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Reducing Patient Anxiety with Use of Music During Electroconvulsive Therapy

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In Partial Fulfillment of the Requirements for the Doctor of Nursing Practice

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August 4, 2022

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Electroconvulsive therapy (ECT) is a highly effective medical procedure to treat treatment-resistant mental illnesses such as major depression, bipolar disorder, and schizophrenia. Healthcare professionals administer ECT while the patient is under general anesthesia. ECT providers can include psychiatrists, anesthesiologists, physician assistants, and nurses. While the patient is anesthetized, the psychiatrist delivers brief electrical stimulation to the brain to induce a seizure (McDonald, 2019).

Electroconvulsive therapy (ECT) has existed for over 70 years. Despite this, ECT is one of the most misunderstood and controversial medical treatments. Negative representation in the media, past practices, and irrational fear of electricity has resulted in considerable stigma. Years of research have contributed to ECT becoming a safe and relatively well-tolerated procedure for treatment-resistant mental health conditions such as depression, bipolar disorder, and psychosis (Chakrabarti et al., 2010). According to Obbels et al. (2020), anxiety has been labeled as the most distressing psychological complication of ECT and provokes anxiety among 25-75% of patients. The lead psychiatrist in neuromodulation at the chosen organization identified that ECT-related anxiety is a problem within the organization and proposed the intervention of music based on his literature review (R. Coon, personal communication, August 2021). Therefore, this project aims to decrease ECT-related anxiety among patients by implementing a music intervention.

The Problem Identification/Available Knowledge

Approximately one million patients receive ECT annually (Leiknes et al., 2012). ECT is used globally and has a symptom remission rate of up to 90% when used as a first-line treatment

for mood disorders and up to 70% for treatment-resistant depression (Leiknes et al., 2012). ECT-related anxiety can lead to avoidance of treatments despite efficacy (Graff et al., 2016).

Obbels et al. (2020a) found that fear of medical procedures and anesthesia, psychotic symptoms at the start of ECT, and more severe depression were linked to ECT-related anxiety. Interventions to decrease ECT-related anxiety can help prevent noncompliance or refusal of ECT, reduce stigma, and increase patient satisfaction. Patients receiving ECT are told to have nothing by mouth after midnight, including most medications, to reduce the risk of aspiration while anesthetized. Patients receiving ECT are instructed not to have anything to eat or drink after midnight and hold the majority of medications before their appointment. Most anti-anxiety medications must be held even longer because they can interfere with the seizure threshold (Graff et al., 2016). Therefore, anti-anxiety medications are not a feasible option for preventing ECT-related anxiety. In this case, non-pharmacological interventions are the most appropriate. Non-pharmacological interventions that have been used to reduce ECT-related anxiety include music, aromatherapy, the presence of a support person before the procedure, movies, relaxation techniques, media or face-to-face education on ECT, and animal-assisted therapy (Moghadam et al., 2012). Music was chosen as the intervention because it is straightforward, does not take much time, and has fewer barriers to participation, such as allergies or COVID-19 restrictions.

Music has been used to promote relaxation worldwide for decades (de Witte et al., 2022). Listening to music can decrease stress by decreasing cortisol levels, heart rate, and mean arterial pressure. Music influences the activity in the amygdala and mesolimbic reward brain system, which affects motivational and emotional processes. Music can reduce negative emotions and increase positive emotions. Finally, music can provide a distraction from anxiety-provoking

situations. Therefore, it may be assumed that implementing music would decrease ECT-related anxiety and increase patient satisfaction and compliance.

ECT-related anxiety is a significant obstacle resulting in treatment noncompliance and patient dissatisfaction. It may be assumed that patients undergoing medical procedures experience some anxiety. However, in a study, Chakrabarti et al. (2010) found that nearly half of ECT patients experience anxiety before ECT treatments which were more than the authors expected. Reduction in ECT-related anxiety may help increase or maintain the number of treated patients and increase patient satisfaction. In turn, more patients with mood disorders will utilize this highly effective procedure and experience a remission in mental health symptoms.

Research has supported using music as an intervention to decrease ECT-related anxiety. For example, Varghese et al. (2019) found that music therapy significantly reduced depression, anxiety, and improved cognitive functioning among ECT patients. Graff et al. (2016) stated that 96% of patients preferred listening to music during ECT, and only 4% did not. Overall, successful implementation of music in ECT would help reduce ECT-related anxiety, which is often overlooked.

Refer to Appendix A for a fishbone diagram showing contributing factors to ECT-related anxiety. Contributing environmental factors include long waiting times and limited visitor status due to the COVID-19 pandemic. Long waiting times allow anxiety levels to build, and limited visitors take away a big piece of patient support. People, such as patients and staff, are also contributing factors. Patients may fear medical procedures generally, and staff can lack knowledge of ECT-related anxiety or rank it as a low priority. Another contributing factor is equipment. The ECT department does not have available items to help patients cope with anxiety

or provide a distraction. Finally, methods or processes contribute to ECT-related anxiety. The ECT department has no current protocols for managing ECT-related anxiety.

PICO Question

In adult patients experiencing anxiety previous to electroconvulsive therapy, does the implementation of music compared to no music reduce the severity or frequency of anxiety?

Literature Review, Matrix (table) Development, and Literature Synthesis

A literature review was conducted to support the desired quality improvement initiative. Online databases used to search for research studies included Google Scholar, PubMed, and PsycINFO. The search strategy included combinations of the following terms: "Electroconvulsive Therapy" or "ECT," "Music," and "Anxiety" or "Fear." The search was restricted to English, peer-reviewed journals published no earlier than 2010. The online search yielded up to 458 results. After reviewing titles and abstracts, studies were selected based on relevance to the proposed project. Ten journals were chosen for the literature review.

A literature review matrix is a quick way to compare and contrast evidence. It can be used to critique literature (Reavy, 2016). Appendix B provides a literature matrix containing essential aspects of the quality of the chosen literature.

The literature includes systematic reviews, randomized control trials, and cohort studies. The evidence-based medicine pyramid model consists of seven levels of evidence. The pyramid base is the lowest level of evidence and consists of background information and expert opinions. The second level of evidence is case-controlled studies. The third level of evidence is cohort studies. The fourth level of evidence is randomized control trials. The fifth level of evidence includes critically-appraised individual articles. The sixth level of evidence is critically-appraised

topics. Systematic reviews are the seventh level at the top of the pyramid as the highest level of evidence (Reavy, 2016).

The literature synthesis uses various ideas to make meaningful connections and shows the need for a change in practice. Five journal articles focus on ECT patients, with the majority being adults treated for either depression, psychosis, or bipolar disorder. Four studies discuss the implications of anxiety in ECT, four discuss the impact of anxiety in surgical settings, and one discusses the implications of anxiety in a psychiatry setting. Seven of the studies utilize music to decrease anxiety, and two of those for ECT-related anxiety. The findings of these studies are consistent with one another in that music reduces anxiety. The overall quality of evidence is strong due to multiple studies of good methodological quality.

Although the literature supports the use of music therapy to decrease anxiety, only two studies were found that used music to reduce ECT-related anxiety. Literature on ECT, in general, is limited compared to many other specialties. To find literature on ECT-related anxiety, one must be looking for it. Since treatment remedies for ECT-related anxiety have not been thoroughly researched, best practice for treating ECT-related anxiety remains uncertain, with no universal practice in place.

Varghese et al. (2019) and Graff et al. (2016) both created cohort studies to examine the effects of music on ECT-related anxiety. Graff et al. (2016) found that most patients preferred to listen to music during their appointments. Varghese et al. (2019) found that music significantly reduced ECT-related anxiety.

Organizational Project Information

The setting for this project is an ECT department in an urban hospital in Minneapolis, Minnesota. Internal stakeholders for this project include patients, psychiatrists, nurses, a project

mentor, a project chair, anesthesiologists, and organizational leadership. Psychiatrists, nurses, anesthesiologists, and organizational leadership are all directly involved in caring for ECT patients. The project mentor and project chair are involved in project implementation. External stakeholders include the families and friends of patients, other hospitals, and the government. Families and friends of patients provide support. If the project succeeds, other hospitals can begin to adopt music as standard practice to manage ECT-related anxiety. The government is a significant stakeholder in decisions surrounding healthcare policies. This project will include ECT outpatients receiving ECT treatments for mental health conditions such as major depressive disorder, bipolar disorder, and psychosis. Patients will be 18 years or older and fully oriented. Patients will be excluded if they are inpatients, under 18 years old, or not fully oriented.

The Gap Analysis

Despite modifications that have occurred over the years, ECT is underutilized (Tsai & Lindsey, 2021). Over the past two decades, ECT use has declined in the U.S. partly due to regulations and fewer hospitals offering ECT. Another reason for the underutilization of ECT is believed to be caused by misconceptions and stigma, or public disapproval, surrounding ECT. The stigma of ECT stems from negative representation in the media, primitive practices of the past, and fear of electricity. The stigma associated with ECT often increases patient anxiety.

Obbels et al. (2020) found three studies that examined ECT-related anxiety during treatments. In those studies, the prevalence of ECT-related anxiety was verbalized between 25-75% of patients. None of the studies attempted to quantify ECT-related anxiety. Obbels et al. (2020) performed a prospective study describing their findings on the severity of ECT-related anxiety, when it begins, and how it affects the patients. They found that ECT-related anxiety and the severity of depression are connected.

Moreover, they discovered that decreased anxiety decreased depression and vice versa. Currently, the chosen organization does not have a process to measure or address ECT-related anxiety among ECT patients. Overall, it is expected that a decrease in the prevalence and severity of ECT-related anxiety will result in better patient and organizational outcomes.

Needs Assessment

The urban hospital in Minneapolis, Minnesota, serves more than 200,000 people annually. The hospital is part of a larger organization. The organization is the largest mental health and addiction care provider in Minnesota. Mental health and wellness were the priority in the organization's various community need assessments, including the community needs assessment performed by the chosen hospital (Allina Health, 2016). The hospital is located in and serves Hennepin county. Hennepin County is the most populated area in Minnesota. In Hennepin County, the median age is 36, 29% are people of color, 13% are foreign-born, 7% of those speak limited English, and 13% are below the poverty line (Allina Health, 2014).

The organization's mission is to serve communities by providing exceptional care to prevent illness, restore health, and give comfort to all who entrust them with their care. Their vision is to put the patient first, make a difference in people's lives, create a healing environment, and lead collaborative efforts that solve the community's health care challenges. Finally, their values are integrity, respect, trust, compassion, and stewardship.

The underutilization of ECT, lack of literature on ECT-related anxiety, and lack of an organizational process to treat ECT-related anxiety create a gap between best practices and the organization's current state. Implementation of music during ECT appointments can assist in closing these gaps. Interventions such as medications and aromatherapy are recurring expenses. In contrast, music can be implemented at low-to-no cost by utilizing equipment the organization

already has to play music or by making an, ideally, one-time purchase for headphones. Finally, little time is needed to provide this intervention. Some patients and staff may require assistance with technology, which could be time-consuming. The staff should work as a team to help maintain efficiency.

Strengths, Weaknesses, Opportunities, and Threats Analysis

A SWOT analysis assesses an organization's strengths, weaknesses, opportunities, and threats. A SWOT analysis was performed concerning the proposed project, as shown in Appendix D. The first identified strength of the ECT department is the high amount of revenue it brings to mental health services. Moreover, the ECT department has a small, strong, and close-knit team that excels in communication and teamwork, which helps build patient rapport. The team comprises six nurses, one charge nurse, a psychiatrist, a rotating anesthesiologist, and a patient care technician. The team can quickly adapt to changes, as shown by previous challenges such as the COVID-19 pandemic. A final strength of this project is that music can be a low to no-cost intervention to reduce anxiety.

An identified weakness of the proposed project is that the inpatient and outpatient processes differ, which would prevent the project from being implemented in the same way between both populations. Therefore, because the outpatient census is typically higher, the project will be performed with outpatients and exclude inpatients. However, inpatients still experience ECT-related anxiety. Another disadvantage is that multiple patients share the same room during the initial waiting period and recovery, making individual listening devices necessary. The patient census varies, so the sample size could be insufficient if the census is low at implementation. Finally, staff and patients have different levels of technological knowledge, so although some may require little to no training, others may require more training.

If this project is successful, it will allow further implementation of music in the inpatient setting or at other hospitals that provide ECT within or outside the organization. Moreover, it could be applied and used in other areas of healthcare since the goal is to reduce anxiety which can be found anywhere. Reducing ECT-related anxiety would provide an enhanced patient experience, increasing or sustaining the ECT patient census by preventing cancellations.

Finally, identified threats for the project include patients lost to follow-ups. For example, if patients do not show up to an appointment and do not return the ECT department's phone calls. This occasionally occurs within the ECT department for various reasons, such as increased mental health symptoms and unexpected life events. Moreover, the time for implementation is limited to the defined study period of the researcher. Finally, taking the time to offer music to patients could rank as a low priority for staff on busy days.

Guiding/Theoretical Framework and Change Theory

Katharine Kolcaba's Theory of Comfort can provide a theoretical framework to guide this project. Kolcaba's Theory of Comfort is a middle-range nursing theory developed in the 1990s (Petiprin, n.d.-a). According to this theory, comfort should be an immediate desirable outcome in healthcare (Petiprin, n.d.-b).

Kolcaba claimed comfort has three forms. The three forms of comfort include relief, ease, and transcendence. Relief is attained when the specific comfort needs of the patient are met. Ease is completed when the patient is in a state of contentment. Finally, transcendence is when patients can rise above challenges (Petiprin, n.d.-b).

Moreover, Kolcaba identified four contexts where patient comfort can occur. The contexts include physical, psycho-spiritual, environmental, and sociocultural. The physical context refers to bodily functions and sensations. The psycho-spiritual context pertains to self-

concept, self-esteem, life meaning, relationship to a higher power, and sexuality. The sociocultural concept relates to social relationships. The environmental context refers to the external world (Vo, 2020).

This project will specifically focus on the psycho-spiritual context of comfort. Vo (2020) stated that minimizing external stimuli can assist with psycho-spiritual relief, and playing music can enhance psycho-spiritual ease and transcendence. Kolcaba's verbal rating scale assesses patient comfort levels. The verbal rating scale goes from 0-10, with 0 being no comfort and 10 being the highest comfort possible. A rating of 5 or above indicates contentment (Parks et al., 2017). Kolcaba's Theory of Comfort will guide the quality improvement initiative of providing music to promote comfort and decrease anxiety during ECT appointments.

Change is the result of altering or replacing current practice. Nurse practitioners are expected to analyze, incorporate, and support change. Implementing music to decrease ECT-related anxiety is the proposed practice change for this project. This project follows Roger's Five Stage Change Theory. The first stage is to discover the reason for the change, how it will occur, and who will be involved. The second stage is to sway staff members to accept change by passing on essential information and noting that favorable or unfavorable attitudes will be formed. The third stage is to decide to adopt the change by analyzing data and implementing a trial of the new processes triggered by the change. The fourth stage is implementing the change regularly as the organization learns to accommodate the change. The fifth and final stage is to confirm the adoption of the change by the staff members.

Aims/Goals/Objectives Clarified

The primary goal of this project is to decrease ECT-related anxiety, with a secondary goal to increase utilization of ECT. These goals will be achieved by using music via headphones

to reduce anxiety before ECT treatments. Patients will choose their personal music preferences. Observed or reported anxiety symptoms will be documented in the EHR's pre-op ECT flowsheet. SMART objectives will be utilized to measure project success.

Goals and SMART Objectives

RNs in the ECT department will be educated on implementing the project in May 2022. The principal investigator will educate RNs on the purpose and processes of the project. This aligns with the organization's value of trust by acting in the best interest of one another. The first SMART objective is that 100% of ECT RNs in an urban hospital in Minneapolis, MN, will be able to describe the purpose and process of the project in May of 2022 before implementation.

The ECT department staff in the study setting will assess patient anxiety from June to July 2022. Staff will document observed or reported anxiety on the pre-op ECT flowsheet in the EHR every treatment. This is a part of the RN's everyday routine documentation. ECT RNs are trained to assess for objective anxiety symptoms, such as increased heart rate, trembling, and sweating. A goal is that the presence or absence of anxiety will be documented in 90% of the patients. One of the hospital's values is stewardship, which is using resources wisely. Therefore, the existing EHR will be utilized. A SMART objective for this goal is that anxiety documentation should be completed between June and July of 2022, before the first ECT treatment and subsequently, every ECT treatment after, for at least 90% of ECT outpatients at the hospital who utilize music during treatments.

RNs will explain the purpose and process of the music intervention and invite them to participate. The goal is for 90% of ECT patients to participate by electing to listen to music during their appointment. The PCT will track the number of patients who agree to participate in the ECT appointment book. This goal aligns with the organization's vision of putting the patient

first. A SMART objective is that 90% of ECT patients at an urban hospital in Minneapolis, MN, will participate in the project by electing to listen to music during their ECT appointment in June and July of 2022.

The ECT department staff will provide music to outpatients to decrease the severity and frequency of ECT-related anxiety in June and July 2022. This project aims to achieve a 70% reduction in the severity of anxiety. This is a realistic goal that accommodates the unexpected, such as cancellations. Anxiety will be measured by comparing EHR flowsheet data on the presence of observed or reported anxiety. Patients will be offered headphones or encouraged to bring their own while waiting for their treatment. The hospital's mission is to serve the community by providing exceptional care, preventing illness, restoring health, and providing comfort to all. Decreasing anxiety for the patient population receiving ECT helps achieve this mission. In addition, the organization's head psychiatrist in neuromodulation, the chosen hospital's ECT psychiatrist, and nurses have indicated support for this project. The proposed project initiation date is in June 2022, leaving time for data collection at the end of implementation. Therefore, the first SMART objective is to decrease the severity and frequency of anxiety among at least 70% of ECT outpatients in an urban hospital in Minneapolis, MN, by July 2022. The proposed program will be evaluated to determine if the rate of improvement met the 70% goal.

The principal investigator will seek staff input on the project outcome. Staff input should be assessed among all of the ECT RNs after implementation. RNs will be asked a series of five questions. This aligns with the organization's mission to lead collaborative efforts to solve the community's health care challenges. The final SMART objective is to assess staff input on

project outcomes among 100% of ECT RNs in an urban hospital in Minneapolis, MN, by August 2022.

Gantt Chart

This project will be conducted over three graduate school semesters: fall, spring, and summer. The timeline will align with the course schedules from Clinical Project I, Clinical Project II, and Clinical Project III. The project charter/action plan and literature review will begin during Clinical Project I. The problem statement and PICO question, theoretical framework, organizational needs assessment, SWOT analysis, gap analysis, and SMART objectives will be completed in this first phase.

Clinical Project II consists of finishing the project charter/action plan and literature review. The GANNT chart, WBS, communication matrix, logic model, methodology, budget, and project proposal will be completed during this second phase. The IRB process and application will be done before implementation.

Finally, implementation began in Clinical Project III. After implementation is completed, data will be collected and analyzed. By the end of the semester, a DNP poster, abstract, three-minute TED talk, final paper review and submission, and dissemination will be completed. The project timeline can be visualized in Appendix E.

Work Breakdown

The work breakdown structure contains five stages. The first phase is the design phase. During the design phase, the project scope is developed, a gap analysis and needs assessment are performed, objectives are created, key stakeholders are identified, and a project charter/action plan is submitted.

The second phase is the planning phase. During the planning phase, team members are identified, roles are discussed and defined, a project plan is developed, a GANTT chart is created, and the WBS is developed. During this phase, tools and instruments, data collection process, plans for data analysis, resources, budget, and timeline are discussed.

The third phase is the intervention phase. The intervention phase is implementing the proposed plan. Stakeholders should be educated on the part they play in implementation. Implementation for this project consists of IRB review and approval, RN education, offering and encouraging patient headphone use, and documenting patient anxiety.

The fourth phase is the results phase. During the result phase, findings are analyzed and summarized. The quality improvement initiative will be deemed effective or ineffective. For this project, the results will include the number of patients that participated, a comparison of anxiety flowsheet data before and after implementation, a comparison of cancellation rates before and after implementation, and staff perceptions of the project.

The final phase is the evaluation phase. In the evaluation phase, you discuss what you learned, write the final report, and discuss dissemination. The organization can carry on the quality improvement initiative if they find fit. All five phases are summarized in Appendix F.

Communication Matrix

Most communication between team members will occur virtually due to the ongoing COVID-19 pandemic in the U.S. However, communication between the student and stakeholders may be done in person while on-site in the ECT department. Appendix G outlines a communication plan between team members.

Logic Model

Inputs for this project include adequate staffing and time to conduct activities, support from stakeholders, and necessary equipment being provided and/or funded. Activities include training staff on the necessary documentation and follow-up and providing headphones to patients. Outputs include appropriately trained staff to implement the intervention, patients who feel involved in their own care, fewer symptoms of anxiety, and increased patient comfort. Short-term outcomes include enhanced knowledge about ECT-related anxiety, increased ability to cope with ECT-related anxiety, and improved attitudes surrounding ECT. An intermediate-term outcome is decreased ECT-related anxiety among patients. Finally, long-term outcomes include an increase in ECT patient compliance and an increase in ECT patient census. The logic model can be visualized in Appendix H.

Budget

Funding for this project will be provided by the day-to-day operations budget for the department. The direct costs of this project are the cost of headphones and labor costs. Headphones were purchased for the department before project implementation. However, the cost of headphones was $24.99 per pair. The average RN salary in Minnesota is about $40 an hour (Indeed, 2022b). Minnesota's average Patient Care Technician (PCT) salary is about $20 an hour (Indeed, 2022a). Six RNs and one PCT are scheduled for each shift, and a typical work day starts at 6:00 A.M. and ends at 2:30 P.M.. Indirect costs of this project include department technology and utilities.

Methodology and Analysis

This project aims to reduce ECT-related anxiety by implementing music. Measures for this project include outcome, process, and balancing measures. Appendix I shows an overview of these measures.

The first outcome measure for this project is the percentage of ECT patients that agree to participate. The operational definition of this measure is the number of ECT outpatients observed that agree to participate over the total number of ECT outpatients. The data collection plan for this outcome measure is that the PCT will record which patients agree to participate in the ECT appointment book. Data will be collected from the appointment book afterward.

The second outcome measure is the percentage of canceled ECT appointments. The operational definition of this measure is the number of canceled ECT appointments over the number of scheduled ECT appointments. The data collection plan for this outcome is that appointments will be canceled in the EHR by the PCT or charge nurse, and data will be collected after implementation via the ECT appointment book.

The final outcome measure is the percentage of outpatients with a reduction in the severity or frequency of anxiety. The operational definition of this measure is the number of patients with a reduction in the severity or frequency of anxiety over the total number of ECT outpatients. The data collection plan is for the RNs to chart patient anxiety frequency and severity on the ECT admission flowsheet. Data will be collected with a report of flowsheet data from quality improvement.

The first process measure is the percentage of ECT RNs able to describe the purpose and process of the project. The operational definition for this measure is the number of ECT RNs able to describe the purpose and the project over the total number of ECT RNs. The data

collection plan is that RNs will undergo education on the project purpose and processes and verbalize it afterward. RNs will be allowed to ask questions and express concerns.

The second process measure is the percentage of patients with anxiety documentation completed by an RN. The operational definition for this measure is the number of ECT outpatients with complete documentation on anxiety over the total number of ECT outpatients. The data collection plan is that quality improvement will provide a report with flowsheet data that will be analyzed for missing documentation.

Finally, the balancing measure is the amount of time spent by RNs on intervention. The operational definition for this measure is staff feedback following implementation. The data collection plan is that RNs will be asked a series of questions after implementation to assess if they felt like the project was a success and if they would suggest any changes for the future.

Intervention Plans

Before implementing the music intervention in the ECT department, an application will be completed and submitted to the Institutional Review Board (IRB) at the academic institution and chosen organization. Before approval, the project lead, project mentor, and project chair will review the project goals and objectives, the work plan, and the evaluation plan. The project approval form can be visualized in Appendix J, and a letter of support in Appendix K. The formal “go-live” date will be in June of 2022.

IRB/Ethical Considerations

An IRB is a committee within an organization that receives federal funds to conduct research that reviews research proposals (American Psychological Association, 2017). The IRB reviews proposals to determine if they follow ethical principles and federal regulations to protect human subjects. Projects are approved if the benefits justify the risks for the human subjects. The

IRB will review this project at the academic institution and the IRB at the chosen organization. Appendix L and M show IRB approval.

This project will include all ECT nurses at an urban hospital in Minneapolis, Minnesota. Participants must work as an RN in the ECT department. Vulnerable populations are not included.

The most pertinent benefit of this project is that patients will experience decreased anxiety about ECT. It will improve patient satisfaction and organizational outcomes. It will also benefit human and scientific knowledge by helping to bring awareness to ECT-related anxiety and encouraging treatment. It will not directly benefit the nurses participating.

A potential risk of this project is creating a breach of confidentiality. All data with patient identifiers will be stored in a locked cabinet in the ECT department, on a password-protected computer, and/or within the EHR at the hospital. Quality improvement will provide flowsheet data on anxiety with MRNs. MRNs will be placed into a codebook, and patients will be coded as patient 1, patient 2, and so on. The codebook will be destroyed after data analysis. Another risk of this project is adding additional work and stress for ECT staff which will be minimized by utilizing resources that are already available and the least time-consuming. Staff perceptions of the project will be assessed with questions after implementation.

The American Nurses Association nursing code of ethics includes four principles: autonomy, beneficence, justice, and non-maleficence (Gaines, 2021). Autonomy is recognizing the patient's right to decision-making. Patients will have a choice whether to participate in this project or not. Beneficence is acting for the welfare of patients. The purpose of this project is to decrease patient anxiety, which would increase the welfare of patients. Justice is fairness in patient care. All ECT outpatients will have the option to participate in this project regardless of

race, religion, gender, sexual orientation, and financial status. Finally, non-maleficence is to do no harm. This project's benefits outweigh the risks for participants. Moreover, action will be taken as explained above to minimize the risks of this project.

Financial conflicts of interest were not identified for this project. However, a potential personal conflict of interest is that the project lead works in the ECT department. The relationships between ECT staff and the project lead could cause bias in the results. ECT staff will be encouraged to be as accurate and honest as possible in their documentation and will ensure that the project outcome will not affect the project leader's success in the DNP program.

Implementation

ECT RNs were instructed on the project's purpose and how to implement it. RNs introduced music as an option to patients when they arrived at ECT. Patients who elected to listen to music were tracked in the ECT appointment book. The admitting RN assessed and documented the patient's anxiety per routine in the ECT admission flowsheet in the EHR. Upon admission, the admitting RN routinely assesses and documents the presence, absence, and severity of patient anxiety in the patient's ECT admission flowsheet Selections on the flowsheet for anxiety symptoms include:

- No problems reported or observed
- Anxious/complains of anxiety
- Chest pain or discomfort
- Palpitations, pounding or accelerated heart rate
- Sweating, trembling, or shaking
- Sensations of shortness of breath or smothering
- Feelings of choking

- Nausea or abdominal distress
- Feeling dizzy, unsteady, lightheaded, or faint
- Derealization (feelings of unreality)
- Depersonalization (feelings of being detached from oneself)
- Fear of losing control or going crazy
- Fear of dying
- Paresthesias (numbness or tingling)
- Chills or hot flashes
- See comment = other

The selected symptoms of anxiety will be quantified as one point each. If no problems are reported or observed, it will be quantified as zero.

The ECT department has six nurses: three assigned to work pre-op, one intra-op, and two post-op. Patients are first called from the lobby to complete the admission process and then return to the lobby until they are called for treatment. Patients can wait in the lobby before their ECT treatment for anywhere from 15 minutes to over an hour, depending on the daily flow. During this pre-op phase, patients used department or personal headphones while waiting for treatment. Once the patient is called for treatment, they return the borrowed headphones to the front desk. Over-ear headphones were purchased with the ECT department budget before project implementation. Headphones were cleaned with Oxivir wipes between patients and stored in a cabinet when not in use.

A report with anxiety charting and patient MRNs was provided by the quality improvement department electronically. Patient anxiety scores were calculated, MRNs deleted, and scores were transferred to the coded patient anxiety spreadsheet. Scores were compared

before implementation and subsequently every treatment. The ECT appointment book measured the number of patients participating and the number of canceled appointments. Staff perceptions of the project were verbally assessed with a series of questions after implementation:

- On a scale of 1-5, with 5 being the highest score, how burdensome for you was the addition of music to the patient pre-op phase?
- On a scale of 1-5, with 5 being the highest score, how would you rate the impact of this music option in reducing the patient's anxiety?
- On a scale of 1-5, with 5 being the highest score, how would you rate your comfort in providing a music option to the patient receiving ECT?
- Do you have any suggestions for how to improve the process of providing music to the patient receiving ECT?
- Is there anything you would suggest to improve the ECT patient's experience?

Results from Data Collection

Two-Tailed Paired Samples *t*-Test

Introduction

A two-tailed paired samples *t*-test was conducted to examine whether the mean difference of pre- and post- anxiety scores was significantly different from zero.

Assumptions

Normality. A Shapiro-Wilk test was conducted to determine whether the differences in pre- and post- anxiety scores could have been produced by a normal distribution (Razali & Wah, 2011). The results of the Shapiro-Wilk test were significant based on an alpha value of .05, $W = 0.59$, $p < .001$. This result suggests the differences in pre- and post- anxiety scores are unlikely to have been produced by a normal distribution, indicating the normality assumption is violated.

Homogeneity of Variance. Levene's test was conducted to assess whether the variances of pre- and post- anxiety scores were significantly different. The result of Levene's test was not significant based on an alpha value of .05, $F(1, 50) = 0.11$, $p = .740$. This result suggests it is possible that pre- and post- anxiety scores were produced by distributions with equal variances, indicating the assumption of homogeneity of variance was met.

Results

The two-tailed paired samples *t*-test was insignificant based on an alpha value of .05, $t(25) = 1.36$, $p = .185$, indicating the null hypothesis cannot be rejected. This finding suggests the difference in the mean of pre-anxiety scores and the mean of post-anxiety scores were not significantly different from zero. The results are presented in Table 1. A bar plot of the means is presented in Figure 1.

Table 1

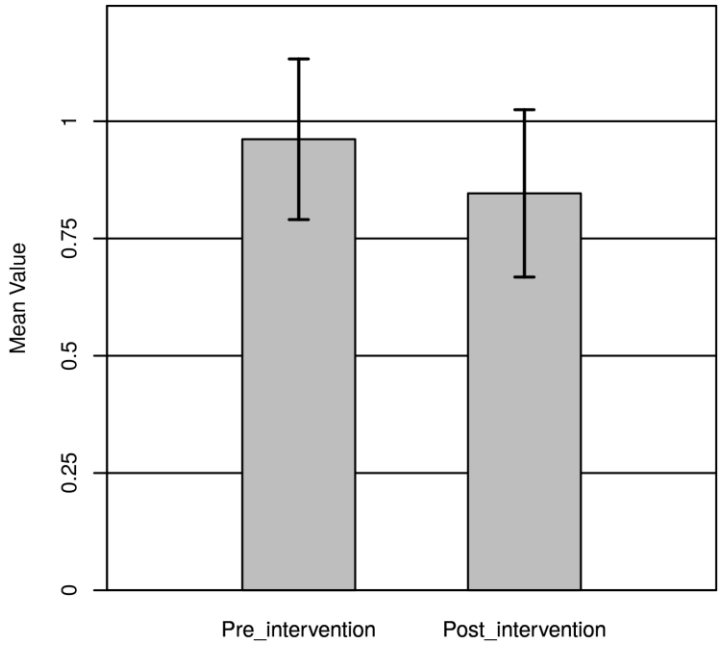
Two-Tailed Paired Samples t-Test for the Difference Between Pre and Post-Anxiety Scores

Pre-intervention		Post-intervention				
M	*SD*	*M*	*SD*	*t*	*p*	*d*
0.96	0.45	0.85	0.46	1.36	.185	0.27

Note. N = 26. Degrees of Freedom for the *t*-statistic = 25. *d* represents Cohen's *d*.

Figure 1

The Means of Pre and Post-Anxiety Scores with 95.00% CI Error Bars



Two-Tailed Wilcoxon Signed Rank Test

Introduction

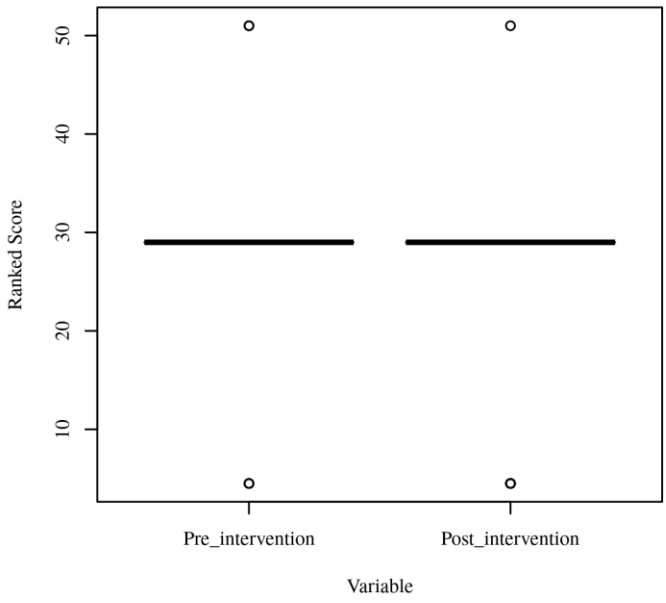
A two-tailed Wilcoxon signed rank test was conducted to examine whether there was a significant difference between pre and post-anxiety scores. The two-tailed Wilcoxon signed rank test is a non-parametric alternative to the paired samples *t*-test and does not share its distributional assumptions (Conover & Iman, 1981).

Results

The results of the two-tailed Wilcoxon signed rank test were not significant based on an alpha value of .05, $V = 12.00$, $z = -1.34$, $p = .180$. This indicates that the differences between pre-anxiety scores ($Mdn = 1.00$) and post- anxiety scores ($Mdn = 1.00$) are explainable by random variation. Figure 2 presents a boxplot of the ranked values of pre- and post- anxiety scores.

Figure 2

Ranked Values of Pre and Post-Anxiety Scores



Discussion of Data/Outcomes Interpretation

The intended impact of this project was to have an overall reduction in ECT-related anxiety, increased treatment compliance and census, increased patient satisfaction, better organizational outcomes, increased coping ability, fewer canceled appointments, and increased knowledge and awareness about ECT and ECT-related anxiety.

Upon data analysis, 26 patients were included, of which four reported an anxiety reduction, one reported increased anxiety, and 21 reported no change in anxiety presence or absence. The first anxiety score was compared to the highest anxiety score following implementation. More than 90% of patients reported anxiety at some point in the 4-weeks before or during implementation. The number of canceled appointments remained similar in the 4-weeks before and after implementation, with 14 cancellations before and 15 cancellations after. Reasons for cancellations were not tracked. A total of 36 patients were treated, but ten patients

did not have more than one treatment within the project's timeframe, making comparing scores impossible.

Only two ECT staff members responded to the staff perception questions, one psychiatrist and one RN. On a scale of 1-5, with 5 being the highest score, the psychiatrist rated the burden of the project at a 1, the impact at a 4, and their comfort level of providing music to patients at a 5. They did not have any suggestions for improvement. The RN rated the burden of the project at a 2, the impact at a 3, and their comfort level of providing music to patients at a 3. The RN suggested providing ECT patients with a device to select their music rather than listen to the radio. They also stated that reduced waiting times might improve the patient experience.

Unfortunately, the results did not end up being what the author anticipated. Reasons for this may include that the author could not be on-site to help with implementation and troubleshooting or possible barriers, along with using a vague tool to screen for anxiety within a population where chronic anxiety is already prevalent. More research is required to determine if music is a helpful intervention to reduce ECT-related anxiety. Future scholars may consider implementing a more specific anxiety screening within this population to determine this. The headphones will continue to be available for patients if they desire. The ECT department could also consider generating a list of preferred music genres that can be recommended if they decide to continue offering music to patients.

Dissemination

Findings were disseminated to the academic community in various ways, including a final manuscript, a scholarly poster with an abstract, and a presentation for the departmental DNP research project symposium. Dissemination at the organization consisted of a presentation

held via Zoom where stakeholders, including nurses, psychiatrists, organizational leadership, and the project mentor, were invited to attend.

Abstract

Reducing Patient Anxiety with Use of Music During Electroconvulsive Therapy

Andrea Stankiewicz

Background: Electroconvulsive therapy (ECT)-related anxiety is a common but distressing psychological complication of ECT. Decreased levels of ECT-related anxiety have resulted in decreased depressive symptoms. Despite this, ECT-related anxiety often goes untreated. Music is a non-invasive and relatively simple intervention that has been shown to decrease stress physiologically and psychologically in various situations, including before ECT.
Objectives: This quality improvement project aimed to implement a music intervention to decrease the severity of ECT-related anxiety among ECT outpatients in an urban hospital in Minnesota.
Methods: ECT nurses were educated on the purpose and process of the project. Nurses offered and encouraged patients to use headphones to listen to music in the lobby before ECT treatments. The patients who opted to listen to music were tracked in the ECT appointment book. The nurses routinely assessed and documented the presence, absence, or severity of anxiety in the EHR prior to ECT treatments. This documentation was coded and scored. Anxiety scores were compared before and after implementing the intervention to determine if headphone use impacted levels of ECT-related anxiety.
Results: Overall, 36 patients were treated, but only 26 were included since ten patients did not have more than one treatment. There were 14 cancellations before the intervention and 15 after. A report with anxiety charting was provided by the quality improvement department electronically. Patient anxiety scores were calculated and compared before implementation and subsequently every treatment. The first anxiety score was compared to the highest anxiety score after implementation. The two-tailed paired samples *t*-test was insignificant based on an alpha value of .05, $t(25) = 1.36$, $p = .185$, indicating the null hypothesis cannot be rejected. Staff perceptions of the project were assessed with questions after implementation.
Conclusion: The author believes that the results could have been affected by the non-specific nature of the anxiety screening within the EHR and the lack of presence on-site. However, over 90% of patients reported anxiety at some point during this project, showing the prevalence within this population. Therefore, this project may show that a more in-depth anxiety screening is warranted to better understand and treat anxiety within this population.

Keywords: electroconvulsive therapy, ECT, anxiety, mental health, music, quality improvement

Conclusion

In conclusion, ECT is a highly effective treatment for treatment-resistant mood disorders. However, misconceptions, stigma, lack of knowledge, and the stress of undergoing a medical

procedure can increase anxiety. Music is a simple yet efficient intervention for anxiety. Although the findings of this project were not significant, most patients reported anxiety at some point during this project, showing anxiety is prevalent within this population. Therefore, this project may show that a more in-depth anxiety screening is warranted to better understand and treat anxiety within this population

References

Agius, M. (2021). Anxiolytic effects of intraoperative music therapy in adults undergoing local anaesthetic interventions. *Psychiatria Danubina, 33*(Suppl 11), 100–115.

Allina Health. (2016). *Community health needs assessment and implementation plan 2017-2019.* https://www.allinahealth.org/-/media/allina-health/files/about-us/community-involvement/need-assessments/anw-community-health-needs-plan.pdf

Allina Health. (2014). *Our mission.* https://www.allinahealth.org/-/media/allina-health/files/allina-health-mission-vision-values-promise.pdf

American Nurses Association. (2021). *Current theories of change management.* https://www.nursingworld.org/~49379b/globalassets/catalog/sample-chapters/npdsamplechapter.pdf

American Psychological Association. (2017, September). *Frequently asked questions about Institutional Review Boards.* https://www.apa.org/advocacy/research/defending-research/review-boards

Bae, I., Lim, H. M., Hur, M.-H., & Lee, M. (2014). Intra-operative music listening for anxiety, the BIS index, and the vital signs of patients undergoing regional anesthesia. *Complementary Therapies in Medicine, 22*(2), 251–257. https://doi.org/10.1016/j.ctim.2014.02.002

Chakrabarti, S., Grover, S., & Rajagopal, R. (2010). Electroconvulsive therapy: A review of knowledge, experience and attitudes of patients concerning the treatment. *The World Journal of Biological Psychiatry : The Official Journal of the World Federation of Societies of Biological Psychiatry, 11*(3), 525–537. https://doi.org/10.3109/15622970903559925

Conover, W. J., & Iman, R. L. (1981). Rank transformations as a bridge between parametric and non-parametric statistics. The American Statistician, 35(3), 124-129. https://doi.org/10.1080/00031305.1981.10479327

de Witte, M., da Silva Pinho, A., Stams, G. J., Moonen, X., Bos, A.E.R., & van Hooren, S. (2022). Music therapy for stress reduction: A systematic review and meta-analysis. *Health psychology review*, *16*(1), 134–159. https://doi.org/10.1080/17437199.2020.1846580

Gaines, K. (2021). *What is the nursing code of ethics?* Nurse.org https://nurse.org/education/nursing-code-of-ethics/

Gutiérrez, E. O. F., & Camarena, V. A. T. (2015). Music therapy in generalized anxiety disorder. *The Arts in Psychotherapy*, *44*, 19–24. https://doi.org/10.1016/j.aip.2015.02.003

Graff, V., Wingfield P., Adams, D., & Rabinowitz, T. (2016). An investigation of patient preferences for music played before electroconvulsive therapy. *Journal of ECT*, *32*(3), 192-196. https://doi.org/10.1097/YCT.0000000000000315

Indeed. (2022a). *Patient care technician salary in Minnesota.* https://www.indeed.com/career/patient-care-technician/salaries/MN

Indeed. (2022b). *Registered nurse salary in Minneapolis, MN.* https://www.indeed.com/career/registered-nurse/salaries/Minneapolis--MN

Intellectus Statistics [Online computer software]. (2022). Intellectus Statistics. https://analyze.intellectusstatistics.com/

Johnson, B., Raymond, S., & Goss, J. (2012). Perioperative music or headsets to decrease anxiety. *Journal of Perianesthesia Nursing: Official Journal of the American Society of PeriAnesthesia Nurses*, *27*(3), 146–154. https://doi.org/10.1016/j.jopan.2012.03.001

Leiknes, K. A., Jarosh-von Schweder, L., & Høie, B. (2012). Contemporary use and practice of electroconvulsive therapy worldwide. *Brain and Behavior*, *2*(3), 283–344. https://doi.org/10.1002/brb3.37

McDonald, W. (2019, July). *What is electroconvulsive therapy (ECT)?* American Psychiatric Association. https://www.psychiatry.org/patients-families/ect

Moghadam, Z. E., Delmoradi, F., Aemmi, S. Z., Vaghee, S., & Vashani, H. B. (2021). Effectiveness of aromatherapy with inhaled lavender essential oil and breathing exercises on ECT-related anxiety in depressed patients. *Explore*, *1550-8307*(21), 1-5. https://doi.org/10.1016/j.explore.2021.12.006

Obbels, J., Vansteelandt, K., Verwijk, E., Lambrichts, S., Bouckaert, F., & Sienaert, P. (2020a, May 31). Understanding electroconvulsive therapy-related anxiety: A prospective study. *Acta Psychiatrica Scandinavica*, *142*(2), 132–140. https://doi.org/10.1111/acps.13198

Obbels, J., Vanbrabant, K., Verwijk, E., Bouckaert, F., Vansteelandt, K., & Sienaert, P. (2020b, September). Monitoring electroconvulsive therapy-related anxiety: The ECT-Related Anxiety Questionnaire. *The Journal of ECT*, *36*(3), 180–186. https://doi.org/10.1097/YCT.0000000000000661

Parks, M. D., Morris, D. L., Kolcaba, K., & McDonald, P. E. (2017). An evaluation of patient comfort during acute psychiatric hospitalization. *Perspectives in Psychiatric Care*, *53*(1), 29–37. https://doi.org/10.1111/ppc.12134

Petiprin, A. (n.d.-a). *Katharine Kolcaba - Nursing theorist.* Nursing Theory. https://nursing-theory.org/nursing-theorists/Katharine-Kolcaba.php

Petiprin, A. (n.d.-b). *Kolcaba's theory of comfort.* Nursing Theory. https://nursing-theory.org/theories-and-models/kolcaba-theory-of-comfort.php

Razali, N. M., & Wah, Y. B. (2011). Power comparisons of Shapiro-Wilk, Kolmogorov-Smirnov, Lilliefors and Anderson-Darling tests. Journal of Statistical Modeling and Analytics, 2(1), 21-33.

Reavy, K. (2016). *Inquiry and leadership: A resource for the DNP project*. F. A. Davis Company.

Sibanda, A., Carnes, D., Visentin, D., & Cleary, M. (2019). A systematic review of the use of music interventions to improve outcomes for patients undergoing hip or knee surgery. *Journal of Advanced Nursing, 75*(3), 502–516. https://doi.org/10.1111/jan.13860

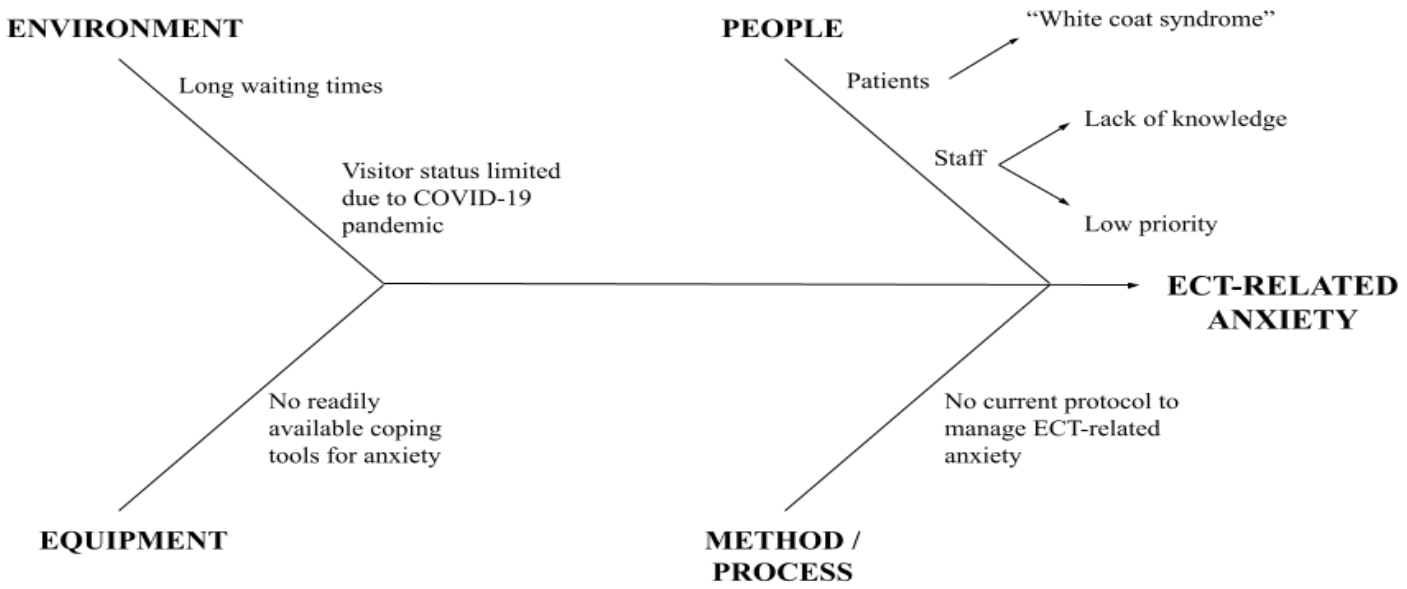
Tsai, J., Huang, M., & Lindsey, H. (2021). Perceptions and knowledge related to electroconvulsive therapy: A systematic review of measures. *Psychological Services, 18*(2), 227–236. https://doi.org/10.1037/ser0000393

Varghese, J. K., Sundar, S., Sarkar, S., & Ezhumalai, G. (2019). Effect of adjuvant music therapy on anxiety, depressive symptoms, and cognitive functions of patients receiving electroconvulsive therapy: A preliminary study. *SBV Journal of Basic, Clinical and Applied Health Science, 2*(4), 142-145. https://doi.org/10.5005/jp-journals-10082-02225

Vo, T. (2020). A practical guide for frontline workers during COVID-19: Kolcaba's comfort theory. *Journal of Patient Experience, 7*(5), 635–639. https://doi.org/10.1177/2374373520968392

Appendix A

ECT-Related Anxiety Fishbone Diagram



Appendix B

Literature Matrix on ECT-Related Anxiety and Music

Citation	Purpose	Research Design	Methodology	Findings	Conclusion	EBM Pyramid Level
Agius, M. (2021). Anxiolytic effects of intraoperative music therapy in adults undergoing local anaesthetic interventions. *Psychiatria Danubina*, *33*(Suppl 11), 100–115.	Establish whether intra-operative music alleviates anxiety in adults undergoing local anesthetic surgical interventions	Systematic review	The Population studied were adults aged 18-80 years old undergoing local anesthetic interventions. The Intervention observed was the exposure of intraoperative music therapy. The Comparison was against patients undergoing surgery without being subject to music therapy. The desired Outcome was the alleviation of intra-operative anxiety. The intention was to develop a systematic review of the available data. 5 studies were selected.	Studies included randomized control trials. Two of these studies demonstrated statistical significance whilst the remaining three failed to do so. The overall result of these studies was inconclusive and inconsistent in attempting to determine whether intra-operative music therapy alleviates anxiety in patients undergoing local anesthetic interventions.	The presentation of a definite conclusion is not possible. However, evidence is promising and pointing towards the likelihood of beneficial outcomes resulting from the intervention of interest. However, further research is required.	7/7
Bae, I., Lim, H. M., Hur, M.-H., & Lee, M. (2014). Intra-operative music listening for anxiety, the BIS index, and the vital signs of patients undergoing regional anesthesia. *Complementary Therapies in Medicine*, *22*(2), 251–257. https://doi.org/10.1016/j.ctim.2014.02.002	Investigate the effects of intraoperative music on anxiety, sedation level, and vital signs of patients getting regional anesthesia	Cohort Study	80 patients scheduled for surgery using regional anesthesia were assigned to either the music therapy group or no-treatment control group. Outcome measures were blood pressure and the BIS index.	Anxiety significantly differed between groups. The BIS index was significantly lower in the experimental group than the control group from 15 min to the end of the surgery. Vital signs marginally differed between groups.	Music therapy during surgery is an effective intervention to relieve anxiety and increase sedation in patients having surgery with regional anesthesia.	3/7
Chakrabarti, S., Grover, S., & Rajagopal, R. (2010). Electroconvulsive therapy: A review of knowledge, experience and attitudes of patients concerning the treatment. *The World Journal of Biological Psychiatry : The Official Journal of the World Federation of Societies of Biological Psychiatry*, *11*(3), 525–537. https://doi.org/10.3109/1562297090	Review evidence on knowledge and views concerning ECT among recipients	Systematic review	Electronic and manual searches were conducted to identify relevant studies. 75 studies were selected to be reviewed.	Patients undergoing ECT were usually poorly informed about it. This was attributable to factors such as unsatisfactory pre-treatment explanations or post-ECT memory impairment. About 1/3undergoing ECT reported feeling coerced to have the treatment. Fear of ECT and distressing side effects were present in the majority. A vast majority of patients perceived ECT to be helpful	Evidence supports the notion that ECT patients are well-disposed towards it. More needs to be done to enhance patients' satisfaction with the ECT experience.	7/7

3559925				and had positive views regarding the treatment. A sizable proportion was critical, although little was known about the extent and nature of the criticism.		
Graff, V., Wingfield P., Adams, D., & Rabinowitz, T. (2016). An investigation of patient preferences for music played before electroconvulsive therapy. *Journal of ECT, 32*(3), 192-196. https://doi.org/10.1097/YCT.0000000000000315	Utilization of music to reduce ECT-related anxiety. Examined patients' preferences of listening to music while receiving ECT by providing music—by way of headphones or speakers—to participants before treatment.	Cohort study	30 patients receiving ECT completed the study. Patients served as their own controls in 3 separate music intervention sessions: randomization to music via headphones or speakers, no music, and the remaining music intervention. Patients completed a questionnaire related to satisfaction and preferences of music being played before ECT. Patients received a final questionnaire at the end of the study asking which intervention they preferred.	90% enjoyed listening to music through speakers. 80% liked listening to music through headphones. 17% preferred no music. The difference in preference between speakers and headphones was not significant. There was no association between preference at the end of the study and the initial assignment of speakers or headphones.	Music is a low-cost intervention with virtually no side effects that could be offered as therapy for patients receiving ECT. A significant proportion of patients liked hearing music before treatment.	3/7
Gutiérrez, E. O. F., & Camarena, V. A. T. (2015). Music therapy in generalized anxiety disorder. *The Arts in Psychotherapy, 44*, 19–24. https://doi.org/10.1016/j.aip.2015.02.003	Explore whether music can reduce anxiety and depression levels using the Beck Anxiety Inventory and Beck Depression Inventory	Cohort study	An intervention was done with patients under clinical control and receiving pharmacotherapy. Music therapy was used to decrease the symptomatology of this disorder following a structured protocol. The pilot study group consisted of seven patients with no comorbidities. The patients were characterized by the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition criteria, and were diagnosed by psychiatrists at the National Institute of Psychiatry Ramón de la Fuente Muñiz. The researchers programmed 12 × 2 h sessions for this group of patients. A pretest/posttest design using the Beck Anxiety and Depression Inventory was used.	Post-test scores on the BDI and BAI decreased from pre-test score and statistical analysis found the difference to be significant.	Music therapy was effective in reducing anxiety and depression levels in GAD patients.	3/7
Johnson, B., Raymond, S., & Goss, J. (2012). Perioperative music or headsets to decrease anxiety. *Journal of Perianesthesia Nursing: Official Journal of the American Society of PeriAnesthesia Nurses, 27*(3), 146–154. https://doi.org/10.1016/j.jopan.2012.03.001	Determine the effect of music vs. noise-blocking headphones on anxiety in women undergoing gynecologic same-day surgery.	Randomized control trial	Women gave consent and were randomized to usual care, music with headphones, or headphones only. Preoperative and postoperative anxiety was rated on a scale of 0-10. Music/headphones were continued throughout surgery and removed when Aldrete level of consciousness equaled 2. The	All groups experienced a drop in anxiety from pre- to postoperative status, but the usual care group had the least improvement. The music group experienced the lowest postoperative anxiety scores; the headphone group had a greater change overall.	Music is a relatively inexpensive, non-invasive, and easy intervention to administer.	4/7

			119 women had a mean age of 38.8 years. 51 women with low preoperative anxiety were excluded.			
Obbels, J., Vansteelandt, K., Verwijk, E., Lambrichts, S., Bouckaert, F., & Sienaert, P. (2020a, May 31). Understanding electroconvulsive therapy-related anxiety: A prospective study. *Acta Psychiatrica Scandinavica*, *142*(2), 132–140. https://doi.org/10.1111/acps.13198	Study the course of ECT-related anxiety during ECT.	Cohort study	74 patients with unipolar or bipolar depression, referred for ECT, were included. ECT-related anxiety was assessed the morning before each ECT session using the ECT-related Anxiety Questionnaire (ERAQ).	Female patients reported more anxiety than men. Patients with psychotic depression were more anxious before the start of ECT, but experienced a decrease in ECT-related anxiety, whereas patients with a non-psychotic depression remained stable on anxiety during their ECT course. There was a significant correlation between the decrease of ECT-related anxiety and the decrease of depression severity.	There are individual differences in ECT-related anxiety. Female patients and patients with psychotic depression had more ECT-related anxiety before starting ECT. ECT-related anxiety decreased in patients with psychotic depression, but remained stable in patients without psychotic depression. Patients who had a stronger decrease in depression also had a stronger decrease in ECT-related anxiety.	3/7
Obbels, J., Vanbrabant, K., Verwijk, E., Bouckaert, F., Vansteelandt, K., & Sienaert, P. (2020b, September). Monitoring electroconvulsive therapy-related anxiety: The ECT-Related Anxiety Questionnaire. *The Journal of ECT*, *36*(3), 180–186. https://doi.org/10.1097/YCT.0000000000000661	Report the development and evaluation of the ECT-Related Anxiety Questionnaire (ERAQ).	Randomized control trial	Patients 18+ years old who were about to start with or were having an ECT were asked to complete a self-designed 17-item ECT-related anxiety questionnaire. The psychometric properties of the ERAQ were investigated through the use of exploratory and confirmatory factor analysis and Item Response Theory analysis.183 patients were included.	The exploratory factor analysis concluded that the scale is unidimensional. The confirmatory factor analysis model did not fit well to the data. The Item Response Theory analysis showed that the slope estimates ranged from 1.23 to 2.95 and that location parameter reflected a sizable underlying anxiety for ECT.	The ERAQ offers a measure of global severity and differentiates between various topics of anxiety. The ERAQ informs the clinician about the specific aspects of an ECT course that could trigger a patient's anxiety and can guide clinicians in how to discuss ECT-related anxieties with patients.	4/7
Sibanda, A., Carnes, D., Visentin, D., & Cleary, M. (2019). A systematic review of the use of music interventions to improve outcomes for patients undergoing hip or knee surgery. *Journal of Advanced Nursing*, *75*(3), 502–516. https://doi.org/10.1111/jan.13860	Examine the effectiveness of music as an additional treatment for pain, anxiety, and postoperative delirium, for patients undergoing hip or knee surgery.	Systematic review	A systematic search yielded 10 randomized controlled trials and quasi-experimental designs. Studies were appraised using the Cochrane Risk of Bias Tool. Data were extracted using the Effective Practice and Organization of Care data extraction tool.	Mixed results were found for the effect of music on anxiety, pain, and postoperative delirium in patients undergoing hip or knee surgery. 6/10 studies provided evidence that music can improve anxiety, pain, or postoperative delirium. Music effectively reduced anxiety in 1/3 studies. 3/7 studies reported benefits of music for reducing postoperative pain. Positive effects of music on postoperative delirium were reported in all three studies that evaluated it. Within-group improvements were observed in many of the studies.	Music can potentially improve anxiety, pain, and postoperative delirium, for patients getting hip or knee surgery.	7/7

Varghese, J. K., Sundar, S., Sarkar, S., & Ezhumalai, G. (2019). Effect of adjuvant music therapy on anxiety, depressive symptoms, and cognitive functions of patients receiving electroconvulsive therapy: A preliminary study. *SBV Journal of Basic, Clinical and Applied Health Science, 2*(4), 142-145. https://doi.org/10.5005/jp-journals-10082-02225	Evaluate the effect of music therapy on anxiety, depression, and cognitive functions of ECT patients.	Cohort study	29 patients who received ECT as per diagnostic and treatment needs were randomized into cases and controls after being subject to set criteria. HADS and Montreal Cognitive Assessment were recorded a day before and 15 days after scheduled four sessions of ECTs were over. Music therapy intervention in the form of Ahir Bhairav raga improvisation, imagery of journey of good health, recovery, and relaxation was administered for cases.	Music therapy resulted in a significant reduction in anxiety, depression, and improvement in cognitive functioning scores. Music therapy also caused a significant reduction in total HADS composite scores.	The study results support that music therapy can be used in clinical settings as an adjunct with ECT, to control anxiety, depression, and cognitive functions.	3/7

Appendix C

ECT-Related Anxiety Gap Analysis

Current State	Desired State	Identified Gap	Gap due to knowledge, skill and/or practice	Methods used to Identify Professional Practice Gap
Underutilization of ECT services	ECT should be utilized by those that qualify for it	Patients are afraid to undergo ECT or anesthesia	Stigma and misinformation surrounding ECT	Review of current peer-reviewed literature
Lack of literature on ECT-related anxiety	ECT-related anxiety should have enough research to determine best treatment	ECT-related anxiety needs further research	ECT is a niche specialty and does not have a large amount of literature about it in general	Review of current peer-reviewed literature
No universal standard to decrease ECT-related anxiety in the chosen organization	Music should be utilized to decrease ECT-related anxiety	Music should be implemented as the universal standard to decrease ECT-related anxiety among ECT patients within the organization	ECT-related anxiety is not seen as a priority in comparison to chronic mental health issues	Personal experience in the field at the chosen organization

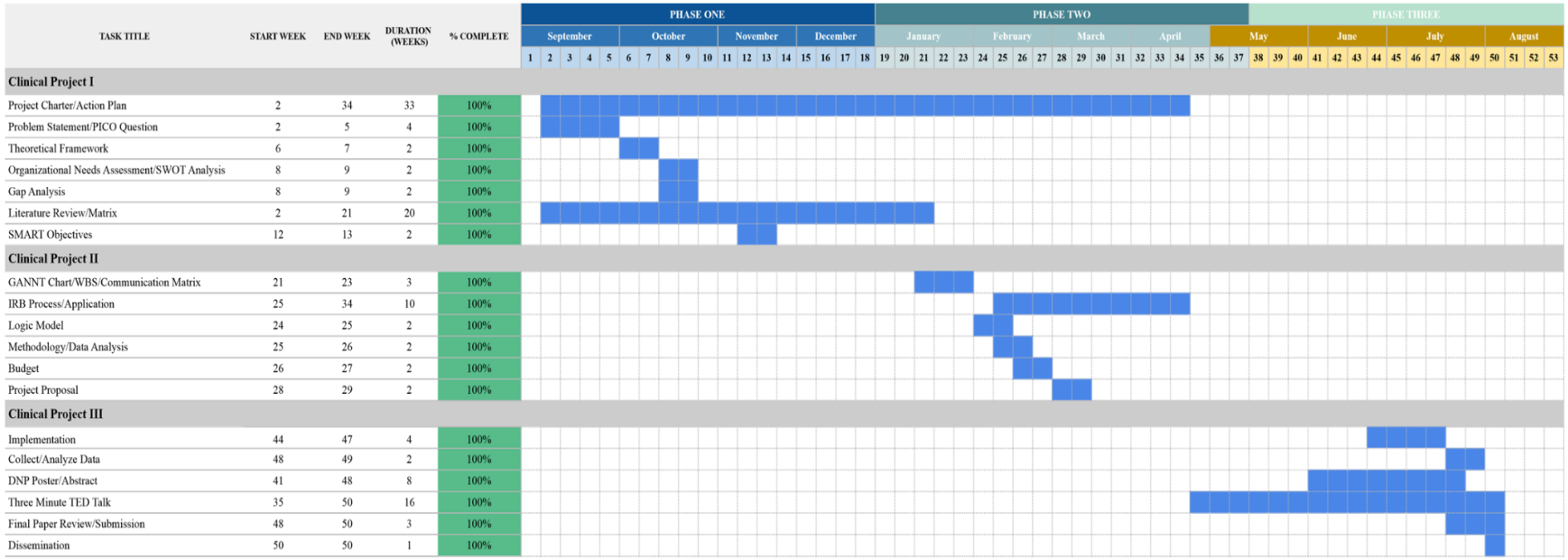
Appendix D

Organization SWOT Analysis

Strengths	**Weaknesses**
- Department brings a high amount of revenue to mental health services - Small, strong, and close-knit team - The team is able to quickly adapt to changes - Music is a low to no-cost intervention	- Multiple patients in the same pre-op and post-op room - Differing inpatient and outpatient processes - Sample size could potentially be insufficient - Differing levels of technological knowledge
Opportunities	**Threats**
- Implementation in other ECT facilities within the organization - Potential to be used in other areas of healthcare that provoke anxiety - Increase and sustain patient census	- Lost follow-ups - Limited implementation time - Potential to be seen as a low priority

Appendix E

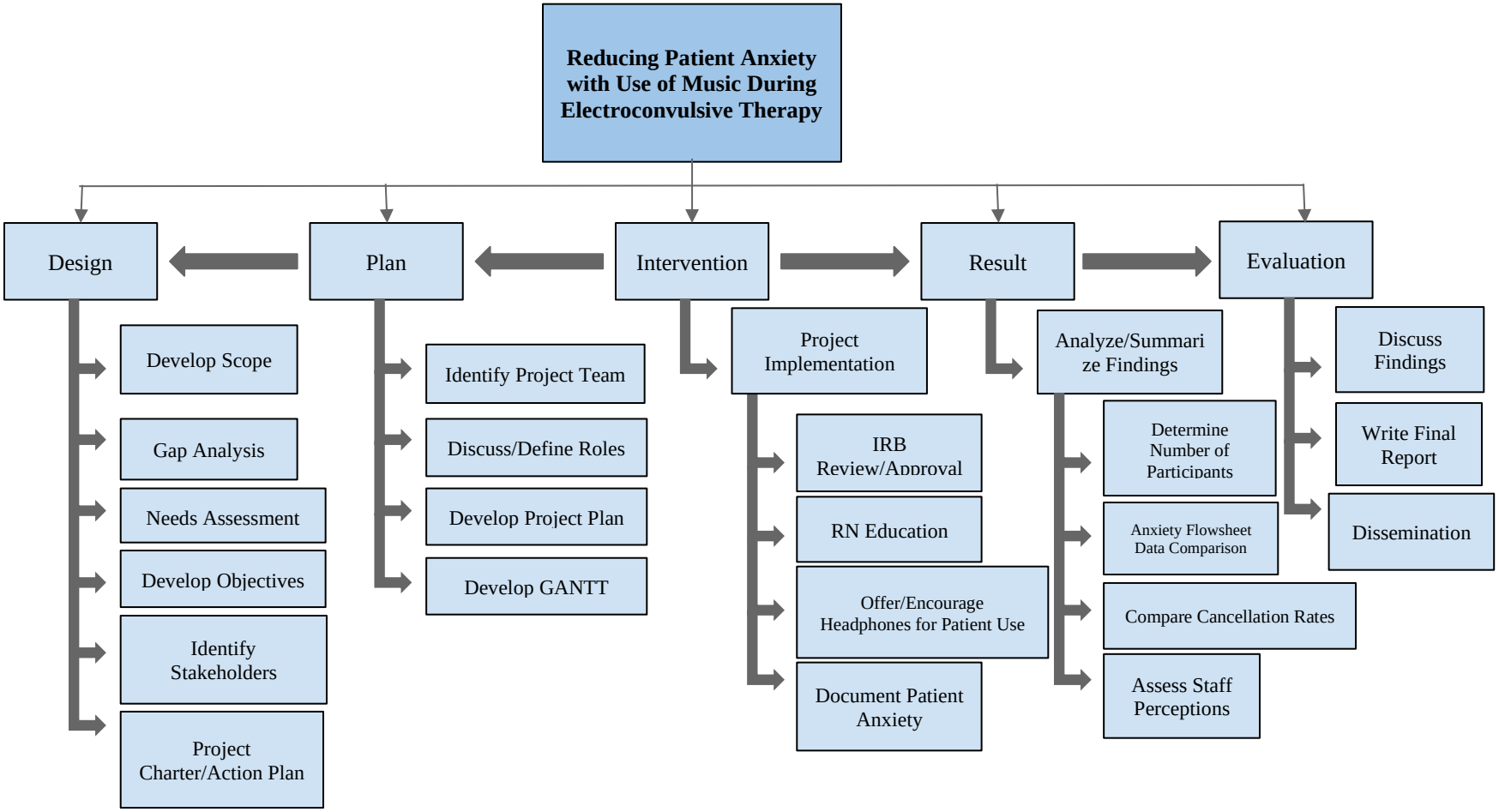
Gantt Chart



TASK TITLE	START WEEK	END WEEK	DURATION (WEEKS)	% COMPLETE
Clinical Project I				
Project Charter/Action Plan	2	34	33	100%
Problem Statement/PICO Question	2	5	4	100%
Theoretical Framework	6	7	2	100%
Organizational Needs Assessment/SWOT Analysis	8	9	2	100%
Gap Analysis	8	9	2	100%
Literature Review/Matrix	2	21	20	100%
SMART Objectives	12	13	2	100%
Clinical Project II				
GANNT Chart/WBS/Communication Matrix	21	23	3	100%
IRB Process/Application	25	34	10	100%
Logic Model	24	25	2	100%
Methodology/Data Analysis	25	26	2	100%
Budget	26	27	2	100%
Project Proposal	28	29	2	100%
Clinical Project III				
Implementation	44	47	4	100%
Collect/Analyze Data	48	49	2	100%
DNP Poster/Abstract	41	48	8	100%
Three Minute TED Talk	35	50	16	100%
Final Paper Review/Submission	48	50	3	100%
Dissemination	50	50	1	100%

Appendix F

Work Breakdown Structure



Appendix G

Communication Matrix

Team Members:

Student: Andrea Stankiewicz, BSN, RN-BC, PHN

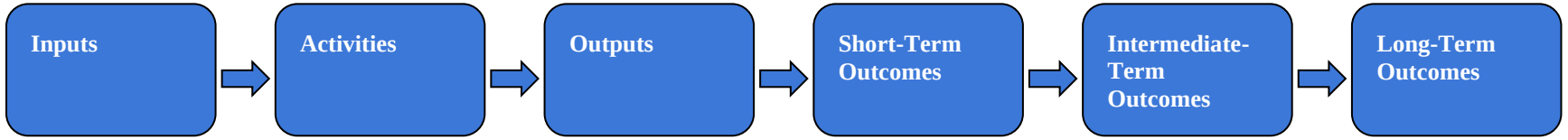
Project Mentors: Ruth Bryant, PhD, MS, RN, CWOCN, FAAWC

Project Chair: Sherry Johnson, DNP, APRN, CNP

ID #	Purpose/Objectives	Method Of Communication	Frequency	Recipients	Person Responsible	Notes
	Project Charter/Action Plan	Virtual	2-3x/semester	Project Chair	Stankiewicz	- Review project considerations
	Updates	Virtual	2-3x/semester	Project Chair/Project Mentor	Stankiewicz	- Summary - Scholarly paper to date - Project Gantt, work plan, progress tasks, and timeline until next update
	Project Proposal	Virtual	Once	Project Chair/Project Mentor	Stankiewicz	- Presentation - Feedback
	IRB Application/Submission	Virtual	Once	Project Chair/Project Mentor	Stankiewicz	- Ensure CITI Training is up to date - Review IRB resources - Complete IRB application for school and organization - Revise - Project chair approval
	3-Minute TedTalk	Virtual	Once	Internal Stakeholders	Stankiewicz	- Present to stakeholders
	Scholarly Paper Review	Virtual	Once	Project Chair	Stankiewicz	- Feedback - Approval for submission

Appendix H

Logic Model



Inputs	Activities	Outputs	Short-Term Outcomes	Intermediate-Term Outcomes	Long-Term Outcomes
-Adequate staffing and time to conduct activities -Support from stakeholders -Necessary equipment provided and/or funded	-Train staff on necessary documentation and follow up -Assess patient music preferences -Provide headphones or music overhead	-Staff trained to properly implement intervention -Patients feel involved in their own care -Less symptoms of anxiety reported -Patients feel comfortable	-Enhance knowledge about ECT-related anxiety -Increase ability to cope with ECT-related anxiety -Improve attitudes surrounding ECT	-Decreased ECT-related anxiety among patients	-Increase in ECT patient compliance -Increase in ECT patient census

Appendix I

Project Measures

Outcome Measures		
Percent of patients that participate	ECT patients that agree to participate / Number of ECT patients	• PCT will record which patients agree to participate in the ECT appointment book • Data will be collected after implementation using the ECT appointment book
Percent of canceled ECT appointments	Number of canceled ECT appointments / Number of ECT appointments	• Appointments will be canceled in the EHR by the PCT or charge nurse • Data will be collected after implementation via ECT appointment book
Percent of patients with a reduction in the severity or frequency of anxiety	Number of patients with a reduction in the severity or frequency of anxiety / Number of ECT patients	• RNs will chart patient anxiety severity in the ECT flowsheet upon admission • Data will be collected after implementation with a report of flow sheet data from quality improvement
Process Measures		
Percent of ECT RNs that can describe the project purpose and processes	Number of ECT RNs able to describe the project purpose and processes / Number of ECT RNs	• RNs will be educated on the project purpose and processes
Percent of flowsheet documentation completed on anxiety.	Number of ECT patients with complete anxiety documentation / Number of ECT patients	• RNs will chart patient anxiety severity in the ECT flowsheet upon admission • Data will be collected after implementation with a report of flow sheet data from quality improvement

Balancing Measure		
Amount of time spent by RNs on intervention	Staff feedback following implementation	• RNs will be asked a series of questions: ○ On a scale of 1-5, with 5 being the highest score, how burdensome for you was the addition of music to the patient pre-op phase? ○ On a scale of 1-5, with 5 being the highest score, how would you rate the impact of this music option in reducing the patient's anxiety? ○ On a scale of 1-5, with 5 being the highest score, how would you rate your comfort in providing a music option to the patient receiving ECT? ○ Do you have any suggestions for how to improve the process of providing music to the patient receiving ECT? ○ Is there anything you would suggest to improve the ECT patient's experience?

Appendix J

Project Approval

THE COLLEGE OF ST. SCHOLASTICA SCHOOL OF NURSING

Department of Graduate Nursing

DNP Project Approval Form

DNP Project Plan Approval Prior To IRB & Implementation

Student (s):

Name: Andrea Stankiewicz, BSN, RN-BC, PHN

Signature: Andrea Stankiewicz

Date: 2/12/2022

Proposed Project Topic: Reducing Patient Anxiety with Use of Music During Electroconvulsive Therapy

The following have agreed to serve on the DNP Project Team for the above student (please print):

DNP Project Chair

Name and Credentials: Sherry Johnson DNP, APRN, CNP

DNP Project Practice Mentor or "Expert in the Field" for policy projects & Organization/Agency (letter or email attachment is acceptable)

Name and Credentials of Mentor: Ruth Bryant, PhD, MS, RN, CWOCN, FAAWC

Agency: Abbott Northwestern Hospital, Allina Health

Signature: Ruth A Bryant, PhD, RN, CWOCN

Date: 2/14/2022

Appendix K

Letter of Support

Braulick, Stephanie <stephanie.braulick@allina.com>
To: Andrea Stankiewicz

Fri, May 6 at 7:47 AM

Friday 5/6/2022

To Whom This May Concern,

The ECT Department is in support of the project by Andrea Stankiewicz and will provide the support needed to conduct this work.

Sincerely,

Stephanie Braulick, Patient Care Manager

Stephanie.Braulick@allina.com

Stephanie Braulick, BSN, RN-BC, PHN

(Pronouns- She/Her)

Patient Care Manager CK4800, CK3900 & Electroconvulsive Therapy (ECT) • Mental Health Services

Abbott Northwestern Hospital, part of Allina Health

Phone: 612-863-9923 • Fax: • 612-863-8281 • Pager: 612-654-7269 • Stephanie.Braulick@allina.com

Mail Route 12405 • 800 E. 28th Street • Minneapolis, MN 55407

Appendix L

St. Scholastica IRB Approval

The College of St. Scholastica

Institutional Review Board

DATE: April 13, 2022

TO: Andrea Stankiewicz and [Dr. Sherry Johnson, Dr. Ruth Bryant] FROM: The College of St. Scholastica,

Institutional Review Board

RE: Reducing Patient Anxiety with Use of Music During Electroconvulsive Therapy
SUBMISSION TYPE: New Project
ACTION: NOT RESEARCH
REVIEW TYPE: Expedited Review

Thank you for your submission of materials for your project. The College of St. Scholastica Institutional Review Board has reviewed your application and determined that the proposed activity does not meet the definition of research under the Code of Federal Regulations 45 Part 46.102 provided by the Department of Health and Human Services. As such, your project does not require ongoing review or approval from The College of St. Scholastica Institutional Review Board. We will retain a copy of this correspondence within our records.

Any modification to your project procedures that could change the determination of "not research" must be submitted to the IRB before implementation.

When your project is complete, submit a protocol closure form by following these steps: (1) log in to your project in IRBNet, then create a new package (not project), (2) download the protocol closure form from the Forms and Templates menu, (3) complete, sign and submit the protocol closure form.

If you have any questions, please contact Nicole Nowak through the project email function in IRBNet or nnowaksaenz@css.edu. Please include your study title and reference number in all correspondence with the IRB office.

Best regards,

Nicole T. Nowak, Ph.D.
Chair, Institutional Review Board
The College of St. Scholastica
Duluth, MN 55811

Appendix M

Allina IRB Approval

Allina Health
Human Research Protection Program
Institutional Review Board

P.O. Box 43 Mail Route 10811
Minneapolis, MN 55440-0043
Tel: 612-262-4920
Fax: 612-262-4840
www.allinahealth.org

DATE: June 2, 2022

TO: Ruth Bryant
FROM: Allina Health IRB Office

PROJECT TITLE: Reducing Patient Anxiety with Use of Music During Electroconvulsive Therapy REFERENCE #: 1902289-1
SUBMISSION TYPE: New Project
SUBMISSION DATE: May 17, 2022

ACTION: NOT HUMAN SUBJECT RESEARCH DETERMINATION ACTION DATE: June 2, 2022

Thank you for your recent request regarding the above referenced project.

The following items were included in this submission:

- Allina Health - Application Part 1 - Allina Health - Application Part 1 (UPDATED: 04/21/2022)
- Application Form - Allina Health - Application Part 2 - Human Subjects Research Determination (UPDATED: 04/21/2022)
- Letter - ECT Department Approval E-mail (UPDATED: 05/6/2022)
- Letter - Stankiewicz_NCIR Proposal Review Notification.4.21.22.docx (UPDATED: 04/21/2022) • Other - CSS IRB - NOT RESEARCH (UPDATED: 04/14/2022)
- Proposal - Project Proposal (UPDATED: 05/27/2022)

Based on the information provided, it has been determined that this activity does not constitute "human subjects research" as defined by the federal regulations because the project involves an evidence-based intevention that participants are anticipated to benefit from. Further, the project is not designed as a systematic investigation designed to contribute to generalizable knowledge. As such, IRB review is not required.

Any alteration to the project that could potentially change this determination (e.g., change in procedures) must be submitted for review prior to implementation, unless such a change is necessary to avoid immediate harm to participants, in which case the IRB must be notified as soon as possible.

If you have any questions, regarding this determination, please contact the Allina Health IRB Office at (612) 262-4920 or irb@allina.com. Please include your project title and IRBNet ID# in all correspondence.

This letter has been electronically signed in accordance with all applicable regulations, and a copy is retained within Allina Health IRB Office's records.