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Study shows that Music May Improve Infants' Mood

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PRESS RELEASE

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Ecological Momentary Assessment Reveals Causal Effects of Music Enrichment on Infant Mood

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Many parents know that infants love to be sung to; however, there is limited prior research to show the long-term effects on parental singing. In a new study, researchers explored whether using a music enrichment intervention program to encourage parents to sing more frequently to their babies could improve the health of both infants and caregivers (as with skin-to-contact). This research was featured in a new *Child Development* article with authors from Yale University (United States), the University of Amsterdam (the Netherlands), the University of Auckland (New Zealand), McGill University (Canada), Donald and Barbara Zucker School of Medicine at Hofstra/Northwell (United States) and Princeton University (United States).

Researchers advertised for study participants through in-person visits to baby fairs, distribution of flyers at local daycare centers, preschools, and delivery hospitals, and an announcement on public radio in New Haven, Connecticut. Online recruitment efforts targeted social media groups for expecting and new parents, along with online communities related to early childhood education. The study requirements mandated that all participants have a smartphone to be able to communicate and complete surveys online in English and be a primary caregiver of the infant. The study was conducted with 110 caregivers and their infants, who were on average nearly 4 months old. Most caregivers were from the United States and New Zealand, predominantly white, educated, and socioeconomically advantaged.

Study participants were randomly assigned to the intervention or control group. The main portion of the study lasted six weeks, starting with a pre-test in week one, followed by a four-week intervention, and then a post-test in week six. Caregivers in the intervention group completed a brief, smartphone-based music enrichment program to help them sing more often to their babies (through access to instructional videos with children's songs). Throughout the study, participants completed smartphone surveys one to three times daily, reporting on infant and parent mood, stress, sleep quality, and music use.

The findings suggest that simple, low-cost interventions, such as increasing infant-directed singing, have the potential to improve health outcomes for both infants and caregivers. The Society for Research in Child Development (SRCD) had the opportunity to speak with Dr. Samuel A. Mehr from Auckland University along with Dr. Eun Cho from Yale University and doctoral student, Lidya Yurdum from the University of Amsterdam to learn more about the research.

SRCD: Can you please provide a brief overview of the study?

Author team: We conducted a randomized controlled trial to test whether a simple, low-cost music intervention—encouraging caregivers to actively integrate singing into daily routines with their infants—could improve wellbeing for both infants and caregivers. The study included 110 caregiver-infant pairs, primarily from the United States and New Zealand (with infants on average about 4 months old). Participants were randomly assigned to either an intervention group or a control group. During the 4-week intervention, participants in the intervention group were encouraged to sing more to their infants than usual. We measured how this change in behavior would influence infant mood, stress, sleep, and music behavior, using brief, smartphone based surveys that caregivers completed at random times throughout the day. Our main finding was that the intervention successfully increased the frequency of infant-directed singing, especially in soothing contexts, and led to measurable improvements in infants' general mood as reported by caregivers.

SRCD: Did you learn anything that surprised you?

Author team: One interesting finding was how intuitively caregivers incorporated singing into soothing routines for their infants, even though the intervention did not explicitly instruct them to use singing for this purpose. Among a dozen soothing strategies, singing was the only one that showed a significant increase in use following the intervention. From a methodological perspective, a particularly encouraging outcome was the high level of compliance with the study protocol—caregivers completed over 70% of the surveys across the 10-week period, demonstrating the feasibility of this approach for future developmental research. This strong compliance supported our decision to move forward with a longer-term, longitudinal study, which is currently underway.

SRCD: Can you please explain how this research might be helpful for parents, caregivers and pediatricians?

Author team: Our findings suggest that encouraging parents and caregivers to sing more frequently to their infants can have a positive, causal impact on infant mood. Singing is a universal practice—parents from almost every culture and throughout history have intuitively used singing to soothe and connect with their infants. It's easy to do, requires no special equipment or training, and is accessible to everyone. Because infant mood is closely linked to parenting stress, caregiver-infant bonding, and later social-emotional development, such a simple intervention could have meaningful downstream benefits. For pediatricians and professionals working with families, recommending increased infant-directed singing is a practical,

accessible strategy to support infant well-being.

SRCD: Can you please address some of the research limitations?

Author team: There are several limitations to note. First, our sample was predominantly white, highly educated, and socioeconomically advantaged and composed mainly of mothers, which limits the generalizability of the findings to more diverse populations. Second, all infant mood data were based on caregiver reports—although these reports were collected in real time to reduce recall bias, they remain subject to potential reporting biases. Third, the intervention was relatively brief and low-intensity; longer and more structured interventions might yield broader effects, including on caregiver mood or other health outcomes. Finally, music was already a regular part of many families' routines at baseline, which may have limited the observable effect size of the intervention.

SRCD: What's next in this field of research?

Author team: Despite the intervention lasting only four weeks, we observed clear benefits for infant mood. This suggests that the positive effects of singing to infants may be even more pronounced with longer-term, higher-intensity interventions—and may also extend to caregiver wellbeing and additional aspects of infant health beyond mood. Building on these findings, we are currently conducting two follow-up studies. The first is a direct replication of our original study, but with professionally developed, higher-quality intervention materials designed to help parents sing more to their infants. This will allow us to determine if improved resources can enhance the intervention's effectiveness.

The second is a longitudinal, randomized trial that follows families over eight months. In this study, we are comparing three active interventions —singing (music plus active parent-infant interaction), music listening (music without active interaction), and reading (no music but active interaction) — as well as a general control group. This design will help us disentangle the unique contributions of music, singing, and interactive activities to infant and caregiver outcomes. More information about this ongoing research can be found at https://www.togetherwegrow.study.

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Summarized from an article in *Child Development*, “Ecological momentary assessment reveals causal effects of music enrichment on infant mood,” Cho, E. (Yale University), Yurdum, L. (Yale University and University of Amsterdam), Ebinne, E. (Yale University), Hilton, C. (Yale University and University of Auckland), Lai, E. (University of Auckland), Bertolo, M. (Yale University and McGill University), Brown, P. (University of Auckland), Milosh, B. (Donald and Barbara Zucker School of Medicine at Hofstra/Northwell), Sened, H. (Princeton University), Tamir, D.I. (Princeton University), and Mehr, S.A. (Yale University and University of Auckland). Copyright 2025 The Society for Research in Child Development. All rights reserved.