A Closer Look into the Social Difficulties of Children with ADHD: Are These Deficits Performance or Acquisition Based?

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Introduction

•Social problems are one of the most commonly occurring functional impairments for children with attention-deficit/hyperactivity disorder (ADHD), such that between 52% and 82% display clinically impairing social deficits (Huang-Pollack et al., 2009).

•These social difficulties often persist into adolescence and adulthood and are associated with increased risk for peer rejection and ostracism (Bagwell et al., 2001,Hoza et al., 2005).

•The high prevalence and adverse outcomes associated with social problems, coupled with the inefficacy of social skills training for children with ADHD underscore the critical need to characterize the nature of these difficulties (Evans et al., 2011).

•We hypothesized that social problems in ADHD may reflect a performance problem rather an absence of knowledge. In other words, we posit that children with ADHD acquired the requisite social skills, but instead have difficulty performing the skills consistently and across contexts (de Boo & Prins, 2006).

Present Study

- The present study aimed to dissociate social performance vs. acquisition deficits in ADHD through use of the Social Behavior Analysis Framework (Gresham & Elliot, 1990). Through this method, it was possible to further elucidate the nature of social problems among children with ADHD and examine behavioral and cognitive predictors of these deficits.

Method

Participants *N*=33

- Participants (ages 8-13; *M*= 10. 46; 21 Males) were diagnosed with ADHD using DSM-5 criteria based on comprehensive structured interviews and parent/teacher behavior rating scales.
- Participants were included if both parent and teacher completed the Social Skills Improvement System Rating Scales (SSIS; Gresham & Elliott, 2008).
- Exclusion: Children with other diagnoses (i.e., OCD, Autism Spectrum Disorders) or incomplete data

Procedure

- In accordance with the Social Behavioral Analysis Framework, the 46 social behaviors assessed by the SSIS were analyzed at the item-level based on frequency and importance for both parent and teacher reports.
- As a result, each item was classified individually for each child as an *acquisition deficit*, *performance deficit*, *social strength*, or *neither deficit nor strength*.
- Working memory was assessed using Complex Span Tasks (Operation Span, Counting Span) with two trials each at set sizes 3-6 using partial-credit scoring

Analyses

•Repeated measures ANOVA was used to examine differences in social problems ratings by informant
•Mediation analyses with a bias-corrected bootstrapping were used to estimate total, direct, and indirect effects

- Separate bootstrapped mediation models tested whether working memory's impact on social deficits (*acquisition, performance*) or *social strengths* was direct, indirect through its impact on ADHD symptomology (inattention, hyperactivity/impulsivity, both inattention and hyperactivity/impulsivity), or both direct and indirect.
- Analyses also examined whether social deficits or social strengths were better accounted for by core ADHD symptomology, independent from the impact of working memory.

Results

Primary Outcome Variables

- *Social acquisition deficits, social performance deficits,* and *social strengths* were calculated as percentages and combined across parent/teacher report
- Working memory was operationalized through mean stimuli correct per trial on Complex Span Tasks
- ADHD symptomology was measured through BASC-2 Inattention and Hyperactivity Indices

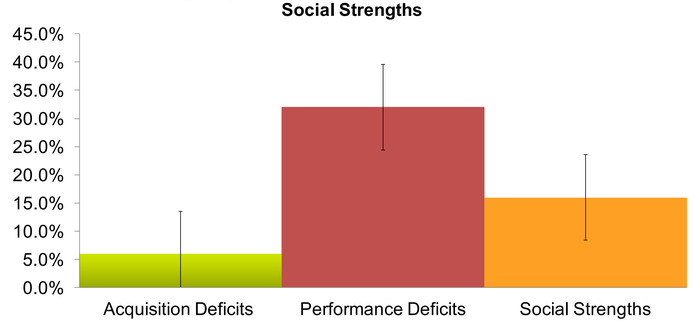
Preliminary Analyses

- Intercorrelations were calculated between working memory, social deficits/social strengths, and ADHD symptoms revealing significant correlations between the variables of interest

Primary Analyses

- *Acquisition deficits*, *performance deficits*, and *social strengths* endorsements did not differ by informant (*p*=.76)
- Children with ADHD were viewed as having more *performance deficits* (M= 32.0%) than *acquisition* deficits (M=6.0%, p<.001)
- Parents and teachers endorsed more *social strengths* (M=16.0%) than *acquisition* deficits (P>S>A; all p<.001)

Percentage of Parent and Teacher SSIS Items Classified as Reflecting Acquisition Deficits, Performance Deficits, and Social Strengths



Results (Continued)

Mediation Analyses

Indirect effects were non-significant in all models and no direct effects of working memory on ADHD were detected (All 95% CI include 0.0)

Social Acquisition Deficits

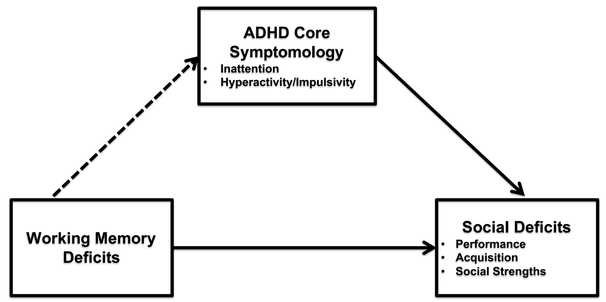
•Higher reported levels of hyperactivity predicted higher perceived *acquisition deficits* (β = 0.03)

Social Performance Deficits

•Higher reported levels of combined ADHD symptoms (inattention, hyperactivity/impulsivity) predicted higher perceived *performance deficits* (β= 0.06)
•Higher levels of inattention predicted higher perceived *performance deficits* (β= .04)
•Lower working memory performance predicted higher perceived *performance deficits* (β= -0.03)

Social Strengths

•Higher levels of ADHD symptoms combined (inattention, hyperactivity/impulsivity) predicted less perceived *social strengths* (β= -.05)



Discussion

•The present study revealed that children with ADHD are perceived to have a greater amount of *social performance* compared to *social acquisition deficits,* which suggests a greater amount of heterogeneity in the social impairments associated with ADHD than once thought.
•Inattention, hyperactivity, and impulsivity, core symptom dimensions of ADHD, contribute to children with ADHD's ability to consistently apply learned social skills across contexts.
•Social interactions place high, complex demands on working memory (Kofler et al., 2011). Given that working memory can be compromised in ADHD, this may be an added factor that contributes to higher levels of social performance deficits in ADHD.