



## ROLE OF MUSIC THERAPY IN NEONATAL INTENSIVE CARE UNIT

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**ABSTRACT** Over the few decades, music therapies have been introduced into the Neonatal Intensive Care Units as a therapy which is designed to progressive treatment and facilitating growth and development of premature infants. The meta-analysis of the efficacy of music therapy for premature infants demonstrated significant clinical benefits of music across a large variety of physiological and behavioral measures. These benefits that were most noticeable were weight gain, reduced stress behaviors and duration of stay of hospitalization and increased oxygen saturation levels for short periods of time. Further, the North American survey reported that 72% of the NICUs provided music therapy for premature infants which proved as a boon to their little patients.

**KEYWORDS :** Neonatal Intensive care unit, Music Therapy, sounds, lullabies

**INTRODUCTION**

Music therapy is the use of interventions or musical sounds to accomplish individual goals within a therapeutic relationship. Music therapy is an allied health profession and one of the expressive therapies, consisting of a process in which a music therapist uses music and all of its facets—physical, emotional, mental, social, aesthetic, and spiritual—to help infants improve their health status. Music therapies primarily help infants to improve their health in various domains, such as cognitive functioning, motor skills, emotional development, social skills, reducing stress levels by using music experiences such as free improvisation, singing, and listening to, discussing, and moving to music to achieve treatment goals.[1]

There have been very less or a few studies that have clarified the benefits of music therapies for mothers of preterm infants. Recent studies showed that, compared with kangaroo care alone, kangaroo care combined with live harp music therapy played to mother-infant had a significantly beneficial effect on reducing maternal anxiety.[2] Furthermore, a close contact of mothers with their child and music therapy (i.e., kangaroo care combined with live music therapy) served as a great stress-reducing technique for mothers.

**Music Therapy**

The NICU environment is most stressful to the little patients (premature infants etc). Premature and low birth weight infants give their response to new surroundings with higher levels of agitation, which can cause more fluctuations in both the heart rate and blood pressure.[3]

Hearing is possible as early as 23-24 weeks of gestational age. Louder and abrupt noise in sound levels from certain sources such as ventilators, monitor alarms, and cabinet doors may affect an infant's blood oxygen levels, impairment in cerebral blood flow, and disturb the sleeping-waking cycles. All of them are essential for development, maturation and weight gain.

Loud noisy speakers are placed at the bedside of each NICU patient. Low-end speakers usually are not able to deliver a complete sound without distortions at the low volume. A Rotel amplifier is attached to a computer with pre-programmed classical and instrumental musical sounds. These sounds imitate the maternal heartbeats of 72 to 80 beats per minute. This music is played at 40 decibels and the volume can be raised up to 50 decibels.[4&5]

Exposures to music therapies have been proven to soothen the infant and helps in reversing the stress responses. A number of studies suggest that babies who experience music therapy are more stable, feed better, and experience shorter length of stay in the hospital.

**Methods of Music Delivery**

Various methods of music delivery have been used, such as, previously recorded and live music performed by one or more instruments and voice of a female therapist or mothers voice. Research suggest that the live music is more superior over pre-recorded music inducing reductions in heart rate and anxiety behavior in stable preterm infants. Also, the live music create calmness in the working staff and parents. There are some theoretical and empirical data which further suggest

that singing or speaking softly in a singsong manner has a soothing effect on infants and that the infant starts to recognize the mother's voice even before 24 weeks and may show a preference for it right after birth, singing by the mother, especially with other stimulations such as skin-to-skin contact (kangaroo care), can be highly effective way for soothing of infants. These assumptions need to be more validated with the help of certain tools. [6]

**Methodology for music intervention**

All the selected recorded lullabies or musical sounds can be started at 28-30 weeks of gestational age, when infants are still in incubators. Live infant-directed lullabies along with multimodal stimulation (auditory, tactile, visual, and vestibular interventions) can be started at 32 weeks gestational age.

**Procedure and setting of NICU**

Infants do not have the ability to differentiate figures, shapes or sounds (music) from background noise until 8 to 11 years of age. [7] Therefore, in order to clear recognizing of music from ground sounds, infants need silent conditions and less competing sounds. For safe sound levels within the NICU, the ambient noise should be reduced to the minimal level and not exceed an hourly Leq of 50 dB, hourly L10 of 55 dB, and 1-second duration L max of less than 70 dB, all A-weighted (slow response). This can be achieved by measures such as shutting down the doors, silencing of the monitors alarms, and suggesting the parents and medical people to keep their voice levels down.[8] Hence, music can be played at mean comfortable volume levels, without causing hyper alertness or other adverse effects.

**DISCUSSION**

Generally, most of the studies use lullabies as the source for sound intervention. Lullabies are simple musical words that infants can clearly distinguish. These constitute lower pitch and slower tempo sounds that are easily used and recognized among cultures. Use of another types of musical sounds such as classical music, which is not soothing, constant, or stable and relatively changing might produce alerting responses.[9] The newborns and usually the preterm infants are not able to differentiate complicated framed tunes, which make classical music unsuitable for the NICU environment.

**CONCLUSION**

Such type of studies which apply music therapy to both parent or mother-infant have the advantage of enhancing developmental goals in the Neonatal Intensive Care Unit. These therapies aim at reducing stress, providing developmental stimulations during the crucial period of growth, promoting good bonding with parents, and promoting a better communication, neurological and social development. This type of therapy can be quite beneficial in premature and immune compromised infants.

**REFERENCES**

1. Philbin MK, Robertson A, Hall JW (1999) 3rd. Recommended permissible noise criteria for occupied, newly constructed or renovated hospital nurseries. The Sound Study Group of the National Resource Center. *J Perinatol*; 19:59-63.
2. Philbin MK, Klaas P. (2000) Evaluating studies of the behavioral effects of sound on newborns. *J Perinatol*; 20:S61-7.
3. Standley JM. (2002) A meta-analysis of the efficacy of music therapy for premature infants. *J Pediatric Nurs*; 17: 107-13.
4. Arnon S, Shapsa A, Forman L, Regev R, Bauer S, Litmanovitz I, et al. (2006) Live music

- is beneficial to preterm infants in the neonatal intensive care unit environment birth.
5. Field T, Hernandez-Reif M, Feijo L, Freedman J. (2006) Prenatal, perinatal and neonatal stimulation: a survey of neonatal nurseries. *Infant Behav Dev.*; 29:24-31.
  6. Robb SL, Carpenter JS. (2009) A Review of music-based intervention reporting in pediatrics. *J Health Psychol.*; 14:490-501
  7. Kotilahti K, Nissila I, Nasi T, Lipiainen L, Nojonen T, Merilainen P, et al. (2010) Hemodynamic responses to speech and music in newborn infants. *Hum Brain Mapp.*; 31:595-603.
  8. Vianna MN, Barbosa AP, Carvalhaes AS, Cunha AJ. (2011) Music therapy may increase breastfeeding rates among mothers of premature newborns: a randomized controlled trial. *J Pediatric (Rio J)*; 87:206-212.
  9. Schlez A, Litmanovitz I, Bauer S, Dolfen T, Regev R, Arnon S. (2011) Combining kangaroo care and live harp music therapy in the neonatal intensive care unit setting. *IMAJ*.