Supplementary Online Content


eFigure 1. Probabilistic reversal learning task

eFigure 2. Estimated hemodynamic response function (HRF) for the switch vs stay contrast in healthy controls (n = 20)

eFigure 3. Behavioral performance, perseverative errors, and impulsivity by group

This supplementary material has been provided by the authors to give readers additional information about their work.
eFigure 1. Probabilistic reversal learning task

A, On each trial, the participant chooses between 2 stimuli by pressing response buttons with the right index finger. They receive symbolic (correct/incorrect) feedback. B. The reinforcement contingency is obscured by approximately 20% misleading feedback. It changes 12 times unbeknownst to the participant. The blue line in the graph represents expected value of the best available option, as predicted by the reinforcement learning model in a representative participant.
eFigure 2. Estimated hemodynamic response function (HRF) for the switch vs stay contrast in healthy controls (n = 20)

Using the switch vs stay contrast, we estimated the HRF in the right ventrolateral prefrontal cortex (vlPFC)/fronto-opercular cortex/anterior insular cortex functional region of interest corresponding to the one identified by Cools and colleagues (J Neurosci. 2002;22[11]:4563-4567). The empirically estimated response was similar to the canonical HRF, but less peaky.
**Figure 3.** Behavioral performance, perseverative errors, and impulsivity by group

A. Depressed participants were more likely to switch after misleading negative feedback, with only the nonsuicidal (NS) depressed participants differing significantly from controls. B. There were no group differences in perseverative errors. C indicates controls; D, depressed; SA, suicide attempters. C-E, However, within the depressed group, perseverative errors were associated with multiple measures of impulsivity: impulsive-careless social problem-solving style (C), nonplanning impulsivity (D), and bets against the odds on the Cambridge Gambling Task (E).