



## Brief Report: Sibling Feelings Toward their Brother or Sister With or Without Autism or Intellectual Disability

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### Abstract

The present study examined 97 adolescent siblings of individuals with autism spectrum disorder (ASD), intellectual and developmental disabilities (IDD), or no disabilities. Siblings reported on their feelings toward their brother or sister (anxiety, hostility, and positive affect), and parents reported on general optimism, child behavior problems, and perceptions of how the child impacts the family, including the sibling. There were no differences between siblings of individuals with ASD and siblings of individuals with IDD on any sibling self-reported feelings toward their brother or sister, though parents of individuals with ASD reported significantly less optimism and more negative perception of the child's impact on the family than did parents of children with IDD or no disability.

**Keywords** Siblings · Autism spectrum disorder · Intellectual and developmental disabilities · Adolescence

### Introduction

Studies of siblings of individuals with ASD (ASD-Sibs) have utilized varying comparison groups and have yielded mixed results. Compared to siblings of typically-developing individuals (TD-Sibs), some studies have found that ASD-Sibs have more behavior problems (Verté et al. 2003), more depressive symptoms, and more emotional problems (Lovell and Wetherell 2016), while others report no differences between ASD-Sibs and comparison groups in emotional or behavioral problems (e.g. Hastings 2003; Walton and Ingersoll 2015). Additionally, several studies have shown that ASD-Sibs have more negative outcomes than siblings of individuals with other IDDs, with ASD-Sibs reporting more emotional problems (Petalas et al. 2009), more stress (Shivers et al. 2017), and more negative beliefs about disability (De Caroli and Sagone 2013) than other IDD-Sibs. Among the few studies that compared ASD-Sibs to both TD-Sibs and IDD-Sibs, researchers have reported that ASD-Sibs have more externalizing problems and anxiety than TD-Sibs, but

not IDD-Sibs (O'Neill and Murray 2016; Rodrigue et al. 1993). Combined, these studies highlight the need for more research into the experiences of ASD-Sibs, in comparison to both IDD-Sibs and TD-Sibs.

A potential contributor to these varying sibling outcomes is the sibling's interpretation of their own experience with the brother or sister with ASD. Studies using quantitative measures of the sibling relationship show that ASD-Sibs report lower levels of sibling conflict than TD-Sibs (Kaminsky and Dewey 2001), but also lower levels of involvement with their brother or sister (Walton and Ingersoll 2015). However, in qualitative interviews, ASD-Sibs report a wide range of experiences in the sibling relationship (Petalas et al. 2012), suggesting that existing measures of the sibling relationship may not capture the complexity of ASD-Sibs' feelings toward their brother or sister.

Examining overall differences between ASD-Sibs and IDD-Sibs is an important first step; however, as researchers, clinicians, and families know, the lived experiences of ASD-Sibs are not at all homogeneous. Therefore, it is important to examine the factors that may contribute to individual differences in sibling outcomes, including factors related to both the brother or sister and parental factors. In the extant ASD-Sib literature, behavior problems of the brother or sister with ASD consistently have been found to predict poorer outcomes for the sibling (e.g. Hastings 2007; Shivers et al. 2013). Additionally, parental

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factors have been shown to relate to sibling outcomes; for example, maternal depressive symptoms related to sibling symptoms of anxiety and depression (Orsmond and Seltzer 2009). However, other studies show disconnect between siblings' reports of outcomes and parents' perception of sibling outcomes in families of children with IDD, with many parents reporting worse outcomes and poorer sibling relationships for ASD-Sibs than siblings self-reported (Braconnier et al. 2018; Guite et al. 2004). However, more research is needed to better understand how parent and sibling perceptions in families of individuals with ASD may operate.

## The Current Study

The current study seeks to add to the sibling literature, both by comparing ASD-Sibs to IDD-Sibs and TD-Sibs on perceptions of their brothers and sisters, as well as analyzing how family characteristics, including behavior problems of the brother or sister, parental optimism, and parental perception of the impact of the brother or sister may relate to sibling feelings about their brother or sister.

## Methods

### Sample

Data for the current analyses were taken from a previous study on empathy and the sibling relationship among adolescent siblings of individuals with and without IDD. The present sample consisted of 97 adolescents ("siblings"; age 12–18,  $M = 14.35$ ,  $SD = 1.96$ ), all of whom had only one brother or sister. Roughly half of the sample ( $n = 48$ ) had a brother or sister with no intellectual or developmental disabilities; 26 participants had a brother or sister with ASD, and 23 participants had a brother or sister with another IDD (brothers and sisters collectively referred to as "target children" or "TC" for the purposes of this study). The average age of the target children was 13.92 ( $SD = 3.20$ ). The majority of the respondents were female (59.8%,  $n = 58$ ), but a small majority of target children were male (56.7%;  $n = 55$ ). One parent of each adolescent completed the caregiver portion of the survey. The parents were primarily female (96.9%;  $n = 93$ ), with a mean age of 44.48 ( $SD = 6.06$ ). There were no differences among groups on sibling, target child, or parent age, or sibling or parent gender, but the ASD group had significantly more male target children (80.8% male,  $n = 21$ ;  $\chi^2 = 9.41$ ,  $p < .01$ ), which is consistent with diagnostic rates of ASD (CDC 2016).

## Procedure

Data collection was done entirely online. Full description of the research methods, including recruitment, can be found in Shivers and Dykens (2017).

## Measures

### Sibling Feelings About the Target Child

The Multiple Affect Adjective Checklist—Revised (MAACL-R; Zuckerman and Lubin 1965) was used to determine siblings' feelings about the target child. The measure consists of 114 adjectives, and siblings were asked to "Please mark answers that describe how you *generally* feel about or toward your brother or sister." T scores are calculated from responses based on the total number of adjectives checked, as well as age and gender of the respondent, with responses split into four subscales: anxiety, depression, hostility, and positive affect. The first three scales (anxiety, depression, and hostility) are then calculated into a single dysphoria subscale. Chronbach's alphas for the current study ranged from 0.76 to 0.90.

### Parental Optimism

The Revised Life Orientation Test (LOT-R; Scheier et al. 1994) was used to measure general parental optimism. The LOT-R consists of ten items, six of which are used for scoring (e.g. "In uncertain times, I usually expect the best"). Responses are given on a 5-point Likert scale (0 = strongly disagree to 4 = strongly agree), resulting in total possible scores ranging from 0 to 24 (Cronbach's  $\alpha = 0.82$ ).

### Target Child Impact

Parental perception of how much the target child impacts the family was measured using three subscales from the family impact questionnaire (FIQ; Donenberg and Baker 1993)—general feelings about the child (15 items), financial impact of the child (7 items), and negative impact of the target child on the sibling (9 items). The FIQ asks parent to compare the target child to same-age peers (e.g. "My child is more stressful"). Responses were given on a 4-point Likert scale (1 = not at all to 4 = very much), resulting in a total score ranging from 31 to 124 when all subscales were summed with higher scores indicating more negative impact.

### Target Child Behavior Problems

The Behavior Problems Index (BPI; Peterson and Zill 1986) was used to measure target child behavior problems. Parents rate how true 30 statements were in regards to the target child using a 3-point scale (0 = not true, 1 = somewhat or sometimes true, 2 = very true or often true; Cronbach’s  $\alpha = 0.93$  for the current sample). The Externalizing subscale consists of 16 items (e.g. “Has a very strong temper and loses it easily,” “Is disobedient”), and the Internalizing scale consists of 16 items (e.g. “Worries too much,” “Is too fearful or anxious”).

### Data Analysis

One-way ANOVAs were used to compare all study variables by group (0 = no disability, 1 = IDD, 2 = ASD), with Fisher’s LSD test used to conduct post hoc comparisons. To limit Type 1 error, the dysphoria subscale of the MAACL-R was chosen as the dependent variable for linear regression, rather than running separate regressions on each subscale. Predictor variables included the total scores of the LOT-R, FIQ, and BPI; target child gender and sibling age and gender were included as control variables.

### Results

The initial ANOVAs revealed significant group differences in most of the analyzed variables, including target child internalizing, externalizing, and total behavior problems; parental optimism; parental perception of the target child’s impact on the family, on the sibling, and the cost of raising the target child; and sibling feelings of anxiety and dysphoria toward the target child.

Post-hoc test results showed that target children with ASD had significantly greater levels of internalizing, externalizing, and total behavior problems than both other groups. Similarly, parents of children with ASD reported significantly less optimism and significantly greater perceived impact on the family and impact on the sibling than did parents in the IDD and TD groups. ASD-Sibs reported significantly more anxiety and overall dysphoria toward their brother or sister than did TD-Sibs, but not IDD-Sibs. Full group comparisons can be found in Table 1.

A linear regression of ASD-Sibs onto dysphoria (composite of hostility, depression, and anxiety) was performed in the next steps of our analyses, while controlling for sibling age, gender of sib and TC, TC impact on family (FIQ), and TC behavior problems. Results indicate that the entire model predicted 19.6% of the variance in dysphoria ( $F = 3.65, p < .01$ ), but group membership did not significantly improve the model fit. In addition, behavior problems were found to independently contribute to the variance ( $p = .02$ ). Beta values for all predictors in both regression models can be found in Table 2.

**Table 1** Means (SDs) of variables by diagnostic group, ANOVA results, and significant group differences according to Fisher’s LSD post-hoc tests

	1. TD-Sibs (n = 48)	2. IDD-Sibs (n = 23)	3. ASD-Sibs (n = 26)	F-value	Group differences
Externalizing behavior	8.52 (5.89)	9.39 (6.15)	16.46 (5.47)	16.52**	3 > 2, 1
Internalizing behavior	6.06 (4.27)	7.21 (4.63)	10.88 (5.02)	9.52**	3 > 2, 1
Total behavior problems	14.58 (9.41)	16.61 (10.23)	27.35 (9.02)	15.77**	3 > 2, 1
FIQ child impact	26.94 (8.46)	30.61 (9.47)	38.08 (6.18)	15.65**	3 > 2, 1
FIQ child cost	10.94 (4.41)	18.17 (7.21)	20.46 (5.20)	30.88**	3, 2 > 1
FIQ sibling	13.48 (4.63)	16.48 (5.14)	22.38 (5.06)	28.22**	3 > 2 > 1
Parental optimism (LOTR)	23.17 (3.29)	22.83 (4.40)	20.15 (3.79)	5.90**	3 > 2, 1
Sibling anxiety	46.02 (8.57)	55.22 (13.06)	58.04 (15.26)	10.36**	3, 2 > 1
Sibling depression	50.19 (11.55)	52.83 (8.22)	56.65 (14.90)	2.50	
Sibling hostility	57.98 (13.64)	57.91 (13.22)	62.73 (14.87)	1.13	
Sibling dysphoria	52.92 (12.42)	57.00 (11.05)	62.00 (15.95)	4.05*	3 > 1
Sibling positive affect	46.42 (14.82)	47.65 (11.53)	45.12 (14.52)	0.20	

\* $p < .05$ ; \*\* $p < .01$

**Table 2** Standardized beta values predicting sibling dysphoria

Models	1	2
Total behavior problems	0.37*	0.38*
Parental optimism (LOTR)	-0.01	-0.01
FIQ total	0.08	0.01
Group		0.09
R <sup>2</sup>	0.196	0.200
$\Delta R^2$		0.004

\* $p < .05$

## Discussion

The present study examined potential differences among families of individuals with ASD, IDD, or no disabilities on sibling feelings toward their brother or sister, as well as parent perceptions of the target child. Results showed that, although parents of children with ASD reported significantly less overall optimism, as well as significantly greater perception of child impact and impact on the sibling than both parents of children with IDD and parents of children with no disabilities, ASD-Sibs did not report any more negative feelings about their brother or sister than did IDD-Sibs. However, ASD-Sibs did report more overall negative feelings (dysphoria) toward the target child than did TD-Sibs, though neither group was significantly different than IDD-Sibs.

The present findings are important in multiple ways. First, the apparent difference between parental feelings (both less overall optimism and greater perception of target child impact in parents of children with ASD) and sibling feelings (no significant differences between ASD-Sibs and IDD-Sibs) may support the notion that parent perceptions of what is going on with siblings and the siblings' own beliefs about their lives may not match up. Previous research (e.g. Braconnier et al. 2018) has shown a lack of congruence between parent perceptions and sibling perceptions. The current results seem to indicate that parents of children with ASD seem to have more negative beliefs than do parents of children with other IDD, as well as parents of children with no disabilities. ASD-Sibs, in contrast, do not report more negative feelings than IDD-Sibs; they do, however, report more anxiety and more dysphoria toward their brother or sister than do TD-Sibs.

The finding that ASD-Sibs report more overall dysphoria and anxiety than TD-Sibs, but not IDD-Sibs, is important, because the MAACL measures feelings, not perception of the sibling relationship. The dysphoria scale, in particular, seems especially fit to measure such differences in feelings toward brothers or sisters. While individual means on the depression and hostility subscales show that ASD-Sibs do have numerically higher scores than the other two groups of siblings, these differences are not statistically significant. When the scores are all combined, however, the cumulative differences are enough to create a statistically significant gap between ASD-Sibs and TD-Sibs, even when accounting for the large variability in each group. This finding highlights the importance of measurement when examining outcomes among ASD-Sibs; differences may exist, but they are highly variable and difficult to capture. Future work is needed to determine which specific feelings may be most salient to each sibling, as well as how such feelings may impact the sibling relationship.

Finally, the findings from the regression models support both the apparent lack of relationship between parent results and sibling results and the challenges of measurement. Although target child behavior problems significantly predicted sibling dysphoria, the final model predicting sibling dysphoria accounted for 20% of the variance. Although this model represents an acceptable fit for the data, siblings' negative feelings about their brother or sister are likely influenced by many other factors beyond parent feelings and perceptions and target child behavior problems. In order to properly develop strategies that families and siblings can use to enhance healthy outcomes, it is essential to better understand the processes that contribute to sibling outcomes.

## Limitations and Future Directions

The present study has several limitations. First, as the original study was not designed to explicitly examine ASD-Sibs, the group sample sizes for ASD and IDD are smaller than would be ideal. Second, because data collection was carried out online, only parent report was used to determine diagnosis. That is, there was no independent confirmation of any diagnostic categories for the target children. Additionally, although parents and siblings both reported on aspects of the sibling experiences, the measures used assessed different constructs. Namely, the FIQ asks parents about events or behaviors (e.g. siblings complaining about their brothers/sisters), and the MAACL asks siblings about emotions. Finally, due to the desire to keep the survey fairly short, many potentially important variables, such as medical needs, service usage, or symptom severity, were not included. Future research would benefit from examining these and other potentially related factors.

Despite the limitations, the present study reveals important directions for future research. As illustrated by the differences in dysphoria, though not individual hostility or depression, it is important to consider multiple aspects of sibling interpretations of their own experiences among ASD-Sibs. Additionally, relying on the siblings themselves, not just parent report, adds an important dimension to sibling studies. As illustrated in the regression model, only brother/sister behavior problems independently predicted sibling dysphoria. Many individual factors, such as availability of services, social support, and individual resilience, can contribute to varying outcomes for ASD-Sibs. Future research is needed to better understand these within-group differences, particularly those differences that may serve as protective factors against negative outcomes, so that researchers, clinicians, and families can work together to develop intervention strategies that promote healthy outcomes for siblings, as well as the entire family.



## Conclusion

Although many research studies have shown significant differences between IDD-Sibs (including ASD-Sibs) and TD-Sibs (e.g. Rossiter and Sharpe 2001), more recent studies have examined differences among diagnostic categories, with many results showing significant differences between ASD-Sibs and other groups (e.g. Petalas et al. 2009; Verté et al. 2003). The current study did not find any differences in feelings about the target child between ASD-Sibs and IDD-Sibs, but did find that ASD-Sibs report significantly more overall negative feelings than TD-Sibs, though these feelings were not significantly related to parental perceptions about the target child. Future research is needed to continue to tease out different processes that may contribute to varying outcomes for ASD-Sibs.

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**Author Contributions** Dr. Shivers conceived of the study, collected the data, and participated in manuscript preparation. Mrs. McGregor conducted statistical analyses and participated in manuscript preparation.

## Compliance with Ethical Standards

**Conflict of interest** Both Dr. Shivers and Mrs. McGregor declare that they have no conflicts of interest.

**Ethical Approval** All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

**Research Involving Human and Animal Rights** This article does not contain any studies with animals performed by any of the authors.

**Informed Consent** Informed consent was obtained from all individual participants included in the study.

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