Singing researchers find cross-cultural patterns in music and language

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Study co-authors Latyr Sy (Senegal), Gakuto Chiba (Japan), Neddie Elcie Muñoz Millalonco (Chile), and Aleksandar Arabadjiev (Macedonia) singing and playing their traditional instruments. Credit: Latyr Sy, Gakuto Chiba, Neddie Elcie Muñoz Millalonco, Aleksandar Arabadjiev
Are acoustic features of music and spoken language shared across cultures? Researchers from the Max Planck Institute for Psycholinguistics in Nijmegen have contributed to a global study of music and speech, published in Science Advances.

An international team of researchers recorded themselves performing traditional music and speaking in their native language. In all 50+ languages, the rhythms of songs and instrumental melodies were slower than those of speech, while the pitches were higher and more stable.

Language and music may share evolutionary functions. Both speech and song have features such as rhythm and pitch. But are similarities and differences between speech and song shared across cultures?

To investigate this question, 75 researchers—speaking 55 languages—were recruited across Asia, Africa, the Americas, Europe and the Pacific. Among them were experts in ethnomusicology, music psychology, linguistics, and evolutionary biology. The researchers were asked to sing, perform instrumentals, recite lyrics and verbally describe songs. The resulting audio samples were analyzed for features such as pitch, timbre and rhythm.

The study provides "strong evidence for cross-cultural regularities," according to senior author Patrick Savage of Waipapa Taumata Rau, University of Auckland, a psychologist and musicologist who sang "Scarborough Fair."

MPI's Limor Raviv, co-author on the study, recorded the Hebrew song "Yerushalayim Shel Zahav." Fellow author Andrea Ravignani from the
MPI recorded the Italian song "Bella Ciao," playing the saxophone. The collection also featured the Dutch songs "Hoor de wind waait" and "Dikkertje Dap."

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Speculating on underlying reasons for the cross-cultural similarities, Savage suggests songs are more predictably regular than speech because they are used to facilitate synchronization and social bonding.

"Slow, regular, predictable melodies make it easier for us to sing together in large groups," he says. "We're trying to shed light on the cultural and biological evolution of two systems that make us human: music and language."

More information: Yuto Ozaki et al, Globally, songs and instrumental melodies are slower, higher, and use more stable pitches than speech: A

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