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INCREASED COUPLING OF RESTING STATE ACTIVITY BETWEEN AMYGDALA AND CORTICAL EMOTION PROCESSING REGIONS IN REMITTED MAJOR DEPRESSIVE DISORDER

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Introduction: While most neuroimaging studies have investigated acutely depressed patients, neural mechanisms underlying stable remission are rarely examined. Furthermore, the majority of previous functional MRI (fMRI) studies have focused on task-induced neural activity, while resting-state activity may be more reproducible across study centers.

Objectives: To clarify patterns of functional coupling between subcortical structures and cortical resting state activity.

Aims: To determine whether alterations of functional coupling between the amygdala and cortical emotion processing regions characterize patients in the remitted phase of Major Depressive Disorder (rMDD).

Methods: Forty-three remitted depressed patients and thirty-five healthy controls were recruited at Medical University of Vienna, Vienna, Austria, and performed a six minute resting-state fMRI scan. The scans were corrected for slice timing and motion, as well as for mean white matter, mean CSF, and median gray matter signals. Seed time series were extracted using individual amygdala masks and correlated with all nodes in a surface based analysis using FreeSurfer, AFNI and SUMA. The resulting correlation coefficients were then Fisher-transformed, group results were determined by comparing group mean smoothed (to 8mm FWHM) z-scores with a two-sample t-test.

Results: Increased resting-state functional connectivity was revealed between amygdala (seed region) and posterior cingulate cortex as well as orbitofrontal cortex in the rMDD group compared to healthy controls.

Conclusions: Our preliminary results suggest altered functional coupling between amygdala and cortical emotion processing areas during resting state conditions, possibly representing a neural mechanism contributing to the maintenance of stable remission of MDD.