

Background

- Growing up with a sibling with autism spectrum disorder (ASD) is a distinct experience, and research has highlighted both positive and challenging aspects of having a sibling with ASD¹.
- While typically developing siblings (TD-Sibs) report numerous positive experiences, which may contribute to findings that TD-Sibs do not exhibit adjustment difficulties², research also suggests that challenges associated with having a sibling with ASD may have detrimental effects on TD-Sib adjustment.
- Studies have shown that TD-Sibs exhibit greater externalizing and internalizing problems³ and more social and psychological functioning difficulties⁴.
- The mixed literature highlights the need to consider family-specific factors in studying the effects of having a sibling with ASD on TD-Sib adjustment.

Objective: To investigate the impact of sex, age, and birth order on TD-Sib adjustment.

Methods

Table 1: Participant Demographics

	TD-Sibs n=32	
	Mean (SD)	Range
Age in years	8.73 (1.6)	6-12
	n	%
Gender of Sibling		
Female	23	71.9
Male	9	28.1
Birth order		
Sibling older than child with ASD	19	59.4
Sibling younger than child with ASD	12	37.5
Sibling is a twin to the child with ASD	1	6.3
Number of additional siblings in the family		
Zero	25	78.1
One	5	15.6
Two	2	6.3

Measures:

- Parent-report measures of emotional and behavioral challenges
 - *Child Symptom Inventory-4 (CSI-4)*⁵
 - *Behavior Assessment System for Children, Second Edition (BASC-2)*⁶

Procedure:

- Thirty-two families with at least one child with ASD and one TD-Sib were recruited through a larger study investigating the effectiveness of a sibling support group.
- The *CSI-4* and *BASC-2* were administered to one parent of each participant (TD-Sib) prior to participation in the support group.

Statistical Analyses:

- Binomial *t*-tests were conducted for each *CSI-4*^a and *BASC-2*^b subscale to investigate the frequency of clinically (*T*-score >70) and subclinically (*T*-score 60-70) significant adjustment difficulties in TD-Sibs compared to population norms.
- Independent sample *t*-tests were used to compare subscale scores between males and females, TD-Sibs younger or older than the affected sibling, and TD-Sibs younger than eight (<8) or eight and older (8+; cutoff selected to correspond to *BASC-2* normative age groupings).

a) Because the *CSI-4* provides separate norms for males and females, binomial *t*-tests were conducted separately by sex.

b) Because norms for *BASC-2* are divided by age group, binomial *t*-tests were conducted separately by age.

Results

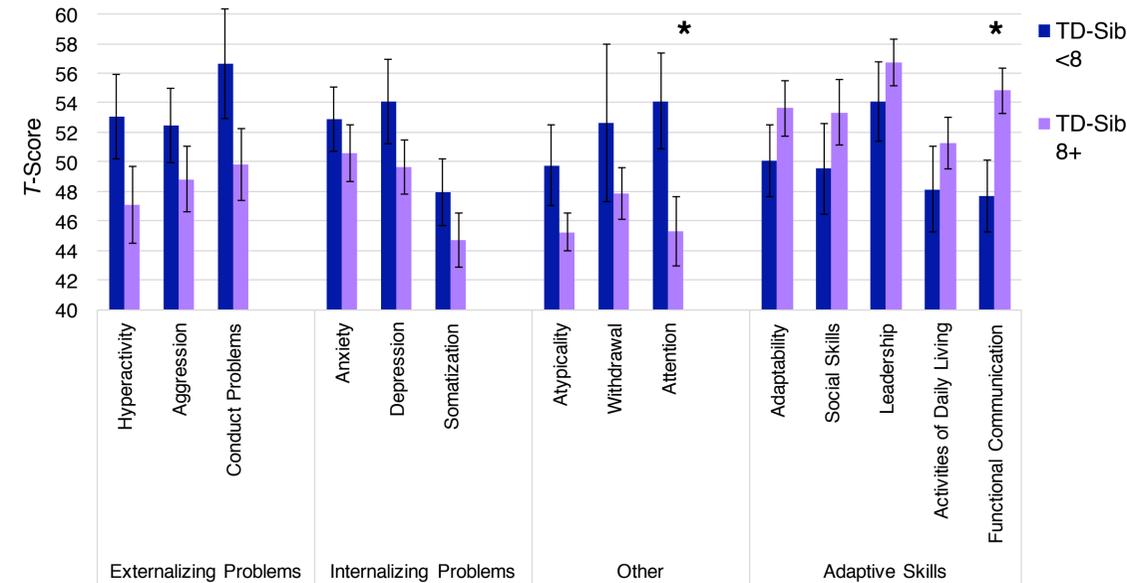


Figure 1: *BASC-2* differences by age. For externalizing problems, internalizing problems, and other, higher scores represent more adjustment difficulties. For adaptive skills, lower scores represent more difficulties. Error bars signify standard error; **p*<0.05.

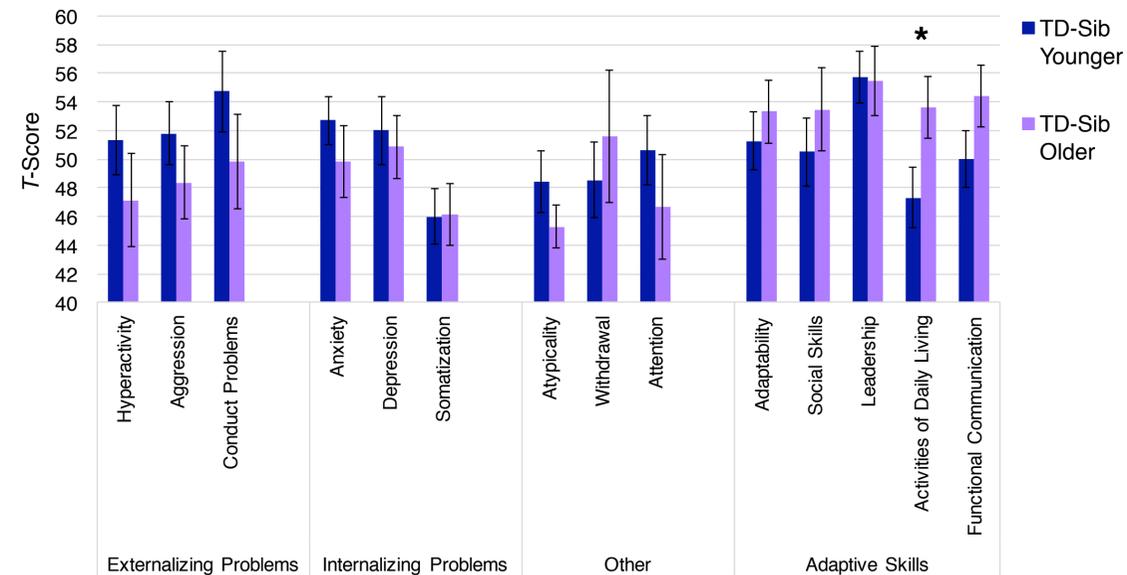


Figure 2: *BASC-2* differences by birth order. For externalizing problems, internalizing problems, and other, higher scores represent more adjustment difficulties. For adaptive skills, lower scores represent more difficulties. Error bars signify standard error; **p*<0.05.

Differences by Age and Birth Order:

- TD-Sibs <8 scored in the normative range on *BASC-2* externalizing problems, internalizing problems, and adaptive skills but scored consistently worse on all subscales than TD-Sibs 8+ (Figure 1).

Differences by Birth Order:

- TD-Sibs younger than their sibling with ASD scored in the normative range on *BASC-2* externalizing problems, internalizing problems, and adaptive skills but scored consistently worse on all subscales than TD-Sib counterparts older than siblings with ASD (Figure 2).

Results

Comparisons to Population Norms:

- TD-Sibs in both age groups exhibited *T*-scores within the normative range on all subscales of the *BASC-2*.
- Male and female TD-Sibs did not significantly differ on any adjustment subscales.
- The proportion of TD-Sibs <8 with subclinical adjustment difficulties on the *BASC-2* Conduct subscale was significantly higher than population norms, while the proportion of TD-Sibs 8+ with challenges on all *CSI-4* and *BASC-2* subscales were comparable to or significantly less than population norms (Table 2).

Subscale	Overall Mean <i>T</i> -Scores	Proportion of Participants with Subclinical Scores			
		TD-Sibs <8	Norms	TD-Sibs 8+	Norms
Externalizing Problems					
Hyperactivity	49.58	0.23	0.15	0.11	0.14
Aggression	50.35	0.15	0.13	0.11	0.15
Conduct Problems	52.68	0.31*	0.11	0.11	0.11
Internalizing Problems					
Anxiety	51.52	0.23	0.15	0.11	0.15
Depression	51.52	0.31	0.13	0.00	0.13
Somatization	46.06	0.08	0.12	0.00	0.14
Adaptive Skills					
Adaptability	52.13	0.23	0.16	0.06	0.15
Social Skills	51.74	0.15	0.14	0.11	0.16
Leadership	55.61	0.08	0.13	0.00*	0.17
Activities of Daily Living	49.97	0.23	0.14	0.06	0.15
Functional Communication	51.84	0.23	0.16	0.00*	0.17

Table 2: *BASC-2* comparisons to populations norms by age. Bolded only = trending (*p*<0.06); **p*<0.05.

Discussion

- Based on parent-report, TD-Sibs scored in the normative range on adjustment measures and, overall, were well-adjusted relative to population norms.
- While we did not find any sex differences in TD-Sib emotional and behavioral adjustment, our findings suggest effects of birth order and age such that TD-Sibs younger than their sibling with ASD and TD-Sibs younger than eight exhibited more adjustment challenges.
- Our study highlights the need to investigate the relationship between birth order and age and how these two factors independently impact adjustment in TD-Sibs.
- Understanding the psychological well-being of TD-Sibs may help inform family and sibling support groups, sibling-mediated interventions for children with ASD, and how to better cater to specific sibling structures.
- Limitations of this study include its small sample size and use of only parent-report measures of adjustment. Future studies should examine adjustment differences pre- and post-sibling support group participation and overlay objective adjustment measures with qualitative experiences of TD-Sibs.

References

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