Stroop interference score and craving-use link intensity among patients beginning outpatient treatment for substance use disorder: an EMA study

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Introduction. Studies examining the association of neuropsychological functioning in patients with substance use disorders have generally found that deficits in executive capacities is associated with a greater risk of relapse and poorer treatment adherence. We applied Ecological Momentary Assessment (EMA) to examine the influence of executive functions on the real-time, prospective link between craving and substance use. The objectives of the study are to: 1) assess the potential influence of executive functioning on the magnitude of the craving-substance use association; and 2) identify potential brain markers associated with these influences.
Methods. A total of 86 patients beginning outpatient treatment for an alcohol, cannabis or tobacco use disorder completed a battery of neuropsychological tests followed by seven days of EMA. During EMA, patients were assessed five times a day via smartphones concerning their experience of craving and substance use since the last assessment. A total of 54 of these patients also completed an MRI exam just before the EMA assessment period.
Results and conclusion. As expected, the intensity of craving at any given EMA assessment strongly predicted the probability of substance use over subsequent hours of the day. A significant association was also found between the Stroop interference score and the intensity of this prospective craving-substance use link. Surprisingly, however, better Stroop interference scores were associated with a greater magnitude of association between craving and substance use. This counter-intuitive result may be explained by that fact that patients who are better able to ignore distracting stimuli may be more likely to focus on their experience of craving and subsequently be at greater risk for relapse. The present findings argue for the need to better understand the complexity of how neuropsychological functioning is associated with relapse, and they will also be discussed in light of associated brain markers as identified through MRI.

Declarations of interests : none.