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AI-powered Audio Creation and AI-mediated Audio Consumption: Associations with Acoustic Well-Being in a Wartime Context

Abstract

With the rapid development of AI technologies in music, research has begun to explore their impact on users, including both, their potential benefits for mental well-being and the challenges they may introduce.

This study examines two forms of AI-related audio use: AI-powered audio creation and AI-mediated audio consumption, and their relationship to acoustic well-being among individuals exposed to war-related sound trauma. Acoustic well-being was indexed exclusively through the Acoustic Intrusion Scale (AcInt), which measures intrusionlike, sound-driven re-experiencing. We applied correlation analysis, multiple linear regression, and mediation modeling. Two predictors of AcInt emerged: (1) the intensity of negative-valence emotions elicited by auditory media content and (2) the level of engagement with audio content on social media. In the regression model, neither AI-powered audio creation (AIp) nor AI-mediated audio consumption (AIc) showed a significant direct association with AcInt. However, process analyses indicated two statistically significant indirect associations. First, social media engagement mediated the association between AI-powered audio creation and acoustic intrusions. Second, AI-mediated audio consumption was associated with fewer acoustic intrusions indirectly through reduced negative emotional responses to auditory content.

Implications for psychological support, AI audio design in wartime contexts, and directions for future research are discussed.