

# Similar changes in the brains of patients with ADHD and emotional instability

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In both ADHD and emotional instability disorders (e.g. borderline and antisocial personality disorder, as well as conduct disorder in children), the brain exhibits similar changes in overlapping areas, meaning that the two types of conditions should be seen as related and attention should be paid to both during diagnosis. This is according to a new study published

in *Molecular Psychiatry*. The results can lead to a broader treatment for both conditions.

Clinical attention has long been paid to the fact that individuals with ADHD also demonstrate emotional problems, such as chaotic emotional responses, anxiety and depression. Yet the relationship between ADHD and impaired emotional regulation has not been identified, even if theories have been proposed that both conditions are rooted in a dysfunction in how the [brain](#) controls its information processing.

A new study by researchers at Karolinska Institutet in Sweden substantiated the hypothesis by showing how both ADHD and a form of emotional instability trait ([conduct disorder](#) trait in children) exhibit similar, overlapping changes in the brain. The study included more than 1000 adolescents.

"We can call them sibling conditions, since they both involve partly overlapping underlying brain mechanisms, and therefore attention should be paid to both dimensions during diagnosis," says Predrag Petrovic, associate professor at the Department of Clinical Neuroscience at Karolinska Institutet and consultant psychiatrist at North Stockholm Psychiatry.

It was with the help of structural brain imagery (MR) that the team was able to show how both ADHD and conduct disorder traits in adolescents manifested themselves in the form of reduced brain volume and surface area in parts of the frontal lobe and nearby regions. The affected parts of the brain were generally overlapping, but the researchers also found changes that were specifically related to ADHD symptoms or symptoms seen in conduct disorder. The study also included behavioural experiments that demonstrated both conditions.

"These results are important not least for the patients with emotional

instability, since in many cases they are treated with scepticism and feel frustrated at not being taken seriously," says Dr. Petrovic. "We now show that this is related to changes in the brain that resemble those that have been observed in patients with ADHD, which can lead to a broader understanding and better diagnosis."

The study was part of the IMAGEN-project, an EU-funded collaboration amongst several European countries that aims towards a better understanding of how the brain and behaviour develop.

The hope is that the study will not only lead to better diagnoses but also to better treatments, where people with an ADHD diagnosis can receive special therapy to help them better handle their emotions.

"We also need to do more research to understand if central stimulant medication used for ADHD can also produce positive results for people with emotional instability disorders," says Dr. Petrovic.

**More information:** undefined undefined et al. Distinct brain structure and behavior related to ADHD and conduct disorder traits, *Molecular Psychiatry* (2018). [DOI: 10.1038/s41380-018-0202-6](https://doi.org/10.1038/s41380-018-0202-6)

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