

Music to My Ears: The Healing Powers of Music Therapy for Preterm NICU Neonates

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In the NICU, preterm newborns are subject to 7.5-17.3 invasive procedures per day – causing extensive and long-lasting stress (Palazzi, et al., 2021). This can be reflected in unstable vital signs, increased crying, decreased engagement, and many other signs of distress. As many adults in the ICU experience delirium, it is a wonder what impact a stressful environment can have on fragile preterm neonates. Music therapy has not been commonly seen in the NICU, although research suggests it provides positive effects on the neonates' physiological and behavioral responses.

Literature Review

The neonates that had music therapy as an intervention showed stabilized vitals, such as decreased heart and respiratory rates and increased blood oxygen saturation, the studies showed an average decrease in heart rate from 159 bpm to 150 bpm post-session and an average increase in oxygen saturation from 95.6% pre-session to 97.8% post-session. (Yue et al., 2020; Shao et al., 2023; Palazzi et al., 2020; Brown et al., 2023; Caparros-Gonzalez et al., 2018; Cervasco-Trotter et al., 2019). Additionally, the neonates also showed increased oral feeding volumes and weight gain (Yue et al., 2020), enhanced brain development and improved autonomic nervous system stability (Yakobson et al., 2021; Lordier et al., 2019), more positive sleep behaviors (Shao et al., 2023), attenuated stress (Yue et al., 2020; Yakobson et al. 2021; Brown et al., 2023), decreased length of hospital stays (Palazzi et al., 2020), increased engagement, and improved mother-infant bonding (Palazzi et al., 2020; Palazzi et al., 2021; Corrigan et al., 2021). Author Epstein et al., 2020 found evidence that in preterm neonates with severe brain injury, unique music therapy may be preferred as opposed to maternal

singing. The other studies did not indicate the need for unique music therapies, this introduces an opportunity for further research to explore if preterm neonates with severe brain injury in the NICU show enhanced behavioral stability when specialized music therapy is utilized compared to maternal singing.

For the premature neonates, quality care and an optimal environment are invaluable. The NICU is often stressful, and it is important to decrease distress for the patients. The evidence from the articles supports that for premature neonates in the NICU, music therapy not only decreased distress, but also improved care outcomes, prosocial behavior, and parental bonding.

Recommended Protocol

Music therapy sessions should be incorporated into the daily care plans of preterm neonates in the NICU and should be scheduled at times that do not interfere with other procedures or rest. NICU staff, including nurses, physicians, and support personnel, should undergo training and education including the physiological and psychological effects, techniques for selecting appropriate musical stimuli, and methods for adapting music therapy interventions to meet individual needs. In the future, Shao et al., 2023 supports that music therapy can be included in the regular curriculum of nursing education to provide family-centered care, reduce anxiety, and improve quality indicators.

NICU facilities must develop standardized protocols for conducting music therapy sessions. These should include the goals and objectives, procedures for assessing responses and adjusting treatment as necessary, and safety procedures such as infection control measures and extra precautions for neonates with medical devices or respiratory support. Out-

comes can be evaluated using assessment to measure the neonates' physiological responses, developmental progress, and behavioral indicators before, during, and after music therapy sessions. Adequate resources should be allocated to support the implementation of music therapy in the NICU. This may include procurement of musical instruments, audio equipment, and specialized training for music therapists or staff leading music sessions.

Suggestions for Further Study

To explore the regular inclusion of music therapy in the NICU, a pilot study within a local hospital could analyze the impact of music therapy and revisit those same neonates periodically throughout their first year of life to assess the influence on their health prognosis and development. Further study should be explored for neonates with severe medical conditions as supported by Epstein, et al. 2020. Some barriers that can hinder the incorporation of music therapy include resistance to change, lack of knowledge, necessary approvals, and costs. Despite these potential barriers, utilizing careful planning, collaboration, and ongoing evaluation can help ensure the success and sustainability of music therapy programs in the NICU. Incorporating music therapy can provide comfort and support, foster developmental progress, and enhance the overall well-being of the neonates. ■

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Biography: These students graduated on May 9th, 2024, from the Fran and Earl Ziegler College of Nursing at the University of Oklahoma Health Sciences. They will be starting their nursing careers in Labor and Delivery, ICU, Stepdown ICU, Women's Services, and CVCU. They chose to study the effects of music therapy on preterm NICU neonates because of their shared passion for music and complex care. Lastly, they would like to thank their mentor Dr. Broussard for her wonderful guidance and feedback on this project and all throughout nursing school.

(Left to right) Allie Green, Sydney Bullard, Amber McDaniel, Christina Sherman, and Caitlyn Pluff

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