Substantiating the Need for Fluency Items in Rating Scales

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Introduction

It is well substantiated that those suffering from ADHD commonly have deficits in executive function (Castellanos, 1999). In addition, fluency—the ability to perform different tasks quickly and accurately—is an important part of executive function (Phillips, 1997), along with attributes of working memory, organization, planning, and metacognition (Lyon & Krasnegor, 1996).

Although a number of rating scales exist to facilitate the diagnosis of ADHD and even to evaluate executive function, items designed to measure fluency are conspicuously absent from these rating scales. For example, the Conners' Rating Scales and the Achenbach Child Behavior Checklist, both of which evaluate symptoms and behaviors underlying ADHD as well as other psychiatric disorders, do not have items that specifically address the issue of fluency.

Given that college board mandate evidence for fluency deficits in order to grant accommodations to students (i.e., 504), it is ironic that the widely accepted assessment protocol fails to include items pertaining to this deficit.

Objective

Substantiate that fluency (a student's speed and accuracy in completing routine academic and/or cognitive tasks) is not directly or indirectly measured in typically used children's rating scales.

Demonstrate the association between the parent/teacher rating on a new fluency item and the child's performance on traditional psychoeducational neuropsychological measures of fluency.

Funding Source

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Methods

Parents of a group of 36 children referred to a center specializing in neuropsychological and psychoeducational assessment were administered

- Parents complete a modified rating scale with a new fluency Likert-Scale item, as well as the Conners' Rating Scale and the Behavior Rating Inventory of Executive Function (BRIEF)
- Subjects complete a comprehensive neuropsychological measure, which includes but is not limited to:
  - Wechsler Intelligence Scale for Children-4th Edition
  - Woodcock-Johnson-III Tests of Achievement
  - Woodcock-Johnson-III Tests of Cognitive Abilities
  - Burns Roe Reading Inventory

The results of the new fluency Likert-scale item ("Takes an inordinately long time to finish homework and assignments regardless of the subject or level of difficulty") are compared to the 14 scales from the Conners' Rating Scales. The results of the item are also compared to multiple neuropsychological measures of fluency.

The 14 Scales from the Conners' Rating Scales

A. Oppositional
B. Cognitive Problems/Inattention
C. Hyperactivity
D. Anxious-Shy
E. Perfectionism
F. Social Problems
G. Psychosomatic
H. Conners' ADHD Index
I. Conners' Global Index: Restless-Impulsive
J. Conners' Global Index: Emotional Liability
K. Conners' Global Index: Total
L. DSM-IV: Inattentive
M. DSM-IV: Hyperactive-Impulsive
N. DSM-IV: Total

The comparisons are analyzed using Pearson Product-Moment Correlations

No statistically significant correlations were found between the results of the new fluency Likert-scale item and the results from the 14 scales of the Conners' Rating Scales

Pearson Product-Moment Correlations between the New Fluency Likert-Scale Item and Various Neuropsychological Measures of Fluency

Composite of the Reading Fluency Subtest and the Math Fluency Subtest from Woodcock-Johnson-III Tests of Achievement	r=-.433*
Composite of the Reading Fluency Subtest and the Math Fluency Subtest from Woodcock-Johnson-III Tests of Achievement and Words per Minute from the Burns Roe Reading Inventory	r=-.396*
Composite of Processing Speed Index (WISC-IV) and Woodcock-Johnson-III Tests of Cognitive Abilities (Rapid Picture Naming Subtest, Retrieval Fluency Subtest, and Decision Speed Subtest)	r=-.081 (ns)
Working Memory Subscale from Behavior Rating Inventory of Executive Function (BRIEF)	r=.32*

*Significant (p<.05)

Results

None of the items or subscales of the Conners' scales were directly or indirectly measuring the fluency construct reflected by this new item.

The only statistically significant positive correlation was with the Working Memory subscale of the BRIEF.

The rating of the new fluency item showed a statistically significant correlation with a composite of two academic fluency measures available for 33 of the 36 subjects: the composite measure of the Reading Fluency subtest and the Math Fluency subtest of the Woodcock Johnson-III Achievement ($r = -.433$, $p<.05$).

Similarly, the rating of the new fluency item was statistically correlated (once again, negatively in the expected direction) with a composite academic fluency measure available for 22 of the subjects that consisted of Reading Fluency and Math Fluency from the Woodcock Johnson-III Achievement and Words per Minute from the Burns Roe Reading Inventory ($r = -.396$, $p<.05$).

No statistically significant correlation was found between the rating on the new fluency item and a composite of speed-based cognitive fluency measures (the Processing Speed Index of the WISC-IV, as well as Rapid Picture Naming, Retrieval Fluency, and Decision Speed from the WJ-III) available for 31 subjects ($r=-.081$). This suggests the weakness reflected by the ratings on the new fluency item correlate more strongly with academic rather than cognitive measures of fluency.

Conclusions

These findings are important in suggesting that a single rating scale item, perhaps added to an existing and commonly used scale, can aid clinicians in determining if further neuropsychological assessment is warranted of deficits in academic fluency, which if present may qualify a child for school services, extended time for standardized testing, and other academic adaptations aimed at assisting the struggling student.

Bibliography

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For further information

Information on this and related projects can be obtained at info@C4L.net.