

Publication

Neural mapping of anhedonia across psychiatric diagnoses: A transdiagnostic neuroimaging analysis.

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Anhedonia has been associated with abnormal reward-related striatal dopamine functioning in patients with different psychiatric disorders. Here, we tested whether anhedonia expression mapped onto striatal volume across several psychiatric diagnoses. T1-weighted images from 313 participants including 89 healthy controls (HC), 22 patients with opioid use disorder (OUD), 50 patients with major depressive disorder (MDD), 45 patients with borderline personality disorder (BPD), 49 patients with first-episode psychosis (FEP), 43 patients with cocaine use disorder (CUD) and 15 patients with schizophrenia (SZ) were included. Anhedonia was assessed with subscores of the Beck Depression Inventory (BDI) and/or the Scale for the Assessment of Negative Symptoms (SANS). Voxel-based morphometry (VBM) was conducted for identifying dimensional symptom-structure associations using region of interest (ROI, dorsal and ventral striatum) and whole-brain analyses, as well as for group comparisons of striatal volume. ROI analyses revealed significant negative relationships between putamen volume and BDI and SANS anhedonia scores across OUD, MDD, BPD, CUD and SZ patients ($n=175$) and MDD, FEP and SZ patients ($n=114$), respectively. Whole-brain VBM analyses confirmed these associations and further showed negative relationships between anhedonia severity and volume of the bilateral cerebellum. There were group differences in right accumbens volume, which however were not related to anhedonia expression across the different diagnoses. Our findings indicate volumetric abnormalities in the putamen and cerebellum as a common neural substrate of anhedonia severity that cut across psychiatric entities.

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