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Deviations in neural activity and network integration underpinning the co-occurrence of emotion dysregulation and attention-deficit/hyperactivity disorder: Analyses of fMRI task activations and functional brain network topology

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Propositions

Emotion recognition deficits in ADHD are particularly associated with lower amygdala activation to emotional stimuli and alterations in the functional connections of the amygdala to medial prefrontal areas.

A positive relation of the right insula's clustering and local efficiency with emotion dysregulation in young adult individuals with predominantly hyperactive/impulsive ADHD exists. A similarly strong connection does not exist for individuals with predominantly inattentive ADHD or healthy controls.

ADHD-type specific deficiencies in network forming processes may be associated with emotion processing and its implicit regulation. This may further be linked to commonly observed emotional problems in ADHD.

A pattern of low nodal efficiency of cortical regions associated with emotion processing and high nodal efficiency in subcortical areas and cortical areas involved in implicit emotion regulation predicts a better ADHD course.

Larger nodal efficiency of the right orbitofrontal cortex is related to a better course of ADHD.

Neural and behavioral covariates associated with emotion regulation affect the course of ADHD severity throughout adolescence and early adulthood beyond baseline effects of ADHD severity.

Neural activity of and functional connectivity between emotion-related brain structures may be related to the common co-occurrence of emotion dysregulation and ADHD.