

Fall 12-4-2024

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<https://doi.org/10.33015/dominican.edu/2024.NURS.RP.12>

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### Recommended Citation

Choy, Janelle Marie, "The Effects of Music Therapy on Pediatric Patients with Congenital Heart Defects in the Pre and Postoperative Setting" (2024). *Nursing | Student Research Posters*. 47.

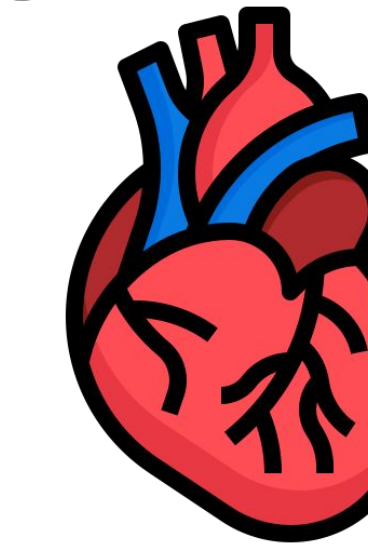
<https://doi.org/10.33015/dominican.edu/2024.NURS.RP.12>

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# The Effects of Music Therapy on Pediatric Patients with Congenital Heart Defects in the Pre and Post Operative Setting

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## Introduction

Music therapy in hospitals has gained prominent traction in recent years especially in the pediatrics unit. Specifically, pediatric patients who have congenital heart defects have been known to have significant positive responses following music therapy. Congenital heart defects are abnormalities of the heart that developed in utero and are present at birth which causes a newborn's cardiopulmonary function to be compromised and must be corrected with medical or surgical intervention. Nurses, therapists, and other healthcare practitioners have turned to the use of music therapy as it has been known to "significantly decrease preoperative anxiety" as well as provide emotional support to not just the patients but to the family as well. (Ya-Ling Huang et al., 2021) There has also been evidence that music therapy is an effective intervention in the postoperative setting as well as it has been known to stabilize vital signs and reduce risk of complications from anesthesia. (Ya-Li Huang, et.al. 2021)

## Research Question

How can music therapy be implemented in treatment plans in pediatric patients with congenital heart defects to yield effective recovery results in the pre and post operative setting?

## Plan for Data Analysis

Pre and post-operative data will be analyzed for differences or changes in heart rate, blood pressure, and respiratory rate. Data analysis also includes pre and post-operative anxiety and pain levels. Results will be compared and analyzed between pre and postoperative control groups.

## Methods

- Sample: 80 pediatric patients ages 1 day old to 10 years old diagnosed with a congenital heart defect
- Design: quasi-experimental randomized control trial
- Independent variable: music therapy played through iPad
- Dependent variables: Preoperative anxiety levels, Vital signs (Pre op and Post op), Postoperative pain scores
- control groups: pre and post op patients that receive standard care with no music therapy

## Procedure

- Music of choice is played during preoperative procedures where vital signs are recorded and preoperative anxiety levels are measured using the Yale Preoperative Anxiety Scale
- Music of choice is played immediately after surgery in PACU until patient is ready to be transferred. Vital signs are recorded and postoperative pain levels are measured using the Wong Baker Face Scale.
- Control groups would go through standard pre and postoperative procedures without music therapy
- Obtain parental consent for study purposes

## Conclusion

Music therapy can be implemented into nursing practice by integrating music therapy into treatment plans for these patients to improve overall patient outcomes and reducing recovery times as well as preventing excessive need for anesthesia and analgesia requirements which can increase the risk for surgical complications. This study is meant to exemplify this research as it can be used to display and compare the effects of music therapy within the pre and postoperative settings. Using these potential results from this study can encourage the usage of music therapy as a standard in nursing practice when developing treatment plans for cardiac patients especially within the pediatric population. The implementation of music therapy as a standard component of treatment plans in nursing practice for pediatric patients undergoing cardiac surgery can serve as a fundamental tool that can improve overall patient outcomes and improve overall health in pediatric individuals.

### Domain: Activity

1. Looking around, curious, playing with toys, reading (or other age-appropriate behavior); moves around holding area/treatment room to get toys or go to parent; may move toward OR equipment
2. Not exploring or playing, may look down, may fidget with hands or suck thumb (blanket); may sit close to parent while waiting, or play has a definite manic quality
3. Moving from toy to parent in unfocused manner, non-activity-derived movements, frenetic/frenzied movement or play; squirming, moving on table, may push mask away
4. Actively trying to get away, pushes with feet and arms, may move whole body; in waiting room, running around unfocused, not looking at toys or will not separate from parent

### Domain: Vocalizations

1. Reading (nonvocalizing appropriate to activity), asking questions, making comments, babbling, laughing, readily answers questions but may be generally quiet; child too young to talk in social situations or too engrossed in play to respond
2. Responding to adults but whispers, "baby talk," only head nodding
3. Quiet, no sounds or responses to adults
4. Whimpering, moaning, groaning, silently crying
5. Crying or may be screaming "no"
6. Crying, screaming loudly, sustained (audible through mask)

### Domain: Emotional Expressivity

1. Manifestly happy, smiling, or concentrating on play
2. Neutral, no visible expression on face
3. Worried (sad) to frightened, sad, worried, or tearful eyes
4. Distressed, crying, extremely upset, may have wide eyes

### Domain: State of Apparent Arousal

1. Alert, looks around occasionally, notices/watches anesthesiologist (could be relaxed)
2. Withdrawn child sitting still and quiet, may be sucking on thumb or face turned in to adult
3. Vigilant looking quickly all around, may startle to sounds, eyes wide, body tense
4. Panicked whimpering, may be crying or pushing others away, turns away

## Wong-Baker FACES® Pain Rating Scale

