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Executive Function in Youth With ADHD and ASD: A Systematic Review and Meta-analysis

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Abstract : Attention-deficit hyperactivity disorder (ADHD) and autism spectrum disorder (ASD) are impairing childhood neurodevelopmental disorders with problems in executive functions. Executive functions are higher-level mental processes essential for daily functioning and goal attainment. There is genetic and neural overlap between ADHD and ASD. The aim of this meta-analysis was to evaluate if pediatric ASD and ADHD have distinct executive function profiles. This review was completed following Cochrane guidelines. Fifty-eight articles were identified through database searching, followed by a blinded screening in duplicate. A meta-analysis was performed for all task performance metrics evaluated by at least two articles. Forty-five metrics from 24 individual tasks underwent analysis. No differences were found between youth with ASD and ADHD in any domain under direct comparison. However, individuals with ASD and ADHD exhibited deficient attention, flexibility, visuospatial abilities, working memory, processing speed, and response inhibition compared to controls. No deficits in planning were noted in either disorder. Only 11 studies included a group with comorbid ASD+ADHD, making it difficult to determine whether common executive function deficits are a function of comorbidity. Further research is needed to determine if comorbidity accounts for the apparent commonality in executive function between ASD and ADHD.

Keywords : autism spectrum disorder, ADHD, neurocognition, executive function, youth
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