

8-1-1999

Influence Of Music Therapy On Adult Patients In An Outpatient Setting

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INFLUENCE OF MUSIC THERAPY ON ADULT
PATIENTS IN AN OUTPATIENT SETTING

by

CATHY WALDROP

A Thesis
Submitted in Partial Fulfillment of the Requirements
for the Degree of Master of Science in Nursing
in the Division of Nursing
Mississippi University for Women

COLUMBUS, MISSISSIPPI

August 1999

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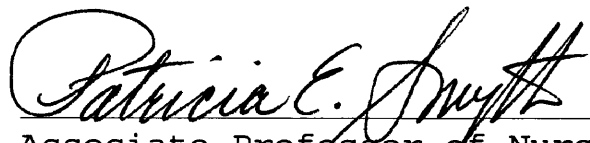
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Influence of Music Therapy on Adult
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by

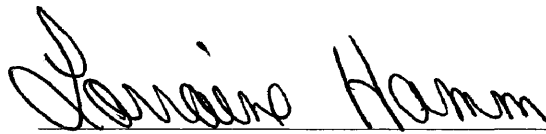
Cathy Waldrop



Associate Professor of Nursing
Director of Thesis



Associate Professor of Nursing
Member of Committee



Instructor in Nursing
Member of Committee



Director of the Graduate School

Abstract

Patients requiring medical care frequently experience increased levels of anxiety. This increase in anxiety may be attributed to fear of the medical examination, procedures to be performed, or the findings. Music therapy was tested as a possible intervention to reduce anxiety. The focus of this quasi-experimental study was to examine the influence of music therapy on adult patients in an outpatient clinic. The purpose of this study was to compare responses in adult patients who received music therapy while awaiting medical treatment in an outpatient setting and those who did not. Martha Rogers' Unitary Human Beings served as the theoretical framework. A sample was obtained from patients awaiting medical care in a rural family medical clinic. The sample group completed the Demographic Survey and the Waldrop Patient Surveys. ANOVA was used to compare the groups. Descriptive statistics were used to analyze data. Perceptual responses were scored using totaled percentiles per question. The researcher failed to reject the four hypotheses. The

hypotheses were there will be no: (a) change in physiologic responses, (b) perceptual responses, (c) correlation between age and physiologic responses, and (d) correlation between age and perceptual responses of patients who receive music therapy, white noise, or no music while awaiting medical care in an outpatient clinic.

Dedication

Even though he was not physically present throughout this past year, his spiritual presence was very much alive. The words of encouragement and acceptance he gave me throughout my life were remembered again and again during the difficult times. I thank God for having blessed me with such a wonderful parent.

This research is dedicated in memory of my father,
H. L. "Slim" Hellums

Acknowledgments

The research and the past year's success were made possible only with the help of many special individuals. The patience, love, and support of these people made this endeavor achievable. Words are not sufficient to express the love and appreciation I feel for these individuals.

I would like to express my love to my family for their encouragement and support during the past year. The sacrifices made by my loving family will never be forgotten. To my husband, David, and to my children, Matt and Emily, I thank you and I love you. A special thanks to my extended family, Mother, Paula, Larry, Herb, and Kim, for helping to care for my immediate family throughout the year and for offering many words of encouragement.

Thank you to my research committee, Dr. Patsy Smyth, Lorraine Hamm, and Dr. Linda Cox, for the hours of work they contributed to make this research a success. The expertise of this committee was a necessary component to the success of their efforts.

A special thanks to my preceptor, Dr. John Mitchell, who encouraged me to undertake this task and who worked patiently with me to see it accomplished.

A special thanks to my hospital administrator, Mr. Fred Hood, whose counsel I value and who provided me the opportunity to succeed.

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Chapter I

The Research Problem

For many centuries music therapy has been used as a treatment for physical or psychological well-being in many cultures and in many forms. But music therapy as a means of therapeutic treatment developed largely in the mid-20th century (Marwick, 1996). Music can play an important role in the health and well-being of individuals. Music therapy may be viewed as the planned and controlled use of melodious sounds for therapeutic purposes. Music can penetrate levels of awareness not affected by words or touch and reach patients feeling isolated with pain and illness. For older, confused people, one of the few remaining pleasures left may be music (Roberts, 1996).

Individuals awaiting medical care often suffer anxiety, pain, or fear of the unknown. This increase in stress on the body can affect the individual's physiological and psychological well-being. Anxiety often occurs when individuals seeking medical care fear pain, discomfort, or the findings of the medical or surgical

procedures. Increased oxygen consumption, increased cardiac output, and elevated blood pressure are sometimes manifested with increased anxiety levels (Cohen & Eisenman, 1995). Stimuli disrupting homeostasis also can result in physical expressions, such as palpitations, increased blood pressure, tachypnea, and sweating. The stress stimuli, the frequency and the duration of the stress, and the individual's coping mechanisms determine the intensity of these reactions.

The purpose of this study was to evaluate the influence of music therapy on individuals awaiting medical care. The effects of music therapy in an outpatient healthcare setting are not known. Individuals awaiting medical care frequently experience increased levels of anxiety. Physiologic changes in blood pressure, pulse, and respirations may result from this increased anxiety. Methods to assist individuals who experience anxiety while waiting for health care are essential. The focus of this experimental study was to compare responses in adult patients who receive music therapy while awaiting medical treatment in an outpatient setting and those who do not receive music therapy.

Establishment of the Problem

When provided under appropriate and timely circumstances, music therapy may be a valuable and inexpensive way to help patients who suffer from anxiety or pain. Music is viewed by many researchers as relaxing and calming (Denney, 1997). The introduction of music may make the experience of a medical examination or surgical procedure a more positive one (Cohen & Eisenman, 1995).

The influence of music therapy on patients is not known for individuals awaiting medical care. Methods to reduce anxiety in individuals waiting for health care are needed. Denney (1997) conducted research on patients who were cognitively impaired, Chlan (1998) conducted research on patients on ventilators, and Good (1995) conducted research on patients who had abdominal surgery. Chiles, Fudge, Gray, and Heiser (1997) conducted research to evaluate physiologic changes in individuals receiving music therapy. Behavioral changes and perceptions of music therapy have been studied by Bookbinder, Cunningham, and Monson (1997). Research has been conducted evaluating the effects of music intervention in the adult population under a variety of circumstances in acute care settings.

Music, played quietly, replaces anxiety and agitation with relaxation and calmness asserted Denney (1997), who studied the effects of music therapy on dementia or Alzheimer's disease patients during mealtime. Denney further discovered an overall decline in agitated behaviors; a 46% aggressive behavior decrease was observed the first week of music. When music was played during the fourth week, a 37% decrease from baseline in agitated behavior was observed. Denney (1997) subjectively noted more relaxation and harmony in the room with music playing. Less restlessness, more smiling, and more attempts at socialization were observed.

Music is one form of sound that may significantly impact the patient's perception of and response to the environment. The way sound is perceived by an individual determines its psychological and physiologic effect. Noise sensitivity and music perception are influenced by variables such as age, gender, ethnic background, and physiologic and psychological condition (Pope, 1995).

Medical or surgical procedures can initiate anxiety in the patient. Music therapy has been introduced as an intervention to help alleviate anxiety. Chiles et al. (1997) studied the use of music therapy in the immediate

postoperative recovery period and concluded music helped patients relax and be less anxious. Anxiety levels in patients receiving music therapy while undergoing regional anesthesia have also been evaluated (Cohen & Eisenman, 1995). Anxiety and fear were less substantial with the use of music. The influence of music intervention on patients who underwent elective heart bypass surgery was examined by Barnason, Nieveen, and Zimmerman (1995), who used blood pressure and heart rate as the physiologic measures to evaluate the mood and anxiety of the patients. The music intervention group was shown to significantly improve mood ratings. The conclusions of numerous clinicians and researchers indicate patients have a generalized physiologic relaxation response to music intervention.

Music therapy has also been utilized as an intervention for relaxation and anxiety for patients receiving ventilatory assistance (Chlan, 1998). Significant decreases in heart rate and respiratory rate of alert and nonsedated ventilator patients have been noted.

The compilation of these findings support the use of music therapy as an effective nursing intervention for the reduction of anxiety and vital physiologic measures of

patients in a variety of healthcare settings. However, there has been a lack of research on the effects of music on adult patients in a primary care setting, the most frequently utilized site for medical treatment. Therefore, more research is needed to fully understand the influence of music therapy on adult patients in an outpatient clinic.

Music as an intervention does not always reveal an improvement in the reduction of anxiety or pain. The effect of music on pain following surgery was the focus of one such study. Good (1995) felt pain was not always controlled by analgesics, and soothing music was one intervention that could augment the analgesic effects. Good (1995) measured the sensory and affective components of pain in patients who had undergone abdominal surgery. The intervention was used during the first ambulation following surgery. The results of this experimental study revealed music intervention was neither effective nor significantly different in the music group than that of the control group during ambulation.

Significance to Nursing

Examining the use of music therapy as an intervention to reduce anxiety or stress has the potential to impact

the nurse practitioner in several ways. The conduction of this study has significance for nursing in the areas of practice, education, and research.

While there have been research studies conducted in a variety of medical settings, research on the use of music therapy in the primary care setting has been limited. Findings from this study provide valuable information about the use of music therapy in an area of practice that has significant impact for the nurse practitioner. This information, added to the existing body of knowledge, serves to aid in the understanding of the effects of music therapy for reduction of anxiety or stress.

Nurse practitioners in primary care settings have the opportunity to care for patients whose conditions are associated with anxiety or pain. Stress and anxiety are frequently manifested by elevated blood pressure, pulse, and respirations. Gaining recognition of the impact that music therapy may play in reduction of stress and anxiety enables nurse practitioners to become aware of measures that may assist in the reduction of patients' anxiety or pain. The nurse practitioner functioning in a holistic manner should attempt to decrease anxiety responses in

patients by developing simple anxiety-relieving interventions.

Nurses may therapeutically manipulate the environment and control noise that contributes to patients' discomfort. Music therapy is one intervention which may be an effective and relatively inexpensive method of reducing anxiety. The effects of music therapy in the primary care setting should be evaluated by the nurse practitioner. The conduction of this study facilitates insight into the effects of music therapy as an intervention for reduction of stress.

Theoretical Framework

The theoretical framework which this study is based upon is Rogers' Science of Unitary Human Beings (Marriner-Tomey, 1994). Rogers (1980) explained the conceptual model of unitary human beings does not predict that man will be free from all disease. Disease occurs when the human field manifests behaviors considered undesirable. Changes occur in nursing practice in response to changes in the human field. New knowledge replaces old views.

Human beings and the environment are energy fields integral to the life process. The human field is identified by pattern and is specific to the whole. The

environmental field is identified by pattern and is integral with the human field. Pattern consists of the unique behaviors, qualities, and characteristics of the field. Pattern constantly changes and may manifest disease, illness, or pain.

Rogers (1980) describes nursing goals as maintenance and promotion of health, prevention of disease, and intervention. Nursing evaluates the simultaneous state of the individual and the environment and what preceded these states. Nursing is concerned with all people, and nursing's services extend into all areas where there are people. Intervention applied by nursing is dependent on the evaluation of the whole human being and the integration with the environment.

Human beings are inseparable from or with their environment. Man and environment are continuously exchanging energy with one another. Rogers supports the concept that the environment and human beings are integrated. The two cannot be separated, thus music therapy should have an impact on the human being by changing the environmental pattern of energy.

In Rogers' conceptual model, social significance is impacted by nursing practice. In this study, such

significance may be evidenced by changes in blood pressure norms. Rogers (1980) views the improvement of individuals as the primary goal of nursing. The nurses' enhancement of the environment is necessary to enhance the betterment of individuals. Introducing music therapy into the environment as an intervention to reduce anxiety could improve the overall health of the individual.

Assumptions

For the purpose of this study, the following assumptions were made:

1. Individuals awaiting medical care experience increased levels of anxiety or pain.
2. Human beings and the environment are inseparable.
3. Music and white noise are environmental stimuli.

Statement of the Problem

The problem to be addressed in this study is that the influence of music therapy is not known in a primary healthcare setting. Individuals awaiting medical care frequently experience increased levels of anxiety. Physiologic changes in blood pressure, pulse, and respirations may result from this increased anxiety. Methods to assist these individuals in reduction of this

anxiety are needed. Research has been conducted evaluating the effects of music intervention in the adult population under a variety of circumstances in an acute or long-term care setting. However, there is a dearth of research that evaluates the effects of music on adult patients in a primary care setting. Thus, the focus of this study was to compare responses in adult patients who receive music therapy intervention while awaiting medical treatment in an outpatient setting and those who do not receive any music (control) and a "white noise" intervention group.

Hypotheses

This researcher will address four hypotheses involving physiologic responses and perceptual responses of individuals receiving music therapy, white noise, or no music.

1. There will be no difference in the change in physiologic responses of patients who receive music therapy, white noise, or no music while awaiting medical care in an outpatient clinic.

2. There will be no difference in the perceptual responses of patients who receive music therapy, white noise, or no music while awaiting medical care in an outpatient clinic.

3. There will be no correlation between age and physiologic responses of patients who receive music therapy or white noise while awaiting medical care in an outpatient clinic.

4. There will be no correlation between age and the perceptual responses of patients who receive music therapy or white noise while awaiting medical care in an outpatient clinic.

Definition of Terms

Theoretical and operational definitions were provided for the terms: physiologic response, perceptual response, music therapy, white noise, no music, patient, and outpatient clinic.

Physiologic response: Theoretical: Physiologic response is "characteristic of or appropriate to an organism's healthy or normal functioning constituting a reply or a reaction" (Merriam Webster's Collegiate Dictionary, 1993, pp. 877, 998). Operational: the reaction of participants expressed by mean arterial pressure, pulse, and respirations following the integration of music, white noise, or no noise intervention into the environment.

Perceptual response: Theoretical: "of, relating to, or involving immediate sensory experience constituting a reply or reaction" (Merriam Webster's Collegiate Dictionary, 1993, pp. 861, 998). Operational: participant's sensory reaction to music or white noise intervention as an environmental stimulus as determined by the Waldrop Patient Survey.

Music therapy: Theoretical: the "vocal, instrumental, or mechanical sounds having rhythm, melody, or harmony for the therapeutic treatment of bodily, mental, or behavioral disorder " (Merriam Webster's Collegiate Dictionary, 1993, pp. 767, 1223). Operational: instrumental sounds having rhythm, melody, and harmony integrated into the environment of patients who suffer from anxiety or pain, which comes from the audiotape "The Musical Sea of Tranquility."

White noise: Theoretical: "a heterogeneous mixture of sound waves extending over a wide frequency range" (Merriam Webster's Collegiate Dictionary, 1993, pp. 1349). Operational: a humming sound integrated into the environment of patients awaiting medical care which comes from the acoustic relaxation machine, the Sound Spa.

No music: Theoretical: not any agreeable sound (Merriam Webster's Collegiate Dictionary, 1993, pp. 767, 875). Operational: absence of music or white noise.

Patient: Theoretical: a person awaiting or under medical care or treatment (Merriam Webster's Collegiate Dictionary, 1993, p. 852). Operational: participants' 18 years of age or older with no self-reported hearing difficulty who speak and read English and are awaiting medical care.

Outpatient clinic: Theoretical: a facility for persons not inmates of a hospital seeking diagnosis or treatment (Merriam Webster's Collegiate Dictionary, 1993, pp. 244, 923). Operational: a facility for persons not hospitalized seeking medical care.

Summary

Research studies have been conducted to evaluate the effects of music therapy as an intervention for reduction of pain and anxiety in a variety of medical settings. Research into the use of music therapy in the primary care setting has been limited. Relaxation and reduction in anxiety and pain response have been demonstrated in some of the research studies. In other studies, no significant change was seen in anxiety and pain response with the use

of music as an intervention. Research conducted to evaluate the effects of music as an intervention are presented from this researcher's review of the literature.

Chapter II

Review of the Literature

Researchers have sought to determine the effects of music therapy in a variety of settings and situations. Research has been conducted with individuals experiencing anxiety or pain related to surgical procedures (Barnason, Nieveen, & Zimmerman, 1995) and in individuals with cognitive impairment (Denney, 1997). The following review of literature will cover a variety of circumstances in which researchers examined the effects of music therapy as an intervention.

Chiles, Fudge, Gray, and Heiser (1997) conducted a research study to evaluate the use of music therapy as a pain management modality during the immediate postoperative recovery period. These researchers sought to determine the differences in patients who listened to music 30 minutes before surgery completion and during the first hour of the postanesthesia care and those patients who did not listen to music during this time period.

Chiles et al. (1997) tested four hypotheses for this study, which were as follows:

(a) Patients who listened to music for 30 minutes before leaving the operating room (OR) and for the first hour in the postanesthesia care unit (PACU) will score lower on the pain and anxiety visual analog scales (VASS) than patients who did not listen to the music; (b) patients who listened to music will express greater satisfaction with their anesthesia experiences and will express the desire to use music during future surgical procedures; (c) patients' heart rates, blood pressures, and respiratory rates will differ according to their group assignments (i.e., treatment, control); and (d) the amount and type of analgesic medication used during patients' PACU stays and the first 24 hours after surgery will differ by patients' group assignments. (p. 781)

The researchers used a repeated measures experimental design. The sample included 34 patients (21 men and 13 women) ranging from 23 to 59 years of age. Subjects recruited for both the study and the control group had similar demographic data, similar times for the surgery, identical surgical procedures, the same anesthesia, and the same postoperative intravenous patient-controlled analgesia pumps. All subjects had preoperative evaluations and a physical status classification by the American Society of Anesthesiologists. Prospective subjects were eliminated with a history of substance abuse, over 40% of their ideal body weight, or a history of chronic pain.

Subjects were randomly assigned to either the treatment group or the control group. Each group was asked to choose music preferences from three choices. Music volume preference also was chosen by the groups. The experimental group had uninterrupted music exposure through head phones. The control group had no music exposure during this time.

The instrument used for measurement was a standardized visual analog scales to determine postoperative pain levels and the patients' anxiety levels after one hour in the postanesthesia care unit and 24 hours later. Standard patient-controlled analgesic pumps were used for postoperative pain. The amount of morphine required for each patient from the arrival time in the postanesthesia care unit and ending 24 hours later was recorded. Vital signs were obtained every 15 minutes for 1 hour and then every 4 hours. Questionnaires were distributed 24 hours after discharge assessing patient satisfaction. The final sample (N = 10) included 5 in each group matched for gender and age.

Descriptive statistics were used to analyze the data on two measures, physiologic parameters and patient satisfaction with music. Chiles et al. (1997) found no

differences in pain medication requirements, pain and anxiety levels, or satisfaction between the two groups studied. There was no significant correlation between IV morphine required and the patients' level of pain 24 hours post-surgery or the amount of morphine used in the patient groups. Pain levels at both 1 hour in the PACU and 24 hours later were not significantly correlated with the group assignments. There was no significant correlation between pain medication requirements and pain or anxiety levels. Patient satisfaction was favorable in all cases. Chiles et al. (1997) concluded that music enhanced patient satisfaction. Patients surveyed perceived that the music helped them relax and be less anxious and served as a distracter for the surgery process.

According to the researchers, the small sample size was the major limitation of the study. The researchers determined 60 participants were needed to identify significant effects on the physiologic parameters. Other limitations included the inability to obtain complete data due to change of anesthesia protocol, physician alterations of post-surgical pain management, and additional research studies being conducted simultaneously on these patients.

Chiles et al. (1997) recommended noninvasive nonpharmacologic interventions be considered in the pain management of surgical procedures. The researchers recommended future studies on the effects of the surgical environment on patients' pain levels and the efficacy of interventions such as music.

Chiles et al.'s (1997) research is relevant to this current researcher's endeavor because it provides one perspective of the effects of music therapy on patients' pain and anxiety levels and the patients' perception of music. More research is needed on the effects of music therapy in other settings.

Another research study involved the effects of music therapy during the surgical procedure. Cohen and Eisenman (1995) conducted a primary, qualitative pilot research study to evaluate anxiety levels in patients receiving music therapy. These researchers sought to determine if a reduction of anxiety would occur in patients undergoing regional anesthesia for surgical procedures when music therapy was used during the procedure.

Cohen and Eisenman's (1995) assumption was that music might provide emotional support to patients with reduction of stress and anxiety when used therapeutically. The

researchers hypothesized the best reaction to music would be obtained by allowing the patient to select the music played during the procedure.

The setting for this research was a university medical center with an operative suite of 900 beds. The primary surgery performed at this center involved orthopedic procedures. Cohen and Eisenman's (1995) study was a primary, qualitative pilot research study. The subjects selected were 30 surgical patients between the ages of 18 and 80 years scheduled for elective orthopedic surgical procedures with the use of regional anesthesia. There was no control group. The surgical procedures lasted an average of 1 to 2 hours. Sterilized earphones and personal audiocassette players were given to the subjects to turn on or off according to their preferences. Prior to surgery, the subjects were allowed to choose the music played from their own collection or the researchers' selections. Circulating nurses changed the tapes when needed.

Physicians and nurses involved in the surgical procedure were informed of the study and its purpose. On the evening prior to surgery, the subjects received explanations regarding goals of the study. The subjects

were given information about the music devices used during the procedure and the variety of music choices. The theory of the psychological influence of music was discussed with the subjects. Oral consent was obtained from the subjects. The researchers observed the willingness of the subjects to participate as well as their reactions during the surgical procedures. These data were recorded. Qualitative information was obtained. An evaluation questionnaire completed following the surgical procedures was used to evaluate the subjects' responses to the music therapy. The researchers also evaluated the operating room staff members' reactions to the study.

Cohen and Eisenman (1995) discovered the subjects responded with positive comments. The subjects felt the music provided diversion from the surgical procedure. They felt peaceful and less tense during the surgical procedure. Many of the subjects indicated they would use music therapy for future surgical procedures and would recommend it to others. Observations by the researchers revealed subjects became relaxed and peaceful during the procedures. Eyes were closed, subjects were still, and some even dozed. Operating room staff revealed they observed the subjects were more calm throughout their

procedures, and pulses and blood pressures were more stable.

A conclusion was made by Cohen and Eisenman (1995) that anxiety and fear were less substantial with the use of music. They concluded the use of music changed the surgical procedures from traumatic and stressful experiences to more pleasant ones. The researchers concluded music selected by the patient has the greatest impact on relaxation.

Cohen and Eisenman's (1995) research is relevant to this current researcher's endeavor because it provides perceptual analysis of the effects of music. The influence of music in reducing anxiety is evaluated on subjects who are experiencing anxiety due to a medical procedure.

Research also has been conducted on the effects of music therapy in patients who are also cognitively impaired. Denney (1997) selected a quasi-experimental time series design to evaluate the effects of music therapy on dementia or Alzheimer's disease patients during mealtime. The researcher sought to observe and quantify agitated behaviors in elderly, institutionalized patients with significant dementia who were exposed to quiet music during the noon meal.

Denney (1997) operationally defined music as classical music characterized as quiet and relaxing. The music tempo was between 50 and 70 beats per minute. The operational definition of mealtime was lunchtime, from 11:45 A.M. to 1:15 P.M. each day. Inappropriate verbal, vocal, or motor activity, which could not be explained by confusion or obvious needs, provided the operational definition of agitated behaviors.

The instrument used by Denney (1997) to measure the incidence of agitated behaviors was the modified Cohen-Mansfield Agitation Inventory (CMAI). Factor analysis of this instrument allowed grouping of the agitated behaviors. Aggressive behaviors included kicking, scratching, hitting, pushing, cursing, and tearing things. Categorization of physically nonaggressive behaviors included pacing, inappropriate robing/disrobing, general restlessness, handling things inappropriately, repetitious sentences or questions, repetitious mannerisms, or trying to get to a different place. Verbally agitated behaviors included constant requests for attention, repetitious sentences or questions, negativism, and complaining. Hiding and hoarding were the behaviors stated as that

classification. The scoring was 0 (absence of the behavior) and 1 (presence of the behavior).

The dining room of a 100-bed dementia care facility in a suburb in the Midwest served as the setting for this study. The setting was bright and comfortable. Patients could seat themselves or be seated by staff. Trays were served by the staff. The room accommodated 24 patients.

Subjects chosen for the study were selected following a 2-week observation by the author. A sample size of 10 subjects who regularly showed aggressive behaviors at the lunch meal comprised the sample. Denney felt all 10 could be easily viewed by one observer. One subject was later dropped due to illness, leaving nine as the final sample size.

The subjects ranged from 65 to 84 years of age. Two-thirds were female. All were ambulatory. Seven subjects were assisted with feeding, and two were completely fed by staff. The subjects were totally dependent for all other activities of daily living. None of the subjects had significant hearing loss, but language impairments were present in all. All had a diagnosis of irreversible dementia or Alzheimer's disease.

Data collection was obtained after staff were informed of the project and were instructed to proceed as usual in their work routines. The observer was familiar to staff and patients by the time the study was conducted. The observer was positioned off to the side. There was no interaction with staff or subjects during observations.

Music was played every day at the same time, including weekends, during the defined time frame. During the first week, no music was played and a baseline was established. During the following week, the music was played during lunch and scoring with the Cohen-Mansfield Agitation Inventory was done the last day of that week. No music was played the third week. Observation of behaviors was made on the last day of that week. Music was reinstated during the fourth week, and behavioral observations were made on the last day.

Denney (1997) found an overall decline in agitated behaviors. A 46% decrease in aggressive behaviors from baseline to the end of the first week of music was observed. Behaviors were 8% below baseline after no music during the third week. When music was played during the fourth week, a 37% decrease from baseline was observed. The most noted decrease in behaviors was noted in verbally

agitated behaviors and physically nonaggressive behaviors. Hiding and hoarding were not seen. Denney subjectively noted the atmosphere in the room became more relaxed and harmonious with the music playing. Less restlessness, more smiling, and attempts at socialization were observed.

Denney (1997) concluded there was a reduction of aggressive behaviors while music was played during the noon meal. This study supported similar previous studies.

Denney's study was relevant to this current research because it reflects another dimension in the use of music therapy. Further, Denney's (1997) conclusion supports that music therapy is soothing and reduces the patient's anxiety level and perception of pain. However, these conclusions have yet to be substantiated among outpatients, indicating a need for the current researcher's study.

The effect music plays on postoperative pain has been evaluated in conjunction with other relaxation techniques. Good (1995) used an experimental study to compare the effects of music and jaw relaxation, combined and individually, on affective and sensory pain after surgery. Good posed three hypotheses for the study:

- I. Controlling for preambulatory sensation, distress, narcotic intake, and preoperative

anxiety, there will be a difference between the individual groups (relaxation and music) in sensation, distress, and anxiety of pain after the first postoperative ambulation and in narcotic intake during the next 24 hours; II. Controlling for preambulatory sensation, distress, narcotic intake, and preoperative anxiety, there will be a difference between the relaxation and music groups taken together and compared to the combination group in sensation, distress, and anxiety of pain after the first postoperative ambulation and in narcotic intake during the next 24 hours; and III. Controlling for preambulatory sensation, distress, narcotic intake, and preoperative anxiety, the relaxation, music, and combination groups taken together will have less sensation, distress, and anxiety of pain after the first postoperative ambulation and less narcotic intake during the next 24 hours than the control group. (p. 53)

The setting for the study, which was conducted over a 7-month time period, was two teaching and two community hospitals. In order to be included in the study subjects had to be between the ages of 21 and 65 years, scheduled for major abdominal surgery, receiving intramuscular or intravenous PRN (as needed) analgesia, and hospitalized 2 or more days postoperatively. The sample consisted of 84 subjects, 25 men and 59 women, aged 23 to 64 years in four treatment groups of 21 each: relaxation, music, combination, or control.

The sensory component of pain (physical perception) was measured by the Sensation of Pain Scale and 24-hour narcotic use. The affective component of pain (bodily

feelings and emotions along with the sensory component) was measured by the Distress of Pain Scale and the State-Trait Anxiety Inventory. These scales were marked by the subjects to indicate the amount of physical pain felt at the area of the operation and to indicate how much the sensation bothered them.

The State-Trait Anxiety Inventory was used twice: preoperatively, to measure anxiety in relation to approaching surgery; and, after the first ambulating following surgery, to measure the emotional factor of affective pain. The amount of postambulatory narcotic intake was measured during the 24 hours after ambulation. Pain was measured after ambulation with the Pain Rating Index of the McGill Pain Questionnaire.

In Good's (1995) study informed consent was obtained and subjects were randomly assigned to one of the four treatment groups. Demographic data were obtained, preoperative anxiety measured, and the Sensation and Distress scale explained. An introductory tape was used to describe the technique of each intervention. Control subjects were engaged in casual conversation. The data collector observed the experimental subjects by rating them on tension around the mouth, presence or absence of

grimace, rate and style of speech, respiratory rate, and relaxation of facial muscles.

After surgery, the data collector brought the tape recorder, earphones, and the assigned intervention tape to the bedside and measured preambulatory sensation and distress. The technique was used for 2 minutes before ambulation. After subjects returned to bed following the first ambulation, the data collector measured postambulatory sensation, distress, and anxiety. Pain was measured with the McGill Pain Questionnaire. The subjects kept the tape for 2 days to use for treatment of pain. The data collector visited subjects 48 hours after ambulation and were asked about the usefulness of the techniques.

Comparisons were made between the individual treatment groups, between the individual and combination treatment groups, and between the three treatment groups and the no-treatment control group using orthogonal a priori contrasts and analysis of covariance.

None of the hypotheses were supported. The interventions were objectively neither effective nor significantly different from one another during ambulation. However, 89% of the subjects did report the

taped interventions as helpful for sensation and distress of pain after use for 2 postoperative days.

The researcher concluded that patients liking the musical selection would most likely have an effect on the physiological variables of the patient. Because of the subjectively reported success of the intervention and the low risk to patients with the use of relaxation and music intervention, the researchers suggested more research regarding their usefulness.

Cardiac surgery patients are at risk for unwanted noise and the deleterious physiologic changes that could occur as a result of that noise. Byers and Smyth (1997) conducted a study on the effect of music intervention used with hospitalized cardiac surgery patients. The study was based on the assumption that exposure to noise in a critical care unit could cause a sympathetic nervous system response, which in turn would increase cardiovascular work in patients recovering from cardiac surgery. The researchers investigated the effects of noise annoyance on heart rate and blood pressure during the first day after cardiac surgery.

Byers and Smith (1997) used a quasi-experimental, repeated measures design. The subjects were recruited

preoperatively, and their sensitivity to noise was assessed. Independent variables for the study were music intervention, noise sensitivity, and noise levels. Dependent variables were heart rate, arterial blood pressure, noise annoyance, and subject's response to a follow-up questionnaire.

The nonrandom sample size was 40 subjects who met the following inclusion criteria: age greater than 40 but less than 75 years, undergoing nonemergent cardiac surgery, alert, oriented, and able to read and comprehend English. The setting was a critical care unit of a hospital.

A Noise Sensitivity Scale was used to assess noise sensitivity, or the degree of a person's innate tolerance of noise. The 21-item scale was scored by adding up all items, with higher scores indicative of higher sensitivity to noise. Noise annoyance was measured on a NAVAS, a 100-mm line that subjects marked at their level of noise annoyance. Noise levels were measured with a sound level meter, and audiometry screening was done to be sure subjects could hear noise in the critical care unit. A Hewlett-Packard monitor was used to obtain heart rate and blood pressure.

Informed consent was obtained from the subjects. Baseline readings of heart rate, arterial blood pressure, and noise levels were obtained, and the subjects completed the NAVAS. Data were collected every 3 minutes for 15 minutes. The NAVAS was administered again with the final set of baseline data.

After completion of baseline information, headphones attached to a compact disc player were placed on the subject's ears. Time lapse between baseline and intervention data collection did not exceed 1 minute. Classical music blended with ocean wave sounds was used, and, again, subjects selected the volume of the music.

Noise levels, heart rate, and arterial blood pressure were obtained every 3 minutes for 15 minutes. After the last set of physiologic measures was recorded, the NAVAS was administered and the music discontinued. Baseline and intervention data collection was repeated twice on the first postoperative day at least 1 hour apart. After transfer from the critical care unit, a follow-up questionnaire assessing perception of noise annoyance and music intervention was completed by the subjects.

The researcher demonstrated that subjects had lower levels of noise annoyance during music intervention than

at baseline. Systolic blood pressure and heart rate decreased during the music intervention compared with baseline. Diastolic blood pressure decreased during music intervention from baseline during time 2, but not time 1. The subjects with high baseline scores of noise sensitivity preoperatively had higher baseline levels of noise annoyance the first day postoperatively in the critical care unit. Regardless of the baseline noise sensitivity or noise annoyance, the music intervention was rated as highly enjoyable by the subjects.

The researchers concluded that noise annoyance is highly individualized. Regardless of noise sensitivity of the subjects, noise sensitivity, heart rate, and systolic blood pressure were decreased with music intervention with cardiac surgery patients during the first postoperative day.

Limitations of the study included social desirability bias in the NAVAS response and heightened awareness of noise in the critical care unit due to study design. Implications for this study for practice relate to healthcare providers' understanding of individual variation in patients' response to noise, as well as coping strategies. Awareness of noise-producing behaviors

should be heightened, and healthcare providers should strive to decrease noise generated. Recommendations of the researchers included replication of the study using larger sample sizes and allowing the subjects to choose the music played. Although the current study does not meet these specific recommendations, the researcher built on the work of previous researchers by assessing responses to noise and music in an outpatient setting.

Attitude about music may influence how patients respond to anxiety and stress and may affect the response to music intervention in relieving anxiety and stress. Bookbinder et al. (1997) hypothesized that music could transfer patients' anxiety and stress into relaxation and healing and surveyed patients to determine perceptual responses about music in the perioperative care setting.

The setting for the study was an urban cancer center where 10,000 inpatient surgical procedures are performed annually. Patients' opinions about music were obtained during a 3-week period. A convenience sample of 50 adult patients ranging from 22 to 80 years of age was used for the study. Criteria for the study included patients who were waiting in the operating room reception area for at least 15 minutes prior to the start of the surgical

procedure. The music group and control group each consisted of 25 subjects.

The Patient Opinion About Music Survey was developed. On alternate days, music was provided to the subjects via audiotapes. On even days, the music group listened to a 90-minute audiotape of classical music. The music was 12 feet away from the patients' ears. No specific instructions were given to the music group, and no attempt to alter the routine operating room reception area for the no-music group was made on the odd days. After 15 minutes in the environment, a nurse obtained consent to interview the subjects regarding their opinions of music. Demographic data were obtained.

Results from the survey consisted of positive responses from 92% of the music group when asked to score how they felt about listening to the music. Subjects felt they were more relaxed and less anxious while awaiting surgery. Tranquil and satisfied were the responses given by the subjects. Classical music was preferred.

The subjects who did not hear music reported liking the operating room reception area atmosphere. However, they responded to a higher percentage of bothersome environmental sounds than the music group. When asked

about preference of listening to music in the operating room reception area, 80% stated they would like the music. Bookbinder et al. (1997) concluded that music was a positive intervention that could help alleviate patients' anxiety and stress levels and that the music utilized in the study provided sufficient distraction for unwanted sounds.

The research is relevant to the current research because it gives insight into patients' perceptual responses to music while awaiting medical care. Positive responses provided by the subjects supported the assumption that music, as an intervention, may assist in relieving anxiety and aid in relaxation of perioperative subjects. The current researcher employed a similar intervention to study clients waiting in an outpatient setting.

When patients are hospitalized and anxiety is present, there is a diminished ability to cope, creating stress and possibly slowing the recovery period. Barnason et al. (1995) evaluated music intervention as a coping mechanism for anxiety to enhance the recovery period following surgery. The researchers examined the influence

of music intervention on patients' mood and anxiety following coronary artery bypass grafting (CABG).

The design for the study was a repeated measures, quasi-experimental study. Subjects were selected randomly and placed into one of three groups: music therapy, music-video therapy, or scheduled rest period group. Mood was measured with the use of a Numeric Rating Scale. Anxiety was measured with the physiologic measures of heart rate and blood pressure (BP) and with the State-Trait Anxiety Inventory.

The setting for the study were the cardiovascular intensive care units and progressive care units of a midwestern community hospital. The study was a convenience sample of 96 patients who underwent elective CABG. Criteria for inclusion in the study included orientation to person, place, and time and the ability to speak and read English. Participants also had to be 19 years of age or older, not currently using music therapy, and have no hearing deficit.

Barnason et al. (1995) allowed subjects to select music from five choices, all of which were soothing in nature. The music group had a 30-minute audiocassette that played soft instrumental music. The music-video group had

visual images on the screen that accompanied the music. The rest group had undisturbed 30-minute rest periods.

The State-Trait Anxiety Inventory was completed by the subjects as a baseline before surgery. The assigned 30-minute intervention was given to subjects at two episodes during the afternoons of postoperative Days 2 and 3. The interventions were introduced in the hospital room of the subjects, in the cardiovascular intensive care unit, or other progressive care units.

Prior to the intervention, subjects were positioned in a bed or easy chair. The Kendall blood pressure monitor cuff was applied. Subjects were asked to verbally rate before and after the intervention the level of anxiety and mood on a 0 to 10 Numeric Rating Scale. Subjects also completed the State-Trait Anxiety Inventory before the intervention on Day 2 postoperatively and after completion of the repeated intervention on day 3 postoperatively. Blood pressure and pulse were monitored at baseline and at 10-minute intervals throughout Days 2 and 3 interventions.

The statistical analysis of chi-square and analysis of variance were used to interpret the data. Further analysis to examine the effect of the intervention on anxiety was performed using repeated measures analysis of

covariance. Barnason et al. (1995) found that the use of music, music video, or rest periods did not significantly reduce the anxiety of patients after CABG as measured by the Numeric Rating Scale and the State-Trait Anxiety Inventory. However, mood ratings showed significant improvement among those in the music group following the second intervention. With ANOVA, no significant interaction ($p > .05$) was seen between intervention groups and time for any physiologic responses. However, significant time effects for heart rate and blood pressure were reported with a relaxation response within the first 10 minutes, indicating a generalized physiologic relaxation response.

Barnason et al. (1995) concluded there are some clinically beneficial effects of relaxation techniques, particularly with the use of music as an intervention. The Barnason et al. study was pertinent to the current study because it provided an additional perspective on the effect music intervention may have on reducing the anxiety level of patients.

Summary

In summary, all the studies in the literature review provide more insight into the effects of music therapy as

an intervention for stress, anxiety, and pain. Some of the studies (Byers & Smyth, 1997; Chiles et al., 1997; Chlan, 1998; Good, 1995) support music as a means to reduce the stress and anxiety associated with medical care and procedures as evidenced by the patients' perception and by physiological measures. However, all studies (Barnason et al., 1997) do not support music as an intervention to significantly reduce stress, anxiety, or pain. Information about intervention strategies that were effective and those that were ineffective was essential in designing the current study in which the effect of music therapy on patients awaiting medical care in an ambulatory care setting was examined.

Chapter III

The Method

The purpose of the study was to evaluate the influence of music as an intervention for adult patients waiting for medical care in an outpatient clinic. Patients awaiting medical care frequently experience stress, anxiety, or pain. Methods to reduce the levels of stress, anxiety, or pain are needed, and music is being evaluated as one such intervention. In this chapter, the design, hypotheses, setting, population, and sample for the study are discussed. The data collection technique, instrumentation, and procedure are explained in depth.

Design of the Study

A quasi-experimental three-group pre- and post-design was used in this study. Quasi-experimental designs involve the manipulation of at least one independent variable; however, they lack either randomization or control, both of which are required for a true experiment (Polit & Hungler, 1995). In the current study, there was random

assignment of music group, white noise group and no music group for the subjects, but a convenience sampling was used to select the overall sample population; therefore, a quasi-experimental design was appropriate.

Variables

Controlled variables included setting, the type of music or white noise used, and the time frame between pre- and post-physiologic measures. Intervening variables included age, gender, ethnic background, psychological and physiologic condition of the patients, extraneous noises, and the honesty of responses by participants. Independent variables were individuals who received music therapy, white noise, or no music. Dependent variables were the physiologic responses (mean arterial pressure, pulse, and respirations) and perceptual responses.

Setting, Population, and Sample

The setting for this study was an outpatient clinic in rural Northeast Mississippi. The majority of patients seen in this clinic were adults with a variety of primary care medical problems. The most common diagnoses included hypertension, diabetes mellitus, and upper respiratory infections. Approximately 75 patients a day are seen. The

target population was patients 18 years and older with no self-reported hearing difficulty who spoke English and were awaiting medical care. The sample population included all patients who met the criteria and agreed to participate. The subjects were randomly assigned to groups. The final sample (N = 78) consisted of 26 subjects receiving music therapy, 26 receiving white noise, and 26 receiving no music.

Techniques/Instrumentation

Instrumentation for the experimental study included pre- and post-intervention physiologic measures of mean arterial blood pressure, pulse rate, and respiratory rate. The Critikon Dinamap blood pressure monitor was used to obtain blood pressure and pulse. Respiratory rates were assessed by the researcher who noted and recorded how many times a participant breathed in a 60-second time frame.

Perceptual responses were determined by the Waldrop Patient Surveys (see Appendices A, B, and C). The patient surveys were read aloud to subjects who were illiterate. Perceptual responses were obtained following measurement of the physiologic responses and evaluated the patients' subjective reactions to music, white noise, or no music.

The completed Demographic Survey (see Appendix D) and the Waldrop Patient Surveys were used to collect the remaining data. The Demographic Survey contained eight questions, with either check responses or fill-in-the-blank for Questions 1 to 6. Demographic information obtained included age, sex, the reason for the visit to the clinic, chronic conditions, significant hearing difficulties, and language spoken.

Questions 7 and 8 were the pre- and post-physiologic measures of mean arterial blood pressure, pulse rate, and respiratory rate and were completed objectively by the researcher. The Waldrop Patient Survey (Music) and Waldrop Patient Survey (White Noise) included nine questions each. Six were yes or no questions about cognitive responses to the music or white noise and two were multiple-choice items which assessed affective responses to the music or white noise. The Waldrop Patient Survey (No Music) had five questions, four yes or no responses and one multiple-choice question. The four yes or no responses were cognitive responses to the atmosphere of the room and the consideration of music in the treatment room. The multiple-choice question assessed subjects' feelings. These tools have no established reliability but have face

and content validity according to review by a panel of nurse researchers.

Approximately 4 minutes was needed to complete the Demographic Survey and the Waldrop Patient Surveys. Questions were scored item by item. No total score was obtainable. The open-ended question was quantified for enumeration of like responses.

Procedures

Protection of the rights of human subjects was conducted by first obtaining approval for this study from the Mississippi University for Women Committee on the Use of Human Subjects in Experimentation (see Appendix E). Written permission to conduct the study was obtained from the director of the clinic through written consent on a formal letter (see Appendix F). Names of the subjects were procured from office staff at the clinic on a daily basis as the study was conducted. The purpose of the study, to evaluate the effect of music on patients waiting for medical care in an outpatient clinic, was explained to each subject. Subjects were told their blood pressure, pulse, and respirations would be obtained before and after either music, white noise, or no noise intervention. Subjects were informed they would complete an evaluation

form that described their feelings after listening to music, white noise, or no noise interventions. Subjects were made aware participation in the study was strictly voluntary, they could withdraw from the study at any time, their names would not be recorded in order to maintain confidentiality, and participation would in no way affect the care they would receive. Written informed consent was obtained (see Appendix G). Phone notification followed by a letter with written consent was the method used to obtain permission to adopt a modified version of the Patient Survey (see Appendix H).

Three treatment rooms were designated for conduction of the research study. An audiotape player with the classical music "The Musical Sea of Tranquility" was established in treatment room 1, the Soundspa with white noise in treatment room 2, and no noise in treatment room 3. The office nurse placed patients in the first available room. The selection of music, white noise, or no music was based on which room the patients were randomly assigned until 26 subjects had been studied for each of the three groups. The researcher entered the treatment room after the nurse left the patient. Explanation of the study was provided to the patient and written permission obtained to

conduct the study was obtained. One patient declined participation in the study, and one patient was omitted due to the seriousness of the condition of the patient as determined by the researcher. The demographic information was procured followed by preintervention physiologic measures of mean arterial pressure, pulse rate, and respiratory rate. The intervention of either music, white noise, or no music was implemented for 15 minutes. Following the intervention, postintervention physiologic measures were obtained by the researcher. The subjects were then asked to complete the patient survey in the category of the intervention received. Due to advanced age and reading difficulty, some of the subjects asked that the Demographic Survey and the Waldrop Patient Surveys be read aloud to them. Subjects were thanked for participation in the study.

Methods of Data Analysis

Descriptive statistics of frequencies, means, and percentiles were used to analyze the demographic data and other nominal data. The analysis of variance (ANOVA) was utilized to compare responses of the three groups. The independent t test was used to compare pre- and post-physiologic measures of each group. Perceptual responses

were evaluated using totaled percentiles per question. Question 4 on the Waldrop Patient Survey (Music) and the Waldrop Patient Survey (White Noise) were compared. No comparable question existed on the No Music survey. Question 2 on the Music Therapy and White Noise surveys and Question 1 on the No Music survey were compared. Question 3 was compared among all three groups. Question 9 on the Music Therapy and White Noise surveys and Question 5 on the No Music survey were compared. Means and percentiles were used to compare Questions 1, 2, 7, and 8 on the Demographic Survey.

Chapter IV

The Findings

The purpose of the study was to evaluate the influence of music as an intervention for adult patients waiting for medical care in an outpatient clinic. A quasi-experimental, three-group pretest-posttest design was used for this study. The research sample was composed of 78 patients, 18 years and older, awaiting medical care in an outpatient clinic. Data for the study were obtained by the researcher. The Critikon Dinamap blood pressure monitor was used to obtain pre- and post-physiologic measures of blood pressure and pulse. Patient surveys were used to obtain perceptual responses of the subjects. This chapter details a description of the sample, results of data analysis, and additional findings.

Characteristics of the Sample

A total of 78 patients comprised the sample, with 26 in the music group, 26 in the white noise group, and 26 in the control group. Patients' ages ranged from 20 to 77

(M = 52) in the music therapy group), from 19 to 83 (M = 53) in the white noise group), and 20 to 91 (M = 60) in the no music group. No self-reported hearing difficulty was noted. Each subject spoke English and was awaiting medical care. Patients excluded from the study were those who did not desire to participate. The subjects were randomly assigned to one of the three groups. The Music Therapy group was represented by males (61.5%) and females (38.5%); the White Noise group had 14 (53.8%) men and 12 (46.2%) women. The No Music group also had a majority of men (65.4%) with only 9 (34.6%) women. The three most frequent acute medical conditions reported by subjects were hypertension, diabetes, and upper respiratory infections. The most frequent chronic medical conditions included hypertension, diabetes, and cardiac disease.

Findings Related to Hypotheses

Four hypotheses were tested. Data were subjected to ANOVA, t-test, and Pearson r analysis.

Hypothesis 1. There will be no difference in the change in physiologic responses of patients who receive music therapy, white noise, or no music while awaiting medical care in an outpatient clinic. Data were compared by group and the variables of mean arterial pressure, mean

pulse rate, and mean respiratory rate at the beginning and at the end of the intervention. No significant differences emerged for mean arterial pressure, $F(2, 75) = 2.04$, $p = .138$; pulse rate, $F(2, 75) = .72$, $p = .49$; and respiratory rate, $F(2, 75) = .04$, $p = .96$ at the beginning of the session. At the end of the session, no significant differences in mean arterial pressure, $F(2, 75) = 2.00$, $p = .142$; pulse rate, $F(2, 75) = .57$, $p = .566$; and respiratory rate, $F(2, 75) = .06$, $p = .940$, were found. When subjected to pre- and post-differences, no significant physiologic changes emerged for the Music Therapy group, the White Noise group, or the No Music group. Therefore, the researcher failed to reject Hypothesis 1 (see Tables 1 and 2 for before/after values).

Table 1

Pre-Physiologic Means of Mean Arterial Pressure, Pulse, and Respirations for Music Therapy, White Noise, and No Music Using ANOVA Analysis

Variable	SS	df	MS	F
MAP ^a				
Between Groups	653.872	2	326.936	2.035
Within Groups	12046.808	75	160.624	
Total	12700.679	77		

(table continues)

Table 1 (continued)

Variable	SS	df	MS	F
Pulse ^b				
Between Groups	230.333	2	115.167	.719
Within Groups	12005.115	75	160.068	
Total	12235.449	77		
Resp ^c				
Between Groups	.718	2	.359	.041
Within Groups	652.462	75	8.699	
Total	653.179	77		

^aMean arterial pressure. ^bMean pulse rate for one minute.

^cMean respiration rate for one minute.

Table 2

Post-physiologic Means of Mean Arterial Pressure, Pulse, and Respirations for Music Therapy, White Noise, and No Music Using ANOVA Analysis

Variable	SS	df	MS	F
MAP ^a				
Between Groups	728.615	2	364.308	2.004
Within Groups	13636.000	75	181.813	
Total	14364.615	77		

(table continues)

Table 2 (continued)

Variable	SS	df	MS	F
Pulse ^b				
Between Groups	241.949	2	120.974	.574
Within Groups	15806.269	75	210.750	
Total	16048.218	77		
Resp ^c				
Between Groups	1.231	2	.615	.062
Within Groups	748.154	75	9.975	
Total	749.385	77		

^aMean arterial pressure. ^bMean pulse rate for one minute.

^cMean respiration rate for one minute.

Hypothesis 2. There will be no difference in the perceptual responses of patients who receive music therapy, white noise, or no music while awaiting medical care in an outpatient clinic. Data were compared by questions on each survey. The researcher found only three significant comparisons: helpfulness, liking of music, and future visits. Question 4 on the Music Therapy and White Noise surveys were compared to identify whether music or white noise was helpful during the waiting time. No comparable question existed on the No Music survey. Eighty-five percent in the Music Therapy group indicated the music therapy helped, while 23% in the White Noise

group indicated the white noise helped. Comments made by the participants included "It relaxed me," "It distracted me from the wait," "It gave me something to do," "It passed the time," and "I almost went to sleep." There was a significant difference in the proportion of participants indicating that the music therapy or white noise helped, $t(50) = 5.55, p = < .001$.

Next, Question 2 on the Waldrop Patient Survey (Music Therapy) and Waldrop Patient Survey (White Noise) and Question 1 on the Waldrop Patient Survey (No Music) were compared to determine if a difference existed for liking the music therapy, white noise, or no music. Significance existed among the groups, $F(2, 74) = 30.1, p < .001$. Ninety-two percent liked the music offered, while 35% liked the white noise.

Question 9 on the Waldrop Patient Survey (Music Therapy) and Waldrop Patient Survey (White Noise) and Question 5 on the Waldrop Patient Survey (No Music) yielded responses to desire to hear music or white noise at future visits. When asked if they would like to hear music or white noise while waiting in the clinic, 92% wanted music, while only 19% wanted white noise at future visits, $t(50) = 7.68, p < .001$. Forty-two percent of the

No Music group indicated they would like music if it were offered in the treatment room.

Since only three of the nine questions on Waldrop Patient Survey (Music Therapy) and Waldrop Patient Survey (White Noise) and two of the five questions on Waldrop Patient Survey (No Music) related to perceptual responses were significant, the researcher failed to reject Hypothesis 2. Perceptual responses of patients who received music therapy, white noise, or no music were not significantly different.

Hypothesis 3. There will be no correlation between age and physiologic responses of patients who receive music therapy or white noise while awaiting medical care in an outpatient clinic. No significant correlation was determined for the ages and the physiologic responses of mean arterial pressure, pulse, or respirations for patients in the three groups (see Table 3). The researcher failed to reject Hypothesis 3. There is no significant relationship between the age of the patients and their physiologic responses to music therapy or white noise as they wait for medical care.

Table 3

Correlation Between Age and Physiologic Responses of Music Therapy, White Noise, or No Music

Group	n	r	p
Music therapy			
MAP ^a	26	.090	.664
Pulse ^b	26	-.036	.863
Resp ^c	26	.014	.945
White Noise			
MAP ^a	26	.329	.100
Pulse ^b	26	-.173	.398
Resp ^c	26	.045	.828
No Music			
MAP ^a	26	.190	.351
Pulse ^b	26	.112	.585
Resp ^c	26	.324	.106

^aMean arterial pressure. ^bMean pulse rate for one minute.

^cMean respiration rate for one minute.

Hypothesis 4: There will be no correlation between age and the perceptual responses of patients who receive music therapy or white noise while awaiting medical care in an outpatient clinic. For the Music Therapy group, a significant positive correlational relationship emerged between age and whether or not they liked the kind of music, $r = .47$, $p = .016$. In general, the older the patient, the more likely they were to report liking the

music. There was no significant correlation between age and liking the white noise, $r = .038$, $p = .855$. There was no significant correlation between age and whether the music helped, $r = .28$, $p = .167$, and there was no significant correlation between age and whether the white noise helped, $r = .038$, $p = .855$. There was no correlation with age in the Music Therapy or White Noise groups in wanting to hear music, $r = .120$, $p = .560$, or white noise, $r = -.029$, $p = .889$, at future visits. There was also no correlation with age and whether the No Music group wanted to hear music in the treatment room at future visits. Thus, the researcher failed to reject Hypothesis 4.

Summary

The data collected and analyzed for this study have been presented in Chapter IV. Data analysis revealed no significant differences in the physiologic measures of mean arterial pressure, pulse, and respirations among the three groups or in the pre- and post-measures in each group. There also was no relationship in differences in physiologic measures in regard to age of the three groups. There was a significant difference in the perceptual responses of patients receiving music therapy and white noise and a relationship with age in the differences in

the perceptual responses, with a higher percentage indicating they liked the music therapy. There was a significant correlation between age and the perceptual responses of the participants. In general, the older the patient, the more likely he or she was to report positive responses to the music therapy.

Chapter V

The Outcomes

The focus of this quasi-experimental study was to examine the influence of music therapy on adult patients in an outpatient clinic. The purpose of this study was to compare responses in adult patients who receive music therapy while awaiting medical treatment in an outpatient setting and those who do not receive music therapy. Patients requiring medical care frequently experience increased levels of anxiety. The increase in anxiety may be attributed to fear of the medical examination, fear related to the procedures to be performed, or fear of the findings. Any intervention that has the potential to reduce anxiety should be pursued. Music therapy is one possible intervention that could assist in alleviating or reducing the anxiety.

The sample consisted of 78 adult patients awaiting medical care in a rural family medical clinic randomly selected to hear music, white noise, or no music.

Twenty-six participants were selected for each of the three groups.

In Chapter V, the outcomes of the study are discussed. The conclusions and implications for nursing are presented. Recommendations are included for future nursing research in this area.

Summary and Discussion of Findings

Participants in the current study ranged from 19 to 92 years of age. The mean age of the Music Therapy group was 52 years, the mean age of the White Noise group was 53 years, and the mean age of the No Music group was 60 years. The mean age of the three groups combined was 55 years. This finding is reflective of the general population seen in the family medical clinic where this study was conducted.

Of the 16 male respondents receiving music therapy (MT), 14 reported liking the music. All 10 of the female respondents reported liking the music. Of the respondents receiving white noise, 4 of the 14 male respondents reported liking the white noise. Five females out of 12 in the White Noise group reported liking the white noise. In the Waldrop Patient Survey (No Music), 7 of the 17 males surveyed indicated they would like to hear music at future

visits, while 4 of the 9 females surveyed indicated they would like to hear music at future visits.

The findings of this research were similar to Barnason et al.'s (1995) findings, in which no significant interaction between interventions and physiologic responses were discovered. The current researcher found no significant differences among the three groups in physiologic measures of mean arterial pressure, mean pulse, or mean respiratory rate at the start of the session. There also were no significant differences among the groups in mean arterial pressure, mean pulse, or mean respiratory rate at the end of the session. Measures for the Music Therapy group, White Noise group, and the No Music group resulted in no significant pre- to post-physiologic changes in mean arterial pressure, pulse, or respirations. No correlation with age was seen in the physiologic responses of the patients who received music therapy or white noise. These results differed from Byers and Smyth's (1997) findings of a decrease in heart rate and systolic blood pressure following music intervention. Chlan's (1998) study also revealed significant decreases in heart rate following music as an intervention. The potential explanation for the lack of significance could

be attributed to insufficient time for the music therapy or white noise intervention. Another factor possibly contributing to the lack of significance is the fact that the subjects were not allowed to select the type of music played.

A significant difference was seen in some areas of the perceptual analysis. In the perceptual responses of patients who received music therapy or white noise while awaiting medical care, 92% of the music group reported liking the music and 36% of the white noise group reported liking the white noise. There was a significant difference with liking the music or white noise, $F(2, 74) = 30.1$, $p < .0001$. Subjects often have extended waits in the reception area or treatment room. Music can provide a distraction for the wait and the anticipation of the medical care to be received. Subjects voiced that the music helped them to focus on something other than the wait.

There was also significant difference in the proportion of participants indicating that the music therapy or white noise helped, $t(50) = 5.55$, $p = < .001$. Eighty-five percent in the Music Therapy group indicated the music therapy helped, while 23% in the White Noise

group indicated the white noise helped. Forty-two percent of the No Music group indicated they would like music if it were offered in the treatment room. Patient satisfaction of the care received could be enhanced if the patients feel they have been helped by the music therapy during their wait. Patients might enjoy having the option of whether or not to receive music therapy in the treatment room. This could also increase their feelings of control over the environment.

In the question that asked feelings prior to the session, none (0%) of the Music Therapy group reported feeling happy or satisfied, while 15% of the White Noise group reported feeling happy or satisfied prior to the session. The respondents did not report any change in feelings following the intervention. More time with the music or white noise intervention may have altered this finding; however, a more lengthy wait may have created a negative response.

For the Music Therapy group, there was a positive correlation between age and whether or not subjects liked the kind of music, $r = .47$, $p = .016$. In general, the older the patients, the more likely they were to report liking the music. There was no correlation among ages in

liking the white noise. There was no correlation with age in the Music Therapy or White Noise groups in wanting to hear music or white noise at future visits. There was also no correlation with age and whether the No Music group wanted to hear music in the treatment room. The positive correlation with age and liking the music could be due to the type of music selected for the research. A slow, melodious classical music was used, which may be enjoyed more with increasing age. Self selection could increase the enjoyment of music equally among different ages.

The music group was asked what other type of music would have been selected by the participants had they been given a choice. A variety of responses were given. Five stated they would have chosen country music, 4 would have remained with the classical music, and 3 selected gospel. Others choices included fifties music, jazz, slow pop, and easy listening.

The white noise group was asked what type of sound they would have selected had they been given a choice. Six respondents selected rain, 3 selected country music, and 3 chose melodious music. Other responses included nature sounds, a summer night, the radio, the television, Rod Stewart, and Beethoven.

When the no music group was asked if there were any suggestions to improve the atmosphere of the treatment room, 5 subjects responded. Suggestions included play music, add color to the room, place magazines in the room, warm the room, and make the wait shorter.

Even though physiologic measures of mean arterial pressure, pulse, and respirations did not show a significant change following the interventions, the perceptual responses of the subjects revealed a positive response to music while awaiting medical care. Comments of some of the individuals, following completion of the perceptual analysis, were statements indicating the music distracted them from thinking about the wait. Some stated the music had a calming effect. Others seemed indifferent whether or not they received music therapy. These responses are in agreement with the findings of the study by Bookbinder et al. (1997) who determined that music as an intervention could alleviate patient anxiety and provide a distraction for unwanted sounds. Respondents might show an even more positive response to music therapy if allowed to choose the type music used as an intervention.

White noise respondents had less positive comments regarding the white noise as an intervention. Two respondents stated they use white noise at night to help them sleep. Other respondents said the white noise was an irritating sound and they would never want to use it for relaxation.

Observation by this researcher are consistent with Roger's (1980) theoretical framework that human beings are inseparable from or with their environment. Thus, music therapy should have an impact on the human being by changing the environmental pattern of energy. Subjects observed became relaxed during the music intervention. Upon entering the treatment room following intervention of music therapy, some subjects were found with their eyes closed. Others stated they were almost dozing. Several stated they enjoyed the relaxing sounds of the music being played. This study resulted in findings similar to Cohen and Eisenman's (1995) observations of subjects undergoing surgical procedures, in which anxiety was less substantial with the use of music.

Limitations of the Study

One limitation of this study was the chance for bias in the responses of the participants. The participants may

have responded with answers they felt would be pleasing to the researcher or appropriate to the study without expressing true feelings. Another limitation of the study was the short time frame of less than 2 weeks in which the study was conducted.

The short length of time the intervention was used was also a limitation of the study. More time for the intervention could be needed to achieve the state of relaxation. Pain experienced by the subjects or lengthy waits in the reception area prior to coming to the treatment room may also have impacted the findings of the study.

Implications for Nursing

This research study was conducted to evaluate the effects of music therapy on adult patients in an outpatient setting. Many individuals experience anxiety while awaiting medical care. Knowledge of the responses of subjects who receive music intervention while awaiting medical care will provide the nurse practitioner with insight on methods to assist in reduction of the anxiety.

Nursing theory. Roger's (1980) Science of Unitary Human Beings was an appropriate framework for this study. The findings supported the theory that man and the

environment are inseparable. Sounds in the environment appear to have profound effect on human beings who hear the sounds. Music therapy in the environment may provide a positive or negative effect on the person. This researcher advocates the use of Rogers' model as a framework upon which to base future research which involves manipulation of the human environment.

Nursing education. Findings from this study indicate music as an intervention for the reduction of anxiety should be considered by many nursing professionals in a variety of settings. Music therapy as an alternative therapy should be included in the curricula of schools of nursing. Nursing education does not end in academia. Information regarding music as an alternative independent nursing intervention is indicated as content for in-service education and continuing education programs as well.

Nursing practice. Nurse practitioners in the primary care setting are responsible for assessing the use of alternative therapies that can be used to reduce anxiety. Nurses have a responsibility to manipulate the environment in a therapeutic manner. All members of the nursing profession may not realize the significance music or noise

may have for the patient. Music is a nonpharmacological intervention. Music is noninvasive, easily administered, and relatively inexpensive to provide. Music can be provided in many forms. The use of music to reduce anxiety and promote relaxation should be considered. Findings from this study indicate that patients should be given a choice regarding what kinds of music they prefer. Allowing the patient to choose the music or noise appears to enhance the efficacy of the intervention.

Nursing research. This study sought to determine the effects of music therapy on adult patients in an outpatient setting. Findings from this research study revealed music therapy had a positive effect on the perceptual responses of patients receiving music as an intervention. Conducting and publishing more nursing research will help nurse practitioners become more aware of the potential benefits of music as a means to reduce anxiety and promote relaxation among patients in a variety of medical settings.

Conclusions

The hypothesis stating there would be no significant difference in the change in the physiologic responses of patients who received music therapy, white noise, or no

music was not rejected by the findings of this study. This study also failed to reject the hypothesis that there would be no correlation with age for the difference in the physiologic responses of patients who received music therapy or white noise.

The researcher failed to reject the hypothesis regarding perceptual responses. However, in some areas examined, there was a statistically significant difference in the perceptual responses of patients who received music therapy, white noise, or no music while awaiting medical care in this outpatient clinic. Music therapy was viewed positively as an intervention. Subjects also viewed the music as a source of help. The researcher failed to reject the hypothesis that there would be no correlation with age for the differences in the perceptual responses of patients who received music therapy or white noise. However, patients with increasing age were more likely to give positive responses when asked if they liked the music that was played.

Music seems to be a comfort during a time when patients are not in full control of their environment. Nurse practitioners are responsible for providing interventions that could help the patient feel more in

control. Patients awaiting medical care are frequently concerned about their health and the treatment they are about to receive. Nurse practitioners are responsible in assessing the patients' level of anxiety and assisting in reduction of this anxiety. Nurse practitioners should be aware patients vary in their responses to noise or other environmental stimuli and should recognize the significance music can have on the patient. Music is an alternative therapy from the more traditional pharmacological methods for reducing anxiety. Music as an intervention can touch patients and reduce their anxiety into a state of increased relaxation.

Recommendations for Further Study

Based on the findings of this study, several recommendations for further studies are made. Those recommendations are as follows:

1. Conducting an additional study to evaluate the effects of music on patients in outpatient settings.
2. Replication of the study to include investigation of music as an intervention for reduction of anxiety and promotion of relaxation in the pediatric population.

3. Conducting a study in which participants are allowed to select the type of music they would like to hear.

4. Conducting a study using music during an invasive procedure such as suturing.

5. Conducting a qualitative study in which the subjective experiences of patients undergoing music therapy are explored in greater depth.

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APPENDIX A
WALDROP PATIENT SURVEY
(MUSIC)

Waldrop Patient Survey

(Music)

This questionnaire will be completed following 15 minutes of music in the treatment room.

1. Have you heard music playing since you have been here?
 Yes No
2. Do you like the music?
 Yes No
3. Were there any sounds or noises that disturbed you during your stay here?
 Yes No
4. Do you feel that the music helped you?
 Yes No
5. How would you describe the main feeling you had before listening to the music? (Please circle all that apply.)
 a. Happy, satisfied e. Tranquil
 b. Sad, depressed f. Sentimental
 c. Angry, irritated g. Worried
 d. Excited h. Other _____
6. How would you describe the main feeling you have now after listening to the music? (Please circle all that apply.)
 a. Happy, satisfied e. Tranquil
 b. Sad, depressed f. Sentimental
 c. Angry, irritated g. Worried
 d. Excited h. Other _____
7. Did you like the kind of music we offered you today?
 Yes No
8. If you could have chosen another kind of music, which kind would you have chosen? _____
9. Would you like to hear music when you come for future visits to this clinic?
 Yes No

APPENDIX B
WALDROP PATIENT SURVEY
(WHITE NOISE)

Waldrop Patient Survey

(White Noise)

This questionnaire will be completed following 15 minutes of white noise (a humming sound similar to a fan blowing) in the treatment room.

1. Have you heard white noise playing since you have been here?

Yes No

2. Did you like the white noise?

Yes No

3. Were there any other sounds or noises that disturbed you during your stay here?

Yes No

If yes, describe: _____

4. Do you feel that the white noise helped you?

Yes No

5. How would you describe the main feeling you had before listening to the white noise? (Please check all that apply.)

<input type="checkbox"/> a. Happy, satisfied	<input type="checkbox"/> e. Tranquil
<input type="checkbox"/> b. Sad, depressed	<input type="checkbox"/> f. Sentimental
<input type="checkbox"/> c. Angry, irritated	<input type="checkbox"/> g. Worried
<input type="checkbox"/> d. Excited	<input type="checkbox"/> h. Other _____

6. How would you describe the main feeling you have now after listening to the white noise? (Please check all that apply.)

<input type="checkbox"/> a. Happy, satisfied	<input type="checkbox"/> e. Tranquil
<input type="checkbox"/> b. Sad, depressed	<input type="checkbox"/> f. Sentimental
<input type="checkbox"/> c. Angry, irritated	<input type="checkbox"/> g. Worried
<input type="checkbox"/> d. Excited	<input type="checkbox"/> h. Other _____

7. Did you like the kind of white noise we offered you today?

Yes No

8. If you could have chosen another kind of sound, what would you have chosen? _____

9. Would you like to hear white noise when you come for future visits to this clinic?

Yes No

APPENDIX C
WALDROP PATIENT SURVEY
(NO MUSIC)

Patient Survey

(No Music)

This questionnaire will be completed following 15 minutes in the treatment room.

1. Do you like or dislike the atmosphere in the treatment room?

Yes No

If not, please "indicate why."

a. Too bright d. Too noisy
 b. Too dim e. Other:
 c. Too quiet _____

2. Do you have any suggestions about how to improve the atmosphere in this area?

Yes No

If yes, please comment: _____

3. Were there any sounds or noises that disturbed you during your stay here?

Yes No

4. How would you describe the main feeling you have now?

a. Happy, satisfied e. Tranquil
 b. Sad, depressed f. Sentimental
 c. Angry, irritated g. Worried
 d. Excited h. Other _____

5. If music were offered in the treatment room, do you think you would like it?

Yes No

APPENDIX D
DEMOGRAPHIC SURVEY

Demographic Survey

1. How old are you? _____
2. What is your sex?
 Male
 Female
3. What is your reason for the visit to this clinic today?

4. List any chronic conditions (long-time medical problems) you have.

- None
5. Do you have a hearing difficulty?
 Yes
 No
6. Do you speak English?
 Yes
 No
7. Pre-physiologic measures
 Mean arterial pressure
 Pulse
 Respirations
8. Post-physiologic measures
 Mean arterial pressure
 Pulse
 Respirations

APPENDIX E

APPROVAL OF THE COMMITTEE ON USE OF
HUMAN SUBJECTS IN EXPERIMENTATION OF
MISSISSIPPI UNIVERSITY FOR WOMEN



MISSISSIPPI
UNIVERSITY
FOR WOMEN

Office of the Vice President for Academic Affairs
Eudora Welty Hall
W-Box 1603
Columbus, MS 39701
(601) 329-7142

Admitting Men Since 1982

March 1, 1999

Ms. Cathy J. Waldrop
c/o Graduate Program in Nursing
Campus

Dear Ms. Waldrop:

I am pleased to inform you that the members of the Committee on Human Subjects in Experimentation have approved your proposed research upon the condition that you include in the consent that the participant does not have to answer every question.

I wish you much success in your research.

Sincerely,

A handwritten signature in cursive script that reads "Susan Kupisch".

Susan Kupisch, Ph.D.
Vice President
for Academic Affairs

SK:wr

cc: Mr. Jim Davidson
Dr. Mary Pat Curtis
Dr. Patsy Smyth

APPENDIX F
PERMISSION TO CONDUCT STUDY

Consent to Conduct Study

Title of Research Study

Influence of Music Therapy on Adult Patients in an
Outpatient Setting

I am a registered nurse and a graduate student at Mississippi University for Women. I am studying the influence of music therapy on patients in an outpatient setting. Although research has been conducted in the acute care area, no research was found reflecting a primary care clinic setting.

I would like to request written permission to conduct a survey of patients awaiting care at the Pontotoc Family Medical Clinic. If given permission, I will provide music therapy for 26 patients, white noise (similar to the sound of a fan blowing) for 26 patients, and no music for 26 patients and evaluate their physiologic measures of blood pressure, pulse, and respiration. In addition, I will ask each participant to complete a brief questionnaire evaluating their stay in the treatment room in relation to the music therapy provided.

Projected time and duration for data collection will be the months of March and April. I will obtain consent from the participants. The survey will be conducted by me and no additional work will be required from the staff of the clinic. Findings from this research endeavor will be provided to you. Thank you for your time and assistance.

I hereby give permission for Cathy Waldrop to conduct a research study on the influence of music therapy in an outpatient setting at the Pontotoc Family Medical Clinic.

Date

Signed: _____
Family Medical Clinic Director

APPENDIX G
INFORMED CONSENT

Informed Consent

Dear Participant,

I am a registered nurse and graduate nursing student at Mississippi University for Women. I am conducting a study on the influence of music on patients in an outpatient setting. The information obtained from this study will provide a better understanding of the impact of music on people waiting to see their health care provider.

I would like your permission to assist me in this research study. Participation in this study will have no impact on the care provided. There is no cost to participate. No invasive procedures will be performed for the use of this research. Your participation is completely voluntary. You may withdraw from participation in this research at any time and this will not have any impact on the care you receive. Your confidentiality will be maintained by not using your name on any information obtained.

I will obtain your blood pressure, pulse, and respirations before implementation of either music, white noise (a humming sound similar to a blowing fan), or no noise. The selection for which of the three you receive will be done at random. I will obtain your blood pressure, pulse, and respirations 15 minutes later. You will also be asked to fill out a questionnaire about your experience in the treatment room following this procedure. Thank you for your assistance.

Sincerely,

Cathy Waldrop

I have read this consent and I understand the purpose of the study and the conditions of my participation in the study. I do hereby agree to participate.

Date

Signature of Client

APPENDIX H

PERMISSION TO USE MODIFIED VERSION
OF PATIENT SURVEY

22 Ponderosa Drive
Pontotoc, MS 38863

XXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXXXXXXXXXXXXX
XXXXXXXXXX, XX

Dear _____,

I am a graduate nursing student at Mississippi University for Women in Columbus, Mississippi. My research for this program is an experimental study titled The Influence of Music Therapy on Adult Patients in an Outpatient Setting.

During my review of the literature I found your research study Introducing a Music Program in the Perioperative Area. The patient questionnaire used in this research study contained questions I feel would benefit the perceptual component of my research.

I am writing to you requesting permission to use a modified version of your tool for my research study. If you will grant me permission, please fax me your written consent at (601) 488-7697. Thank you for your assistance with this project.

Sincerely,

Cathy J. Waldrop

I grant permission to Cathy Waldrop to use a modified version of the patient questionnaire used in Introducing a Music Program in the Perioperative Area for her research study.

Date

Signature