Poor stimulus discriminability as a common neuropsychological deficit between ADHD and reading ability in young children: a moderated mediation model.


Abstract

BACKGROUND: Attention deficit hyperactivity disorder (ADHD) is frequently associated with poorer reading ability; however, the specific neuropsychological domains linking this co-occurrence remain unclear. This study evaluates information-processing characteristics as possible neuropsychological links between ADHD symptoms and RA in a community-based sample of children and early adolescents with normal IQ (>70).

METHOD: The participants (n = 1857, aged 6-15 years, 47% female) were evaluated for reading ability (reading single words aloud) and information processing [stimulus discriminability in the two-choice reaction-time task estimated using diffusion models]. ADHD symptoms were ascertained through informant (parent) report using the Development and Well-Being Assessment (DAWBA). Verbal working memory (VWM; digit span backwards), visuospatial working memory (VSWM, Corsi Blocks backwards), sex, socioeconomic status, and IQ were included as covariates.

RESULTS: In a moderated mediation model, stimulus discriminability mediated the effect of ADHD on reading ability. This indirect effect was moderated by age such that a larger effect was seen among younger children.

CONCLUSION: The findings support the hypothesis that ADHD and reading ability are linked among young children via a neuropsychological deficit related to stimulus discriminability. Early interventions targeting stimulus discriminability might improve symptoms of inattention/hyperactivity and reading ability.