

EVIDENCE-INFORMED BEST PRACTICES FOR MUSIC THERAPY ACROSS
THE LIFESPAN

By

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Abstract

The purpose of this thesis is to analyze the effects of music therapy across three patient populations: pediatric oncology patients, laboring mothers, and older adults and to create evidence-informed best practice recommendations for music therapy for these patient populations. Music therapy is, “The clinical and evidence-informed use of music interventions to accomplish individualized goals within a therapeutic relationship by a credentialed professional who has completed an approved music therapy program” including a variety of modes, such as listening to music, singing songs, dancing, and writing music (American Music Therapy Association, para. 1).

Evidence-informed best practice recommendations will aid nurses and other healthcare workers by promoting education to nurses about interventions, such as utilizing the music channel on hospital televisions while in patient rooms, using a music note on patients’ boards to remind nurses to use music therapy, and embedding a music therapy drop-down option within the Electronic Health Record in different areas of patient charting, such as pain management and patient environment measures. The final chapter contains a proposition for a plan of implementation using the Plan-Do-Study-Act model. Conclusively, healthcare professionals can utilize music therapy in these patient populations as a non-pharmacological, cost-effective, non-invasive, and safe intervention to lessen patient secondary symptoms, such as anxiety, pain, and stress.

Chapter One

The purpose of this thesis is to create evidence-informed best practices for music therapy across several populations: pediatric oncology patients, laboring mothers, and older adults. While acting as the independent variable, the intervention of music therapy will be explored in research-based literature to see whether it effects dependent variables, such as pain levels, anxiety levels, medication usage, depression symptoms, and expressions of joy. After analyzing respective music therapy studies, evidence-informed best practices will be formed to create music therapy evidenced-informed best practice recommendations for implementation within these patient populations.

What is that role of music therapy in physical and mental health for patients across the lifespan? Bertice Berry once said, “Music does more than soothe the soul, it brings balance to the mind, body, and spirit” (Berry, 43). Music is commonly integrated into several aspects of daily life that it is often overlooked as having any connection to a person’s health and wellness. The intervention of music therapy shows the valuable factors of nonpharmacological therapies by being inexpensive, noninvasive, safe, effective, and enjoyable.

The American Music Therapy Association defines music therapy as, “The clinical and evidence-informed use of music interventions to accomplish individualized goals within a therapeutic relationship by a credentialed professional who has completed an approved music therapy program” (American Music Therapy Association, para. 1). According to the American Music Therapy Association, music therapy is a wide term that inhabits many different types of music interventions, such as listening to music, singing songs, dancing, writing music, discussion of lyrics, performing music, and imagery and music (American Music Therapy Association). The vast range of what defines “music therapy” shows that individuals can receive the benefits of

music therapy in many areas of their life and in different interests. One does not have to be considered a patient in a hospital to be qualified to receive benefits of music therapy; it can be a daily life practice.

The populations of focus for this thesis will be pediatric oncology patients, laboring mothers, and older adults. Globally, there are 400,000 children each year that obtain a cancer diagnosis with brain cancers, leukemias, lymphomas, and solid tumors leading in the most frequently acquired types of cancer (World Health Organization, 2021). Within the pediatric oncology world, feelings of loneliness, loss of control, hopelessness, decreased self-esteem, and pain consume the minds and bodies of patients within this population.

Within the United States of America, there are 3,747,540 births annually (Centers for Disease Control and Prevention, 2021). Within the patient population of laboring mothers, symptoms such as pain, fear, and anxiety are understandably present during the labor process. Within the older adult population, feelings of depression, loneliness, isolation, and delirium are high (Halter, 2018). Not only are older adults at risk for many physiological complications due to aging, but there are also many conditions regarding mental health that can occur within this population.

Music therapy stimulates and connects with cognitive, emotional, mental, and physical functions (American Music Therapy Association). Along with the connection to music and the body, music therapy allows for an increase in physical movement, physical rehabilitation, emotional assistance, and patient independence and involvement in their care (American Music Therapy Association).

The evidence-informed best practices for music therapy will promote the therapeutic effects of this non-pharmacological intervention within the patient populations of pediatric

oncology patients, laboring mothers, and older adults. By finding studies about the intervention of music therapy and the respective patient populations, positive effects on many different symptoms and factors within the population can be seen; therefore, music therapy implementations will allow for greater acknowledgement, understanding, and application of music therapy implementations to provide greater patient care within these populations.

The purpose of the thesis is to analyze the intervention of music therapy, in the many forms it can take, in patient populations across the lifespan, such as pediatrics, labor and delivery, and older adults on different functions of the body. Correspondingly, an additional intention of this thesis is to identify and promote the benefits of non-pharmacological interventions, such as music therapy, in the overall health and wellness of a person at any age whether in the hospital setting or in daily life. When I become a registered nurse, I will be watchful of the number of pharmacological interventions I administer to my patients and consider if non-pharmacological interventions could provide just as much or even increased aid to patients. Through this discussion of the underrated benefits of non-pharmacological interventions, another aim of this thesis is to highlight the ways in which integrative nursing practices can have more of a focus and implementation into patient care.

There are six principles of integrative nursing that demonstrate the necessary needs for nursing practices to be holistic to the patient's body and mind. The principles of integrative nursing are described by Mary Jo Kreitzer and Mary Koithan as, "1.) Human beings are whole systems, inseparable from their environments, 2.) Human beings have the innate capacity for health and wellbeing, 3.) Nature has healing and restorative properties that contribute to health and wellbeing, 4.) Integrative nursing is person-centered and relationship based, 5.) Integrative nursing practice is informed by evidence and uses the full range of therapeutic modalities to

support/augment healing, moving from least intensive/invasive to more, depending on the need and context, and 6.) Integrative nursing focuses on the health and the wellbeing of the caregiver as well as those they serve” (Kreitzer & Koithan, 2014). When looking specifically at this thesis, the fifth integrative nursing principle of “Integrative nursing practice is informed by evidence and uses the full range of therapeutic modalities to support/augment healing, moving from least intensive/invasive to more, depending on the need and context” promotes the initial usage of non-invasive and non-pharmacological interventions before invasive pharmacological interventions when providing patient care (Kreitzer & Koithan, 2014). Therefore, according to the principles of integrative nursing, the non-pharmacologic intervention of music therapy should have as much of a focus and initially implemented throughout the process of providing integrative, holistic, and comprehensive patient care. In this thesis, I hope to show that non-pharmacological modalities play a significant role in augmenting patient healing and promote patient experience.

How does the intervention of music therapy coincide with the profession of nursing? There is a plethora of areas where music therapy can remedy patient symptoms while also providing additional benefits and advances in patient situations. Music therapy is extremely versatile and due to the prevalence of health-related problems within society, music therapy can be used in many settings such as at home, in the hospital, or within the community in people at any age. This thesis will explore how music therapy can be used for reduction of pain, anxiety, fear, delirium, and usage of medications, such as antidepressant, antianxiety, and antipsychotic medications. Also, it will investigate the role music therapy plays in the lowering of patients’ hypertension, tachycardia, and tachypnea are also areas where music therapy can aid in lowering

critical patient vital signs. There is a high prevalence of these problems where music therapy is used: 50% of patients within their stay of hospitalization develop delirium (Halter, 2018).

Music therapy is a non-pharmacological intervention that can be helpful in the overall health and wellness of individuals across the lifespan. The significance of music therapy to nursing is important for recognizing that certain non-pharmacological interventions, such as music-based therapies, can make substantial changes in a patient's current health status. With music therapy, there are no known negative effects, and it provides a wide net in choosing what is one's preferred form of music therapy with the many forms that it takes.

Summary

This thesis will foster evidence-informed best practices for music therapy across the lifespan in patient populations of pediatric oncology patients, laboring mothers, and older adults. While working as a student nurse alongside a Registered Nurse in the clinical setting units of Pediatrics, Obstetrics, Medical-Surgical, Intensive Care, and Psychiatric, I noticed that non-pharmacological interventions were not being used nearly as much as pharmacological methods on these units. There were many similarities in patient complaints and experiences in all settings, such as high pain levels, discomfort, and anxiety, while the default response by the nursing team was medication administration. Surely, pharmacological interventions are regularly utilized and essential for patients and their treatment. Nevertheless, non-pharmacological interventions, such as music therapy, might not greatly impact the patient's primary diagnosis, but may lessen symptoms, promote patient experience, and increase quality of life. Through this thesis, I will discuss evidenced-informed research that will promote integrations of music therapy into patient populations across the lifespan.

Chapter Two

In chapter two, I will discuss a review of the literature related to the topic of the effects of music therapy interventions in different patient populations across the lifespan. The patient populations will include children going through the cancer process, women in labor, and older adults in nursing homes. This chapter will contain my PICO question and data-based literature review of the studies in each patient population. I will be summarizing the research purpose/question, study method, sample, setting, results/findings, data collection instrument details, study strengths, and study limitations of each of the research articles to determine if music therapy influenced the specific factors that each study was looking at in the distinct patient population.

Evidence-Informed Research Question

P: laboring mothers, pediatric oncology patients, and older adults (across the lifespan)

I: music therapy (in all forms)

C: pharmacological interventions

O: communication skills, pain, fear, cognitive function

The PICO question used to guide the literature search was, in children, laboring mothers, and older adults (P), how does the intervention of music therapy (in all forms) (I) compared to pharmacological interventions (C) affect communication skills, pain, fear, and cognitive function (O)? This PICO question is the basis for my research and highlights the initial wonderings of the effects of non-pharmacologic interventions on patients.

The data base used for the search was CINAHL and PubMed. The dates of publications included in the search were studies published within the past ten years. The search terms and filters used were music therapy, non-pharmacologic interventions, pediatric oncology, labor and

delivery, older adults, and cognitive impairments. The types of studies included are systematic reviews, meta-analyses, single-blind randomized controlled study, single center controlled randomized study, quasi-experimental and pretest-posttest study, randomized clinical pilot study, prospective randomized controlled study, exploratory pilot study, prospective mixed-methods cohort study, and quantitative and comparative study.

Data-Based Literature Review

Music Therapy for Childbearing Women

The study by Santiváñez-Acosta et al. (2020) was to analyze the effects of music therapy on anxiety and pain in mothers experiencing the laboring process (Santiváñez-Acosta et al., 2020). The study was a systematic review and meta-analysis and included a total of twelve studies. Google Scholar, LILACS, PubMed, Cochrane, and TRIPDATABASE were used by the researchers in their online search for studies (Santiváñez-Acosta et al., 2020).

The results of this systematic review and meta-analysis showed that music therapy lowered both anxiety and pain within the latent and active stages of labor (Santiváñez-Acosta et al., 2020). The strengths of this study include it being a systematic review and meta-analysis along with the number of studies analyzed and evaluated. The limitations of this study include the exclusivity of looking at pain and anxiety rather than expanding the aims of the study to look at physiologic parameters, such as heart rate, blood pressure, and respiratory rate. This systematic review and meta-analysis were used to find information and other related studies regarding the intervention of music therapy on this specific patient population of laboring mothers (Santiváñez-Acosta et al., 2020).

The study done by Gönenç & Dikmen (2020) studied the effects of three interventions, dance and music, music, and standard nursing care, on pain and fear during childbirth (Gönenç &

Dikmen, 2020). The study took place in a maternity and children's hospital in Konya Province, Turkey. The women participants in the research study were nulliparous women in the active stage of labor with the fetus in the cephalic presentation. The research study was a single-blind, randomized controlled study with a total of 93 participants. The participants were separated into three groups: two intervention groups of music and dance and music by itself and a control group of standard nursing care. The researchers utilized the Visual Analog Scale (VAS) to assess perceived pain and the Wijma Delivery Expectancy Questionnaire (W-DEQ) to assess fear before and after giving birth. The dance and music intervention utilized headphones and an electronic device with the participants being able to choose three of their favorite songs. The songs were in all different genres such as upbeat pop music, soft music, Turkish folk music, and religious music. The dance and music intervention were performed by initially assessing fear and pain of the woman followed by 30 minutes of dancing to music and standard nursing care. The labor dance movements that the researcher performed with the woman were circular movements of the hips and pelvis, pelvic tilts, semi-squatting, and left and right body and pelvis movements. Each movement was done for five to six minutes. After the intervention, the researcher assessed fear and pain, again at 30 minutes, and 60 minutes after. The music intervention involved assessing fear and pain with the VAS and W-DEQ, performing the music intervention with the woman by having her listen to 30 minutes of her chosen music with headphones, then assessing fear and pain right after the intervention, 30 minutes after, and 60 minutes after. With the standard nursing care control group, the participants received routine care, such as assessing vitals, fetal heart rate monitoring, and tasks involved in the labor process. They did not receive any music interventions. The participants in this group were initially assessed for fear and pain,

then assessed 30 minutes after the initial assessment, 60 minutes after, and then 90 minutes after (Gönenç & Dikmen, 2020).

The results of this study were significantly higher scores on the VAS and W-DEQ ($p < .001$) in the standard nursing care control group (Gönenç & Dikmen, 2020). The VAS scores were significantly higher at the 60 and 90-minute assessment than the initial and 30-minute assessment ($p < .001$). These results showed that dance and music and music by itself lessened perceived pain and fear about childbirth. The Visual Analog Scale (VAS) and the Wijma Delivery Expectancy Questionnaire (W-DEQ) were utilized as the measurement tools to receive and assess the data. Strengths of the study include randomizing the participants to the interventions, the desire to aid in women's care during childbirth, utilizing three different groups, and the use of non-pharmacologic interventions. Limitations of the study include the study being done in one hospital, only using nulliparous women during the active phase of labor, and the advantage of added researcher support during dance and music interventions (Gönenç & Dikmen, 2020).

The study done by Hepp et al. (2018), evaluated the intervention of music on stress and anxiety levels in mothers experiencing a caesarean section (Hepp et al., 2018). The study was a single center, controlled, randomized study with 304 participants. The setting was at the University Hospital Dusseldorf. The intervention group chose a specific genre of music to be played over speakers throughout their caesarean section while the control group received normal nursing care without any music. The genres in which the women in the intervention group could choose from were jazz, classical, lounge, and meditation music (Hepp et al., 2018). Assessments were performed at different times upon hospital admission, skin incision, skin suture, and two hours post-procedure (Hepp et al., 2018).

The results found, via skin suture and VAS for anxiety, showed decreased levels of anxiety with a skin suture difference of 31.56 verses 34.41 with a p-value of .004 (Hepp et al., 2018). The VAS for anxiety showed significantly lower anxiety levels of 0.69 verses 1.04 with a p-value of .018. The researchers assessed cortisol through saliva, blood pressure, and heart rate. There was a statistically significant difference in cortisol levels of 16.61 nmol/L verses 12.29 nmol/L with a p-value of .043 from the time of admission to the time of incision. There was a statistically significant difference in systolic blood pressure with 136.19 mmHg verses 130.11 mmHg with a p-value of .002. There were heart rate differences of 88.40 beats per minute verses 92.57 beats per minute. The results showed that music during a caesarean section can decrease levels of anxiety and stress in mothers; therefore, the non-pharmacologic intervention of music is a safe, cost-effective, and non-invasive tool for decreasing anxiety and stress. The State-Trait Anxiety Inventory, VAS for anxiety, salivary cortisol/amylase, heart rate, blood pressure were the assessment tools. Data analysis was assessed with independent sample t-tests mixed-factorial analysis of variances. Strengths of the study include researching an inexpensive intervention, assessment of multiple factors, large sample size, and research into a unique topic. Limitations of the study include only researching this area at one hospital and not having it be a blind study (Hepp et al., 2018).

Music Therapy for Children and Adolescents with Cancer

The study done by González-Martín-Moreno et al. (2021) analyzed many different research studies that look at the effects of music-based interventions in children who were experiencing the cancer process (González-Martín-Moreno et al., 2021). The article was a systematic review with a total of 11 studies included in the systematic review. Out of the 11 studies, there were two quasi-experimental studies, one non-randomized controlled trial, five

randomized clinical controlled trials, one qualitative and quantitative analysis study, one observational study, and one descriptive study. The included studies had to be original studies where the participants were 0-18 years old. Some of the music-based interventions used in different studies consisted of music listening on an iPod, 90-minute music therapy sessions, and singing with live instruments (González-Martín-Moreno et al., 2021).

There were 11 research studies with a total of 619 participants in all the studies used in the review. The results showed that music-based interventions lessened perceived pain, depression, and anxiety in pediatric patients who are going through the cancer process (González-Martín-Moreno et al., 2021). Also, there were findings of lower heart rates, blood pressures, and respiratory rates in the study participants. Data was collected using PubMed, Dialnet, Scopus, Cochrane, IDICEs CSIC and Science Direct. Some of the strengths of the review include the article being a systematic review, large range of included studies, varying music-based interventions, and the age range of 0-18 years old. Limitations of the systematic review include the lack of experimental studies that look at the pediatric population with the intervention of music therapy, using articles only in English and Spanish, and the difficulty in obtaining homogeneity of the sample (González-Martín-Moreno et al., 2021).

The study done by Saghaei-Shahriari & Mostafazadeh (2019) evaluated the role that music therapy played on self-control and anxiety sensations with the patient population of children with leukemia (Saghaei-Shahriari & Mostafazadeh, 2019). The study was a Quasi-experimental and pretest-posttest. The setting of the study was in Tehran, Iran with a total of 30 participants. The procedure of the study consisted of an experimental group who received 14 music therapy sessions consisting of 90 minutes and a control group who did not receive these music therapy sessions. The music therapy was a range of music interventions including

receptive and expressive music therapy practices. The researchers utilized the Anxiety Sensitivity Index Questionnaire and the General Self-Efficacy Scale for its measuring tools to determine anxiety and self-efficacy levels pretest and posttest in the study participants (Saghaee-Shahriari & Mostafazadeh, 2019).

The results of the study included lowering of anxiety sensitivity sensations, ultimately resulting in an elevation of self-control, such as improved coping with pain and increased relaxation, in patients when undergoing treatment (Saghaee-Shahriari & Mostafazadeh, 2019). The strengths of this study include measuring two different symptoms or sensations that come with this patient population and the diagnosis of leukemia, such as anxiety and a loss of self-efficacy and self-control. Also, a strength of this study is the researchers' utilization of the measuring tools of the Anxiety Sensitivity Index Questionnaire and the General Self-Efficacy Scale to gather precise information right from the participants regarding their anxiety sensitivity and self-control levels. A limitation of this study includes the small number of participants resulting in a lack of possible generalization to the overall population of pediatric leukemia patients (Saghaee-Shahriari & Mostafazadeh, 2019).

The study done by Ugglå et al. (2016) focused on seeing the effect that music therapy interventions have on heart rates in pediatric oncology patients undergoing hematopoietic stem-cell transplantation (Ugglå et al., 2016). The study was a randomized clinical pilot study set at Karolinska University Hospital in Sweden. The procedure of the study consisted of an intervention group who received receptive forms of music therapy, such as music listening, and expressive forms of music therapy, such as playing music, twice a week before undergoing their hematopoietic stem-cell transplantation. The control group did not receive music therapy interventions and only received regular nursing care before the hematopoietic stem-cell

transplantation. They assessed heart rates by monitoring their vital signs leading up to and after the invasive treatment (Uggla et al., 2016).

The results of the study consisted of evening heart rates being lowered for four to eight hours after receiving the music therapy in the intervention group (Uggla et al., 2016). The results suggested that overall stress and post-traumatic stress disorder (PTSD) levels are decreased with this due to the decrease in evening heart rates with the participants in the intervention group. The strengths of this study include looking at the physiologic vital sign of heart rates within this patient population along with the specific invasive treatment of hematopoietic stem-cell transplantation. The limitations of this study include limiting it to only pediatric patients undergoing this treatment as potentially this music therapy intervention aids in adults' heart rates as well. Another limitation of this study is also that it is a clinical pilot study showing the small-scale level of this study (Uggla et al., 2016).

The study by Zengin et al. (2013) analyzed the effects of music therapy interventions on physiologic markers, such as hormones, pain, and anxiety on pediatric oncology patients undergoing placement of port catheters pre and post procedure (Zengin et al., 2013). The study is a prospective, randomized, controlled study set at the Gaziantep University Medical Faculty in Turkey with 100 total participants. The procedure of the study consisted of an intervention group and a control group. The intervention group received slow and relaxing instrumental music beginning in the preoperative room until post-procedure in oncology patients undergoing a port catheter placement procedure while the control group did not receive this intervention. The researchers measured heart rates, respiratory rates, blood pressures, adrenocorticotrophic hormone, serum cortisol, perceived pain, and anxiety levels upon arrival, directly before, and directly after the port catheter placement procedures (Zengin et al., 2013).

The results of the study consisted of decreases in heart rate, respiratory rate, blood pressure, adrenocorticotrophic hormone, serum cortisol, perceived pain, and anxiety levels in patients before and after undergoing port catheter placement procedures when this music intervention was implemented (Zengin et al., 2013). A strength of this study is the study type – a prospective, randomized, controlled study using an intervention and a control group. Another strength consisted of the high number of outcomes that the researchers were studying with the intervention on this procedure. A limitation of this study could be the exclusive focus on the effects of this music therapy intervention on one procedure of the port catheter placement instead of an array of procedures (Zengin et al., 2013).

The study done by Giordana et al. (2020) explored the effects of music therapy interventions on patients with leukemia undergoing invasive procedures beginning at the bedside until analogo-sedation administration (Giordana et al., 2020). The study was an exploratory, pilot study with a total of 48 participants. The study was set at the Pediatric Oncology and Hematology Ward of the Polyclinic Hospital in Bari, Italy. The study had an intervention group and a control group. The intervention group received a 15–20-minute session of a preferred type of music therapy, such as listening to music via iPod, singing, using instruments, beginning preoperatively at the bedside with a music therapist and a parent up until analogo-sedation administration of patients with leukemia undergoing invasive procedures. The control group received standard nursing care before the invasive procedures (Giordana et al., 2020).

The results of this study include a decrease in anxiety scores preoperatively with the utilization of a patient preferred music therapy session when compared to standard preoperative levels of care before an invasive procedure (Giordana et al., 2020). Strengths of this study include utilizing an intervention and a control group to compare the efficacy of the music therapy

intervention on invasive procedures. Also, this study looked at overall patient experience with analyzing anxiety levels showing its regard to improving overall patient experience and lessening patient secondary symptoms that come with these procedures. Limitations of this study include the small number of total participants of this study, and that the study is an exploratory pilot study showing the small-scale level of this study (Giordana et al., 2020).

Music Therapy for Older Adults

The study done by Bakerjian et al. (2020) studied the nonpharmacologic effects of music therapy on older adults in nursing homes (Bakerjian et al., 2020). The purpose of the study was to examine the effects of a music and memory program on decreasing psychotropic medications, pain reduction, fall reduction, and enhancing behaviors. Also, the study desired to create two to three evidence-informed Quality Assurance Performance Improvements to progress implementation of music and memory and organizational factors that affected the success or failure of the functions of the music and memory program. It was a prospective, mixed-methods cohort study that took place over three years. The sample size was 4,107 residents. There was a majority of female participants and a majority of participants over the age of 89 years old. In 70% of the participants, the participants had a diagnosis of dementia. The setting of the study took place in 265 nursing homes in California and utilized a quarterly rolling enrollment process. The study included nursing homes that were certified with both Medicare and Medicaid. It included nursing homes that had 15 residents that had a dementia diagnosis or other deficiencies with cognition to partake in the study. The music therapy consisted of the participants receiving a personalized iPod with songs that they expressed enjoyment in as well as headphones or a speaker to listen to their music. Along with the different type of music being listened to for each

participant, the use of the iPod varied for each resident; thus, the number of minutes of music therapy differentiated for each participant (Bakerjian et al., 2020).

The residents who got music therapy were not compared to residents who did not receive music therapy because there was not a control group present in the study (Bakerjian et al., 2020). The results/findings of the study were an 11% decrease in the use of antipsychotics, 17% decrease of antianxiety medications per quarter, 9% decrease of antidepressants per quarter, 20% decrease of aggressive behaviors per quarter, 16% decrease of symptoms of depression, 17% decrease of reported pain, and an 8% decrease of falls. These findings were found to be statistically and clinically significant. There were statistically significant findings of enhanced behaviors in nursing home residents with the use of music therapy. The study used a quarterly 4-part survey using Qualtrics Research Suite as the data collection instrument. The strengths of the study included the high number of participants, difference of nursing homes across California, utilization of surveys to collect the data, and various areas of interest in the analysis of effects of music therapy. The study limitations included non-randomization of nursing home residents, lack of a control group, minimal training of entering data information by nursing home staff members, data submission skips and delays, indirect relationship with research assistants and the nursing homes, and an inability to analyze environmental challenges that occurred. The search of the study was conducted with CINAHL with the article deriving from the Journal of the American Medical Directors Association (Bakerjian et al., 2020).

The study done by Corrêa et al. (2020) compared two styles of music as a nonpharmacological intervention on physiological, behavioral, and expressive influences in older adults who were 65 to 85 years old who had been diagnosed with dementia (Corrêa et al., 2020). The average age of the participants was 85 years old. The researchers were interested in seeing

the effects that music could provide to the participants in relation to memory in hopes to promote connection with themselves, their family, and their lives. The music interventions consisted of Brazilian popular music and classical music to relate to the specific elderly population. The study design was a quantitative and comparative study. The group with the popular Brazilian music had 19 participants and the classical music control group had 14 participants. The setting of the study took place in two long term care institutions that provided living spaces for elderly people. The participants listened to music in each group for 20 minutes in 4 music sessions once a week (Corrêa et al., 2020).

The results of the intervention group with popular music were higher percentages for joy and surprise using the Facial Action Coding System (FACS) in comparison to the control group using classical music (Corrêa et al., 2020). Using FACS, the expression of joy had a p-value of 0.039 and the expression of surprise had a p-value of 0.041. Also, higher percentages were noted in the intervention group with popular music with movements of the head and body, with a p-value of 0.006, in comparison to the control group using classical music. The analysis of these three aspects showed statistically significant increases in these areas. A statistically significant decrease of symptoms and effects related to delirium were noted with a p-value of 0.029. The use of Brazilian music enhanced overall quality of life, happiness, and memories within this older adult population verses classical music. Data collection was facilitated through FACS, older adult description, neuropsychological inventory, cardiovascular biofeedback, and responses from the participants throughout the music sessions. Strengths of the study included appealing the music to the older adult population, assessing different areas and functions, and analyzing the effects of music on overall quality of life. Limitations of the study included not having a randomized study, limited information and knowledge about dementia and drugs relating to

dementia, and manually recording and collecting the participants' observations. The search of the study was conducted with CINAHL with the article deriving from *Cadernos Brasileiros de Terapia Ocupacional* (Corrêa et al., 2020).

Summary of Review of Literature Results

Through researching the topic of music therapy in different patient populations, this intervention has benefits to symptoms and conditions of patients across the lifespan. Through interpretation of the results of the studies, it is known that music-based interventions lessened perceived pain, depression, and anxiety in children experiencing cancer with reductions in heart rate, blood pressure, and respiratory rate in these pediatric patients (González-Martín-Moreno et al., 2021). Interventions involving moving to music and listening to music showed decreases in perceived pain and fear during labor when compared to patients solely receiving standard nursing care (Gönenç & Dikmen, 2020). Also, music playing throughout cesarean sections decreased pain and anxiety levels in women going through the procedure (Hepp et al., 2018). In older adults, music therapy showed decreases in antipsychotic use, antianxiety, antidepressants, falls, reported pain, symptoms of depression, and aggressive behaviors (Bakerjian et al., 2020). Additionally in older adults, Brazilian music was found to have higher percentages in facial expressions of surprise and joy, movements of the body, and decreased symptoms relating to delirium when compared to the control group that listened to classical music (Corrêa et al., 2020).

Another interesting research topic in the realm of music therapy that is unknown is the exploration of different instruments' effect on the body. Does the piano provide more of a decrease in feelings of anxiety compared to the guitar? Does it depend on the patient population or the preference of the individual? Lastly, an unknown area of research is looking into the effect

of some sort of music intervention on the stress and attitudes of nurses. Nursing can be a stressful profession, and I would be interested to see research done on the relationship between music and this specific population of nurses. Overall, there are great amounts of research done on the intervention of music therapy, but it is becoming more well-known as more people are turning to non-pharmacological tools to aid in the healing process. I am hopeful that there will be more research into this intervention in varied patient populations to provide for a better understanding and implementation of music therapy as an intervention in nursing care.

Chapter Three

Because the non-pharmacological intervention of music therapy is safe, non-invasive, and cost-effective, it should be implemented using diverse techniques in different patient populations across the lifespan. By proposing evidenced-informed recommendations for implementation, nurses and healthcare facilities can apply these recommendations (see Tables 1 – 3) for therapeutic practice. Nurses who are educated about the benefits of music therapy as an evidence-informed practice, may be more willing to implement these best practice recommendations into their practice in the patient populations of laboring mothers, pediatric oncology patients, and older adults.

Table 1

Best Practice Recommendations for Promoting Music Therapy Within the Patient Population of Laboring Mothers

Recommendation	Rationale	References	Level of Evidence
Implement music listening through headphones or an electronic device for a minimum of three songs of a genre of the patient's choice to decrease perceptions of pain and fear during childbirth.	Perceptions of pain and fear can be elevated during the child birthing process for mothers. Promoting a non-pharmacological intervention such as listening to music may serve as a non-invasive way to lower pain and fear in laboring mothers.	Gönenç, I.M. & Dikmen, H.A. (2020). Effects of dance and music on pain and fear during childbirth. <i>Journal of Obstetric, Gynecologic, and Neonatal Nursing</i> . 49(2), 144-153. https://doi.org/10.1016/j.jogn.2019.12.005	Level II
Implement the music therapy intervention of performing dance movements, such as circular movements of the hips and pelvis,	Perceptions of pain and fear can be elevated during the child birthing process for mothers. By implementing that patients perform different dance movements	Gönenç, I.M. & Dikmen, H.A. (2020). Effects of dance and music on pain and fear during childbirth. <i>Journal of Obstetric, Gynecologic, and Neonatal Nursing</i> . 49(2), 144-153. https://doi.org/10.1016/j.jogn.2019.12.005	Level II

pelvic tilts, semi-squatting, and left and right body and pelvis movements each for 5-6 minutes while listening to music from a genre of their choice either through headphones or an electronic device during the labor process.	in labor, there may be a decrease in overall pain and fear perception during the labor process.		
Implement the listening of music with a slow tempo ranging from 60-80 beats per minute from a patient-preferred genre to women undergoing a Cesarean Section starting upon their entrance into the operating room throughout their entire surgical procedure.	Perceptions of stress and anxiety can be elevated with mothers undergoing a Cesarean Section. Perceptions of stress and anxiety were lowered in patients along with measurements of salivary cortisol, systolic blood pressure, and heart rate between patients who received the music therapy verses those who did not.	Hepp, P., Hagenbeck, C., Gilles, J., Wolf, O.T, Goertz, W., Janni, W., Balan P., Fleisch, M., Fehm, T., Schaal, N.K. (2018). Effects of music intervention during caesarean delivery on anxiety and stress of the mother: a controlled, randomized study. <i>BMC Pregnancy Childbirth</i> 18(1), 1-8. 10.1186/s12884-018-2069-6	Level II

Table 2

Best Practice Recommendations for Promoting Music Therapy Within the Patient Population of Pediatric Oncology Patients

Recommendation	Rationale	Reference	Level of Evidence
Implement 14 music therapy sessions consisting of 90 minutes for pediatric patients diagnosed with leukemia.	Anxiety sensitivity sensations were lowered through this intervention resulting in an elevation of self-control, such as improved coping with pain and increased relaxation, in patients when undergoing treatment.	González-Martín-Moreno, M., Garrido-Ardila, E.M., Jiménez-Palomares, M., Gonzalez-Medina, G., Oliva-Ruiz, P., Rodríguez-Mansilla, J. (2021). Music-based interventions in pediatric and adolescents' oncology patients: a systematic review. <i>Children</i> . 8(2), 1-16. 10.3390/children8020073	Level I

		Saghaeee-Shahriari, S.; Mostafazadeh, A. The effectiveness of music therapy on anxiety sensitivity and self-efficacy in adolescents with Leukemia in Tehran, Iran. <i>Int. J. Body Mind Cult.</i> 2019, 6, 112–117.	Level II
Implement receptive forms of music therapy, such as music listening, and expressive forms of music therapy, such as playing music, twice a week.	Evening heart rates were lowered for four to eight hours after receiving the music therapy intervention in patients receiving hematopoietic stem-cell transplantation. The lowering of heart rates could in turn evolve into overall decreased stress levels and post-traumatic stress disorder when receiving cancer treatment.	L. Uggla, L.O. Bonde, B.M. Svahn, M. Remberger, B. Wrangsjo, B. Gustafsson, Music therapy can lower the heart rates of severely sick children, <i>Acta Paediatr. Oslo Nor</i> 105 (10) (1992. 2016 Oct) 1225–1230	Level II
Implement playing of slow and relaxing instrumental music beginning in the preoperative room until post-procedure in oncology patients undergoing a port catheter placement procedure.	Lowering of heart rate, respiratory rate, blood pressure, adrenocorticotrophic hormone, serum cortisol, perceived pain, and anxiety levels are experienced in patients before and after undergoing port catheter placement procedure when this music intervention is implanted.	Zengin, S., Kabul, S., Al, B., Sarcan, E., Dogan, M., & Yildirim, C. (2013). Effects of music therapy on pain and anxiety in patients undergoing port catheter placement procedure. <i>Complementary Therapies in Medicine</i> , 21(6), 689-696. 10.1016/j.ctim.2013.08.017	Level II

Implement a 15–20-minute session of a preferred type of music therapy (listening to music via iPod, singing, use of instruments) beginning preoperatively at the bedside with a music therapist and a parent up until analgo-sedation administration of patients with leukemia undergoing invasive procedures.	Anxiety scores were decreased preoperatively with the utilization of a patient preferred music therapy session when comparing it to standard preoperative levels of care before an invasive procedure.	Giordana, F., Zanchi, B., Leonardis, F., Rutigliana, C., Esposito, F., Brienza, N., Santoro, N. (2020). <i>The Arts in Psychotherapy</i> , 68, 1-5. https://doi.org/10.1016/j.aip.2020.101649	Level III
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Table 3

Best Practice Recommendations for Promoting Music Therapy Within the Patient Population of Older Adults

Recommendation	Rationale	Resource	Level of Evidence
Implement the Music and Memory program in nursing homes, where older adults who have dementia and/or other behavioral impairments obtain an iPod with headphones or a speaker to play patient-preferred music at their preferred time over 12 weeks.	The implementation of the Music and Memory program may provide an overall decrease in the use of antipsychotics, antianxiety medications, antidepressants, aggressive behaviors, symptoms of depression, reported pain, and number of falls within older adults in the nursing home.	Bakerjian, D., Bettega, K., Cachu, A., Azzis, L., & Taylor, S. (2020). The impact of music and memory on resident level outcomes in California nursing homes. <i>Journal of the American Medical Directors Association</i> 21(8), 1045-1050. 10.1016/j.jamda.2020.01.103	Level IV
Implement four individual music sessions with five songs per session with popular music that is characteristic of older adults' life history diagnosed with dementia living in long-term care facilities.	The implementation of this type of popular music among the older adult age group have shown increased expressions of surprise and joy as well as head and body movements within the older adult population. Symptoms and effects related to delirium with this music therapy	Corrêa, L., Caparool, A., Martins, G., Pavarini, S., & Gratão, A. (2020). Effects of music on body and facial expressions and psychological and behavioral symptoms of older adults. <i>Cadernos Brasileiros de Terapia Ocupacional</i> . 28(2), 539-553. https://doi.org/10.4322/2526-8910.ctoAO1889	Level III

	implementation were decreased.		
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Summary

A nursing specific recommendation that Labor and Delivery nurses can implement with their patients and plans of care can include music listening through headphones or an electronic device for a minimum of three songs of a genre of the patient's choice to decrease perceptions of pain and fear during childbirth (Gönenç & Dikmen, 2020). Since pain and fear during childbirth are common occurrences, nurses can simply communicate with patients and ask if they can play music during their active labor to potentially supply some form of pain and fear relief during an extremely stressful and precarious time. Correspondingly, nurses can implement dance movements such as circular movements of the hips and pelvis, pelvic tilts, semi-squatting, and left and right body and pelvis movements each for 5-6 minutes while listening to music from a genre of their choice either through headphones or an electronic device during the labor process. By engaging the laboring mothers in these music therapy interventions, there may be an overall decrease in pain and fear while also providing somewhat of a distraction for the mother due to engaging their hearing and movement in music (Gönenç & Dikmen, 2020). With Labor and Delivery nurses who have a patient undergoing a Cesarean Section, nurses can implement the listening of music with a slow tempo ranging from 60-80 beats per minute from a patient-preferred genre upon their entrance into the operating room throughout their entire surgical procedure (Hepp et al., 2018). Overall, Labor and Delivery nurses can implement these best practice recommendations into their everyday practices for their patients as it is a safe, simple, non-invasive way to provide a lessening of their pain and fear that does not require an order by the doctor.

A nursing specific recommendation that hospitals can implement to pediatric oncology patients undergoing treatment can be to implement 14 music therapy sessions consisting of 90 minutes for pediatric patients diagnosed with leukemia (Saghaeee-Shahriari & Mostafazadeh, 2019). This implementation can aid in promoting self-control and relaxation in this patient population (Saghaeee-Shahriari & Mostafazadeh, 2019). When looking at nurses' role, the implementation of receptive forms of music therapy, such as music listening, and expressive forms of music therapy, such as playing music, twice a week to decrease heart rates in patients receiving hematopoietic stem-cell transplantation (Saghaeee-Shahriari & Mostafazadeh, 2019). This vital sign change may carry over into the patients' decreased stress levels and post-traumatic stress disorder when receiving cancer treatment (Saghaeee-Shahriari & Mostafazadeh, 2019). Since cancer treatment can be intensive and invasive for pediatric patients, supplying this type of a non-pharmacologic intervention that is safe, inexpensive, and non-invasive benefits both patients and hospitals.

A nursing specific recommendation for the patient population of older adults involves the implementation of a Music and Memory program in nursing homes, where older adults who have dementia and/or other behavioral impairments obtain an iPod with headphones or a speaker to play patient-preferred music at their preferred time over 12 weeks (Bakerjian et al., 2020). This implementation may result in an overall decrease in the use of antipsychotics, antianxiety medications, antidepressants, aggressive behaviors, symptoms of depression, reported pain, and number of falls within older adults in the nursing home (Bakerjian et al., 2020). Nursing homes and nurses alike will benefit from this implementation due to having lower numbers in these key factors involved in nursing home settings and aspects of patient statuses, such as medications, pain ratings, and number of falls. Lastly, a best practice recommendation that nursing homes and

nurses can utilize for older adults to promote increased expressions of surprise and joy as well as head and body movements can be to implement four individual music sessions with five songs per session with popular music that is characteristic of older adults' life history who are currently diagnosed with dementia living in long-term care facilities (Corrêa et al., 2020). Overall, these music therapy recommendations will promote positive benefits to older adults that involve safe and non-invasive interventions to the patients while also being easy and cost-effective for the nursing homes and patient facilities.

Chapter Four

In chapter four, the elements of chapters 1-3 are utilized to create plans for implementation and evaluation in the real-world setting. In this chapter, I will describe the proposed implementation plan, process of implementation, and the evaluation of the outcomes. I will discuss the link to my original PICO question used to guide the research of this thesis to the evaluation of the outcomes. The implementation plan will utilize the model of Plan-Do-Study-Act (PDSA). This model will make it feasible to plan the implementation of the evidence-informed music therapy recommendations into hospitals, implement the recommendations, evaluate the outcomes of the implementations, assess need for revisions, and adopt into the real-life setting. The PDSA implementation model is a four-step process that will utilize specific, measurable, attainable, realistic, and timely aspects in research application and assessment. The setting of this implementation and evaluation is a hospital that includes labor and delivery, pediatric oncology, and long-term care/inpatient hospice units.

Plan

Plans for implementation consist of encouraging nurses to utilize music therapy via the music channel on hospital televisions in every patient room, applying a music note on patients' boards in patients' rooms to indicate music therapy being an appropriate intervention for that patient, utilizing volunteer guest musicians on units, and including the selection of music therapy in the drop-down on the hospital computer system in different areas of documenting nursing interventions, such as pain management and patient environment measures. The major key people to work with during this implementation would be the chief nursing officer (CNO), nursing directors, unit managers, charge nurses, registered nurses, patient care technicians, occupational therapists, physical therapists, volunteer office coordinators, and Child Life

Specialists working on pediatric units. The involvement of these healthcare professionals within this specific hospital setting will be crucial in the implementation of the music therapy recommendations in overall patient care. The resources that are needed in this implementation are the hospital televisions in patient rooms, the speakers on the televisions, the music channels, guest musicians, and volunteers. Music channels are embedded on the televisions and volunteer musicians play on units of the hospital; therefore, there are no additional costs correlated with this implementation.

The plan is to provide education about music therapy to the professionals in the inpatient setting. This education would take place during huddle before shifts by making announcements and reminding nurses and the patient care technicians about these music therapy implementations. This would be led by an individual who is knowledgeable about music therapy and communicates to the staff the evidence supporting benefits of these interventions. This would happen during huddle over the course of three days before the start of shifts. Also, the summary of evidence supporting the interventions and implementations could be sent to the healthcare staff via email on the first day of educating the staff about music therapy. Also, this recommendation for implementation would involve embedding a new aspect in the Electronic Health Record (EHR). The evidence-informed practices advocate would need to work with the Information Technology (IT) department to create additions in the EHR for documenting when music therapy is performed for symptom management. Additionally, by educating the patient care technicians about these implementations, they are another asset into implementing these recommendations into patient care firsthand. The patient care technicians will be another source of providing education to patients about the music channel and utilizing music therapy to elevate their personal experience in the hospital. The patient care technicians are in and out of patient

rooms taking vital signs and providing other quality aspects of patient care; therefore, these moments with patients are areas of patient care where music therapy can be directly communicated, advocated, and implemented right in the patient's room.

Do

The following step in the implementation process would include having the education huddle meeting about the music therapy implementations. The music therapy advocate would educate the healthcare workers by succinctly summarizing the evidence supporting the benefits of the interventions. They would discuss how music therapy has shown decreases in patient secondary symptoms, promotion of patient experience, and elevation of integrative modalities in their everyday care. The presentation would last five minutes before both day and night shifts over the course of three days to communicate the practice recommendations to an array of healthcare workers. Furthermore, it would be followed up with an email to the healthcare staff. The participants, charge nurses, registered nurses, and patient care technicians will attend the huddle meeting before shifts and be instructed to apply the music therapy recommendations to their patients during their shifts. The participants will be advised to chart on the hospital EHR if music therapy was implemented in the patient room for pain management, distraction during a skill or procedure (e.g., a dressing change or IV placement), or promoting room environment measures in patient rooms that music therapy would be useful for, such as the populations of laboring mothers, pediatric oncology patients, and older adults. It is imperative to train nurses to integrate music therapy into their shift routines when it comes to symptom management to engrain the regimen into their patient practices. As routine as it is for nurses to write their name on the board in the patient's room and make sure the bed is locked and low upon entering a

patient room, ensuring they showed patients the music channel and how to access it should be a regular patient practice.

Study

A way in which to study the process of implementation is to conduct a chart audit on the EHR music therapy drop-down option to evaluate if nurses are utilizing this method when providing patient care and charting about the care performed. Additionally, focus groups can be conducted on nurses and other healthcare workers, such as patient care technicians, to study the effectiveness of the implementation of the recommendations. The focus group can ask nurses about their experiences with the music therapy recommendations, how often they believed music therapy was applied before the onset of the implementation, how much music therapy has been implemented after the onset of the plan, their opinion on the role music therapy is playing on patient care, if it is affecting them as nurses with their own personal experiences while in patient rooms, and how music therapy impacted the patients particularly in the areas of pain, fear, anxiety, and cognitive and communication skills among the patient populations of focus in this project as the nurses will be attuned to patient results as they will be charting their reactions in the EHR.

Act

After data is collected about the implementation of the recommendations, the Act segment will initiate the final process of the plan of implementation. During this period of the PDSA model, the implemented recommendations will be assessed for a need for revisions, reconsiderations, and overall improvements based on the data collected in the study phase. After these revisions are made and the amended recommendations still are appropriate and effective in the hospital setting, then the recommendations would be adopted into the real-world setting.

Ultimately, these adopted recommendations would be carried out by healthcare professionals in the hospital setting among patients within the populations of laboring mothers, pediatric oncology patients, and older adults to use the non-pharmacologic intervention of music therapy as a therapeutic measure in the hospital environment.

Summary

By utilizing the Plan-Do-Study-Act implementation model, it allows for effective planning, implementation, analysis, and review of the proposed and adopted best practice recommendations into a real-world hospital environment involving healthcare workers caring for patients in the three specific patient populations of focus. Employing the proposed evidence-informed music therapy implementations may aid in patient symptom management and overall experience in the hospital.

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