Assessing working memory in children with ADHD: Minor administration and scoring changes may improve digit span backward's construct validity.

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Abstract

BACKGROUND:
Pediatric ADHD is associated with impairments in working memory, but these deficits often go undetected when using clinic-based tests such as digit span backward.

AIMS:
The current study pilot-tested minor administration/scoring modifications to improve digit span backward's construct and predictive validities in a well-characterized sample of children with ADHD.

METHODS AND PROCEDURES:
WISC-IV digit span was modified to administer all trials (i.e., ignore discontinue rule) and count digits rather than trials correct. Traditional and modified scores were compared to a battery of criterion working memory (construct validity) and academic achievement tests (predictive validity) for 34 children with ADHD ages 8-13 (M=10.41; 11 girls).

OUTCOMES AND RESULTS:
Traditional digit span backward scores failed to predict working memory or KTEA-2 achievement (allns). Alternate administration/scoring of digit span backward significantly improved its associations with working memory reordering ($r=.58$), working memory dual-processing ($r=.53$), working memory updating ($r=.28$), and KTEA-2 achievement ($r=.49$).

CONCLUSIONS AND IMPLICATIONS:
Consistent with prior work, these findings urge caution when interpreting digit span performance. Minor test modifications may address test validity concerns, and should be considered in future test revisions. Digit span backward becomes a valid measure of working memory at exactly the point that testing is traditionally discontinued.