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Application of Research to Practice Settings: Music Therapy

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APPLICATION OF RESEARCH TO PRACTICE SETTINGS:
MUSIC THERAPY

by

Desiree Gagner-Tjellesen
Bachelors of Science, University of North Dakota, 1991

A Thesis

Submitted to the Graduate Faculty

of the

University of North Dakota

In partial fulfillment of the requirements

for the degree of

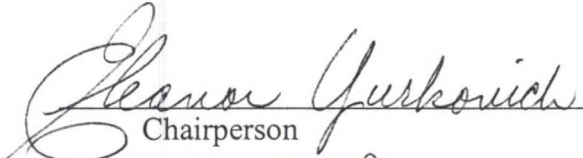
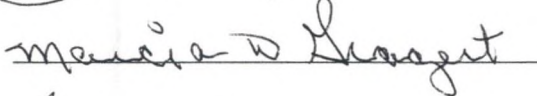

Master of Science

Grand Forks, North Dakota

May

2000

This thesis, submitted by Desiree Gagner-Tjellesen in partial fulfillment of the requirements for the Degree of Master of Science from the University of North Dakota, has been read by the Faculty Advisory Committee under whom the work had been done and is hereby approved.


Chairperson



This thesis meets the standards for appearance, conforms to the style and format requirements of the Graduate School of the University of North Dakota, and is hereby approved.

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Department Nursing
Degree Master of Science

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for teaching me to love,
and for always being so proud of me—no matter what.

ABSTRACT

The purpose of this study was to examine the clinical use of music therapy as an independent therapeutic nursing intervention in acute care settings. This study identified its frequency, rationale, and perceived effectiveness as an independent nursing intervention. This research also identified barriers and facilitators to nurses' utilization of music therapy. Frequency and reasons for use of other independent nursing interventions was also investigated.

An author designed structured questionnaire was utilized in this descriptive study. The census sample (N=321) consisted of registered nurses at a Midwestern acute care facility of greater than fifty beds. Forty-two percent (n=135) participated in the study. Descriptive statistics indicated that 115 subjects (85.2%) knew of music therapy. Ninety-four (69.6%) of the subjects indicated that they had used music therapy. The frequency of use, however, was low with anxiety being the most common symptom for use. Of the other independent therapeutic nursing interventions, deep breathing was the most frequently used, followed by therapeutic touch and massage. Music ranked as the most often used for sleep, distraction, agitation, aggression and depression. The practice setting that had the highest incidence of use was psychiatry/chemical dependency followed by the intensive care units.

Barriers and facilitators were ranked and the most commonly identified barrier to incorporation was the nurses' not having adequate time to assist patients with music

therapy. The strongest facilitator was nurses' comfort with the idea of using music therapy.

Identification of the incidence of use as well as the barriers and facilitators has provided the researcher with valuable information about the intervention of music therapy in this setting. To facilitate use and enhance patient care with this technique, it is recommended that further education be provided within this setting on the use and effectiveness of music therapy

CHAPTER I

INTRODUCTION

Nurses face many tasks and challenges in caring for patients. There are physical assessments, carrying out physician orders, physical cares and paperwork, to name a few. Physical cares of patients hospitalized in the acute care setting are often prioritized over their emotional, spiritual and psychological needs.

As nurses strive to become holistic providers, it becomes yet another challenge to meet the psychological needs of their patients. Fundamental nursing texts and educational programs focus on teaching nursing students the basic skills necessary to carry out physicians' orders and often independent nursing interventions are seen as "extra's." "The graduate thus is lead to view these as 'nice to know' but not as constituting an integral element of nursing" (Snyder, 1985, p. 5).

Independent therapeutic nursing interventions (ITNI) are interventions through which nurses can meet psychological needs of patients as well as physical needs. Various nursing interventions exist to assist the patient: guided imagery, progressive relaxation, deep breathing, therapeutic touch, massage, aromatherapy and music therapy. However, nurses often encounter barriers to implementing researched interventions into practice. Researchers have sought to understand the barriers of implementing research into practice. Royle, Blythe, Ingram, DiCenso, Bhatnager and Potvin (1996) identified issues such as time constraints, work expectations, staffing, role expectations and lack of

commitment to the intervention as barriers to implementing the technique of guided imagery. Pederson and Harbaugh (1995) found similar barriers in implementing nonpharmacological techniques with hospitalized children. Funk, Champagne, Wiese and Tornquist (1991) also found additional barriers to be not feeling that they have enough authority to change procedures and insufficient time to implement new research-based ideas.

Kubsch (1996) identified that the very issues that may be barriers to incorporating independent therapeutic nursing interventions may also be motivating forces behind strategies of enactment. For some nurses, the barriers such as work and role expectations actually motivated them to enact cares consistent with their professional values. “As a consequence of using therapeutic nursing interventions, participants perceived empowerment in relation to patients, peers and other health care professions” (p. 192).

This study focused on the identification of the actual use of music therapy as a specific independent therapeutic nursing intervention in the inpatient setting and nurses’ perception of the effectiveness of music therapy. The specific barriers and facilitators to nurses utilization of music therapy was also investigated. Likewise, nurses identified other independent therapeutic nursing intervention that they have utilized (e.g. guided imagery, relaxation, deep breathing, therapeutic touch, massage, and or aromatherapy) including frequency and reasons for use.

Background

Music therapy as an independent nursing intervention is identified throughout the literature. There is research regarding the effects of music with patients in a variety of

settings and for a variety of symptoms. The settings include the surgical setting (Augustin & Hains, 1996; Good, 1995; Heiser, Chiles, Fudge & Gray, 1997; Heitz, Symreng,, & Scamman, 1992; Kaempf & Amodei, 1989; Moss, 1988; Steelman, 1990; Winter, Paskin, & Baker, 1994), the critical care setting (Chlan, 1995, 1998; Chlan & Tracy, 1999; Updike, 1990), coronary care units (Barnason, Zimmerman, & Nieveen, 1995; Bolwerk, 1990; Byers & Smyth 1997; Davis-Rollans & Cunningham, 1987; Guzzetta, 1989; Mynchenberg & Dungan, 1995; White, 1992, 1999) and pediatrics (Megel, Houser & Gleaves, 1998). Research has also been conducted in oncology (Ezzone, Baker, Rosselet & Terepka, 1998; Sabo & Michael, 1996) as an intervention for chemotherapy side effects and by Beck (1991) for cancer related pain. Likewise, research has been conducted in outpatient situations. McBride, Graydon, Sidani and Hall (1999) investigated the effects of music on patients with chronic obstructive pulmonary disease whom live at home. Within the nursing home setting, Denney (1997) and Gerdner (1997) have investigated the use of music with agitated residents. All of the cited studies results show at least some beneficial effects of music therapy.

The effect of music therapy for the treatment of anxiety was probably the most extensively studied use of this modality (Barnason, et al. 1995; Bolwerk, 1990; Chlan, 1998; Elliott, 1994; Kaempf & Amodei, 1989; McBride, et al. 1999; Weber, 1996; White, 1992,1999; Zimmerman, Peirson & Marker, 1988). Anxiety is a normal reaction to the stress and the threat of either physical survival or the integrity of the psychosocial self (Brunner & Suddarth, 1988). Anxiety is an experience very common to the acute care setting. Several anxiety-precipitating situations occur to individuals while hospitalized.

These situations may include: general threats to life; health and body integrity; exposure and embarrassment; physical and emotional pain; separation from friends and family; lack of rest; dependence on strangers for basic needs and general fear of the unknown (Brunner & Suddarth, 1988).

Anxiety, as well as pain can have a negative affect on recovery and healing of the body, not to mention the distressing subjective experience for the patient. The excessive expenditure of physical and emotional energy during anxiety and periods of pain can lead to patient fatigue. Conserving this energy for recovery and healing is one of the reasons for incorporating music therapy into nursing practice.

Music therapy is an intervention that supports the whole individual by reducing physical, psychological and emotional symptoms thus conserving the patient's energy. Theories of the mechanism of music are as complex as the symptoms experienced. Various theories exist as to how music therapy works. Music may serve as a competing stimuli that may distract the patient from the perception of pain or anxiety (O'Callaghan, 1996). Henry (1995) indicated that listening to music may stimulate alpha waves in the brain that are linked to producing a state of relaxation, or it may cause the release of endorphins, which not only reduces pain, but also causes other physiological responses such as reduction in blood pressure and heart rate. Eliciting the relaxation response may also occur as a result of listening to music leading to a decrease in the central nervous system arousal (Wells-Federman, Stuart, Deckro, Mandle, Baim & Medich, 1995).

There is a gap in the present research, however, regarding whether music therapy is actually utilized as an independent therapeutic nursing intervention in routine care

provided to patients. No studies were found that report actual ongoing utilization of this treatment in clinical practice; nor was data found regarding nurses' knowledge or valuing of this intervention. No research was found relating to the barriers or facilitators to implementing music therapy into practice.

Significance

This study provides information about the actual use and perceived effectiveness of music therapy in clinical practice by registered nurses. Facilitators and barriers to the utilization of music therapy were identified. The results of this study have provided a better understanding of perceived barriers and facilitators to the implementation of the nursing intervention of music therapy. The results may be used to plan and implement more effective ways to integrate music therapy as a treatment to enhance client care. The results have also identified that there is a need for education on this technique within the study setting. This study has filled the identified gap in the research regarding the use of music therapy by nurses.

Purpose of the study

The purpose of this study was fourfold. The first aim of this study was to identify whether music therapy is being utilized as an independent therapeutic nursing intervention in the acute care setting by registered nurses and for what symptoms it is utilized. The second aim was to determine, for those nurses who have utilized music therapy, the general effectiveness. The third purpose of this study was to identify the facilitators for the use of music therapy, and to identify the barriers to utilization of music therapy. The fourth and final aim was to identify what other independent therapeutic

nursing interventions are utilized by the registered nurses, the frequency of use and for what symptoms they are used. Intrinsic to this study was the identification of nurses' awareness that the intervention of music therapy exists and how it has been used.

Conceptual Framework

Levine's Conservation Model provided the framework for this study. Within this framework, the patient is seen as a whole being. The whole being includes the mind and body and spirit and is not separate from the environment. Rather, the whole is always interacting with the environment. Levine (1971) identifies that nursing interventions are "a conservation of wholeness. Conservation means 'keeping together' and nursing care should be designed to keep together the wholeness of the individual patient" (p. 258).

Levine (1971) identifies four principles of conservation: conservation of energy, conservation of structural integrity, conservation of personal integrity and conservation of social integrity. Nursing care strives to care for the whole being not only through meeting physical needs, but also by meeting emotional, spiritual and social needs.

The use of music therapy specifically addresses the conservation of the patient's energy by reducing symptoms such as anxiety and pain, thereby reducing fatigue. Without reduction of these symptoms, these stressors can trigger a cascade of biochemical events in the body resulting in autonomic system arousal, muscular tension and increased corticosteroids (Wells-Federman, et al., 1995) all of which consume energy. Therefore, reducing such symptoms is a necessary function of nursing practice so that the patient's energy may be conserved for healing.

Research Questions

This study will aim to answer the following questions through a descriptive study using a questionnaire developed by the researcher based on literature review:

1. What is the incidence of use of music therapy as an independent therapeutic nursing intervention in an acute care hospital of greater than 50 beds in Eastern North Dakota?
2. What are the identified uses of music therapy within this setting?
3. What is the effectiveness, as identified by the nurse, of music therapy?
4. What facilitates the nurse's use of music therapy as an independent therapeutic nursing intervention?
5. What are the barriers to the use of music therapy as an independent therapeutic nursing intervention?
6. What other independent therapeutic nursing interventions are utilized?
7. How often are the other independent therapeutic nursing interventions used?
8. What are the identified uses of other independent therapeutic nursing interventions?

Definitions

For the purpose of this study the following terms will be defined:

Independent therapeutic nursing intervention: “an action based on nursing's unique body of knowledge, that a nurse autonomously uses to help patient's resolve, or effectively adapt to, health problems recognized to be in nursing's domain” (Kubsch, 1996, p. 192). Examples of this include music therapy, guided imagery, relaxation, deep breathing, therapeutic touch, massage, or aromatherapy

Music Therapy: the purposeful use of music and its effects with patients to aid in alleviation of physiological, psychological, and emotional symptoms.

Acute Care Setting: an inpatient setting that delivers care to patients experiencing acute medical, surgical and psychiatric conditions.

Barriers: the factors (e.g. lack of access to research on the subject; lack of knowledge; lack of support from peers, physicians and organization; equipment necessary is inaccessible; and time constraints) which hinder the use of a independent therapeutic nursing intervention, as determined by the research tool.

Supports: the factors (e.g. access to research; knowledge and comfort with the subject; support from peers, physicians and organization; available equipment; and adequate time) which encourage the use of a independent therapeutic nursing intervention, as determined by the research tool.

Registered Nurse: a nurse licensed by the state of North Dakota and employed as a registered nurse at a specified Midwestern acute care hospital.

Assumptions

An assumption of this study is that nurses working in this acute care hospital would be open to new and different types of nursing therapies. A second assumption is that nurses will be willing to engage in the research process and that accurate information will be reported. A third assumption is that there will be some lack of knowledge regarding music therapy as well as to the barriers and facilitators to the incorporation of research findings, thus leading to a need for educational programs. A final assumption is that if nurses have knowledge of, or experience with music therapy, than they may also

have an understanding of other complementary nursing interventions such as guided imagery, relaxation, deep breathing, therapeutic touch, massage and aromatherapy.

CHAPTER II

REVIEW OF LITERATURE

Introduction

The following review will guide the reader through an extensive review of the literature on the studied uses of music therapy in health care settings and the results of those studies. The aim of this review is to provide the reader with the evidence of the effectiveness of music therapy with various types of patients in the inpatient setting, thus supporting its use as an independent therapeutic nursing intervention by nursing staff. It will also present Levine's Conservation Model (1971) as the theoretical framework for this study. Lastly, the review will discuss the literature on barriers and facilitators to the implementation of nursing research into practice that was utilized in the development of this studies research tool. These areas of review provide the basis for this study. There are no studies that provide information about what barriers or facilitators exist for a specific intervention, such as music therapy.

Effectiveness of Music Therapy in Various Settings

Music therapy has been studied in a variety of settings for a variety of symptoms. Music as a tool to facilitate relaxation is the most prevalent in the literature. The effects of music on patient anxiety and physiologic measures, such as heart rate, blood pressure and respirations have been examined. Two common groups of patients studied are the surgical patient and the cardiac patient. Likewise, the use of music therapy with cancer

patients as an adjunct to pain control and for the side effects encountered with chemotherapy has been studied.

The use of music therapy has also been identified in outpatient settings. The use of music for depression has been examined (Hanser & Thompson, 1994; Lai, 1999) as has the use of music with children receiving immunizations (Megel, Houser & Gleaves, 1998). Studies have also been conducted in nursing homes investigating the effects of music on agitation (Denney, 1997; Gerdner, 1997). In the home care setting, researchers have examined the use of music for dyspnea and anxiety (McBride et al., 1999) and for sleep disturbances (Mornhinweg & Voignier, 1995). Though these studies show benefits of using music therapy as a nursing intervention, they will not be reviewed here, as they are not easily transferable to the inpatient setting and this study. They are mentioned, however, to further emphasize the diverse uses of music therapy by nurses.

Several variations exist between the reviewed studies. Sample sizes are often small and vary between studies. Different methodologies and different subject types exist between many of the reviews making it difficult to compare these works. Music selections, whether patient selected or researcher selected, varied between the groups possibly affecting the variable of patient response. Extraneous variables, such as the impact of medications, were often not controlled for in a number of the studies. Though not all of the studies show statistically significant support for the use of music, several of the studies provided subjective reports from patients that are significant for positive experiences with music therapy.

Music Therapy in the Operative Setting

A number of authors have explored the use of music in the operative settings. This research has been conducted prior to surgeries within the holding room, during operative procedures and postoperatively in the recovery room. Results of these works generally show effects on parameters such as anxiety and vital signs. Common limitations within the studies include small sample sizes and lack of music variety offered to the subjects. Numerous variables exist within the operative settings including anesthetic agents and analgesics. Some of the authors controlled for these variables, while others did not. Most of the studies reviewed in this section show positive effects on the patients.

Music in the Preoperative Setting

A study by Kaempf and Amodei (1989) examined the effects of sedative music on the anxiety levels of patients in the operating room holding area. The authors hypothesized greater decreases in anxiety in those exposed to music. This experimental study utilized a larger sample of outpatients, thirty-three, who were randomly assigned to either a control group, or an experimental group that listened to music. This study also used the STAI to measure anxiety. Blood pressure, pulse and respiration rates were recorded upon arrival to the holding area and after twenty minutes of listening to classical music via a cassette player placed one foot from the subject.

Results indicated no significant difference between the control and experimental group upon arrival to the holding area. The experimental group showed a statistically significant drop in respiration rates and anxiety test scores. The control group also

showed a decrease in anxiety scores and systolic blood pressure. "When comparing the mean differences in scores between the two groups, results showed that the respiration rates in the experimental group were significantly lower than those in the control group" (Kaempf & Amodei, 1989, p. 116).

Limitations identified in this study (Kaempf & Amodei, 1989) included the small sample size and the restriction of the sample to outpatients undergoing arthroscopic surgery. Another limitation was the environmental factor of extraneous noise. The limited selection of music may have also impacted the study.

Winter, Paskin and Baker (1994) also examined the effect of music on anxiety in the surgical holding area. Participants in this experimental study were same day surgery patients undergoing elective gynecological procedures. The study included sixty-two female subjects randomly divided into the experimental or control group. The STAI was administered when the subjects first arrived in the holding area and then just before being taken from the holding area to the operating room. Blood pressure and heart rate were also obtained at the above times. Subjects in the experimental group were given a cassette player and earphones and their choice of music from a selection of music. The control group had no music.

Unlike some of the other studies, Winter et al. (1994) found no statistical differences in blood pressure or heart rate. "Those subjects who listened to music while in the surgical holding area had significantly less stress and anxiety than did those subjects who did not listen to music" (p. 342). The anxiety level of the patients who did

not listen to music actually increased. There was no correlation between the type of music selection and the level of anxiety reduction.

Limitations to this study (Winter, et al., 1994) include the subjects being all women, limiting generalizability. Several patients actually refused to participate in the study because their preference of music was not amongst the choices, supporting the importance of patient selection in the use of music therapy.

Finally, Augustin and Hains (1996) studied the use of music to reduce preoperative anxiety. This quantitative, experimental study hypothesized that “patients who received preoperative teaching and then listened to their choices of music while waiting for surgery would have significantly lower anxiety levels than patients who received only preoperative teaching. As with previous studies, vital signs and measurement with the STAI were utilized.

Augustin and Hains (1996) utilized a convenience sample of 42 subjects scheduled for ambulatory surgery with local anesthesia, regional anesthesia, general anesthesia or IV conscious sedation with local anesthesia. The age range of the sample was from eighteen to seventy-three, the mean being forty-seven. Both sexes were included and the subjects were scheduled for a variety of procedures. Subjects were alternately assigned to either the control or experimental group. Experimental subjects were offered choice of musical selection from twenty tapes. The experimental subjects then listened to the music for fifteen to thirty minutes while resting in a recliner. The control group patients were not offered music--their rooms had televisions and magazines

and friends or family could be present. Both groups took the STAI and had their vital signs measured ten minutes before surgery.

The results of this study (Augustin & Hains, 1996) supported the hypothesis. No significant differences existed between the groups on pretest variables. After the intervention, the experimental group's heart rates were significantly lower than the control group. Differences in the diastolic blood pressure as well as the respiratory rates approached significance. "Patients in the experimental group demonstrated a significant decrease from pretest to posttest in all four physiological variables (i.e., systolic blood pressure, diastolic blood pressure, heart rate, respiratory rate) as well as in the psychological variables. Patients in the control group demonstrated significant decreases in the physiological variables of systolic blood pressure and respiratory rate. Limitations identified by Augustin and Hains (1996) included: "a small sample size, not accounting for the impact that the presence of friends or family members may have had on patients, not controlling for types of surgical procedures and not including patients of various ethnic background" (p. 757).

Music in the Perioperative Setting

Moss (1988) studied the effect of sedative music played during the perioperative period on patients undergoing elective arthroscopic surgery who underwent general anesthesia. The study measured the patient's anxiety pre and postoperatively by administration of the State-Trait Anxiety Inventory (STAI). The study sample consisted of seventeen adult patients between the ages of twenty and forty. The sample selection eliminated the variables of chronic health conditions of elder adults and the musical

preference issue of children and teens. The study included a control and an experimental group chosen by convenience. Subjects were admitted to and discharged from the unit the same day.

The experimental group subjects in Moss's (1988) study were each given a tape player and headset. The subjects previewed and chose from a selection of four cassette tapes. "The music was started after the preoperative injections were administered, and discontinued when the patients reached the postanesthesia care unit" (p. 67).

The results of Moss's study (1988) supported the researchers hypothesis that sedating music would decrease anxiety. Preoperative and postoperative scores on the STAI were compared and the results indicated "a significant decrease from preoperative to postoperative anxiety for patients who listened to music. No significant difference was found in the control group" (p. 67). Limitations were identified to include a generally low level of anxiety amongst the group preoperatively. Also identified as a limitation was the type of test—a written test, given postoperatively may not have been the best for subjects with varying levels of consciousness post anesthesia. The small sample size was identified as a limitation as well as the rushed pace of a same day surgery setting.

Steelman (1990) also conducted an experimental study on the use of intraoperative music therapy. The aim of this study was to determine the effectiveness of music for the conscious patient under local or regional anesthesia. The effect on anxiety and blood pressure was examined. A convenience sample of forty-three subjects ranging in age from twenty-three to seventy-six was randomly assigned to either an experimental

or control group. Subjects were undergoing surgery on the hand or wrist. The STAI was used to measure anxiety pre and postoperatively. Blood pressures were also measured.

Subjects in the experimental group (Steelman, 1990) were given a choice of nine different musical types. Subjects listened to the tape via headphones before skin preparation, through the operation and until dressings were applied. The control group received verbal distraction for anxiety. The results showed no significant difference in measured anxiety levels. The experimental group, however, “had a significant reduction in both systolic and diastolic blood pressure” (p. 1032). The results suggest that there are physiological benefits of listening to music.

Steelman (1990) identified a number of limitations. First, the sample population is not generalizable. The author also questions the accuracy of self-reports on measuring anxiety, as denial may be a coping strategy. A final limitation is that pathology and medication for blood pressure were not controlled in the study.

Music During the Postoperative Period

Two studies examined the effect of music therapy in the postanesthesia care unit (PACU). The first, by Heitz et al. (1992) examined the effect of music on pain, hemodynamic variables and respirations. The researchers also examined the impact of music on the patient’s recall of their experience in the PACU. Sixty general surgery patients participated in the study and were randomly assigned to one of three groups: no headphones, no music; headphone, no music; and wearing headphones and listening to music. Headphones were placed on the subjects during the initial fifteen minutes in the PACU. Subjects selected the type and volume of music during a preoperative visit. Two

types of classical music tapes and one type of popular music tape were offered. A standardized anesthetic regime was utilized to separate the effects of music from the effects and side effects of the anesthetic agents. Surgical procedures included mastectomy, thyroidectomy and parathyroidectomy. Data collected in this study (Heitz et al., 1992) included pain level (measured by the visual analogue pain scale), morphine requirement, hemodynamics, length of stay in the PACU, time until initial analgesic was needed after discharge from the PACU. Recall of the PACU experience was measured at twenty-four hours post-operatively and one month after the procedure.

The results of Heitz et al.'s (1992) study showed no significant differences between the group in pain, morphine dosage, or hemodynamic measures. After leaving the PACU, the group who listened to music waited significantly longer before requiring analgesic on the nursing unit. One day postoperatively, subjects in the music group perceived their PACU experience significantly more pleasant compared to the other two groups. "Of these subjects, 94% felt that offering music was of benefit to them; 80% felt more relaxed, 60% less anxious, and 33% less pain or discomfort" (p. 28). 100% of the subjects said that they would chose to use music again if given the opportunity. These percentages were similar to the results gathered after one month.

Though these researchers (Heitz et al., 1992) did not identify the limitations of the study, a few are identifiable. The subjects were mostly women around the age of fifty, limiting generalizability. The small selection of procedures may also limit generalizability. Regarding the music, the selection was quite small, limiting subject preference, which has been identified as important in other studies.

The second study conducted during the postoperative recovery period was by Heiser et al. (1997). “The purpose of this study was to determine if there were differences between patients who listened to music intraoperatively (i.e. during the last 30 minutes of their surgical procedures) and postoperatively (i.e. during the first hour of their PACU care) and those who did not listen to music during these phases of their surgical experiences” (pp. 780-781). A repeated measures experimental design was utilized to compare the two groups of patients. A convenience sample of adult patients who were scheduled for elective lumbar microdisectomy procedures was utilized. Thirty-four patients initially consented to participate. A final sample of ten patients (five in each group) was obtained due to the anesthesia protocol.

The experimental group in this study (Heiser et al., 1997) selected one cassette from three categories of music. The volume on the headset was adjusted by the patient prior to surgery. The headset was placed on the patient’s head and the music started thirty minutes before the end of the surgical procedure. The music continued without interruption through the first hour in the PACU. The control group followed the same procedure except no music was played on the cassette player.

Data collection included pain levels with the Visual Analogue Scale (at one hour postoperative and at twenty-four hours), anxiety levels (using a visual scale), morphine intake, and vital signs (every fifteen minutes the first hour and then every four hours (Heiser et al., 1997). Patient satisfaction and pain management was also measured using a brief questionnaire administered 24 hours after discharge from the PACU. Results showed no differences in analgesic pain requirements, pain and anxiety levels, or

satisfaction between the two groups. Patients in the treatment group did respond positively to the experience of utilizing music verbalizing that the music helped them to relax, lessen their anxiety and functioned as a distracter.

Heiser et al. (1997) identified limitations of this study including a small sample size. The authors discussed the strict anesthesia protocol as one of the reasons for the small sample size as well as the study having a specific protocol for the pain management (patient controlled analgesic—PCA). Both protocols eliminated a number of potential subjects. The research team also noted that they did not or could not control other factors such as the patient's preoperative knowledge of relaxation techniques or the preoperative levels of pain and anxiety. As with the previous study, the limited selection of music may have affected the patient preference and affect.

A third study in the postoperative area was conducted by Good (1995). The experimental study investigated the differences in three self-care actions. Eighty-four subjects who underwent elective abdominal surgery were randomly assigned into four treatment groups: relaxation (the jaw relaxation technique), music (one of five taped selections), the combination of relaxation and music, and a control group. Measures in the study included: the Sensation of Pain Scale, narcotic use, the Distress of Pain Scale, and the STAI. Subjects were instructed on their assigned techniques prior to surgery. After surgery, the subjects were measured for preambulatory sensation and distress. The assigned technique was used for two minutes before ambulation. Measures were taken again after ambulation. Subjects then kept the tapes for the next two days as a self-care intervention for the treatment of pain.

Results of Good's study (1995) indicated that the use of tape-recorded relaxation and music, alone or in combination, was not effective in reducing the four measures of sensory and affective components of pain: sensation, distress, anxiety after ambulation, and narcotic intake during the 24 hours following the procedure. Reports after 48 hours, however, were favorable. Eighty-nine percent of the subjects reported that the tapes helped in reduction of pain sensation and distress. The music alone group listened to the tapes the most. Subjects preferred to use the tapes while in bed, rather than during ambulation, indicating that these interventions may not be strong enough on pain for a complex activity such as ambulation.

Good (1995) identified possible reasons for the results not supporting the hypothesis that these interventions would be helpful. First, this group had higher and more variable pain scores than other studied subjects and second, using taped relaxation exercises may not be as effective as verbal instruction. These results also support the need for further research regarding the types of music utilized and the type of relaxation intervention.

Barnason et al. (1995) examined the influence of an anxiety-reducing nursing intervention to decrease anxiety undergoing heart surgery during the early postoperative period. Interventions included music therapy, music-video therapy, and scheduled rest. Subjects in the music therapy group chose from a selection of five audio tapes. Subjects in the music-video group had a choice of two videos. The design was a repeated measures, quasiexperimental design. A convenience sample of ninety-six patients was

used and was randomly assigned to one of the intervention groups. The outcome measures were anxiety, mood and physiologic measures (heart rate and blood pressure).

Subjects received their 30-minute intervention on postoperative days two and three. The STAI was used to measure anxiety and was given to the subjects prior to surgery and again before the intervention and after the final intervention. Blood pressure and pulse was monitored at baseline and at 10-minute intervals through the intervention. Results of this study (Barnason et al., 1995) indicated that there were no significant differences between the groups. The results did show, however, that there were significant main effects over time for heart rates and blood pressures, indicating a generalized physiological relaxation response. There were also improvements in mood and anxiety reduction within all the groups.

Barnason et al. (1995) identified that one of the limitations of this study was the lack of a true control group. Another limitation was that the intervention was only used twice, limiting the effect of the intervention had it been used more frequently. The researchers did not control for pain management or the types or amounts of medications received. Preoperative anxiety scores were similar among subjects and did not indicate significant levels of anxiety. Like many other studies, the selection of music was limited.

Using the same sample and procedure for intervention as above, Zimmerman, Nieveen, Barnason and Schmaderer (1996) examined the effects of music interventions on postoperative pain and sleep. The Verbal Rating Scale (VRS) was used for patients to rate their overall perception of pain in addition to the McGill Pain Questionnaire (MPQ). Sleep was assessed using the Richards-Campbell Sleep Questionnaire (RSQ), which

subjectively measures the quality of night sleep. The VRS was administered before and after each session. The MPQ was administered prior to the first session and after the second session. The RSQ was administered in the a.m. on the third post-operative day.

Zimmerman et al. (1996) found no significant differences among the groups for amount of pain medication used or for the patients' length of stay. "The music video group had better sleep scores than the resting group on the third postoperative morning. The scores for the music group were also somewhat higher than those of the resting group" (p. 165). All groups showed reduced intensity of pain over the study period. All groups also had significantly reduced VRS pain scores from pre to post session on both days, "lending support for using these interventions to decrease pain over short periods of time" (p. 165).

Similar limitations are identified in this study (Zimmerman et al., 1996) as to the previously reviewed study (Barnason et al., 1995). There was not a true control group and the sample is not generalizable. A second limitation was low mean pain scores and there was no control for the time since the last dose of pain medication. Music selection was small and other factors that may impact sleep and pain, such as previous experience with relaxation exercises were not controlled.

The studies discussed above show that music may be incorporated at different times during a patient's surgical experience and bring about a positive effect. The studies conducted in the preoperative settings resulted in positive effect on the patients (Augustin & Hains, 1996; Kaemph & Amodei, 1989; Winter et al., 1994). Positive effect being noted as decreases in respiration rates, anxiety levels, or blood pressure. Moss (1988)

and Steelman (1990) utilized music during the actual surgical procedures (the perioperative period). Both of these studies also showed that music had positive effect on the patients—decreased anxiety (Moss, 1988) and decreased blood pressure (Stelman, 1990). Music used during the postoperative period showed positive effect on patient's subjective experience regarding pain or anxiety (Good, 1995; Heiser et al., 1997; Heitz et al., 1992). Music used postoperatively was also found to be of benefit for sleep quality (Zimmerman et al., 1996). All of the above studies indicate that music, when utilized with a surgical patient, can be of benefit.

Music and the Cardiac Patient

Numerous studies examined the use of music with cardiac patients, some being by the same researcher or research team. Physiologic measures (heart rate, blood pressure, peripheral temperatures, and respiratory rates) and anxiety are the common variables examined with the use of music. Methodological differences exist between the studies. Such differences include the frequency of the intervention and whether the control group was a true control group. Numerous studies utilized control groups that had periods of rest during the times of the experimental group's interventions making it difficult to compare the groups as this intervention may also have yielding benefit.

Guzzetta (1989) designed an experimental study to determine whether relaxation and music therapy were effective in reducing stress in patients admitted to a coronary care unit with presumptive diagnosis of acute myocardial infarction (MI). Utilizing the natural systems theory, which addresses the interconnectedness of the body and mind, Guzzetta stressed that the mind is capable of producing changes in all the body systems.

Most important to the cardiac patient is the effect on the sympathetic system, which can cause changes in heart rate, blood pressure, perfusion, and cardiac rhythms. Therefore, reduction of stress is essential in the cardiac patient.

The study sample consisted of a purposeful sample of eighty patients admitted to the coronary care unit with a presumptive diagnosis of acute MI (Guzzetta, 1989). Patients were then randomly assigned to one of three groups: music therapy group, relaxation therapy group or control group. Three hospital sites were used in the study. The study variables included apical heart rates, peripheral temperatures, incidence of cardiovascular complications occurring during the study and qualitative patient evaluation.

Participants in the music group were assisted through a relaxation exercise and then listened to twenty minutes of music. Cassette recorders with headphones were utilized. Subjects were allowed to choose one of three tapes: soothing classical, soothing popular and nontraditional music. The relaxation subjects were guided through a relaxation exercise and were then instructed to rest quietly for twenty minutes while focusing on the word "one". Morning and afternoon sessions were done with both groups for a total of three sessions for each group. The control group received routine nursing care. Baseline apical heart rates and peripheral temperatures were collected on all subjects (Guzzetta, 1989). After the sessions, apical heart rates and finger temperatures were recorded. The control group was also measured at the same time.

The ages of Guzzetta's (1989) subjects ranged from 36 to 71 years (mean 57.56 +/- 8.06 years). 12.5% of the subjects were women. The effects of the drugs utilized by

the subjects were evaluated. “It was concluded that an equal proportion of patients in each research group were taking each drug group. Thus, any drug that might have influenced the dependent variables was equally distributed among the three research groups” (p. 613). Results indicated that relaxation and music therapy were more effective than no intervention in lowering apical heart rates and that both intervention groups had a rise in peripheral temperatures (indicating relaxation)—music being more effective than relaxation alone. This was the only area of difference between music and relaxation. Though the incidence of complications during the study was small, all of the complications that did occur occurred in the control group. Qualitative results indicated that patients enjoyed the intervention sessions and “almost all subjects reported that they were helpful in learning to relax” (Guzzetta, 1989, p. 615).

Though Guzzetta (1989) did not identify limitations, generalizability to other populations may again be noted as a limitation. Guzzetta did account for preference consideration by consulting with a music therapy department in determining the music selection, though the selection was still small.

Davis-Rollans and Cunningham (1987) examined the effects of selected classical music on the heart rate and rhythm and the respiratory rate of coronary care patients in an experimental study. The sample consisted of twenty-four subjects who were continuously monitored for two 42-minute periods in the same day (music period and control period). The control period consisted of background noises from the unit, as heard through silent headphones. “The music period included a 5-minute baseline period

before the music was started and the playing of three musical pieces, each approximately 12 minutes in length” (p. 372).

Instrumentation in this study (Davis-Rollans & Cunningham, 1987) included a multiple-choice questionnaire regarding the patient’s musical education, and questions about frequency of listening to music, and meanings and feelings toward the music played. Heart rate and rhythm were monitored by electrocardiography and respiratory rate was monitored by a pneumograph.

Davis-Rollans & Cunningham (1987) found that “there were no changes in the specified physiologic variables during music periods that were statistically and clinically significant, thus demonstrating that music had no adverse effects on coronary care unit patients” (p. 378). Patients gave positive feedback regarding their experience listening to the music. A limitation identified in this study was that the questionnaire was not tested for reliability, suggesting further research on the emotional responses. The researchers found what they were looking for—that music therapy was safe for their patients.

Bolwerk (1990) conducted an experimental study to determine if myocardial infarction (MI) patients had decreased state anxiety when listening to music. Seventy-five patients diagnosed with a MI were approached within the first 48 hours of hospitalization. Forty patients, determined as anxious by STAI scores, were randomly assigned to either a music group (experimental) or a non-music group (control). Subjects were selected from five Midwestern hospital intensive care units. Both the control group and the music group were given the state portion of the STAI at the beginning of the study (during the first 48 hours of admission) and again on the third or fourth day. The

experimental group listened to music during three sessions on three consecutive days. The music lasted approximately twenty minutes and consisted of three selections of calming music.

“The hypothesis that MI patients who listened to relaxing music would have lower anxiety scores than patients who did not do so was supported” (Bolwerk, 1990, p. 71). Both groups showed decreases in state anxiety scores; however, the posttreatment scores in the music group were significantly lower than the control group. Limitations identified included lack of choice in music selection and the lack of control over other factors that may reduce anxiety.

Zimmerman, Pierson and Marker (1988) also studied the effect of music on patients with MI. Anxiety (measured by the STAI) and physiological measures (blood pressure, heart rate and skin temperature) were assessed. The sample consisted of seventy-five subjects in coronary care units of three different Midwest facilities. Subjects were assigned randomly to one of three groups: a control group, a white noise group, and a music group. Subjects in the music group were given a choice of the music to which they would listen. The white noise relaxation tape had sounds similar to the rise and fall of the ocean. The control group rested quietly during the testing period. The STAI was administered before and after the session, and physiologic measures were taken at baseline and then at 10-minute intervals throughout the thirty minute testing session.

Different than the subjects in the previous study, subjects in this study (Zimmerman et al., 1988) had low anxiety scores at the beginning of the study. “All three groups showed a reduction in anxiety scores, and the music group had only a

slightly greater reduction in anxiety than the control and synthetic silence group” (p. 565). Significant improvements in all of the physiologic parameters occurred in all groups. The limitations of this study included a small sample size as well as the use of minimally anxious patients. Music as a one-time intervention may not produce significant changes. What this study did support is the importance of uninterrupted rest in the intensive care units.

White (1992) also examined the intervention of music on anxiety in patients with acute MI. An experimental design using two groups was used in this study. The music group listened to twenty-five minutes of investigator selected music while the control group had twenty-five minutes of quiet, uninterrupted rest. Forty subjects participated and were randomly assigned between the two groups. Subjects had state anxiety scores above mean state scores. White utilized the STAI, in this case using both the state scores and the trait scores (unlike many studies that measured only the state anxiety). Heart and respiratory rates were also measured. One intervention session was used with baseline and post-intervention measures taken.

Results of this study (White, 1992) supported the hypothesis that music would help reduce anxiety. The experimental group demonstrated statistically significant reductions in heart rates, respiratory rates and state anxiety scores. Though the rest group (control) also had reductions in state anxiety, “the degree of reduction was statistically significantly greater with regard to state anxiety scores and respiratory rate data in the experimental group than the control group” (p. 62). Subjects in the music verbalized

more relaxation than the rest group. A final result indicated that the higher an individual's trait anxiety, the lower the amount of reduction in state anxiety.

Future recommendations by White (1992) included subject selection of music and investigation on the length of time for listening to music. The limited generalizability of this subject selection warrants investigation of other types of subjects with varying medical diagnosis. As with previously reviewed studies (Barnason et al., 1995; Zimmerman et al., 1996; Zimmerman et al., 1988), this study did not have a true control group, which may have impacted the results.

White (1999) conducted a second study, this time examining the effects of selected relaxing music on heart rate, respiratory rate, systolic blood pressure, myocardial oxygen demand, heart rate variability, and anxiety during the acute recovery phase of an acute MI. Forty-five subjects were randomly assigned to either: music (selected by the investigator) and a quiet environment; a quiet restful environment or a treatment as usual group. One twenty-minute intervention was utilized. Measures were taken at baseline, after the intervention, and at hours one and two post-intervention. An electrocardiograph measured data continuously during the three hour period. All subjects also wore a Holter monitor.

The results indicated (White, 1999) that the outcomes were not significantly affected by the use of cardiac medications. The hypothesis that the experimental group would have greater reductions in heart rate, respiratory rate, myocardial oxygen demand, and state anxiety was supported. "The reductions in heart rate and respiratory rate remained significant one hour after the intervention. Increases in high-frequency heart

rate variability immediately after the intervention were significantly greater in both the attention (rest) and the experimental groups than in the control group” (p. 228).

White’s (1999) study also provided information about the psychological response to admission after an acute MI. According to the mean anxiety scores of the subjects, “men were in the 66th percentile and women in the 85th percentile for normal healthy adults in their respective groups” (p. 228). White suggest that this information supports that nurses must find interventions to help deal with patient anxiety.

Byers and Smyth (1997) studied the effects of a music intervention on noise annoyance, heart rate, and arterial blood pressure in patients with high or low sensitivity to noise during the first day after cardiac surgery. “A prospective, quasi-experimental, repeated measures design was used” (p. 184). Forty subjects who underwent cardiac surgery with cardiopulmonary bypass participated in the study.

The instrumentation used in Byers and Smyth’s (1997) study included a noise sensitivity scale; a noise annoyance visual analogue scale; noise levels via a sound level meter; heart rate and blood pressure (via electrocardiogram). Sensitivity to noise was measured preoperatively. Postoperatively, baseline readings of noise levels, heart rate and blood pressure were obtained every three minutes for fifteen minutes. The noise annoyance scale was completed at baseline and after the fifteen minutes. The researcher selected music was then played for approximately fifteen minutes with measures taken as the baseline measures were, every three minutes for the noise levels and physiologic variables and after fifteen minutes for the noise annoyance. The baseline and intervention data collection was repeated on two occasions at least one hour apart.

Byers and Smyth (1997) found “a significant decrease in average noise annoyance scores, heart rate, and systolic blood pressure between baseline and periods of music intervention for both data collection periods. All periods reflected a downward trend during the music intervention” (p. 187). Subjects also completed a follow-up questionnaire one to two days after transfer from the critical care unit assessing their subjective perceptions of noise annoyance and the effects of music. Types of annoying noises reported included annoying staff noises—“laughing”, “joking”, “talking about personal matters” and environmental or equipment noises. Ninety-three percent of the subjects enjoyed the music intervention. Subjects reported improvements in their mood and attitude as well as relaxation.

Limitations identified (Byers & Smyth, 1997) included “social desirability bias in response to the noise annoyance scale and heightened awareness of noise in the critical care unit due to study design” (p. 189). Generalizability is also limited, as most of the subjects were male. The selection of music was also limited. The researchers suggested that future studies should investigate whether self-selected music would have similar or more beneficial results. This limitation is similar to previous studies reviewed.

The studies conducted with cardiac patients found a variety of supports for the use of music. Davis-Rollans and Cunningham (1987) determined that music had no adverse physiological effects on the studied coronary patients. Other studies with cardiac patients found that music was effective in reducing anxiety and inducing relaxation (Bolwerk, 1990; Guzzetta, 1989; White, 1992; Zimmerman et al., 1988). White’s (1999) study also provided valuable information about the reductions in heart rate, respiratory rate, and

myocardial oxygen demand, in addition to anxiety reduction. These factors are all very important to the recovering cardiac patient. Byers and Smyth (1997) took the use of music with cardiac patients one step further and found that music not only helped to lower heart rate and blood pressure, but it also helped to decrease patients experience with noise annoyance, yet another imposed stressor on the hospitalized patient. These studies supported that music is an effective independent therapeutic nursing intervention with cardiac patients.

Music in Other Critical Care Settings

Other critical care situations have also produced researchers interested in exploring the use of music. Updike (1990) and Chlan (1995, 1998) have explored the use of music with intensive care unit patients and mechanically ventilated patients respectively. Similar to previous reviews with cardiac patients, Updike (1990) investigated the physiological and emotional responses to music therapy. Unlike the previous studies that only included cardiac patients, Updike's sample included patients with sudden death syndrome, multiple trauma and cancer, in addition to post MI patients. Twenty subjects participated in this pre and post-test designed study.

Updike (1990) measured various physiologic data: heart rate, blood pressure, mean arterial pressure (MAP), electrocardiogram, pain medication dosage, and the double product index (DPI) (product of heart rate and systolic blood pressure divided by one hundred). An open-ended questionnaire was used to gather data on the patient's emotional responses before and after the music therapy.

Subjects chose one of eight programs of classical or contemporary music.

Physiological and emotional measures were taken before and after listening to thirty minutes of music (Updike, 1990). Results of the study indicated no significant changes in heart rhythm pattern; however, significant reductions in systolic blood pressure, MAP and DPI were noted. “The results of the emotional status assessment indicated that the patients’ moods shifted significantly towards a more desirable state of well-being” (p. 40). There were also significant reductions in anxiety, depression and pain. Limitations identified by Updike included the lack of a control group, the long-term effects were not assessed and the potential impact of presence and interactions with the researcher.

Chlan (1995, 1998) has studied the effects of music on mechanically ventilated patients. The first of Chlan’s (1995) studies was a pilot study to assess “whether music listening has beneficial psychophysiologic stress-reducing effects, indicative of relaxation, for mechanically ventilated, critically ill patients” (p. 234). A convenience sample of twenty subjects who were alert, mentally competent, hemodynamically stable, able to sign a consent form, and with adequate hearing was used in this study. Medical diagnoses varied between subjects. The researcher utilized a two-group experimental design. Subjects were randomly assigned to either a control group (soft headphones with no music) or to an experimental group (soft headphones with classical music chosen by the subject from the investigator’s selection). Both groups were undisturbed for thirty minutes and allowed to rest during the study intervention time.

Measures gathered during this study (Chlan, 1995) included physiologic variables of heart rate, cardiac rhythm, respiratory rate, arterial oxygen saturation, airway pressure,

and blood pressure. Data was collected at baseline, at 5-minute intervals during, and 5 minutes after the intervention for both groups. “Psychologic data were collected using a short form of the Profile of Mood States (POMS), which was administered at baseline and after intervention” (p. 235). Results of this study indicated that the subjects who listened to music experienced a decrease in heart rate, respiratory rate and a decrease in total mood disturbance POMS scores. Chlan (1995) identified that the nonsignificant differences in the remaining physiologic variables may be attributed in part to both groups receiving a similar intervention—a rest period.

Limitations identified in Chlan’s (1995) pilot study included the small sample size, limiting generalizability and the potential effects of scheduled medications not being examined. The researcher also indicated, as other reviewed studies have, that the limited number of music selections was also a limitation.

Chlan (1998) conducted a second study with mechanically ventilated subjects. This study also was an experimental design with forty-five subjects randomly assigned to either a thirty-minute music or rest period. “The purpose of this study was to test the effects of a single music therapy intervention on anxiety and relaxation for patients undergoing mechanical ventilation” (p. 170). Measures in this study included physiologic (heart and respiratory rate), measured at baseline, every five minutes during the intervention and five minutes post intervention; and the STAI, measured at baseline and after the treatment. The method of intervention was the same as Chlan’s (1995) previous study, with the exception of a wider variety of musical selections for the subjects. Similar to Chlan’s pilot study, the subjects had a variety of medical diagnoses.

Results of this study Chlan (1998) supported the hypothesis that subjects in the music group would achieve greater relaxation, according the physiologic measures, than the control (rest alone) group. Heart and respiratory rates decreased over time for the music group. Subjects in the music group also reported significantly less anxiety than those in the rest group after the intervention. "Music was superior for promoting relaxation and decreasing anxiety over and above a control condition that could also have been construed as a relaxation treatment" (p. 175).

Chlan (1998) identified similar limitation in this study as in the pilot study by Chlan (1995). The small sample size with few minorities, predominately with pulmonary medical diagnosis and being in a setting in the Midwest may limit generalizability of the results. Additionally, the issue of sedative and cardiovascular medications was not controlled for. Subjects in both the treatment and control groups received these medications on an equivalent basis; however, the types, dosages and effects of these medications could have influenced outcomes. The presence of the researcher was also mentioned within the limitations of this study with the uncertainty of the impact of presence on subject anxiety. As with the pilot study by Chlan (1995), the results of this study support the use of music therapy as a nursing intervention to promote relaxation and anxiety reduction by a nonpharmacologic means.

These studies conducted in critical care settings also support that music is an effective independent therapeutic nursing intervention. Researchers in this area generally found physiologic changes indicative of relaxation (Updike, 1990; Chlan, 1995, 1998); however, beneficial changes in mood states were also noted in some of the studies

(Updike, 1990; Chlan, 1995). These benefits to mood states, in addition to anxiety and physiological benefits, further support the indication for utilizing music within the inpatient settings.

Music as an Intervention for the Cancer Patient

Research on the use of music therapy with cancer patients has examined the effects of music on cancer related pain (Beck, 1991; Zimmerman, Pozehl, Duncan & Schmitz, 1989) and the use of music therapy as an adjunct to chemotherapy (Sabo & Michael, 1996; Ezzone, Baker, Rosselet & Terepka, 1998). Conducted in both inpatient settings (Zimmerman, et al., 1989; Ezzone, et al., 1998) and outpatient settings (Beck, 1991; Sabo & Michael, 1996) and with various methodologies used, these studies making were difficult to compare and contrast. However, even with these limitations, the general results of these studies show support for the intervention of music therapy. This researcher has chosen to include these outpatient studies as they are reflective of inpatient treatments and the findings could therefore possibly be transferable to the inpatient setting.

Music Therapy and Cancer Pain

Zimmerman et al. (1989) conducted a study to “determine the effects of listening to relaxing music with positive suggestion of pain reduction on self-reported pain in patients with cancer who were receiving scheduled pain medications” (p. 300). Instrumentation of this study included the McGill Pain Questionnaire (MPQ) and the Visual Analogue Scale (VAS) for pain measured pre and post intervention. Forty inpatient subjects were randomly assigned to either an experimental group (thirty minutes

of their preferred type of relaxing music) or a control group (no music). Both groups rested quietly during the intervention period and both groups were given the suggestion of the relaxation time resulting in pain reduction. Subjects were all on a round-the-clock schedule of analgesic. The subjects' primary type of cancer varied, all having metastatic disease with bone involvement occurring most frequently (70%). Chronicity of the pain experienced by the subjects was between six months and one year.

The scores of both the MPQ and the VAS were significantly lower for the music group (Zimmerman et al., 1989) indicating "that listening to music with positive suggestion of pain reduction does have an effect on cancer patients' pain" (p. 304). The researchers emphasized that this was a group with chronic pain which is a different experience than acute pain. It was also stressed that all the subjects were on scheduled pain medications and that music is not to be considered an alternative to pain medication, rather, an adjunct. Generalizability beyond this subject sample is limited and this was only a one-time intervention indicating that further research with larger samples and multiple music interventions.

A second study, conducted by Beck (1991), also examined the therapeutic use of music for cancer pain through an experimental crossover designed study with fifteen outpatient subjects. Instrumentation included measures of pain (an abbreviated version of the McGill Pain Questionnaire and a pain VAS), and mood (mood VAS). Qualitative data about the experience were also collected. The study consisted of four treatment phases. One-day washout periods were used between the phases. On these days, the

researcher visited the homes, conducted interviews, picked up diary data and provided instruction on the next phase. The diaries were monitored for compliance in the study.

Baseline data were self-recorded by the subjects for the first three days followed by random assignment to the music intervention (subject selected from a category of seven selections) or the sound intervention (a low frequency hum) (Beck, 1991).

Subjects listened to the intervention for forty-five minutes, twice daily for three days and rated their pain and mood before and after the tape. In phase three, subjects crossed over into the alternative group for three days. Phase four consisted of a three-day follow-up period and was a repetition of the baseline phase.

The sample group of Beck's (1991) study consisted of twelve females (80%) and three males. All were Caucasian. The predominant cancer type was breast (47%), with all of the subjects being in an advanced stage of the disease. All of the subjects were on scheduled analgesics, with the exception of one who did not use any. "Response patterns reveal that nearly three-fourths of the subjects had at least some decrease in pain in response to the music and nearly one-half had a moderate or great response. On the Mood VAS, 60% of the subjects demonstrated at least some improvements with music and one-third responded at a moderate or great level" (p.1331). Limitations of this study included generalizability given the small sample size and the majority of the subjects being women. Other limitations may include the willingness of subjects to report pain or pain distress in a diary type gathering of data.

Music Therapy and Chemotherapy

Sabo and Michael (1996) also investigated the use of music with outpatient cancer patients. This study investigated “the influence of a personalized message, placed over background music, on the anxiety and side effects associated with chemotherapy” (p. 285). A convenience sample of 50 patients was selected from two oncology physician offices—experimental from one, control from the other. For all subjects, this was their first time with chemotherapy. Subjects presented with a wide range of cancer diagnoses. Participation in the study lasted through four chemotherapy treatments.

Instrumentation in Sabo and Michael’s (1996) study included the STAI and an assessment tool developed by the researchers—the Cancer Chemotherapy and Side-Effects Inventory--“a self-report scale assessing the subject’s perception of the degree to which he or she has experienced selected side effects commonly associated with chemotherapy” (p. 286). Both groups completed the STAI before chemotherapy treatments began. The experimental group was then given preselected taped music with an introductory statement from their physician dubbed over the music. The physician encouraged the patient to relax, listen to the music, and imagine the chemotherapy working toward treatment goals. The same tape was used at each of the four sessions. The control group received no intervention other than the chemotherapy as prescribed.

The experimental and control groups were similar in terms of age, sex, marital status, race and primary cancer type. Results of the study (Sabo & Michael, 1996) found a significant difference between pre and post intervention STAI scores in the intervention group and no difference in the control group. Subjective feedback from the subjects

indicated that the music and message helped them to relax. No significant differences were found, however, in the severity of side effects experienced between the two groups. This result probably due to one of the limitations—the variations in the types of chemotherapy protocols not being controlled for. Other limitations included “the small sample size; mixture of message, music and guided imagery treatments (on one tape); bias introduced by the use of physician’s offices for subject selection rather than randomization of all subjects available; and the varied quality of the audiotapes (some participants stated that parts of the audiotapes were difficult to hear)” (Sabo & Michael, 1996, p. 288). Though these limitations may limit the clarity of the effect of music specifically, the results do add to the base of inexpensive, nonpharmacologic measures to support patients.

The last study to be reviewed on cancer patients was conducted by Ezzone et al. (1998). The purpose of this study was to test whether music, used as a diversional intervention during high-dose chemotherapy, would affect the subjects perception of nausea and episodes of vomiting. Thirty-nine patients initially began the study; however, the final sample group consisted of thirty-three. An experimental design was utilized with subjects randomly assigned to either the control group who received the usual antiemetic protocol, or the experimental group who received the usual antiemetic protocol plus the music intervention. The music intervention consisted of listening to 45-minutes of self-selected music at six, nine, and twelve hours after the start of each infusion. These hours were selected due to the emetic potential of the chemotherapy

agents at these times. Eligibility of the subjects included receiving a treatment regimen that included cyclophosphamide, a chemotherapy agent with high emetic potential.

Measures recorded in this study (Ezzone et al., 1998) included actual instances of vomiting and nausea. Nausea was measured at baseline and every eight hours via the use of a visual analog scale and a “feel bad” scale (a Likert Scale ranging from not bad to terrible) to measure how bad the feeling of nausea was. Results indicated that the type of antiemetic administered and the number of dosages used were similar in both groups. The results also indicated that “the experimental group had significantly less nausea and vomiting than the control group” (p. 1553). The researchers identified the multiple data collection times and multiple staff involvement as a factor that created difficulties with this study. Six subjects were lost due to the factor of incomplete data collection or subjects not wanting to listen to the music at designated times due to the presence of visitors. Though not identified by the researchers, the results of this study have limited generalizability due to the specificity of the population sample utilized.

The use of music with cancer patients has been shown to be helpful in not only reducing perceptions of chronic pain (Beck, 1991; Zimmerman et al., 1989) but also in reducing anxiety related to chemotherapy (Sabo & Michael, 1996) and nausea and vomiting during chemotherapy (Ezzone et al., 1998). These additional indications for the use of music therapy further expand the many situations in which music can be utilized.

The review of literature has thus far provided support for the effectiveness of music therapy in a variety of settings for a variety of symptoms. The studies have shown that this independent therapeutic nursing intervention is well received by the patients and

that it is not a complicated, time-consuming technique for nursing staff to implement. This review further supports that there are multiple applications for the use of music therapy within the inpatient care setting.

Levine's Conservation Model

Levine's Conservation Model provides the framework for this study. Levine's Conservation Model views the patient as a whole. The whole being includes the mind and body and spirit and is not separate from the environment. Levine (1971) identifies that nursing interventions are "a conservation of wholeness. Conservation means 'keeping together' and nursing care should be designed to keep together the wholeness of the individual patient" (p. 258). Levine (1971) identifies four principles of conservation: conservation of energy, conservation of structural integrity, conservation of personal integrity and conservation of social integrity. Nursing care strives to care for the whole being not only through meeting physical needs, but also by meeting emotional, spiritual and social needs.

Most specific to this study is Levine's principle of the conservation of energy. The consequences of energy exchange are monitored through measures such as blood pressure, heart rate, respirations, temperature, glucose levels and electrolyte levels to name a few. Energy is also observable through clinical manifestations, such as fatigue. "The sources of energy available to the individual are finite. Through conservation, energy is spent carefully, with essential priorities served first" (Levine, 1991, p. 7). It is the nurses role, then, to assist the patient in conserving essential energy. According to Levine, "nursing intervention is based on the conservation of the individual patient's

energy—balancing energy output and energy input by preventing excessive fatigue and promoting adequate rest, nutrition, and exercise” (Fawcett, 1991, p.27).

This model fits well with the use of music therapy. Though various theories exist as to how music therapy works, a commonality of these theories is that music produces a relaxation response in the body. This fits with Levine’s model, as a relaxed body consumes less energy. Researchers have suggested that music may serve as a competing stimuli that may distract the client from the perception of pain or anxiety leading to a more relaxed state (O’Callaghan, 1996). Henry (1995) reviewed two possible effects of music. The first is that listening to music may stimulate alpha waves in the brain that are linked to producing a state of relaxation. The second is that it may cause the release of endorphins, which, not only reduces pain, but also causes other physiological responses such as reduction in blood pressure and heart rate. Eliciting the relaxation response may also occur as a result of listening to music leading to a decrease in the central nervous system arousal (Wells-Federman et al., 1995).

The use of music therapy specifically addresses the conservation of the patient’s energy by reducing symptoms such as anxiety and pain. Without reduction of these symptoms, a cascade of biochemical events in the body resulting in autonomic system arousal, muscular tension and increased corticosteroids may be triggered unnecessarily--all of which consume energy (Wells-Federman et al., 1995). Reducing such symptoms, as Levine would suggest, is a necessary function of nursing practice so that the patient’s energy may be conserved for more purposeful use, such as healing.

To this point the literature review has looked at the specific use of music therapy. The review now shifts to studies measuring barriers and facilitators to the use in clinical practice of research supported nursing intervention.

Barriers and Facilitators to the Utilization of Nursing Research

In the rapidly changing health care system, new technologies are frequently being introduced into the work setting. Nurses are finding themselves under pressure to access and retain new knowledge in technology and patient care. Nursing shortages are influencing how nurses prioritize their care to patients. Gaining access to and implementing findings from nursing research may not be a priority to nursing staff. Understanding how and if nursing research is incorporated into nursing practice becomes more important as nurses strive to deliver the best quality of patient care possible. Investigating the barriers and facilitators to the utilization of nursing research is how nurse researchers gain this understanding.

Researchers have sought to understand what makes up the gap between research and practice. Funk et al. (1991) conducted an extensive study in pursuit of this understanding. Selected from the American Nurses' Association roster, 5,000 questionnaires were mailed to full time nurses (diploma, associate, bachelor's, master's and doctoral prepared). Forty percent (1,989) of the individuals returned the questionnaires.

The team of researchers (Funk et al., 1991) developed the Barriers Scale to be utilized in their study. The scale rates the extent to which nurses think each item is a barrier to their use of research to alter or enhance their practice. "The tool is divided into

four subscales: characteristics of the nurse. . . ; characteristics of the setting. . . ; characteristics of the research. . . ; and characteristics of the presentation of the research and its accessibility” (p. 91). The researchers also asked respondents to rate the barriers and gave space to identify things that would facilitate the use of research findings in practice. The researchers did not look at the research on specific interventions; rather, the study focused on research in general.

Results indicated that the three greatest barriers were setting related. “Insufficient time on the job to implement new ideas was cited most frequently, with lack of support from administration and physicians following closely behind” (Funk et al., 1991, p. 91). Third on the list was the nurse being unaware of the research. The most frequently suggested ways to facilitate the use of research findings were “increasing administrative support and encouragement, improving the accessibility of research reports, and improving the research knowledge base of the practicing nurse” (p. 91). Other suggestions included: “providing formal mechanisms for colleague support, having more clinically relevant research, increasing time for research review and implementation, and improving the understandability of research reports” (p. 91).

Various authors have utilized the Barriers Scale in pursuit of understanding the barriers and facilitators to the use of nursing research in practice (Carroll, Greenwood, Lynch, Sullivan, Ready & Fitzmaurice, 1997; Lewis, Prowant, Cooper & Booner, 1998; Rutledge, Ropka, Greene, Nail & Mooney, 1998). Lewis et al. (1998) sampled nephrology nurses (N=500) from organization membership and conference participation. Rutledge et al. (1998) used a sample of oncology staff nurses (N=1,100) and nurse

managers and Clinical Nurse Specialists (N=407) selected from organization membership and members handing out a survey to a nonmember colleague. Carroll et al. (1997) sampled registered nurses from a variety of practice settings working within the same medical center.

The barriers identified among these studies were similar to Funk et al. (1991) with minor variations. Lewis et al. (1998) found the top ranked barriers to be insufficient time on the job to implement the new ideas, the nurse not having time to read the research and the physicians not cooperating with implementation. Rutledge et al. (1998) analyzed the staff nurses and nurse managers/clinical nurse specialists (CNS) ranks of the barriers separately. Staff nurses identified the top barriers as inability to understand statistical analysis, lack of authority to change patient care and lack of time to read research. Managers/C.N.S's ranked lack of awareness of research first, with inability to understand statistics and lack of time to implement new ideas following. Carroll et al. (1997) found the top barrier to be the nurse being unaware of the research, followed by insufficient time to implement new ideas and research reports not readily available.

Lewis et al. (1998) and Carroll et al. (1997) investigated the facilitators to using research in practice, whereas Rutledge et al. (1998) did not. The rank order of Lewis et al.'s identified facilitators were, enhanced support and encouragement from administration, having more time available to review and implement findings of research and improving the understandability of research reports. The most frequently cited facilitator in Carroll et al.'s study was the need for more time to review and implement

findings; followed by “research that is more clinically focused, more easily available, and more accessible” (p. 210).

Royle et al. (1996) also conducted a study on the utilization of research; however, the methodology of this study was quite different than the above reviewed studies. This group of researchers aimed to “enhance research utilization in a selected setting by introducing a framework for research-based care, and evaluated the outcomes of research utilization” (p. 20). The researchers selected the use of guided imagery to reduce anxiety of patients on a bone marrow transplant unit.

Twenty-two staff nurses and the nursing unit manager participated in the study (Royle et al., 1996). The nurses and project team met and the nurses identified clinical problems and then selected the specific problem of anxiety. The group then held regular meetings to review and critique literature relevant to the problem, set goals, select an intervention and choose pre- and post-intervention measures. “Two months after the intervention was initiated, focus groups were conducted to evaluate the action research techniques and gather qualitative data on the outcome of the intervention” (p. 22). Each nurse participant was asked to attend at least one of the four focus group sessions.

Interestingly, only one nurse carried out a guided imagery session during the two months that followed the training (Royle et al., 1996). Qualitative analysis of the taped group meetings and recorded minutes were analyzed. Themes that emerged from evaluation of the focus group focused related to the nurses’ skills in guided imagery (the chosen intervention), characteristics of the work environment, role expectations and strategies used to implement the intervention. “The major reason nurses gave for not

carrying out sessions with patients related to the nature of the work environment, including time constraints and work expectations” (p. 23). Nurses said they couldn’t carry out the intervention without interruptions such as the phone or being called away for another unit need. In regards to their roles, “nurses were convinced that they would be criticized by their colleagues if they isolated themselves with a patient for 20 minutes” (p. 23). It was also identified that the traditional, direct patient care tasks had priority for nursing staff, as these were the tasks reinforced by the workload management tool of the hospital.

Royle et al. (1996) identified a number of influencing factors in this study. The first was that most of the nurses in this project were diploma prepared. “While many appreciated the importance of research in improving patient outcomes, some failed to appreciate that research-related activities are a legitimate aspect of a nurse’s role” (p. 24). Short staffing during some shifts may have contributed to the factor of limited time to implement the intervention. Had there always been adequate staffing, the intervention may have been carried out with greater frequency; however, this situation lent itself to a more accurate practice picture. The researchers identified that they could have been better role models in the project, demonstrating the applications and providing more support on the units. It was decided, however, that doing so might increase the number of interventions, but it wasn’t likely to change practice in the long run.

Kubsch (1996) conducted a qualitative study to describe the use of independent therapeutic nursing interventions in various health care settings. The investigator of this study spent one year immersed in the environments of the five research sites: hospital,

home health, nursing home, physician's office, and health department. Data were collected from participant observation, interviews and review of care plans and progress notes. Thirty-six nurses participated. Independent therapeutic nursing interventions (ITNIs) included several activities divided among psychomotor, affective and cognitive categories. Among those ITNIs included in this list were breathing, massage, positioning, exercise, progressive relaxation, touch, guided imagery, music, active listening, problem solving, distraction, and journaling (not an inclusive listing) (p. 198).

“Soon it became clear that the basic social-psychological problem encountered in the implementation of independent therapeutic nursing interventions (ITNIs) was that of intra-role conflict between the professional culture of nursing embodied by the participants and the culture of the work environments in which the nurses practices” (Kubsch, 1996, p. 194). For some, this conflict motivated the nurses to take action to enact the values of their profession. This energy was viewed as an important motivator to enact ITNIs. Nurses who used the ITNIs reported not only experiencing a perception of power, but also an empowered feeling that they were able to influence change in the patient's lives.

Pederson and Harbaugh (1995) conducted a study of pediatric nurses examining “nurses' self-report of factors that help or hinder their use of selected nonpharmacologic techniques, clinical situations in which they use the techniques, strategies they employ when using the techniques and effectiveness of their use of the techniques” (p. 92). A descriptive, exploratory design was used. The investigators developed a questionnaire with five sections—one for each technique addressed in the study. The techniques

included: distraction, focusing on breathing, focusing on relaxing, imagery, and changing perception of painful stimuli.

Fifty-four subjects participated in Pederson and Harbaugh's (1995) study. Analysis of the data included a process of data reduction, data display and conclusion drawing/verification. Results of the question regarding factors that hinder the use of nonpharmacologic techniques included: lack of time, competing tasks, lack of distraction materials, being a stranger to the child, lack of knowledge/comfort of the technique, the need for more guidance and practice using the technique, medications (which were believed to work faster and were the first choice for intervention) and physicians not open to the idea. Factors that would help the nurses use these techniques included: parental involvement, adequate preparation, prior assessment of the child and situation, wanting to expand professional skills, getting more practice and guidance with the technique, and having more time to carry out the technique (p. 104-105).

Results of Pederson and Harbaugh's (1995) study also indicated that nurses identified that they used the various techniques for a variety of clinical situations such as pain, procedures of various nature, insomnia, boredom, and nausea. The nurses also identified that they implemented these strategies using various techniques. The most commonly used technique was distraction. Effectiveness of the techniques varied and nurses identified that this was because the characteristics of the patient influenced the use of the techniques. Limitations noted included that the subjects were self-selected, and that data was obtained through a self-report. Generalizability is limited related to the use of only pediatric nurses at one site.

Pederson and Harbaugh (1995) discuss several issues that are applicable to other barriers studies. The overwhelming claim that nurses don't have enough time to incorporate nonpharmacologic techniques supports that nurses don't have the time, but it "may also be a socially acceptable way for nurses to excuse themselves from using these techniques. Their true reason may be lack of sufficient knowledge of, or comfort with using the techniques with patients; lack of personal experience in using the technique or a negative attitude toward the use of the techniques" (p. 99). The researchers suggest further research examining the nurses and children's experience with the use of these therapies and measuring the efficacy of these techniques. "The quest for high-quality, holistic nursing care impels nurses to seek ways in which they can inform themselves about the use of selected nonpharmacologic techniques with patient populations for whom they provide care and incorporate them into their practice in a time-efficient manner" (p. 100).

The reviewed literature identifies that there are specific reasons why nurses do or do not apply nursing research into practice. Assessing specific workplaces for these common barriers and facilitators to incorporating research into practice is the first step to overcoming the barriers and strengthening the facilitators.

Summary

This review of literature has examined the use of music therapy as a nursing intervention in a number of settings. The literature provides valid support for this intervention. Levine's Conservation Principles (1971) further guide the use of this intervention. Barriers and facilitators to incorporating research into practice have also

been identified. This study will examine whether registered nurses in practice are utilizing the intervention of music therapy. This study will also examine whether the nurses consider music therapy an effective intervention. What factors have helped or hindered the incorporation of this intervention into practice in a variety of nursing units of an acute care hospital will be explored. A final area to be investigated in this study is whether nurses use other independent therapeutic nursing interventions, the frequency of use as compared to their use of music therapy and for what reason these other interventions are used.

CHAPTER III

METHODOLOGY

Introduction

This chapter will focus on the methodology of the study, including design of the study, sampling methods and discussion of the data collection instrument. The data collection process will also be reviewed. This study employed a self-administered, researcher designed tool given to registered nursing staff at a Midwestern acute care hospital. The measures to protect human subjects will be identified as will the plan for the analysis of data.

Study Design

This study was organized using a cross-sectional, descriptive study design. The design was chosen by the researcher to obtain accurate information regarding the registered nursing staff's use of music at this point and time. The descriptive nature of the study provided for information regarding the actual use of music therapy as an independent nursing intervention and the nurse's perception of effectiveness. It also gathered information regarding identified purposes for and frequency of use of music therapy. The study also identified facilitators and barriers to the use of music therapy in this setting. Other independent therapeutic nursing interventions utilized by nursing staff were also identified with purpose and frequency measured.

Sample and Sampling Procedure

A Midwestern hospital site of greater than fifty beds was used in this study. All inpatient registered nursing staff (N= 321) were invited to participate in this study (a census sample). All of the inpatient nursing units were included. The facility had nursing units that included: intensive care unit (ICU)--cardiac care, surgical critical care, medical (surgical, oncology, and orthopedics), cardiology, inpatient surgery, post anesthesia care, psychiatry/chemical dependency, pediatrics, labor and delivery, obstetrics, newborn nursery, and neonatal intensive care.

Instrumentation

An investigator-developed questionnaire was used in this study as no previous studies have been conducted with these research questions (see Appendix A). The questionnaire was designed using information from the review of literature regarding music therapy, specifically the symptoms for which music therapy has been utilized. Questions measuring barriers and facilitators were included in the questionnaire. These questions were also designed using information identified in the review of literature. Similarly, additional independent therapeutic nursing interventions were included in the questionnaire to determine the frequency and reasons for use of these interventions.

The designed tool included a demographic section, a use of music and effectiveness section and a section identifying barriers and facilitators to the implementation of research. The demographic and use of music sections had closed-ended and checklist questions. The frequencies of use and effectiveness ratings of music therapy were rated on a scale from daily to monthly and from very effective to not

effective. Likert type questions were used to measure the strengths of barriers and facilitators.

As this was an investigator designed tool, a panel of five Masters and Doctoral prepared nurses with varying backgrounds in nursing, who also work at the University of North Dakota, were asked to validate the tool (see Appendix B). It was anticipated that review of the consent and completion of the tool would take approximately ten to twenty minutes to complete. The Nurses' Use of Music Questionnaire was distributed to the panel. Feedback was received from panel members and alterations were made to the questionnaire in keeping with the purpose, population and focus of the study.

Data Collection

Approval to conduct this study at the identified facility was obtained through the facility's Organizational Approval Process. The initial plan was to obtain a roster of registered nurses on staff and then for the investigator to hand deliver the questionnaire to the subjects' mailboxes on their assigned units. The cooperating facility, however, did request that the staff roster not be given to the investigator due to staff confidentiality concerns. The questionnaires were instead given to the Human Resources department at the facility along with a list of the nursing units that the questionnaire needed to be distributed to. The envelopes containing the cover letter/consent form inviting the subjects to participate in the study and the questionnaire with a return labeled envelope were delivered to the registered nurses on the specified units by the facilities staff. Return boxes were placed on the units by the investigator. Those who chose to participate were asked to return the completed questionnaire to a sealed box that was

placed near the participant's mailboxes thus protecting confidentiality. The location also provided for convenient return of the questionnaire. The investigator picked up the questionnaires one week after delivery and again at week two. A reminder poster was posted on each unit near the subject's mailboxes after week one. Additional consent forms and questionnaires were left on the unit for registered nurses who may have reconsidered and decided to participate in the study.

Protection of Human Subjects

Institutional Review Board approval was obtained through the University of North Dakota and the facility at which the research was conducted—this research received an exempt status. Participation in this study was voluntary. Included in the cover letter was an introduction of the investigator, an invitation to join the study, the purpose of the study, the risk/benefits and participant consent (see Appendix C). Due to the non-invasive nature of this study, the risks to the participant were none to minimal—loss of time was the only identified risk. Benefits included the support of a research endeavor by contributing to the database. It may benefit the development of an educational program and would provide benefit to patients if incorporated into practice.

Participants were given the option to withdraw at any time. Completion of the questionnaire implied consent. Confidentiality was protected, as no names will be attached to the questionnaire. All data was reported in group form. The facility was only identified by geographic information.

Analysis Plan

Descriptive analysis was performed on the obtained data. Demographic data was summarized and the frequency of use of music was identified, as were the symptoms for which music therapy has been used by registered nursing staff. Other independent therapeutic nursing interventions were identified for uses and frequency of use. These interventions were compared to the intervention of music therapy. The use of music therapy was compared to the respondent's ages and genders. The use of music therapy was also compared between nursing practice areas. The barriers and facilitators to the incorporation of music therapy as identified by the nurses were ranked from strongest facilitator to strongest barrier.

Limitations

Since the study participants were chosen from one facility, the results of this study are not generalizable to the entire nursing population, nor are they generalizable to other geographic locations. The use of registered nurses only also limits the application to other nurses, such as Licensed Practical Nurses (LPNs). Anticipated limitations may occur in the validity of the tool, as a large pilot study was not conducted to determine the validity of this tool. This can be seen as a common weakness to an investigator-designed tool.

CHAPTER IV

RESULTS

Introduction

Various independent therapeutic nursing interventions exist to assist patients experiencing anxiety or stress, sleep disturbances, pain, depression, agitation or aggression. These interventions may be used to distract the patient or relieve the bothersome symptoms the patient may be experiencing. Examples of independent therapeutic nursing interventions include guided imagery, relaxation techniques, deep breathing, therapeutic touch, massage and aromatherapy. Another intervention is music therapy. The explored literature on music therapy has clearly supported its use as an effective intervention in a variety of settings.

Though interventions are often supported in the literature, it does not necessarily mean that they are incorporated into practice. The review of literature in this study has identified studies that have explored the barriers and facilitators to the incorporation of research into practice.

The setting of this study was a Midwestern acute care hospital. The first aim of this study was to identify whether music therapy is being utilized as an independent therapeutic nursing intervention in the acute care setting by registered nurses and for what symptoms it is utilized. The second aim of the study was to determine, for those nurses who utilized music therapy, their rating of the general effectiveness. The third

purpose of this study was to identify the facilitators for the use of music therapy and to identify the barriers to utilization of music therapy. The fourth and final aim was to identify what other independent therapeutic nursing interventions are utilized by the registered nurses, the frequency of use and for what symptoms they are used.

Characteristics of the Sample

The Nurses' Use of Music Questionnaire was distributed to 321 registered nurses employed at a Midwestern acute care hospital (a census sample). One hundred and thirty-five nurses completed the questionnaire for a return rate of 42.1%. The mean age of the sample was 38.18 years with an age range of 23 to 63 years. The mean years of practice as a registered nurse was 12.21 years with a range of less than one year to 38 years of practice. The mean time at the facility was 10.83 years with a range of less than one year to 36 years (see Table 1).

Table 1
Summary of Demographics of Age, Years of Practice as a RN and Years at Present Facility

Years	<u>M</u>	<u>SD</u>	<u>n</u>	Min.	Max.
Age	38.18	9.44	131	23	63
Years of practice	12.21	9.79	132	0	38
Years at present facility	10.83	9.21	133	0	36

Table 2 further describes the demographics of the sample. The sample consisted of 120 females (88.9%) and 15 males (11.1%). The employment status of the sample included 91 full-time nurses (67.4%), 35 part time nurses (25.9%) and nine flex time nurses (6.7%). The majority of the nurses (77.0%) were baccalaureate prepared, followed by associate (14.8%), diploma (5.9%) and masters (1.5%) prepared. Almost a

quarter of the sample worked on intensive care units (24.5%) followed by the medical surgical unit (14.8%) then the inpatient surgery and post anesthesia care unit combined (12.6%). The rest of the sample of nurses was nearly equally divided among the remaining units—cardiology (9.6%), psychiatry-chemical dependency (9.6%) and medical oncology (7.4%). The maternal-child units (labor and delivery, obstetrics and nursery) represented only 6.6% of the population. Of the 135 nurses who participated, only fifteen indicated that they held a specialty certification—ninety-eight participants did not answer this question.

Table 2
Summary of the Characteristics of the Sample

Characteristic	<u>n</u>	%
Gender		
Male	15	11.1
Female	120	88.9
Employment Status		
Full time	91	67.4
Part time	35	25.9
Flex time	9	6.7
Education		
Diploma	8	5.9
Associate	20	14.8
Bachelors	104	77.0
Masters	2	1.5
Missing	1	.7
Area of Practice		
Intensive Care Units (Cardiac and Surgical)	33	24.5
Medical Surgical	20	14.8
Cardiology	13	9.6
Medical Oncology	10	7.4
Inpatient Surgery & Post Anesthesia Care Unit	17	12.6
Psychiatry-Chemical Dependency	13	9.6
Pediatrics	10	7.4
Maternal-Child (Labor & Delivery, Obstetrics, Nursery)	9	6.6
Neonatal Intensive Care Unit	10	7.4

Knowledge and Sources of Knowledge of Music Therapy

The subjects were asked if they had knowledge of music as a therapeutic treatment with patients. Of the 135 respondents to the questionnaire, 115 subjects (85.2%) knew about the use of music with patients. How the subjects learned of music therapy varied. The most frequently noted way of learning about music therapy was in a class at nursing school—47 subjects identified this place of learning. Thirty-nine of the subjects identified learning of music therapy through reading a nursing journal. The next most common source for learning about music therapy was through other sources (n=28), such as family members or personal experience, other disciplines such as occupational therapists (OT) and being familiar with people with degrees in Music Therapy. Subjects also identified learning of music therapy from co-workers (n=25), the media (n=20), conferences outside the facility (n=17) and inservices within the facility (n=9).

Subjects were allowed to chose more than one source of learning of music therapy. Table 3 overviews the number and percent of nurses who identified the following sources for learning of music therapy.

Table 3
How Nurses Learned of Music Therapy

Place of Learning	n	%
In a class at nursing school.	47	34.8
From a nursing journal	39	28.9
Other (family members or personal experience, other disciplines such as occupational therapists (OT) and being familiar with people with degrees in Music Therapy).	28	20.7
From a co-worker.	25	18.5
Through the media.	20	14.8
Through attendance of a conference at a different agency.	17	12.6
Through an inservice at this agency.	9	6.7

The study also inquired about the subject's knowledge of professionals who use music therapy. Seventy-nine of the subjects (58.5%) did have knowledge of professionals using music therapy. The nurses identified varying professions. Among those professionals identified were occupational therapy, dentistry, other nurses, surgical staff, child life specialists, massage therapists, physical therapists, psychologists, psychiatrists, social workers, Alzheimer care nurses, therapeutic recreational specialists, and childbirth educators.

The Use of Music Therapy

The first research question of this study was to determine the incidence of use of music therapy as an independent therapeutic nursing intervention in an acute care hospital of greater than 50 beds in Eastern North Dakota. The questionnaire asked registered nurses whether they had ever used music therapy. Of the 135 subjects, 94 (69.6%) identified that they had utilized music therapy with patients.

Table 4
Incidence of Use of Music Therapy

Response on Incidence	n	%
Yes	94	69.6
No	21	15.6
Missing	20	14.8

The second research question aimed at identification of the uses of music therapy within this facility. Over 60% of the 135 nurses identified that they had used music therapy for anxiety or stress. Over 40% of the nurses identified using music for distraction, pain or agitation. Not listed, but identified, were other symptoms for which music therapy was used. These included nausea, boredom, comfort, dying, labor, and

comatose patients. Table 5 reviews the symptoms as identified by the entire sample.

Subjects could choose more than one symptom for use.

Table 5
Identified Uses of Music Therapy

Symptoms for use	<u>n</u>	%
Anxiety or stress	82	60.7
Distraction	61	45.2
Pain	57	42.2
Agitation	54	40.0
Sleep disturbance	50	37.0
Depression	29	21.5
Aggression	23	17.0
Other	9	6.7

Of the nurses who use music therapy for these symptoms, Table 6 lists their reported frequency of use from daily to less than monthly. Of the 82 nurses who reported using music therapy for anxiety or stress, 17 (20.7%) use it on a daily basis. In contrast, the use of music therapy for aggression was least often utilized with 65% of the 23 nurses who use it reporting less than monthly use.

Table 6
Frequency of Use of Music Therapy for Specific Symptoms

Specific Symptoms	Daily		Weekly		Monthly		<Monthly	
	<u>N</u>	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%
Anxiety or stress	17	20.7	20	24.5	19	23.2	26	31.7
Distraction	7	11.5	17	27.9	20	32.8	17	27.9
Pain	8	14.0	13	22.8	10	17.5	26	45.6
Agitation	12	22.2	8	14.8	14	25.9	20	37.0
Sleep Disturbance	10	20.0	9	18.0	13	26.0	18	36.0
Depression	5	17.2	4	13.8	6	20.7	14	48.3
Aggression	3	13.0	2	8.7	3	13.0	15	65.2

The third question of this study was to measure the effectiveness of music therapy as identified by the nurse. The nurses were asked to rate effectiveness using a 3 point Likert scale with 1 = very effective and 3 = not effective. The symptom for which music therapy was seen most effective was sleep disturbance ($M = 1.76$, $SD = 0.52$, $n = 49$); followed by anxiety or stress, distraction, agitation, pain, depression and aggression, respectively. Table 7 presents the effectiveness of music therapy for specific symptoms as rated by the nurses.

Table 7
Effectiveness Rating of Music Therapy as Identified by the Nurse

Symptom	<u>n</u>	<u>M</u>	<u>SD</u>
Sleep disturbance	49	1.76	0.52
Anxiety or stress	81	1.79	0.49
Distraction	60	1.82	0.57
Agitation	49	2.06	0.59
Pain	55	2.15	0.49
Depression	29	2.17	0.66
Aggression	23	2.39	0.66

Facilitators and Barriers

The fourth and fifth research questions of this study sought to identify the facilitators and barriers to the incorporation of music therapy into practice by registered nurses. A list of statements was provided on the questionnaire with a Likert type scale with 1 = strongly disagree and 4 = strongly agree. A fifth option was provided (“don’t know”) and those scores were not included in the analysis. The mean score was used to rank the items and this ranking appears in Table 8. The highest ranked numbers would be facilitators and the lowest ranked would be barriers.

Table 8
Ranking of Facilitators and Barriers to the Use of Music Therapy

	<u>n</u>	<u>M</u>	<u>SD</u>
I am comfortable with the idea of using music therapy with my patients and would be willing to try this intervention.	128	3.27	0.58
I value music therapy as a beneficial nursing intervention.	117	3.21	0.51
The administration does or would support me utilizing music with patients.	81	2.98	0.59
My peers do or would support me utilizing music with patients (e.g. by taking care of my patients if needed).	106	2.96	0.50
I am able to discuss with my colleagues the use of independent nursing interventions such as music therapy.	127	2.94	0.62
I feel that I have enough autonomy to incorporate an independent nursing intervention such as music therapy into my practice.	113	2.92	0.66
The physicians I work with would be comfortable with me using an intervention such as music therapy with the patients.	94	2.91	0.54
I have access to the literature that reviews the use of music therapy as a nursing intervention.	116	2.76	0.71
My peers understand and value the use of music therapy.	85	2.71	0.67
I have read research on music therapy and found the studies and analyses understandable.	108	2.61	0.71
I am comfortable with my knowledge of music therapy.	128	2.52	0.73
I have access to the supplies necessary to assist a patient with the use of music.	124	2.44	0.88
I have adequate time in my workload to assist a patient with music therapy.	124	2.32	0.75

Table 8 lists the facilitators and barriers as ranked by the nurses. The highest ranked facilitator was the nurse's comfort with the idea of using music therapy with patients. The next ranked facilitator was the nurse's valuing of music therapy as a beneficial nursing intervention. The strongest barrier to use of music therapy was the nurse's identifying that they did not have adequate time to assist a patient with the intervention. The next strongest barrier was the nurse's not having access to the necessary supplies to implement music therapy.

Other Independent Therapeutic Nursing Interventions

Identification of other independent therapeutic nursing interventions (ITNI) utilized in this practice setting was the sixth question of this study. The most frequently used other intervention was the intervention of deep breathing—116 (86.9%) of the nurses identified use of this. Therapeutic touch was the next most frequent intervention used by 99 (73.3%) of the nurses. Massage, guided imagery, progressive relaxation and aromatherapy followed in order for their incidence of use. The option of “other” was offered on the questionnaire. One nurse identified swaddling as an “other” independent therapeutic nursing intervention.

Table 9
Other Identified Independent Therapeutic Nursing Interventions

ITNI	<u>n</u>	<u>%</u>
Deep breathing	116	85.9
Therapeutic touch	99	73.3
Massage	98	72.6
Guided imagery	79	58.5
Progressive relaxation	78	57.8
Aromatherapy	61	45.2

Table 10 lists the other independent therapeutic nursing interventions by frequency of reported use. The percentages noted are calculated from the number of nurses who use the intervention, rather than by the entire sample. For the top three interventions utilized, deep breathing, therapeutic touch and massage, the most common frequency of use was daily. Guided imagery was used by 78 nurses, but by only three on a daily basis. Aromatherapy had the lowest frequency of use, being utilized by only two nurses and only used on a monthly basis.

Table 10
Frequency of Use of Other Independent Therapeutic Nursing Interventions

ITNI	Daily		Weekly		Monthly		<Monthly	
	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%
Deep breathing	49	42.2	33	28.4	15	12.9	19	16.4
Therapeutic touch	48	48.5	20	20.2	7	7.1	24	24.2
Massage	36	36.7	25	25.5	10	10.2	27	27.6
Guided Imagery	3	3.8	10	12.7	10	12.7	56	70.9
Progressive Relaxation	8	10.3	12	15.4	11	14.1	47	60.3
Aromatherapy	-	-	-	-	2	3.3	59	96.7

The final research question of this study aimed to identify for what purposes other independent therapeutic nursing interventions were used. The questionnaire had a grid with the interventions and the symptoms. Nurses were asked to identify what symptoms they used the intervention for. Table 11 depicts the top three identified nursing interventions, the symptoms for which these were utilized and the percentage out of the total population. The most commonly identified use of an intervention was deep breathing for anxiety. This was identified by 93 (68.9%) of the nurses. This was followed by the use of deep breathing for pain (64.4%). The third ranked intervention was the use of massage for pain (44.4%). Nurses could also identify “other” interventions and “other” symptoms. Few nurses noted what “other” symptoms the interventions were used for. Two nurses did, however, identify that they used deep breathing for nausea and one nurse identified the use of massage to stimulate feeding in infants.

Table 11
Symptoms for Use of Other Interventions by Highest Ranked Interventions

Symptoms	Deep Breathing		Therapeutic Touch		Massage	
	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%
Anxiety	93	68.9	54	40.0	47	34.8
Sleep Disturbance	14	10.4	20	14.8	44	32.6
Pain	87	64.4	50	37.0	60	44.4
Depression	5	3.7	23	17.0	9	6.7
Distraction	47	34.8	25	18.5	25	18.5
Agitation	40	29.6	36	26.7	24	17.8
Aggression	12	8.9	7	5.2	4	3.0
Other	3	2.2	7	5.2	6	4.4

Table 12 overviews the lower ranking interventions and the symptoms for use.

Though some of the lower ranked interventions may have not been used as frequently for as many symptoms, they were used with some frequency for specific symptoms.

Progressive relaxation is an example of this. This intervention was used by 38 (28.1%) of the subjects as a treatment of anxiety. Guided imagery was used by 29 (21.5%) of the nurses for distraction and by 28 (20.7%) for anxiety. The symptom of pain brought forth equal uses of both guided imagery (n=28, 20.7%) and progressive relaxation (n=28, 20.7%). Aromatherapy was the least frequently identified intervention and was also used for the fewest number of symptoms.

Additional Findings

The use of music therapy was compared to the other independent therapeutic nursing interventions and ranked by incidence of use. Table 13 lists this comparison. Music therapy was identified as the first choice of independent therapeutic nursing interventions for sleep disturbance, distraction, agitation, aggression and depression. The

first independent intervention of choice for anxiety was deep breathing, followed by music. Music was chosen third after deep breathing and massage for pain symptoms.

Table 12
Symptoms for use of Other Interventions by Lowest Ranked Interventions

Symptom	Guided Imagery		Progressive Relaxation		Aromatherapy	
	<u>n</u>	%	<u>n</u>	%	<u>n</u>	%
Anxiety	28	20.7	38	28.1	3	2.2
Sleep Disturbance	15	11.1	20	14.8	3	2.2
Pain	28	20.7	28	20.3	3	2.2
Depression	6	4.4	4	3.0	1	0.7
Distraction	29	21.5	13	9.6	2	1.5
Agitation	9	6.7	13	9.6	1	0.7
Aggression	2	1.5	3	2.2	-	-
Other	2	1.5	2	1.5	2	1.5

Table 13
The Use of Music Therapy Compared to Other Interventions

Symptom	Order of use
Anxiety	2
Sleep Disturbance	1
Pain	3
Distraction	1
Agitation	1
Aggression	1
Depression	1

Table 14 depicts the use of music therapy by nurses as compared to the ages of the nurses. The mean age of respondents who used music therapy was younger than those who did not use. A t-test indicated that the difference was not statistically significant.

Table 14
Summary of t-test of Age by Use of Music Therapy

Music Therapy	<u>m</u>	<u>SD</u>	<u>n</u>	<u>t</u>	<u>df</u>	<u>p</u>
Used	37.77	9.51	92	0.750	129	0.454
Not used	39.13	9.33	39			

The use of music as compared between genders found that 60% of men used music therapy compared to 71.7% of the women. A Chi-square using the Fisher's exact test showed that this is not a statistically significant difference (Chi-square = 0.870, df = 1, p = 0.258).

The last analysis made was frequency of use of music therapy for clusters of nursing units. The nursing units were divided into five areas of practice. Psychiatry & chemical dependency was kept as a single area. The next area consisted of the intensive care units—cardiac care and surgical critical care. The following area consisted of the general medical units—medical-surgical, cardiology and medical oncology. The maternal-child area included pediatrics, labor and delivery, obstetrics, nursery and the neonatal intensive care unit. Inpatient surgery and the post anesthesia care unit were combined to represent the surgical area.

Of the 13 nurses who responded from psychiatry/chemical dependency, 92.3% had used music therapy. Of the 33 nurses in the intensive care area, 78.8% had used music therapy. The area with the least incidence of use was the surgical area. Of the 17 nurses from that area, only eight (47.1%) had used music therapy. Table 15 lists the incidence of use of music therapy within each area.

Table 15
Music Therapy Use in Practice Areas

Practice Areas	<u>n</u>	%
Psychiatry/Chemical Dependency	12	92.3
Intensive Care	26	78.8
Cardiac Care Unit and Surgical Critical Care		
General Medical	30	69.8
Medical-Surgical, Cardiology and Medical Oncology		
Maternal-Child	18	64.3
Pediatrics, Labor & Delivery, Obstetrics, Nursery and Neonatal Intensive Care Unit		
Surgical	8	47.1
Inpatient Surgery and Post Anesthesia Care Unit		

Summary

The focus of this chapter has been to answer the research questions and present the results of the analysis of the Nurses' Use of Music Questionnaire. The following chapter will provide discussion on the interpretation of the results as well as conclusions gathered from the study

CHAPTER V

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

Introduction

This chapter will include a discussion of the results of data analysis and conclusions gathered from the study on registered nurses' use of music in the inpatient practice setting. Recommendations for practice, education and research will also be discussed.

Discussions and Conclusions

The Nurses' Use of Music Questionnaire was distributed to 321 registered nurses employed at a Midwestern acute care hospital. The return rate for the questionnaires was 42.1% (n=115). This response rate was satisfactory for the purpose of the study. Possible contributing factors to the lower response rate included the short data collection period and the location of the return boxes. The data collection period lasted two weeks. This meant that employees who work full time or even part time were most likely to notice the questionnaire within the data collection period. Employees who work flex time may not be scheduled to work for several weeks, therefore, they might not have even opened the questionnaire until after the collection period was done. This factor could account for the lower response rate. The fact that the questionnaires were distributed by the facility meant that the researcher had no knowledge of how many

questionnaires were distributed to each employment status group, thus no comparison can be made between response rates of these groups.

Another factor that could have affected the return rate was the location of the return boxes. The boxes were placed in locations near the nurses' mailboxes. Some of the mailboxes were located within the employee locker rooms and some were located at the nurse's station. When collecting the questionnaires, the researcher noted that the locations of the mailboxes did not always provide space for easy completion of questionnaires by nurses. On one unit, the employee mailboxes were located within a comfortable appearing lounge with couches and a table. On a separate unit, the mailboxes were located within a crowded, narrow, locker room space. This may have impacted whether nurses had the space and comfort to read and complete the questionnaire, thus impacting that unit's return rate.

The education level of the nurses was expected to be mostly baccalaureate as the state in which the study was conducted has an entry into practice requirement of a baccalaureate degree. The gender results were also expected, as nursing has tended to be a female dominated workforce.

The use of music therapy was compared between nursing practice areas. The practice area that used music therapy most frequently was psychiatry/chemical dependency. Of the respondents in this practice setting, 92.3% had used music therapy. This may not be a surprising response as nurses in this area often need to use creative nursing interventions when working with patients who often present with all of the symptom areas identified. Surprisingly, the surgical practice setting had the least

incidence of use with only 47.1% of the nurses who responded indicating that they had used music therapy. This is not representative of the research literature findings since there were many studies about the use of music in the surgical setting.

The response to whether subjects had knowledge of music therapy yielded an encouraging 85.2%. How nurses learned of music therapy varied. It is somewhat discouraging to note that only 34.8% of the sample had heard of music therapy at nursing school. This finding is consistent with Snyder's (1985) discussion that nursing schools focus on the fundamentals of basic skills that are necessary to carry out the physician's orders and consider independent therapeutic nursing interventions as extras. Though the difference in ages and use of music therapy was not statistically significant, younger nurses tended to use the intervention more than older nurses do. It is possible that more recent graduates have heard of such an intervention in nursing schools due to current popularity and increased publicity on complementary therapies.

It is positive that nearly 70% of the respondents indicated that they had used music therapy as an independent nursing intervention. The majority of the nurses used music for anxiety or stress symptoms. Unfortunately, the frequency of use was low. Music therapy was used on a daily basis by less than 25% of the subjects for any of the identified symptoms. Although the nurses identified that they'd used music therapy, they don't use it very often.

The findings in the area of nurse's perceptions of effectiveness of music therapy were consistent with much of the reviewed literature. Nearly all of studies reviewed in preparation for this study found music to be an effective intervention for anxiety

reduction. The nurses in this study found music therapy for anxiety or stress responses to be the second most effective use of music therapy proceeded only by the use of music for sleep disturbances. Zimmerman et al (1996) also found music to be effective for sleep.

The section on the facilitators and barriers included statements that could be seen as either facilitators or as barriers. Similar to the research of Funk et al (1991), Pederson and Harbaugh (1995) and Royle et al (1996), the strongest noted barrier was perceived lack of time to implement the therapy. Unlike the above noted studies, the respondents of this study indicated that their comfort with the idea of music therapy and their valuing of music therapy were the highest facilitators. The nurses identifying that they felt the administration would support utilizing this intervention also differed from the above studies. Nurses in Funk et al (1991) identified lack of support from the administration as the second highest barrier. It was clearly a different finding at this facility.

The remainder of the study focused on the use of other independent therapeutic nursing interventions. Nurses in this study reported the most frequently used other intervention to be deep breathing. Therapeutic touch was the second most frequently used intervention (73.3%). Interestingly, massage ranked third in frequency of use with only 72.6% of the nurses identifying that they use it. This in itself may be reflective of how technical nursing has become. One explanation for this surprising finding may be because clear definitions of what these other interventions were was not given.

Nurses that did indicate, however, that they used the top three other interventions (deep breathing, therapeutic touch and massage) do use them fairly frequently. Of the nurses that use deep breathing, 42.2% use it on a daily basis. Of the nurses that identified

using therapeutic touch, 48.5% indicated daily use. Unfortunately, it would appear that nurses are spending much less of their time using independent nursing interventions as compared to physician ordered treatments in the care of patients.

When music was compared to the other interventions for use with the specified symptoms, the use of music ranked quite high in frequency of use. In fact, music was the highest ranked for use with sleep disturbances, distraction, agitation, aggression and depression. Deep breathing was used more often for anxiety than music. Music was chosen third for use with pain. This would coincide with Good's (1995) discussion that an intervention such as music therapy might not be as helpful with acute pain as other interventions.

In identifying symptoms for use of independent interventions, nurses in this study have recognized manifestations that impact the negative expenditure of patient energy. Levine's Conservation Model (1971) served as an excellent model for this study as this model specifically addresses the importance of the conservation of energy. Also within this framework, the patient is seen as a whole being. Levine (1971) identifies that nursing interventions are "a conservation of wholeness. Conservation means 'keeping together' and nursing care should be designed to keep together the wholeness of the individual patient" (p. 258). Nursing care strives to care for the whole being not only through meeting physical needs, but also by meeting emotional, spiritual and social needs. The use of music therapy and the other identified nursing interventions in this study strive to meet these needs and therefore, this model has been effective guide for the

use of these interventions in this study and could serve the same purpose for future research studies and nursing practice.

The findings of this study have brought forth several recommendations from the researcher in the areas of practice, education and research. The following section will discuss these recommendations.

Recommendations

This study found that 70% of the surveyed nurses have incorporated the independent therapeutic nursing intervention of music therapy into practice in a variety of practice settings. There are still a number of nurses who are unaware of music therapy as an effective nursing intervention. The incidence of use of music therapy is also relatively low. Changes in practice, education and research can facilitate gains in knowledge and application of an intervention such as music therapy. The following are the recommendations of this researcher.

Practice

In the area of practice, the best way to make changes is to educate. The nurses in this setting would all benefit from further education on the use of music therapy. The highest ranked facilitator identified was that nurses were comfortable with the idea of using music therapy followed by valuing it as a beneficial intervention. The third ranked barrier was nurses' comfort with their knowledge of music therapy. To address this barrier would require not only information on the intervention, but also information on the supporting research findings and hands on learning. Addressing these three areas would hopefully take away the mystery of using this intervention. This study has

provided the groundwork for this facility to incorporate an educational program on music therapy.

Also in the area of practice is the concern of inadequate time in the nurse's workload to assist patients. This is a common concern, not only with music therapy, but likewise with other ITNI's. The administration needs to hear the nurses on this issue. Nursing is not given adequate time to perform its art of caring for people. Lack of time is not only a concern at this facility. It has been identified in several other studies.

Nurses need to educate administrators, lawmakers, insurance providers and consumers that nursing involves more than merely carrying out physician orders. In doing this, nurses will regain control of their practice, feel a sense of empowerment and be able to follow through on independent interventions that are not only therapeutic, but also effective.

Nurses in this study also indicated that a barrier to implementing music therapy was not having access to the supplies needed. Nurses motivated to utilize this intervention can present the research results to managers and even various foundations to request budget funding for these supplies.

Education

As noted above, education is extremely important for changes to occur. As the results of this study have indicated, this facility would benefit from education on music therapy. This would target the nurses already in practice. Education is also important within the nursing school programs. As Synder (1985) indicated, nursing schools are focused more on the developing the technical expertise to carry out physician orders than

the holistic interventions that nursing can offer independently. These holistic nursing interventions have been supported in several research studies. It is the responsibility of the nursing education system to incorporate these interventions into the curricula.

Consumers also need to be educated that nurses are qualified to function independently in delivering certain interventions. Nurses have often been the front-line educators to consumers of health care. Nurses need to be prepared to educate their patients on these various techniques that can also be used independently by the patient. There is a trend in the health consumer population towards knowing more about the mind-body connection. Nurses need to be prepared to meet this new education need.

Research

Nurses need to continue to provide support for their effectiveness—especially with independent interventions through well conducted research studies. Nurses need to show that their presence and touch are healing far beyond what some medical interventions may be. Many of the independent therapeutic interventions are not new to the medical community. In fact, most of these interventions have been in existence longer than Western medicine. The research on the effectiveness of these is in its infancy. Nurses are in the perfect position to study the effects of such interventions.

Specific to music, more research needs to be conducted not only to determine the effectiveness, but also to determine specifics about the types of music most effective and the role of patient preference in the effectiveness. Further research and replications of the existing research on music therapy would further support this intervention as therapeutic and effective.

This study should be replicated in other acute care facilities to determine the incidence of use within other geographical regions. Other replications of this study should be done to include a variety of health care providers such as licensed practical nurses (LPN's) and certified nursing assistants. This would add another dimension to this study. Likewise, diverse health care settings and providers should be included such as rehabilitation, long-term care, home care, and hospice to expand the understanding of ITNI's in these settings.

Complementary to this study would be to gather similar information about other independent therapeutic nursing interventions at the same level of detail as this study. It would be interesting to note if the facilitators or barriers to incorporation of a certain intervention would be any different or if respondents would give more detail on symptoms for use. More research on the use of other independent therapeutic nursing interventions is needed to provide further understanding of their effectiveness in improving patient care and conditions.

Closing Discussion

The aim of this study was to fill the gap between research and practice. The existing research has clearly supported the effectiveness of music therapy. By determining the incidence of use of music therapy in the practice setting it was shown that research has been actualized in the practice setting. Examining the barriers and facilitators that have affected implementation of music therapy has helped the researcher understand the factors that influence the use of this intervention by the nurses in this setting. In this study, nurses identified that they utilized music therapy, but not very

often. They also identified that the strongest barrier to their use of this intervention was lack of time. Though other studies have looked at barriers and facilitators to incorporation of research in general, this study has explored the application of a specific intervention—music therapy.

Nurses' Use of Music Questionnaire

Demographics

1. Age: _____ years
2. Male _____ Female _____
3. Employment status: _____ Full-time _____ Part-time _____ Flex-time
4. Years of practice as a licensed Registered Nurse: _____ years
5. Length of time at present facility: _____ years
6. Education (mark highest level completed):

Associate _____	Certification: yes _____ no _____	
Baccalaureate _____	if yes, what specialty: _____	
Masters _____		
Doctorate _____		

7. Identify the area of practice where you spend MOST of your time:

ICU--Cardiac Care Unit		Psychiatry/Chemical Dependency	
Surgical Critical Care Unit		Pediatrics	
Medical Surgical		Labor & Delivery	
Cardiology		Obstetrics	
Medical Oncology		Nursery	
Inpatient Surgery		Neonatal Intensive Care Unit	
Post Anesthesia Care Unit			

The following questions deal with the use of music therapy as an independent nursing intervention. Music therapy is defined as “the purposeful use of music and its effects with patients to aid in alleviation of physiological, psychological, and emotional symptoms.” Some of the nursing literature reports that nurses have successfully utilized music with their patients in a variety of settings for a variety of symptoms and conditions.

8. Do you know about the use of music as a therapeutic treatment with patients? Yes _____ No _____
If no, skip to question # 14.

9. How did you learn of music therapy?

In a class at nursing school.	
From a co-worker.	
Through an inservice at this agency.	
Through attendance of a conference at a different agency.	
From a nursing journal.	
Through the media.	
Other (explain):	

10. Have you knowledge of any professionals utilizing music therapy with patients? Yes ___ No ___

If so, what profession: _____

11. Have you ever utilized the nursing intervention of music therapy with patients? Yes ___ No ___

If no, go on to question # 14.

12. Please indicate the symptoms for which you have used music therapy as a treatment and the frequency that you have utilized this with patients.

Symptom	Daily	Weekly	Monthly	Less than Monthly
Anxiety or stress				
Sleep disturbance				
Pain				
Depression				
Distraction				
Agitation				
Aggression				
Other:				

13. If you have utilized music therapy with patients for any of the following symptoms, rate the average effectiveness.

Symptom	Very Effective	Somewhat effective	Not effective
Anxiety or stress			
Sleep disturbance			
Pain			
Depression			
Distraction			
Agitation			
Aggression			
Other: (as noted in #12)			

14. Nurses in practice have identified barriers and facilitators to the incorporation of research findings into their practices. The following statements deal with these potential barriers and or facilitators. Please mark your responses as they could apply to the potential use of music therapy in YOUR practice setting.

	Strongly Disagree	Disagree	Agree	Strongly Agree	Don't Know
a. I have access to the literature that reviews the use of music therapy as a nursing intervention.					
b. I have read research on music therapy and found the studies and analyses understandable.					
c. I am able to discuss with my colleagues the use of independent nursing interventions such as music therapy.					
d. I am comfortable with the idea of using music therapy with my patients and would be willing to try this intervention.					
e. I am comfortable with my knowledge of music therapy.					
f. I value music therapy as a beneficial nursing intervention.					
g. I have adequate time in my workload to assist a patient with music therapy.					
h. I have access to the supplies necessary to assist a patient with the use of music (i.e. headset, cassette player, cassettes, CD player, CD's, etc.).					

	Strongly Disagree	Disagree	Agree	Strongly Agree	Don't Know
i. My peers understand and value the use of music therapy.					
j. My peers do or would support me utilizing music with patients (e.g. by taking care of my patients, if needed).					
k. The physicians I work with would be comfortable with me using an intervention such as music therapy with the patients.					
l. The administration does or would support me utilizing music with patients.					
m. I feel that I have enough autonomy to incorporate an independent nursing intervention such as music therapy into my practice.					
n. I would like information on the use of music in my practice setting.					

15. Several other independent nursing interventions are available for nurses to deliver holistic patient care. Please indicate whether you have utilized these techniques and the frequency of use.

Intervention	Daily	Weekly	Monthly	Less than Monthly
Guided Imagery				
Progressive relaxation				
Deep Breathing				
Therapeutic touch				
Massage				
Aromatherapy				
Other:				

16. If you have used any of the above interventions, for what symptom or symptoms have you used them?

Intervention	Anxiety	Sleep Disturbance	Pain	Depression	Distraction	Agitation	Aggression	Other
Guided Imagery								
Progressive relaxation								
Deep Breathing								
Therapeutic touch								
Massage								
Aromatherapy								
Other:								

Thank you for your time in completing this questionnaire. Please put the completed questionnaire in the attached enveloped and place it in the identified box near your mailbox.

APPENDIX B

Letter to Expert Panel

Dear _____.

I am a graduate student at the University of North Dakota. I am going to be conducting a research project at Altru Hospital as part of my Masters degree requirement. The study is about registered nurses use of music therapy, their thoughts on the effectiveness, and the barriers and facilitators to implementing the intervention into practice.

I am asking Masters and/or Doctoral prepared nurses to help establish the content validity of the tool I have developed. The tool was created after a thorough review of literature on the effectiveness of music therapy and the barriers and facilitators to the application of research into practice.

This should only take ten to fifteen minutes of your time. I have attached a copy of the consent form that will further explain the study and the issue of consent.

I appreciate your time and assistance. Feel free to contact me with any questions you may have. You may return the questionnaire to my mailbox in the faculty work station. **Please return by Friday, February 18, 2000** as I am hoping to complete my thesis work this spring.

Thanks again,

Desiree Gagner-Tjellesen, RNC

APPENDIX C

Invitation to Participate in Nurses Use of Music Research Project

Hello. My name is Desiree Gagner-Tjellesen, RNC. I am a graduate student from the University of North Dakota, Grand Forks. I am currently pursuing a degree in Adult Health with emphasis in the area of Mental Health. I have worked in Mental Health for the past eight years in a variety of settings and am interested in the delivery of holistic care by all nurses.

I am asking you to participate in a research study about nurses and their use of music therapy as an independent nursing intervention. Nurses have sought to deliver holistic care to their patients utilizing a variety of nursing interventions including relaxation therapies, deep breathing techniques, distraction, guided imagery, therapeutic touch, massage, aromatherapy and music therapy. Some people may call these complementary or alternative interventions, though all of these interventions are clearly within the scope of nursing. This study will examine your knowledge of and use of alternative treatment modalities, especially music. You will also be asked about your experience of the effectiveness of music therapy used with patients.

This study has been designed to have minimal to no risk to the participants. The only identified risk is the loss of time taken to complete this questionnaire. The benefits to your participation include the support of a research project through providing data to the researcher. The information obtained from this study may be used to develop educational training and ultimately, may benefit nursing care of patients. This study has received approval from the Institutional Review Board (IRB) at this facility and through the University of North Dakota. If you have questions about the authenticity of this study, feel free to contact myself or my advisor (see below).

Your participation in this study is voluntary and your completion of the questionnaire implies your consent to participate. You may withdraw from this study by not completing the questionnaire at any time without penalty or negative effect from Altru or the University of North Dakota. Your confidentiality will be protected, as you will not be placing your name on the questionnaire. Data will only be reported in group form. The name of the institution will not be identified. Data will be protected by the researcher and will be stored in a locked cabinet for three years. After the three years, the questionnaires will be shredded.

Your time involvement in this study should be approximately ten to twenty minutes. Please place your completed questionnaire in the attached envelope and place it in the identified sealed box near your mailbox. Data collection will end on March 25, 2000, so please be sure to return the questionnaire before that date. Results of the study may be obtained upon request. Thank you for your time.

Sincerely,

Researcher:

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