last scheduled music therapy sessions. Therefore, short-term effects that possibly existed immediately following the music therapy sessions may have been overlooked. Future research may consider a more immediate administration of test measures to ascertain the short-term effects of music therapy on depression and anxiety.

Music therapy was an adjunct therapy for the subjects who participated in the study. Many subjects had extensive problematic concerns including behavior problems, family difficulties, and involvement with the legal system. It is possible that the effect of the music therapy was not an intense enough intervention to affect these subjects' depression or anxiety levels significantly. Music therapy may need to be more intense or more individualized for subjects

within similar circumstances. Perhaps the style of music therapy utilized in this study may be more effective with a less troubled population such as clients involved in a structured outpatient programs, group therapy, or individual therapy.

The experimenter also acted as the therapist in the music therapy sessions. The influence of one particular personality could have affected subjects' responses. The self-report measures, although they are well established assessment tools, are vulnerable to subject response bias. The subjects' desire to fake-good or fake-bad is a consideration when using these types of measures.

It was not possible for an activity to be assigned to the control group due to the limitations of time and resources. A control group activity would result in an improved experimental design and avoid the Hawthorne effect.

Subjects were assigned to experimental and control groups through a non-biased randomization procedure. By organizing subjects into matched pairs and subsequently assigning members of these pairs at random to experimental or control groups, a more precise experimental design is achieved compared to the use of randomization alone (Campbell & Stanley, 1963). An improved experimental design could

include a matched-group, randomized procedure.

Conflicting data regarding music therapy is apparent in the research literature. Kivland (1986) found music therapy had a positive effect on indicators of self-esteem, whereas Henderson (1983) found no significant effect on self-esteem. Peach (1984) found music therapy appeared to enhance relaxation, whereas Logan and Roberts found no significant effect. Rider (1983) found musical preference less effective in pain reduction compared to assigned music types, whereas other studies (Henderson, 1983; Mainprize, 1985) have suggested musical preference is an important factor in mood awareness and self-expression. Therefore, additional research is required to investigate what conditions are most influenced by music therapy, to what extent they are affected, and what populations benefit the most from this treatment intervention.

Although no significant differences between experimental and control groups were found in this study, further research is needed to examine the effects of music therapy as a therapeutic modality more closely. Future studies might utilize a larger sample size, a matched-group design, or a control group activity. An investigation of a broader range of subjects including both males and females, various

age groups, and samples of populations in outpatient programs appear to be worthwhile areas for expanded study. More research is indicated to establish an empirical framework on which to build a comprehensive body of information in the field of music therapy.

APPENDIX A

CONSENT TO PARTICIPATE IN A RESEARCH STUDY

You are being asked to participate in a research study. This study will be conducted to obtain information for a master's thesis in psychology. This study is being done to learn more about how music affects our thoughts and feelings.

If you agree to participate in the study, you will be assigned to one of two conditions. One condition will meet a total of 8 times, and the other condition will meet for a total of 2 times. Each condition is important to the study and you will have a 50/50 chance of being assigned to either condition.

Your signature below will give the graduate student conducting the study your permission to use information obtained for statistical purposes, with the understanding that confidentiality will be maintained.

Please read the following:

I have read the consent form, understand it, and consent to participate.

I understand that I am free to ask questions or consult other people about the study or the consent form.

I understand that I am free to withdraw from the study at any time for any reason and without prejudice of any sort as a consequence of withdrawing.

I understand that the investigator may terminate my participation at her discretion.

SIGNATURE OF PARTICIPANT

DATE

WITNESS

OTHER PERSON(S) CONSENTING

APPENDIX B

MUSIC THERAPY GROUP INSTRUCTIONS

It is understood that you have volunteered to participate in a music therapy program. If you have been selected to participate in the eight therapy sessions on either Monday or Tuesday night from 8-9:30pm, you will be asked several times to bring in a cassette tape with a piece of music that you have picked according to an assigned theme. The leader of the music therapy group, Karen Kampfer, will let you know when you need to bring in the music and tell you what the assigned theme is for that week. If you have any problems obtaining the music or the cassette, it is your responsibility to notify Karen.

The particular theme for the music and a permission slip will be provided to you in writing when you are assigned to bring in a tape. If you have questions about what you are expected to do, about the theme, or any other questions about the music therapy, please do not hesitate to ask.

You will be asked to limit the length of your music selection to 5 minutes or less. Please remember this when picking out your music. If you want to bring in a song that is longer than 5 minutes, you may record only part of it in order to remain within the time limitation. Music can be instrumental (just music with no words), or include vocals (music with words).

The group will listen to several pieces of music each week and then discuss why each person selected that particular piece of music for that particular theme. The discussions will be considered a group effort and all group members are urged to participate.

Thank you for your cooperation!

APPENDIX C

MUSIC THERAPY FINAL QUESTIONNAIRE

Thank you for participating in the music therapy. Your thoughts and opinions about the therapy sessions are much appreciated.

What did you enjoy most about the music therapy?

What did you enjoy least about the music therapy?

What do you think were the music therapy director's strengths?

What do you think were her weaknesses?

Other comments:

References

- Altschuler, I. M. (1948). A psychiatrist's experience with music as a therapeutic agent. In D. M. Schullian & M. Schoen (Eds.), Music and medicine (pp. 266-281). Freeport, NY: Books for Libraries Press.
- Bailey, L. M. (1984). The use of songs in music therapy with cancer patients and their families. Music Therapy, 4, 5-17.
- Beck, A. T., (1978). Beck Depression Inventory. San Antonio, TX: The Psychological Corporation.
- Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. Archives of General Psychiatry, 4, 561-571.
- Beck, A. T., Steer, R. A., & Garbin, M. G. (1988). Psychometric properties of the Beck Depression Inventory: Twenty-five years of evaluation. Clinical Psychology Review, 8 (1), 77-100.
- Becker, I. L. (1983). Control of acquisition of eye contact by distorted and undistorted music stimuli. Journal of Music Therapy, 20 (3), 132-142.

- Berger, A. (1983). Unlearning "learned helplessness" with the elderly through expressive interventions of poetry and song (Doctoral Dissertation, Boston University School of Education, 1983). Dissertation Abstracts International, 44, 548A, Abstract No. DA8309719.
- Brodsky, W., & Niedorf, H. (1986). "Songs from the heart": New paths to greater maturity. Arts in Psychotherapy, 13 (4), 333-341.
- Bruscia, K. E. (1982). Music in the assessment of echolalia. Music Therapy, 2 (1), 25-41.
- Campbell, D. T., & Stanley, J. C. (1963). Experimental and quasi-experimental designs for research. Boston: Houghton Mifflin Company.
- Carapetyan, A. (1948). Music and medicine in the renaissance and in the 17th and 18th centuries. In D. M. Schullian & M. Schoen (Eds.), Music and medicine (pp. 117-157. Freeport, NY: Books for Libraries Press.
- Christenberry, E. B. (1979). The use of music therapy with burn patients. Journal of Music Therapy, 16 (3), 138-148.
- Corcoran, K., & Fischer, J. (1987). Measures for clinical practice: A sourcebook. New York: The Free Press.

- Cripe, F. F. (1986). Rock music as therapy for children with Attention Deficit Disorder: An exploratory study. Journal of Music Therapy, 23 (1), 30-37.
- Curtis, S. L. (1986). The effect of music on pain relief and relaxation of the terminally ill. Journal of Music Therapy, 23 (1), 10-24.
- Davis, W. B., Wiesler, N. A., & Hanzel, T. E. (1983). Reduction of rumination and out-of-seat behavior and generalization of treatment effects using a non-intrusive method. Journal of Music Therapy, 20 (3), 115-131.
- Densmore, F. (1948). The use of music in the treatment of the sick by American Indians. In D. M. Schullian & M. Schoen (Eds.), Music and medicine (pp. 25-46). Freeport, NY: Books for Libraries Press.
- Fischer, R. G. (1984). Beginning keyboard instruction as a nonverbal intervention for elderly persons to stimulate reminiscence, to structure life review, and to improve psychological well-being and adjustment (Doctoral Dissertation, University of Georgia, 1983). Dissertation Abstracts International, 44, 2399A-2400A, Abstract No. DA8326397.

- Froelich, M. A. (1984). A comparison of the effect of music therapy and medical play therapy on the verbalization behavior of pediatric patients. Journal of Music Therapy, 21 (1), 2-15.
- Gilbert, J. P. (1979). Published research in music therapy, 1973-1978: Content, focus, and implications for future research. Journal of Music Therapy, 16 (3), 102-110.
- Greenwald, M. A. (1978). The effectiveness of distorted music versus interrupted music to decrease self-stimulatory behaviors in profoundly retarded adolescents. Journal of Music Therapy, 15 (2), 58-66.
- Grossman, S. (1978). An investigation of Crocker's music projective techniques for emotionally disturbed children. Journal of Music Therapy, 15 (4), 179-184.
- Hairston, M. P. (1984). Analyses of responses of mentally retarded autistic and mentally retarded non-autistic children to art therapy and music therapy (Doctoral Dissertation, University of Georgia, 1984). Dissertation Abstracts International, 45, 1715A, Abstract No. DA8421116.

- Hamilton, G. P. (1985). The roles of pet and music therapy in providing sensory stimulation to institutionalized elderly persons (Doctoral Dissertation, University of Pennsylvania, 1985). Dissertation Abstracts International, 46, 1059A-1060A, Abstract No. DA8513627.
- Hanser, S. B. (1983). Music therapy: A behavioral perspective. The Behavior Therapist, 6 (1), 5-8.
- Hanser, S. B., Larson, S. C., & O'Connell, A. S. (1983). The effect of music on relaxation of expectant mothers during labor. Journal of Music Therapy, 20 (2), 50-58.
- Henderson, S. M. (1983). Effects of a music therapy program upon awareness of mood in music, group cohesion, and self-esteem among hospitalized adolescent patients. Journal of Music Therapy, 20 (1), 14-20.
- Holloway, M. S. (1980). A comparison of passive and active music reinforcement to increase preacademic and motor skills in severely retarded children and adolescents. Journal of Music Therapy, 17 (2), 58-69.
- Hughes, C. W. (1948). Rhythm and health. In D. M. Schullian & M. Schoen (Eds.), Music and medicine (pp. 158-189). Freeport, NY: Books for Libraries Press.

- Humphrey, T. (1980). The effect of music ear training upon the auditory discrimination abilities of trainable mentally retarded adolescents. Journal of Music Therapy, 17 (2), 70-74.
- James, M. R. (1985). Sources of articles published in the Journal of Music Therapy: The first twenty years, 1964-1983. Journal of Music Therapy, 22 (2), 87-94.
- Jellison, J. A. (1973). The frequency and general mode of inquiry in research in music therapy, 1952-1972. Council for Research in Music Education, 35, 1-8.
- Josepha, M. (1968). Music therapy for physically disabled children and adults. In E. T. Gaston (Ed.), Music in therapy (pp. 99-151). New York: The Macmillan Company.
- Kerr, W. A. (1944). Psychological research in industrial music and plant broadcasting. Journal of Psychology, 17, 243-261.
- Kivland, M. J. (1986). The use of music to increase self-esteem in a conduct disordered adolescent. Journal of Music Therapy, 23 (1), 25-29.

- Knight, R. G., Waal-Manning, H. J., & Godfrey, H. P. D. (1983). The relationship between state anxiety and depressed mood: A validity study. Journal of Behavioral Assessment, 5 (3), 191-201.
- Krout, R., & Tischler, B. (1986). Hands across the water: Impressions of music therapy in England. The Arts in Psychotherapy, 13, 143-146.
- Layton C. (1987). Questionnaire completion and response to the STAI A-State scale. Perceptual & Motor Skills, 65 (1), 26.
- Levine-Gross, J., & Swartz, R. (1982). The effects of music therapy on anxiety in chronically ill patients. The Journal of the American Association for Music Therapy, 2 (1), 43-52.
- Logan, T. G., & Roberts, A. R. (1984). The effects of different types of relaxation music on tension level. Journal of Music Therapy, 21 (4), 177-183.
- Mainprize, S. (1985). Interpreting adolescents' music. Journal of Child Care, 2 (3), 55-62.
- Marley, L. S. (1984). The use of music with hospitalized infants and toddlers: A descriptive study. Journal of Music Therapy, 21 (3), 126-132.

- Martin, D. W. (1985). Doing psychology experiments (2nd ed.). Monterey, CA: Brooks/Cole Publishing Company.
- McDonnell, L. (1979). Paraverbal therapy in pediatric cases with emotional complications. American Journal of Orthopsychiatry, 49 (1), 44-52.
- Meinecke, B. (1948). Music and medicine in classical antiquity. In D. M. Schullian & M. Schoen (Eds.), Music and medicine (pp. 47-95). Freeport, NY: Books for Libraries Press.
- Middleton, W. W., Ray, P. J., Kerry, W. A., & Amft, R. (1944). The effect of music on feelings of restfulness-tiredness and pleasantness-unpleasantness. Journal of Psychology, 17, 299-318.
- Nelson, D. L., Anderson, V. G., & Gonzales, A. D. (1984). Music activities as therapy for children with autism and other pervasive developmental disorders. Journal of Music Therapy, 21 (3), 100-116.
- Olson, B. K. (1984). Player piano music as therapy for the elderly. Journal of Music Therapy, 21 (1), 35-45.
- Palmer, M. D. (1977). Music therapy in a comprehensive program of treatment and rehabilitation for the geriatric resident. Journal of Music Therapy, 14 (4), 190-197.

- Peach, S. C. (1984). Some implications for the clinical use of music facilitated imagery. Journal of Music Therapy, 21 (1), 27-34.
- Presti, G. M. (1984). A levels system approach to music therapy with severely behaviorally handicapped children in the public school system. Journal of Music Therapy, 21 (3), 117-125.
- Radin, P. (1948). Music and medicine among primitive peoples. In D. M. Schullian & M. Schoen (Eds.), Music and medicine (pp. 3-24). Freeport, NY: Books for Libraries Press.
- Rider, M. S. (1985). Entrainment mechanisms are involved in pain reduction, muscle relaxation, and music-mediated imagery. Journal of Music Therapy, 22 (4), 183-192.
- Rider, M. S., Floyd, J. W., & Kirkpatrick, J. (1985). The effect of music, imagery, and relaxation on adrenal corticosteroids and the re-entrainment of circadian rhythms. Journal of Music Therapy, 22 (1), 46-58.
- Riegler, J. (1980). Comparison of a reality orientation program for geriatric patients with and without music. Journal of Music Therapy, 17 (1), 26-33.
- Riegler-Wolfe, J. (1983). The use of music in a group sensory training program for regressed geriatric patients. Activities, Adaptation & Aging, 4 (1), 49-62.

- Rouget, G. (1985). Music and trance: A theory of the relations between music and possession (B. Biebuyck, Trans.). Chicago: University of Chicago Press.
- Sacks, O. (1985). The man who mistook his wife for a hat and other clinical tales. New York: Summit Books.
- Samanski, M. (1977). Singing, signing, smiling: Total communication for non-verbal hearing children. The Canadian Nurse, 73 (2), 28-29.
- Scartelli, J. P. (1982). The effect of sedative music on electromyographic biofeedback assisted relaxation training of spastic cerebral palsied adults. Journal of Music Therapy, 19 (4), 210-218.
- Schneider, F. A. (1983). Assessment and evaluation of audio-analgesic effects on the pain experience of acutely burned children during dressing changes (Doctoral Dissertation, University of Cincinnati, 1982). Dissertation Abstracts International, 43, 2716B, Abstract No. DA8228808.
- Siegel, S. L., Cartwright, J. S., & Katz, E. (1986). Where's the research? Journal of Music Therapy, 23 (1), 38-45.
- Sigerist, H. E. (1948). The story of tarantism. In D. M. Schullian & M. Schoen (Eds.), Music and medicine (pp. 96-116). Freeport, NY: Books for Libraries Press.

- Solomon, A. L. (1980). Music in special education before 1930: Hearing and speech development. Journal of Research in Music Education, 28 (4), 236-242.
- Solomon, A. L., & Heller, G. N. (1982). Historical research in music therapy: An important avenue for studying the profession. Journal of Music Therapy, 19 (3), 161-178.
- Spencer, S. L. (1988). The efficacy of instrumental and movement activities in developing mentally retarded adolescents' ability to follow directions. Journal of Music Therapy, 25 (1), 44-50.
- Spielberger, C. D., Gorsuch, R. L., & Lushene, R. E. (1970). STAI manual for the State-Trait Anxiety Inventory ("Self-Evaluation Questionnaire"). Palo Alto, CA: Consulting Psychologists Press.
- Standley, J. M. (1986). Music research in medical/dental treatment: Meta-analysis and clinical applications. Journal of Music Therapy, 23 (2), 56-122.
- Stratton, V. N., & Zalanowski, A. H. (1984). The relationship between music, degree of liking, and self-reported relaxation. Journal of Music Therapy, 21 (4), 184-192.

- Staum, M. J. (1983). Music and rhythmic stimuli in the rehabilitation of gait disorders. Journal of Music Therapy, 20 (2), 69-87.
- Taylor, D. B. (1981). Music in general hospital treatment from 1900 to 1950. Journal of Music Therapy, 18 (2), 62-73.
- Weissman, J. A. (1982). Meeting selected needs and treatment goals of aged individuals in long-term care facilities through the therapeutic use of music activities (Doctoral Dissertation, New York University, 1981). Dissertation Abstracts International, 42, 4757B, Abstract No. DA8210945.
- Williams, G., & Dorow, L. G. (1983). Changes in complaints and non-complaints of a chronically depressed psychiatric patient as a function of an interrupted music/verbal feedback package. Journal of Music Therapy, 20 (3), 143-155.
- Wolfe, D. E. (1978). Pain rehabilitation and music therapy. Journal of Music Therapy, 15 (4), 162-178.

Table 1

Mean scores and standard deviations for BDI, STAI-State, and STAI-Trait by treatment and time of measurement.*

Treatment	Time of Measurement	
	Pre	Post
BDI		
Experimental	14.27 (8.42)	9.45 (8.58)
Control	14.17 (6.81)	9.17 (7.55)
STAI-State		
Experimental	43.55 (10.61)	41.91 (11.65)
Control	48.67 (10.26)	49.75 (7.93)
STAI-Trait		
Experimental	45.09 (11.47)	44.45 (12.85)
Control	52.58 (10.05)	51.00 (5.92)

*Standard deviations in parentheses

Figure Caption

Figure 1. Mean scores on pre- and post-test measurements on the Beck Depression Inventory (BDI) for experimental and control group treatments.

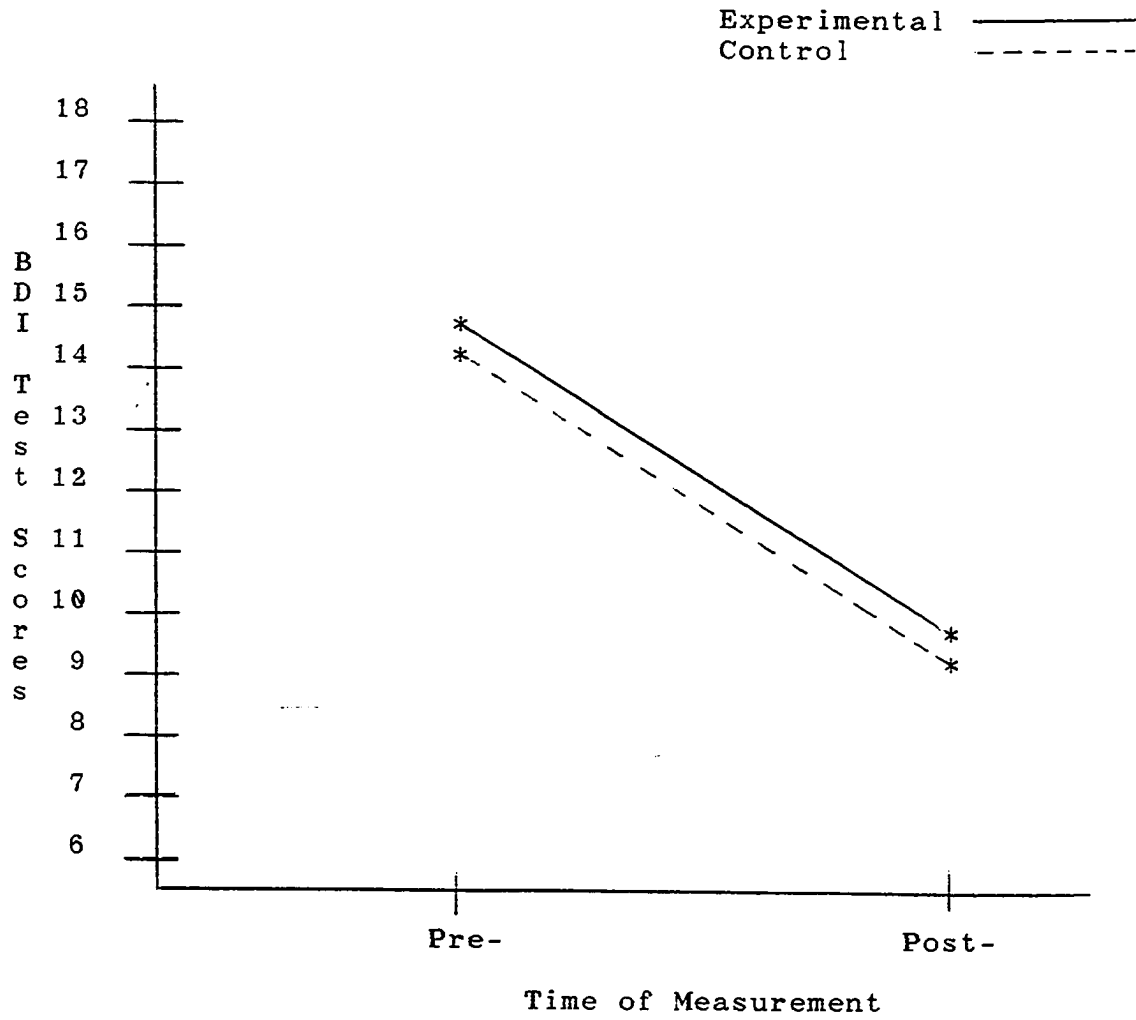


Figure Caption

Figure 2. Mean scores on pre- and post-test measurements on the State-Trait Anxiety Inventory-State (STAI-1) for experimental and control group treatments.

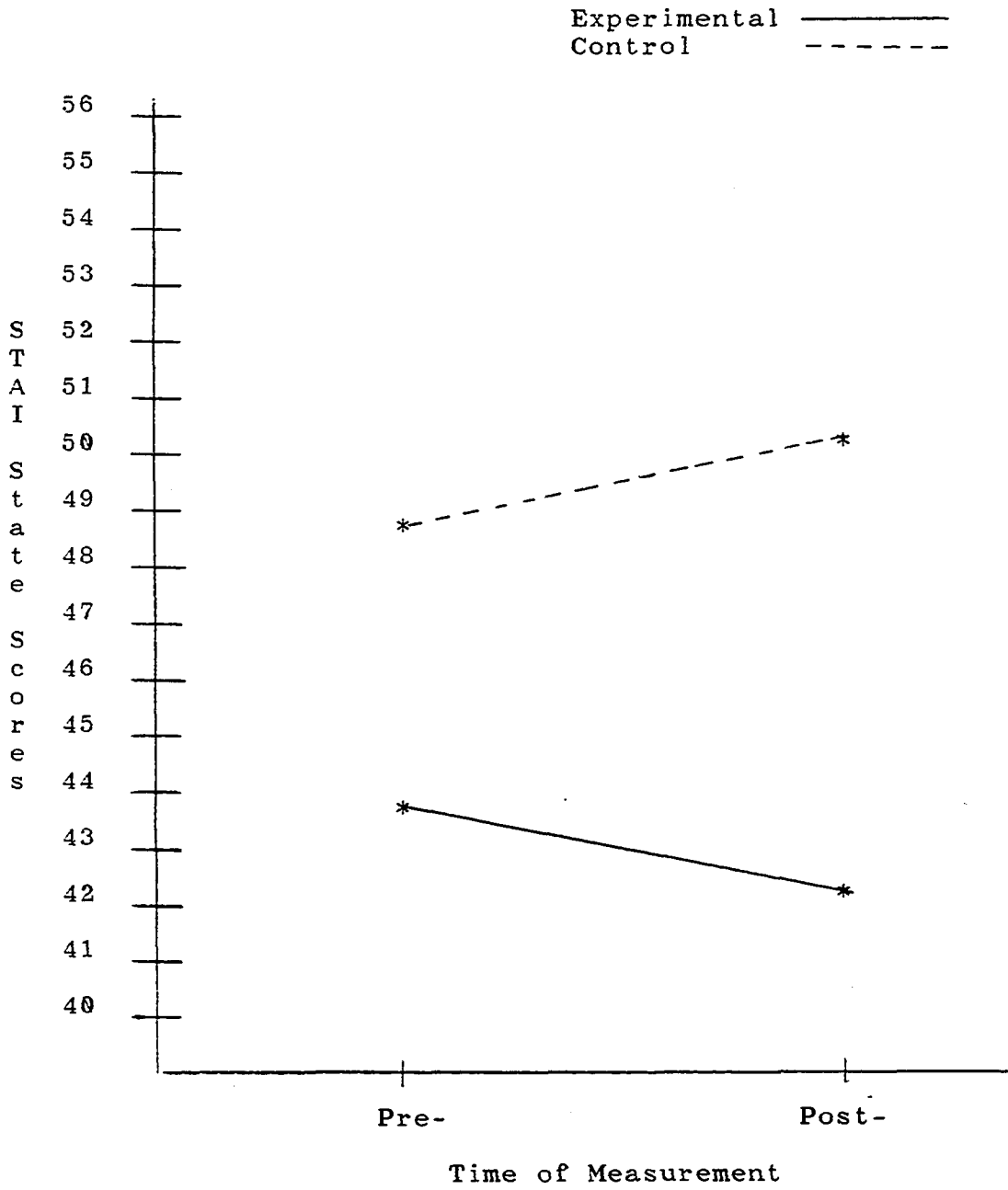


Figure Caption

Figure 3. Mean scores on pre- and post-test measurements on the State-Trait Anxiety Inventory-Trait (STAI-2) for experimental and control group treatments.

