



IACAPAP 2018

23rd WORLD CONGRESS OF THE INTERNATIONAL ASSOCIATION
FOR CHILD AND ADOLESCENT PSYCHIATRY AND ALLIED PROFESSIONS



Overlap between Attention Deficit Hyperactivity disorder and Autism Spectrum Disorders: new perspectives

Jan K. Buitelaar¹

¹Department of Cognitive Neuroscience, Donders Institute for Brain, Cognition and Behaviour, Radboudumc & Karakter Child and Adolescent Psychiatry University Centre, the Netherlands

Autism Spectrum Disorders (ASD) and Attention-Deficit / Hyperactivity Disorders (ADHD) are neuropsychiatric developmental disorders that frequently co-occur (Rommelse et al., 2010). The frequent comorbidity of both disorders is likely due to substantial overlap in genetic factors, cognitive dysfunctions, and functional and structural brain characteristics between ASD and ADHD (Rommelse et al., 2011). Both disorders are also hypothesized to share a common precursor, i.e. early deficits in executive attention (Johnson et al., 2015; Visser et al. 2016). In this lecture, I will review the evidence for shared and unique genetic, cognitive and neural factors that are involved in ASD and ADHD and will argue that ADHD and ASD may be both manifestations of one overarching neurodevelopmental disorder. Among others, I will review and contrast the structural MRI correlates of ADHD and ASD as reported by the respective ENIGMA working groups, present the results of a causal discovery analysis (Sokolova et al. 2017), and put the ASD and ADHD overlap within a life-span perspective (Hartman et al. 2016; Rommelse et al. 2017)

The last part of the lecture will discuss clinical implications of this view and outline further approaches for research, including interventions and prevention.

References

Sokolova E, Oerlemans AM, Rommelse NN, Groot P, Hartman CA, Glennon JC, Claassen T, Heskes T, Buitelaar JK. A Causal and Mediation Analysis of the Comorbidity Between Attention Deficit Hyperactivity Disorder (ADHD) and Autism Spectrum Disorder (ASD). *J Autism Dev Disord*. 2017 Jun;47(6):1595-1604.

Hartman CA, Geurts HM, Franke B, Buitelaar JK, Rommelse NNJ. Changing ASD-ADHD



IACAPAP 2018

23rd WORLD CONGRESS OF THE INTERNATIONAL ASSOCIATION
FOR CHILD AND ADOLESCENT PSYCHIATRY AND ALLIED PROFESSIONS



symptom co-occurrence across the lifespan with adolescence as crucial time window: Illustrating the need to go beyond childhood. *Neurosci Biobehav Rev.* 2016 Dec;71:529-541.

Visser JC, Rommelse NN, Greven CU, Buitelaar JK. Autism spectrum disorder and attention-deficit/hyperactivity disorder in early childhood: A review of unique and shared characteristics and developmental antecedents. *Neurosci Biobehav Rev.*

2016 Jun;65:229-63.

Rommelse N, Buitelaar JK, Hartman CA. Structural brain imaging correlates of ASD and ADHD across the lifespan: a hypothesis-generating review on developmental

ASD-ADHD subtypes. *J Neural Transm (Vienna)*. 2017 Feb;124(2):259-271.

Rommelse NN, Geurts HM, Franke B, Buitelaar JK, Hartman CA. A review on cognitive and brain endophenotypes that may be common in autism spectrum disorder

and attention-deficit/hyperactivity disorder and facilitate the search for pleiotropic genes. *Neurosci Biobehav Rev.* 2011 May;35(6):1363-96.

Rommelse NN, Franke B, Geurts HM, Hartman CA, Buitelaar JK. Shared heritability of attention-deficit/hyperactivity disorder and autism spectrum disorder. *Eur Child Adolesc Psychiatry.* 2010 Mar;19(3):281-95.