## 1. Mothers as Home DJs: Recorded Music and Young Children's Well-Being During the COVID-19 Pandemic

The study by Cho & Ilari (2021) explored how mothers of young children used recorded music at home during the COVID-19 pandemic to support their children's emotional well-being. For one week, 19 mothers acted as "home DJs," selecting music based on their children's moods and daily routines. The findings revealed that mothers primarily used music to maintain or enhance positive moods rather than to alleviate negative ones. Depending on their mood and activity level, children engaged with music in various ways - dancing, singing, or listening passively. Music was often used to support transitions like mealtime or naptime, and mothers reported that it helped children stay focused or become more relaxed. Notably, music that was stimulating and upbeat was more effective in reinforcing positive moods, while calming music had mixed results when children were distressed.

The implications of these findings suggest that music can be a powerful, non-invasive tool for emotional regulation and routine management in young children, especially during times of heightened stress, like a pandemic. Mothers reported that using music not only benefited their children but also improved their own mood and parenting satisfaction. This reciprocal effect highlights music's potential to foster emotional resilience and strengthen parent-child bonds. Additionally, the study showed that curated playlists expanded families' musical repertoires, encouraging shared enjoyment beyond traditional "children's music." The study underscores the broader value of integrating music into daily family life as a means of promoting well-being and easing the challenges of parenting under stress.

Summarized using Microsoft Copilot.

Microsoft. (2025). Copilot (May 13 version) [Large language model]. https://copilot.microsoft.com/

Cho, E., & Ilari, B. S. (2021). Mothers as home DJs: Recorded music and young children's well-being during the COVID-19 pandemic. *Frontiers in Psychology, 12,* 637569–637569. https://doi.org/10.3389/fpsyg.2021.637569

## 2. Crossmodal Transfer of Emotion by Music

The study by Logeswaran & Bhattacharya (2009) investigated whether emotions elicited by music could influence the perception of emotions in visual stimuli, specifically facial expressions. In a behavioral experiment, participants listened to short excerpts of happy or sad music before viewing faces displaying happy, sad, or neutral expressions. The results showed a clear cross-modal priming effect: happy music made faces appear happier, and sad music made them appear sadder, regardless of the actual facial expression. This effect was most pronounced for neutral faces, suggesting that music-induced emotions can significantly bias emotional interpretation when visual cues are ambiguous.

Complementing the behavioral findings, the electrophysiological (ERP) experiment revealed that these cross-modal effects occurred at very early stages of brain processing—within 100 milliseconds of viewing the face. Specifically, happy music enhanced early neural responses to neutral faces, indicating that music can implicitly prime the brain's emotional evaluation of visual stimuli. These findings suggest that music doesn't just evoke emotion in isolation but can actively shape how we perceive emotions in others, even when the music and visual stimuli are not presented simultaneously. This has broader implications for understanding how emotional context, especially from auditory sources like music, can subtly influence social perception and emotional judgments in everyday life.

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Microsoft. (2025). Copilot (May 13 version) [Large language model]. https://copilot.microsoft.com/

Logeswaran, N., & Bhattacharya, J. (2009). Crossmodal transfer of emotion by music. *Neuroscience Letters, 455*(2), 129–133. https://doi.org/10.1016/j.neulet.2009.03.044

## 3. Effect of Educational Music Intervention on Emotion Regulation Skills of First-Year University Music Education Students.

The study by Nwokenna et al. (2022) investigated the impact of an educational music intervention on the emotion regulation skills of first-year university students studying music education. Using a randomized controlled trial, 60 students were divided into an intervention group and a control group. The intervention group participated in an 8-week program involving musical instrument performance, particularly flute training, which incorporated emotional and social learning components. The program aimed to enhance students' ability to manage emotions through structured musical engagement. Emotion regulation was measured using the Emotion Regulation Skills Scale (ERSS) and the Emotion Regulation Questionnaire (ERQ), both of which demonstrated high reliability.

The results showed a significant improvement in emotion regulation skills among students in the intervention group compared to the control group. Post-intervention scores on both ERSS and ERQ were substantially higher for the music group, indicating that the educational music program effectively enhanced emotional awareness, expression, and control. These findings suggest that structured music education can serve as a powerful tool for emotional development, particularly during the transitional and emotionally turbulent phase of early university life. The study supports the broader use of music-based interventions in educational settings to foster emotional resilience and well-being.

Summarized using Microsoft Copilot.

Microsoft. (2025). Copilot (May 13 version) [Large language model]. https://copilot.microsoft.com/

Nwokenna, E. N., Sewagegn, A. A., & Falade, T. A. (2022). Effect of educational music intervention on emotion regulation skills of first-year university music education students. *Medicine (Baltimore), 101*(47), e32041–e32041. https://doi.org/10.1097/MD.0000000000032041

## 4. Anatomically Distinct Dopamine Release During Anticipation and Experience of Peak Emotion to Music

The study by Salimpoor et al. (2011) provides compelling evidence that listening to pleasurable music triggers dopamine release in the brain, similar to responses seen with more tangible rewards like food or drugs. Using a combination of PET and fMRI scans, the researchers found that dopamine is released in two distinct phases: during the anticipation of peak emotional moments and during the actual experience of those moments, known as "chills." Specifically, dopamine release during anticipation was localized in the caudate nucleus (part of the dorsal striatum), while the peak emotional experience activated the nucleus accumbens (ventral striatum). These findings were supported by both subjective reports of pleasure and physiological markers of emotional arousal, such as increased heart rate and skin conductance.

The implications of this study are significant for understanding how abstract stimuli like music can engage the brain's reward system. The results suggest that music's ability to evoke intense pleasure is rooted in its capacity to create and resolve emotional expectations, engaging both anticipatory and consummatory reward pathways. This dual-phase dopamine activity mirrors the "wanting" and "liking" components of reward processing, offering a neurochemical explanation for why music is universally valued across cultures. Moreover, the study highlights how abstract rewards can be as neurologically potent as concrete ones, opening avenues for using music therapeutically to influence mood and motivation through natural engagement of the brain's reward circuitry.

Summarized using Microsoft Copilot.

Microsoft. (2025). Copilot (May 13 version) [Large language model]. https://copilot.microsoft.com/

Salimpoor, V. N., Benovoy, M., Larcher, K., Dagher, A., & Zatorre, R. J. (2011). Anatomically distinct dopamine release during anticipation and experience of peak emotion to music. *Nature Neuroscience, 14*(2), 257–262. https://doi.org/10.1038/nn.2726

## 5. Music May Reduce Loneliness and Act as Social Surrogate for a Friend: Evidence from an Experimental Listening Study

The study by Schäfer et al. (2020) explored whether music can act as a social surrogate and reduce feelings of loneliness, particularly in the context of interpersonal sadness. Participants were guided to imagine either a social loss (e.g., the death of a parent), a non-social loss (e.g., losing eyesight), or a neutral scenario (e.g., grocery shopping), and then listened to self-selected music intended either to comfort or distract. Contrary to the researchers' initial hypotheses, the type of sadness or the listening strategy did not significantly influence the outcomes. However, across all conditions, participants reported significantly reduced loneliness and increased empathy after listening to music, regardless of whether the music was chosen for comfort or distraction.

These findings suggest that private music listening, regardless of the listener's emotional state or the intended regulatory strategy, can foster a sense of connection and emotional support. This supports the broader theory that music can function as a social surrogate, offering companionship similar to that of an empathic friend. The increase in empathy and mood following music listening also points to music's potential to engage social cognition processes, even in solitary contexts. These results have implications for understanding how music can be used as a tool for emotional self-regulation and social connection, particularly in times of isolation or distress.

Summarized using Microsoft Copilot.

Microsoft. (2025). Copilot (May 13 version) [Large language model]. https://copilot.microsoft.com/

Schäfer, K., Saarikallio, S., & Eerola, T. (2020). Music may reduce loneliness and act as social surrogate for a friend: Evidence from an experimental listening study. *Music & Science, 3*. https://doi.org/10.1177/2059204320935709