# The Role of Willpower in Major Depressive Disorder: An fMRI Study

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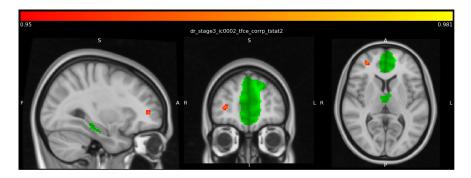
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## Abstract

The brain-network correlates of personality traits in major depressive disorder (MDD) have not yet been investigated. Furthermore, it is still unclear whether personality traits relate to the depressive episode. This study assessed network properties, depression severity, and personality traits in patients with MDD (n=25) compared with age- and sex-matched healthy controls (n=22). MDD patients with different character traits exhibited significant differences in terms of depression diagnosis and severity of Hamilton Depression Rating Scale scores compared to the controls. The MDD patients also exhibited reduced resting state network activity between the posterior default mode network, right putamen, and right frontal pole, while self-directness (SD) was significantly less frequently diagnosed in MDD patients. In evaluating the network correlates, differences in the SD traits were significantly associated with critical brain network alterations that were not evident in other traits. To the best of our knowledge, this is the first study to provide preliminary evidence of an anomalous connectome in the SD trait in MDD, thus providing strong evidence for personalized antidepressant treatment strategies in MDD.

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