Clinical and functional correlates of processing speed in pediatric Attention-Deficit/Hyperactivity Disorder: a systematic review and meta-analysis.

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Abstract

It is well established that processing speed is negatively impacted in children and adolescents with Attention-Deficit/Hyperactivity Disorder (ADHD). Unfortunately, exactly how processing speed vulnerabilities manifest in daily functioning has not been well established. To support clinical care of youth with ADHD, it is important to better understand the functional consequences and relevant outcomes associated with processing speed deficits. This systematic review and meta-analysis sought to identify the association between processing speed and clinical or functional correlates among children or adolescents diagnosed with ADHD. A total of 409 abstracts were screened, of which, 60 full-text articles were identified as potentially relevant, and 8 of these studies met inclusion criteria. Domains evaluated across these studies included reading skills, mathematics skills, written expression, anxiety, self-appraisals of competence, and adaptive functioning. Six studies reported an association between processing speed and reading skills, allowing for meta-analysis. Processing speed difficulties among youth with ADHD appear strongly associated with several clinical and functional correlates including weaker academic skills, poorer adaptive skills, increased self-reported anxiety, and overestimates of social competence. Meta-analytic results for studies reporting the association between processing speed and reading skills indicate a medium overall weighted mean effect size ($r = 0.33, 95\% CI = 0.28 -0.39$) with minimal heterogeneity ($I^2 = 0.17$). Clinical implications of these findings, limitations in the current knowledge base, and suggestions for future research are discussed.