

# Babies distinguish between happy, sad music

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(PhysOrg.com) -- Babies as young as 5 months old can distinguish an upbeat song from among gloomier compositions; and by the time they're 9 months, they can also pick out the sad song from among the happy ones. That's according to a new study by a research team that included Iowa State University Assistant Professor of Psychology Douglas Gentile.

Gentile teamed up with Brigham Young University psychology professor and lead author Ross Flom and Anne Pick, professor emeritus in the Institute of Child Development at the University of Minnesota, on the study of 96 infants. Their paper "Infants; discrimination of happy and sad music," will be published in the upcoming issue of the academic journal *Infant Behavior and Development*.

While the study shows how babies can make sense of the world long before they can talk, Gentile says it also provides some evidence of music's universal language when it comes to mood.

"These babies are not old enough to have already learned cultural or idiosyncratic differences in interpreting music," said Gentile. "This study shows that some pieces of music -- although not all -- can communicate happiness, or sadness."

The researchers examined 3-, 5-, 7- and 9-month-old infants' discrimination among 10 musical excerpts, previously judged by adults and preschoolers as being either happy or sad. Happy excerpts included such selections as "Ode to Joy" from Beethoven's Ninth Symphony and

Bach's "Brandenburg Concerto #3" (First movement), while the sad examples included Beethoven's Symphony #7 and Greig's "Aase's Death."

Subjects were seated in an infant seat facing a video monitor that displayed an emotionally neutral face as the music was played. The researchers monitored the infant's interest in the facial image while different selections were played.

"In infant studies, you use whatever babies can do, and one thing they can do is look," said Gentile, who conducted similar research on infants for his doctoral dissertation. "You can learn a lot from seeing how long they look at something. If there's an interest, they'll look at the image longer, but as they get used to it, they look less."

When the baby looked away from the image of the face, the music stopped and the researchers queued up a new excerpt. For each song, observers recorded how long the baby paid attention to the face. Babies that noticed a switch from happy to sad, or vice versa, stared at the face longer -- demonstrating that they could tell the difference.

"If we changed the music from happy to sad, then they would look longer (at the image) because they would notice a difference," Gentile said. "As babies learn the category, such as sad music, they get bored and they look away if they're picking up on category similarity. But if you change to a new category, such as happy music, they would look longer again."

"That's what's happening here, at least for 9-month-olds. They could discriminate between the happy and sad pieces of music," he said. "For the 5- and 7-month-olds, they could notice the difference (among happy songs, but not sad), but it was not as robust."

Although the study identifies the developmental age when infants begin to detect musical differences, Gentile says it also has greater application to parents about the emotional power of music.

"Because I research the effects of violent media on children, parents often ask me about the harmful effects of violent music and lyrics on their children," he said. "My answer is that the main power of music isn't really in its lyrics. Music is an emotional medium. We choose to listen to music either to match our mood, or to change our mood.

"If your child is spending a lot of time playing angry music, that suggests that something is going on that you might want to ask about," Gentile said. "This study shows that music is emotionally communicative since even babies seem to attend to the emotional content of music."

Provided by Iowa State University

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