

Supplementary Data

Functional Connectivity with the vACC

NF1 patients as well as controls show functional connectivity of the bilateral vACC seeds with the ACC itself, superior frontal gyrus, frontal pole, bilateral accumbens, and the bilateral caudate nucleus. In addition, healthy controls show functional connectivity between the bilateral vACC and bilateral thalamus and between the right vACC and the superior temporal gyrus. In NF1 patients, additional functional connectivity was found between the bilateral vACC and the bilateral insular cortex, bilateral OFC, left parahippocampal gyrus, and bilateral putamen (Fig. 1: 1a, 4).

Functional Connectivity with the Amygdala

Both groups show functional connectivity between the amygdala and the hippocampus and the parahippocampal gyrus within the ipsilateral hemisphere. Patients showed additional connectivity between the left amygdala and the OFC, temporal pole, superior temporal gyrus, central opercular cortex, and the putamen, all bilateral. Right amygdala functional connectivity in patients was found with the left cerebellum (Fig. 1: 2a, 5).

Functional Connectivity with the OFC

The OFC showed functional connectivity with the subcallosal cortex in patients and controls. In addition, functional connectivity in healthy controls was found between the right OFC and the ACC, as well as with the right nucleus accumbens. Moreover, the left OFC was connected to the ACC, right putamen, and left insula. In patients, left OFC connectivity was found with the bilateral amygdala, bilateral temporal pole, right insula, and bilateral frontal pole. The right OFC was connected to the right putamen (Fig. 1: 3a, 6).

Functional Connectivity with the PCC/Precuneus

In both groups, the PCC/precuneus was connected to the bilateral angular gyrus, ACC (dorsal in controls, ventral in patients), bilateral middle and superior frontal gyrus, bilateral occipital cortex, and the left middle and inferior temporal gyrus. Patients additionally showed connections to the frontal pole, the paracingulate gyrus, bilateral thalamus, right middle and inferior temporal gyrus, left hippocampus, and cerebellum (Fig. 1: 7).