

Virtual Reality Interventions for Mood Disorders: Exploring Heart Rate Variability Biofeedback and Time Perception Recalibration

Friday, September 12, 2025 10:00 AM (20 minutes)

This study explores two innovative, immersive virtual reality (VR) interventions aimed at improving psychological wellbeing in individuals with moderate to severe depressive symptoms. The first intervention integrates heart rate variability biofeedback (HRV-BF), a technique known to promote autonomic balance by enhancing parasympathetic activity and reducing sympathetic dominance. The second intervention introduces a novel time perception recalibration approach using a VR game in which time advances only through user movement, targeting cognitive mechanisms linked to mood disorders. Altered time perception is commonly associated with anxiety and depression, yet remains an underexplored therapeutic target. To evaluate the effectiveness of these approaches, a randomized controlled trial was conducted with 30 participants, assigned to one of three groups: HRV-BF, time recalibration, or a control condition. Over four weekly sessions, participants engaged with their assigned VR experience using a head-mounted display, while physiological responses were monitored via wearable cardiac sensors. Results from this trial contribute to emerging evidence supporting the use of non-pharmacological, technology-enhanced methods for mental health treatment. By leveraging immersive VR environments, this study highlights the potential of targeting both physiological regulation and cognitive distortions to alleviate mood symptoms.

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Embodied emotion and motivation: interoception, physiology, and brain dynamics in affective experience

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No

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