Fluid reasoning and reading difficulties among children with ADHD

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Abstract

BACKGROUND:
Children with attention-deficit/hyperactivity disorder (ADHD) commonly experience difficulties in reading and in fluid reasoning (Gf). According to Cattell's Investment Theory (1987), Gf is a causal factor in the development of crystallized knowledge (Gc) and academic skills; therefore, the co-occurrence of reading and Gf difficulties within ADHD may not be coincidental.

METHODS:
In the present study with children with both ADHD and reading difficulties (n = 187; 61% male; Mage = 9.2), we utilized mediation analyses to test direct and indirect (through Gc, phonemic awareness, and rapid automatized naming [RAN]) effects of Gf on four basic reading skills: untimed word recognition, untimed phonemic decoding, word reading efficiency, and phonemic decoding efficiency.

RESULTS:
The direct effect of Gf on all reading skills was nonsignificant; however, significant indirect effects were observed. Specifically, Gf exerted an effect indirectly onto all reading skills through a serial and joint mechanism comprised of Gc and phonemic awareness (i.e., Gf → Gc → phonemic awareness → reading achievement). Gf also exerted an effect indirectly onto untimed word recognition and phonemic decoding through phonemic awareness (i.e., Gf → phonemic awareness → untimed word recognition/untimed phonemic decoding).

CONCLUSION:
Results build upon Cattell's Investment Theory by linking Gf with reading difficulties among children with ADHD, suggesting that such difficulties may arise from weaknesses in Gf and insufficient investment of Gf into reading through Gc and phonemic awareness.