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The effects of music on hospitalized preterm neonates

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TITLE OF WRITE-UP

Nursery rhymes: the effects of music on hospitalized preterm neonates

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COMMENTARY:

The use of music to soothe babies predates written history (1). As more medically vulnerable infants survive, and spend long periods hospitalized, Developmental Care has evolved to optimize neurodevelopment. As part of the emergence of Developmental Care, medical research has reflected a growing interest in the role of music with hospitalized neonates, its effectiveness and the mechanisms by which it may change infant outcomes.

Here (2), Anderson and Patel examined studies of musical interventions for hospitalized neonates, excluding reviews and meta-analyses. They chose ten papers that they perceived as methodologically rigorous, and summarized them to “highlight the most well-supported data.”(2) Based on these papers, they suggested that music had effects on behavioral and physiological infant metrics, ranging from reduced inconsolable crying to reduced resting energy expenditure. Further, the authors emphasized studies that explored the mechanisms by which music affects behavioral and physiological markers. It should be noted that the strength of the selected evidence varied (e.g. methodologies ranging from within-subject comparison designs to randomized controlled trials (RCTs), and was not subject to a standardized measure of methodological rigor. A further consideration, as the authors note, is that the examined studies used a range of stimuli, from commercially-available recordings to live parent performance. This methodological heterogeneity may have a considerable effect on outcomes.

While previous meta-analyses and systematic reviews on this topic exist (3–6), this review took a neurodevelopmental perspective, and highlighted only those

studies that seemed most rigorous, based on author perception. However in the absence of a replicable, standardized evaluation of methodological quality, and a systematic approach to study selection, the conclusions must be interpreted cautiously.

The authors (2) highlighted pertinent directions for research – uncovering mechanisms by which music affects preterm infants; and investigating long-term neurodevelopmental effects of musical interventions. They further emphasized the need for trained music therapists to deliver direct interventions, to avoid overstimulation of the infant. We would add that indirect interventions delivered by music therapists such as training parents to deliver infant-led musical stimulation may provide a safe and culturally-responsive intervention, and merits further research (7).

With recent evidence suggesting that preterm neonates may be suffering from sensory deprivation (8,9), this review complements previous evidence (3–6) in suggesting that music therapy may moderate the effects of preterm birth on neurodevelopment. However further investigation through well-designed and adequately powered RCTs, which give appropriate consideration to the nature of the musical stimuli provided, will be essential in establishing the short- and long-term effectiveness and safety of this intervention.

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CONFLICTS OF INTEREST:

The authors have no potential conflicts of interest to declare

URL to the full review on the EBNEO web site:

REFERENCES

1. Adams G. The first children's literature? The case for Sumer. *Child Lit* 1986;14:1–30.
2. Anderson DE, Patel AD. Infants born preterm, stress, and neurodevelopment in the neonatal intensive care unit: might music have an impact? *Dev Med Child Neurol* 2018; early online.
3. Hartling L, Shaik MS, Tjosvold L, Leicht R, Liang Y, Kumar M. Music for medical indications in the neonatal period: a systematic review of randomised controlled trials. *Arch Dis Child - Fetal Neonatal Ed* 2009;94:F349–54.
4. Pölkki T, Korhonen A. The effectiveness of music on pain among preterm infants in the NICU: a systematic review: *JBIM Database Syst Rev Implement Rep* 2014;12:354–73.
5. Standley J. Music therapy research in the NICU: an updated meta-analysis. *Neonatal Netw J Neonatal Nurs* 2012;31:311–6.
6. van der Heijden MJE, Oliai Araghi S, Jeekel J, Reiss IKM, Hunink MGM, van Dijk M. Do hospitalized premature infants benefit from music interventions? A systematic review of randomized controlled trials. *PLOS ONE* 2016;11:e0161848.
7. Haslbeck F, Stegemann T. The effect of music therapy on infants born preterm. *Dev Med Child Neurol* 2018;early online.

8. Lagercrantz H. Are extremely preterm born children with autism the victims of too much isolation in the incubator? *Acta Paediatr* 2017;early online.
9. Pineda RG, Neil J, Dierker D, Smyser CD, Wallendorf M, Kidokoro H, et al. Alterations in brain structure and neurodevelopmental outcome in preterm infants hospitalized in different neonatal intensive care unit environments. *J Pediatr* 2014;164:52-60.e2.

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