



Examining overlap and homogeneity in ASD, ADHD, and OCD: a data-driven, diagnosis-agnostic approach

What is the research about?

Autism spectrum disorder (ASD), attention-deficit/hyperactivity disorder (ADHD), and obsessive compulsive disorder (OCD) are neurodevelopmental disorders that impact how the brain is shaped, wired, and functions. New evidence has shown that ASD, ADHD, and OCD share common biology, and treatments. The purpose of this study was to determine if POND participants who were typically developing or had diagnoses of ASD, ADHD or OCD would group together if diagnostic labels were ignored and only behavioural and brain features were considered.

What did the researchers do?

The researchers grouped POND participants based on behavioural and brain data to determine if the new groups reflected the participants' original diagnosis using a data-driven, machine learning approach. POND participants who were typically developing or had a primary diagnosis of ASD, ADHD, or OCD were included if they had neuroimaging data. The researchers looked at the behavioural characteristics of participants on questionnaires that measure social abilities, attention, and obsessive-compulsive traits, as well as the structure of the brain.

What did the researchers find?

The results suggested that the groups determined by categorizing participants based on behaviour and brain data did not align with the diagnostic label (e.g., typically developing, ASD, ADHD, or OCD). The groups created by the researchers based on data contained participants from multiple diagnostic categories.

Take home message.

This paper challenges the way ASD, ADHD, and OCD are currently defined, diagnosed, and treated. The results from this paper add to the growing evidence that neurodevelopmental disorders may not be able to be classified by a single, unique diagnostic label but rather looking at behavior and biology may be more important. Future studies are needed to show that these findings hold in other samples and other measures of brain and behaviour. The researchers outline a need to create groups of neurodevelopmental disorders that better reflect the behavioural and biological characteristics to ensure more accurate interventions and care.



Notes

The full research article can be accessed at this link: <https://www.nature.com/articles/s41398-019-0631-2>

Reference (APA):

Kushki, A., Anagnostou, E., Hammill, C. *et al.* Examining overlap and homogeneity in ASD, ADHD, and OCD: a data-driven, diagnosis-agnostic approach. *Transl Psychiatry* **9**, 318 (2019) doi:10.1038/s41398-019-0631-2