

Aggressive music related to anxiety in men

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Credit: Human Brain Project

Brain imaging reveals how neural responses to different types of music really affect the emotion regulation of persons. The study concludes that men who process negative feelings with music react negatively to aggressive and sad music.

Emotion regulation is an essential component to [mental health](#). Poor [emotion regulation](#) is associated with psychiatric mood disorders such as depression. Clinical [music](#) therapists know the power music can have over emotions, and are able to use music to help their clients to better mood states and even to help relieve symptoms of psychiatric mood disorders like depression. But many people also listen to music on their own as a means of emotion regulation, and not much is known about how this kind of music listening affects mental health. Researchers at the Centre for Interdisciplinary Music Research at the University of Jyväskylä, Aalto University in Finland and Aarhus University in Denmark decided to investigate the relationship between mental health, music listening habits and neural responses to music emotions by looking at a combination of behavioural and neuroimaging data. The study

was published in August in the journal *Frontiers in Human Neuroscience*.

"Some ways of coping with negative emotion, such as rumination, which means continually thinking over negative things, are linked to poor mental health. We wanted to learn whether there could be similar negative effects of some styles of music listening," explains Emily Carlson, a music therapist and the main author of the study.

Participants were assessed on several markers of mental health including depression, anxiety and neuroticism, and reported the ways they most often listened to music to regulate their emotions. Analysis showed that anxiety and neuroticism were higher in participants who tended to listen to sad or aggressive music to express [negative feelings](#), particularly in males. "This style of listening results in the feeling of expression of negative feelings, not necessarily improving the negative mood," says Dr. Suvi Saarikallio, co-author of the study and developer of the Music in Mood Regulation (MMR) test.

To investigate the brain's unconscious emotion regulation processes, the researchers recorded the participants' neural activity as they listened to clips of happy, sad and fearful-sounding music using functional magnetic resonance imaging (fMRI) at the AMI Center of Aalto University. Analysis showed that males who tended to listen to music to express negative feelings had less activity in the medial prefrontal cortex (mPFC). In females who tended to listen to music to distract from negative feelings, however, there was increased activity in the mPFC. "The mPFC is active during emotion regulation," according to prof. Elvira Brattico, the senior author of the study. "These results show a link between [music listening](#) styles and mPFC activation, which could mean that certain listening styles have long-term effects on the brain."

"We hope our research encourages music therapists to talk with their clients about their music use outside the session," concludes Emily Carlson,

"and encourages everyone to think about the how the different ways they use music might help or harm their own well-being."

More information: Emily Carlson et al.

Maladaptive and adaptive emotion regulation through music: a behavioral and neuroimaging study of males and females, *Frontiers in Human Neuroscience* (2015). DOI: [10.3389/fnhum.2015.00466](https://doi.org/10.3389/fnhum.2015.00466)

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