Poster

2025年9月27日(土) 11:00 ~ 12:10 Poster Session (6F Meeting Room 4-6)

Poster 36

[P-36-06] Expectancy Violation Enhances Inhibitory Learning in Personalized Virtual Reality Exposure Therapy for Panic Disorder: A Randomized Controlled Trial

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キーワード：Virtual reality、Panic disorder、Agoraphobia、Personalization、Inhibitory learning

Background: Amid the global shortage of mental health professionals, virtual reality (VR) exposure therapy has emerged as a scalable solution for treating anxiety disorders. While standard hierarchical exposure focuses on habituation, newer models emphasize expectancy violation to foster lasting inhibitory learning. Personalized VR environments—designed to introduce variability and unpredictability—may promote stronger and more durable effects, particularly in panic disorder and agoraphobia.
Methods: We conducted a randomized controlled trial involving participants diagnosed with panic disorder and/or agoraphobia. Participants were assigned to receive either personalized enhancing VR exposure—incorporating variable, expectancy-violating elements—or standard hierarchical VR exposure over four weekly sessions. VR environments included individualized simulations of real-world settings such as supermarkets and roadways, with modifiable sensory elements (e.g., crowd density, brightness, and spatial constraints). Primary outcomes included the Panic Disorder Severity Scale (PDSS), Mobility Inventory for Agoraphobia (MI), State-Trait Anxiety Inventory-State (STAI), and a visual analog scale (VAS) for anxiety.
Results: Participants were randomly assigned with no significant baseline differences between groups. Repeated-measures ANOVA revealed significant main effects of time for STAI ($F(4,34)=2.759$, $p=.043$) and VAS ($F(4,25)=6.613$, $p<.001$), and significant time × group interactions (STAI: $F=3.219$, $p=.024$; VAS: $F=4.610$, $p=.006$), indicating differential treatment response. No such interaction effects were found for PDSS or MI. Post hoc tests showed no group differences from Week 1 to Week 4, but significant differences at the final follow-up (3 months) for both VAS ($p=.006$) and STAI ($p=.016$), which survived Bonferroni correction.
Conclusion: This study highlights the potential of personalized enhancing VR as a scalable, safe, and engaging intervention for anxiety-related disorders, with sustained benefits observed after the intervention period. Furthermore, by embedding expectancy violation principles into immersive, individualized environments, VR exposure therapy may offer a novel pathway to strengthen inhibitory learning and overcome the limitations of traditional stepwise exposure.