Parent and Self-Ratings of Executive Function in Adolescents with Specific Language Impairment

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Abstract

This study examined parent and self-ratings of executive function (EF) in adolescents with specific language impairment (SLI) and typically developing peers (TD). Twenty-one adolescents with SLI and 21 age and sex-matched peers (age range = 11-18 years) rated their EFs in daily living using the Behavior Rating Inventory of Executive Function (BRIEF-SR; Guy, Isquith, & Gioia, 1996), and their parents provided companion ratings using the Behavior Rating Inventory of Executive Function (BRIEF; Gioia, Isquith, Guy, & Kenworthy, 1996). Adolescents in both the SLI and TD groups rated themselves more positively than did their parents, and the presence of language impairment was associated with more negative ratings by both parents and adolescents. The results of this study support the notion that language skills are related to executive function. A greater understanding of this relationship has important implications for both theoretical accounts of language impairment and also the timing and content of therapeutic intervention.

References

Gioia, G. A., Isquith, P. K., Guy, S. C., & Kenworthy, L. (1996). Behavior Rating Inventory of Executive Function. Lutz, FL: Psychological Assessment Resources

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Purpose

The study was designed to investigate self-perceptions of executive function (EF) abilities in adolescents both with and without specific language impairment (SLI) and the ratings of their respective parents using a rating inventory comprised of items from daily living.

Introduction

- EFs include the ability to plan, sequence, and monitor one's behavior in order to accomplish a goal, as well as the cognitive flexibility to adapt to changing task requirements
- EF development parallels the development of the prefrontal cortex and is not complete until early adulthood
- There is emerging evidence of EF impairments in children with SLI, such as in verbal and spatial working memory and set shifting, but the extent of these impairments is unknown
- EFs are critical for academic and social success, and EF principles are incorporated into many therapeutic language interventions, so knowledge about EFs in children with SLI is critical for intervention
- Theoretical accounts of the relation of EFs to language also would be informed by understanding EFs in individuals with SLI

Methods

Table 1. Participant Demographics and Standardized Test Performance

	SLI	*TD*
Number of participants	21	21
Age range (yr:m)	11:3-18:1	11:1-18:8
Age (yr:m) *M*	14:0	14:2
Number of males	16	15
Number of females	5	6
WISC III[a] Performance IQ *M(SD)*	97 (13.7)	114 (21.1)
Range	73-123	93-149
CELF III[b] Total language score *M (SD)*	70 (13.1)	—[d]
Range	50-98	
WCST[c] Total no. of errors *M(SD)*	100 (19.6)	115 (15.7)
Range	61-129	80-134

[a]Wechsler Intelligence Scale for Children-Third Edition. *M* 100 *SD* 15
[b]Clinical Evaluation of Language Fundamentals- Third Edition. *M* 100 *SD* 15
[c]Wisconsin Card Sorting Test- *M* 100 *SD* 15
[d]All participants passed a CELF III screening assessment with criterion scores based upon age

Procedures

- Adolescents rated their EF abilities using items from the BRIEF-SR presented auditorily on a laptop computer
- Parents rated their children's EF abilities using the written rating form of the BRIEF
- The Global Executive Composite (GEC) score from both measures was used for comparisons

Table 2. Sample items from the BRIEF-SR

Clinical Scales	Example Item
Inhibit	I interrupt others.
Shift	I get stuck on one topic or activity.
Emotional Control	I overreact to small problems.
Monitor	I don't know when my actions bother others.
Working Memory	I forget what I am doing in the middle of things.
Plan / Organize	I don't check my work for mistakes.
Organization of Materials	I lose things (such as keys, money, wallet, homework etc.).
Task Completion	It takes me longer to complete my work.

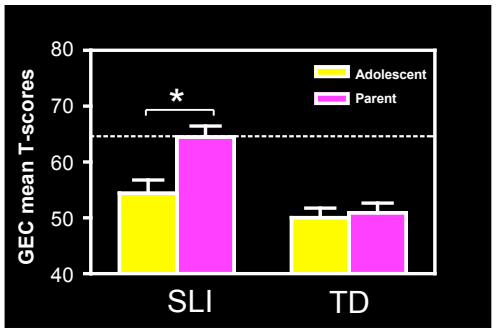
Results

- Data were analyzed using a 2 × 2 analysis of variance (ANOVA) with diagnosis (SLI vs. TD) and reporter (self- vs. parent) as the factors and GEC T-scores as the dependent variable
- There was a main effect of diagnosis, with more negative ratings by both adolescents with SLI and their parents, $F(1,78) = 21.42$, $p < .001$
- There was a main effect of reporter, as adolescents in both SLI and TD groups rated themselves more positively than did their parents, $F(1,78) = 7.92$, $p < .01$
- There was an interaction of group × reporter, as parents of adolescents with SLI assigned more negative ratings than did parents in the TD group, $F(1,78) = 5.63$ $p < .05$

Reliability

- Two adolescents with SLI and two TD peers and their respective parents completed the BRIEF and BRIEF-SR one year after the initial ratings to determine test/retest reliability. There was a correlation of .92 between the initial and follow-up GEC T-scores.

Figure 1. Mean GEC scores on the BRIEF and BRIEF-SR



*p = 0.001
A mean T-score of 65 or greater is clinically significant

Conclusions

The study provides additional evidence of EF impairments in adolescents with SLI. The findings were consistent with the results of previous studies, and extended those results to consider EFs in daily living.

Further characterization of EF impairments is important for clinical intervention, as interventions such as the use of compensatory strategies depend on the integrity of EFs. It is also important because language developments in the teen years - such as the use the use of sophisticated linguistic inference - appear to be dependent on EFs.

From a theoretical perspective, the results argue against a domain-specific account of SLI. It is particularly useful to consider the notion of specificity in adolescents with SLI, given that language and EF demands increase at this age, concurrently with maturation of the prefrontal cortex.