

Title: Ecological Momentary Assessment of Multiple Affective Dimensions and Craving for Relapse Prevention in Opioid Use Disorder

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Abstract:

Despite effective medications for opioid use disorder (OUD), relapse remains common, highlighting the need for treatments that target vulnerable states as they arise. Affect and craving are promising targets, yet conceptual models often rely on isolated emotions or broad categories (e.g., negative affect), which may obscure clinically relevant dynamics or unduly enmesh affect with craving. We employed exploratory factor analysis (EFA) on ecological momentary assessment (EMA) data to identify latent affective dimensions and evaluate their relevance to OUD outcomes and addiction-relevant decision-making. Treatment-engaged OUD (N=87) and control (N=77) participants completed a 28-day EMA protocol probing 26 affective states three times daily and behavior on two tasks once daily, measuring risk-taking and impulsive choice. Complex-data EFA revealed four separable dimensions in OUD: high- and low-arousal negative affect, positive affect, and a distinct craving/negative self-perception factor. Relative to controls, OUD participants showed higher mean scores and more within-person variability on all factors except positive affect, which was lower but similarly variable. Within the OUD group, patients who returned to opioid use during follow-up vs. remained abstinent had disproportionately higher scores and increased variability, especially in low-arousal negative affect and craving. Finally, day-to-day fluctuations in affect and craving had dissociable effects on decision-making, differentially biasing risk tolerance, ambiguity tolerance, and impulsive choice. Together, findings suggest a multidimensional structure of affect in OUD, clarify its relationship to craving, and highlight outcome-relevant impacts on decision-making, together supporting improved identification of relapse risk in OUD and development of more precise, “just-in-time” interventions.