Inattentive Behavior in Boys with ADHD during Classroom Instruction: The Mediating Role of Working Memory Processes.

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Abstract

Children with ADHD exhibit clinically impairing inattentive behavior during classroom instruction and in other cognitively demanding contexts. However, there have been surprisingly few attempts to validate anecdotal parent/teacher reports of intact sustained attention during 'preferred' activities such as watching movies. The current investigation addresses this omission, and provides an initial test of how ADHD-related working memory deficits contribute to inattentive behavior during classroom instruction. Boys ages 8-12 (M = 9.62, SD = 1.22) with ADHD (n = 32) and typically developing boys (TD; n = 30) completed a counterbalanced series of working memory tests and watched two videos on separate assessment days: an analogue math instructional video, and a non-instructional video selected to match the content and cognitive demands of parent/teacher-described 'preferred' activities. Objective, reliable observations of attentive behavior revealed no between-group differences during the non-instructional video (d = -0.02), and attentive behavior during the non-instructional video was unrelated to all working memory variables (r = -0.11 to 0.19, ns). In contrast, the ADHD group showed disproportionate attentive behavior decrements during analogue classroom instruction (d = -0.71). Bias-corrected, bootstrapped, serial mediation revealed that 59% of this between-group difference was attributable to ADHD-related impairments in central executive working memory, both directly (ER = 41%) and indirectly via its role in coordinating phonological short-term memory (ER = 15%). Between-group attentive behavior differences were no longer detectable after accounting for ADHD-related working memory impairments (d = -0.29, ns). Results confirm anecdotal reports of intact sustained attention during activities that place minimal demands on working memory, and indicate that ADHD children’s inattention during analogue classroom instruction is related, in large part, to their underdeveloped working memory abilities.