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BRIEF REPORT

The effect of siblings on children's social skills and perspective taking

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Abstract

The current study examined associations between sibling characteristics (being an only child, having an older brother, younger brother, older sister, or younger sister) and two aspects of social competence, and how these processes may differ based on child gender. Participants included 112 children ages 5 to 7 with either one or no siblings. Results suggested that siblings' influence on social competence is complex. For perspective taking, sibling characteristics and child's gender did not have significant main effects. However, interactions between older brother and child gender and between younger brother and child gender showed that girls without a sibling had greater perspective taking than girls with brothers, whereas, boys with brothers seemed to benefit somewhat from their presence. Furthermore, increases in social skills over one year were observed among children with a younger sister compared to only children. Implications of siblings' influence on children's perspective taking and social skills are discussed.

Highlights

- Researchers examined how sibling characteristics influenced social competence based on child's gender.
- Hierarchical regression analyses suggested girls without a sibling had greater perspective taking than girls with brothers, boys with brothers seemed to somewhat benefit in perspective taking and increases in social skills over one year were observed among children with a younger sister.
- Findings suggest the influence of siblings are more complex than simply having a sibling or not.

KEYWORDS

gender, perspective taking, sibling relationships, social competence

1 | INTRODUCTION

Past literature has noted the importance of a sibling experience on numerous developmental and familial processes (e.g., Dunn, 1983; Dunn, 1992). Siblings provide feedback for positive and negative behaviors through reciprocal interactions, which enhances opportunity for the development of perspective taking and social skills (Perner, Ruffman, & Leekam, 1994; Whiteman, McHale, & Soli, 2011). Because similarity, warmth, and status within the family increase the likelihood of modeling (Bandura, 1977), older and same gender siblings may be particularly influential for siblings' social development (Whiteman et al., 2011). Through their roles as caregivers and teachers, older siblings offer younger siblings direction on how to behave (Brody, Stoneman, MacKinnon, & MacKinnon, 1985), and same gender siblings tend to have more nurturing relationships than opposite gender siblings (Rowe & Gulley, 1992; Tucker, Barber, & Eccles, 1997). Although previous literature has shown that older siblings may be influential for children's social development (Ruffman, Perner, Naito, Parkin, & Clements, 1998), some have suggested that younger siblings may also influence siblings' social development (Musatti, 1986; Piaget, 1959); in contrast, others have suggested that birth order may not be influential at all (Cutting & Dunn, 1999). Due to the inconsistencies in the literature, it is important for researchers to continue to investigate how sibling characteristics such as birth order and gender constellation differentially influence social development (Whiteman, Becerra, & Killoren, 2009).

1.1 | Siblings and social competence

Social competence has been used to describe behaviors such as reacting appropriately with a sad or angry peer, the ability to solve problems in social situations, and the ability to initiate and maintain positive social interactions (Dodge, Pettit, McClaskey, & Brown, 1986; Hubbard & Coie, 1994). Social competence will be referred to as an evaluative term that reflects "judgment regarding the overall quality of an individual's social performance" (Merrell, 1999), consisting of a combination of social abilities. For the current study, we will examine perspective-taking ability and increases in social skills over 1 year to capture aspects of concurrent social-cognitive ability and social development over time.

Perspective taking is defined as "understanding another's thoughts and motives as well as feelings" (Iannotti, 1985). Empirical evidence suggests that the social-cognitive skills involved in perspective taking encompass an important component of social competence, specifically false-belief understanding. For example, children with greater false-belief understanding are more likely to request another child to play with and create clear role assignments during their play time, both of which are related to superior cooperation abilities (Astington & Jenkins, 1995). Also, the successful completion of false-belief tasks has predicted teacher ratings of children's social competence (Watson, Nixon, Wilson, & Capage, 1999).

As children develop, their social interactions with others become more frequent and more complex (Berk, 2008). During the transition to primary school, friendships are formed in which children communicate, act out complementary roles, and learn to consider others' needs and interest before their own. Social skills such as cooperating with peers, initiating play, sharing, and giving compliments allow a child to interact appropriately with others (Gresham, 1988). Furthermore, greater social skills have been shown to promote classroom participation and higher academic achievement; whereas, children with poor social skills are more likely to be socially rejected or neglected by peers (Bolnick, 2008).

Siblings influence both perspective taking and social skills. Children with siblings have demonstrated significantly greater false-belief performance compared to only children, even after the significant effects of chronological and verbal mental age are statistically controlled (Jenkins & Astington, 1996; Perner et al., 1994). Additionally, Downey and colleagues (2015) suggest that children with one or two siblings gained more social skills between kindergarten and fifth grade than children without siblings. However, there are additional characteristics of sibling structure that may be relevant beyond the simple presence of siblings, such as whether those siblings are older or younger and whether they are of the same or opposite gender. These structural differences may provide different situations for children to practice and improve their perspective taking and social skills (Kitzmann, Cohen, & Lockwood, 2002).

1.2 | Sibling characteristics

Through teaching and teasing behaviors, children come to understand the emotions of their siblings, contributing to greater social competence. This unique learning opportunity can explain why younger siblings are often found to be more socially skilled than their older siblings (Kitzmann et al., 2002; Ruffman et al., 1998). And still others have found no significant links between false beliefs and siblings (older, younger, or both; Cutting & Dunn, 1999). Thus, birth-order effects are inconsistent in research and may suggest that no single sibling structure is more advantageous than others. The mere sibling experience may provide sufficient exposure to opportunities to gain the necessary knowledge for greater perspective taking and increases in social skills.

The gender constellation of the sibling pair is also likely to affect perspective taking and later social competence; however, these effects have been more thoroughly examined within peer relationships than sibling relationships. Differences in social competence are reinforced through interactions with same-gender peers (Berk, 2008). Therefore, the opportunity to learn different perspectives and social functioning may be more likely to occur in same-gender sibling pairs compared to opposite-gender sibling pairs.

Boys and girls are treated differently at home and school (Nash, 1979); therefore, it is reasonable that the gender of the child will influence social processes. For instance, girls have been shown to benefit more than boys from having a large number of younger siblings (Altus, 1965) and having siblings close in age (Rosenberg & Sutton-Smith, 1969). Moreover, older siblings mention feeling states more frequently to female siblings than to male siblings (Brown, Donelan-McCall, & Dunn, 1996). Thus, the relation between sibling interaction and perspective taking and later social competence may be stronger for girls than for boys (Brown et al., 1996).

In the current study, we explored how sibling relationships influence social competence. Sibling characteristics (being an only child, having an older brother, younger brother, older sister, or younger sister) were examined in relation to perspective taking and changes in social skills for boys and girls. Past literature has suggested that sibling structure variables that alter the link between sibling relationships and social competence are age, birth order, and gender (Brown et al., 1996; Kitzmann et al., 2002). Thus, we examined whether children with one sibling who was either older or younger and male or female (compared to only children) would perform better on perspective-taking tasks and would show greater increases in social skills over 1 year. We also examined whether these associations varied by the target child's gender in order to compare same-gender versus opposite-gender pairs.

2 | METHOD

2.1 | Participants

Mothers and their 5- to 7-year-old children were recruited through letters sent home by kindergarten and first-grade teachers in a metropolitan public school district in the Southwestern United States. Information was also distributed at school-sponsored summer camps and in local public libraries. Participants from the larger study were excluded from the current study subsample for two reasons: (a) children had more than one sibling and/or (b) there was insufficient data on the child's sibling. This resulted in a subsample of 112 children (M = 77.52 months, standard deviation [SD] = 9.24 months). A slight majority of children were male (55%) and European American (67%), followed by African American (18%), Hispanic (8%), and mixed or other ethnicities (7%). The average family's income-to-needs ratio was 3.18 (SD = 1.66) with 3.71 (SD = .80) average number of people in the household.

2.2 | Procedure

The study was conducted in two phases: year one (Y1) and year two (Y2). In Y1, mothers and children visited the laboratory for 1 hr. They provided consent and assent after receiving written and verbal information about the study procedure. While mothers completed questionnaires on children's behavior and family life, children engaged in various

tasks with a trained research assistant in the adjacent room. At Y2, mothers completed questionnaires using an online survey. Approximately 88% of mothers from Y1 participated at Y2.

2.3 | Measures

2.3.1 | Sibling characteristics

Sibling characteristics were identified through demographic information provided during the laboratory visit. Mothers reported the age and relationship to the child (e.g., brother or sister) for each family member living in the home. Experimenters coded for whether each child had a sibling or not, and if so, whether the sibling was older or younger and of the same or opposite gender with respect to the target child. Children's sibling structure was defined as older brother (13%), older sister (20%), younger brother (22%), younger sister (13%), and no sibling (32%).

2.3.2 | Perspective taking (Y1)

Children participated in emotional perspective taking (EPT) and cognitive (CPT) perspective taking tasks with a trained research assistant during the Y1 laboratory assessment (Perner & Wimmer, 1985; Harris, 1989; Hughes, White, Sharpen, & Dunn, 2000). The EPT task assessed the ability to use emotional reasoning on a first-order false-belief task. The CPT task assessed the child's ability to use deductive reasoning to answer questions based on an unexpected second-order false-belief scenario. Both tasks consisted of two stories that required the child to follow the actions of characters in a narrative and understand that one of the characters had limited knowledge about the situation. For example, in one story, a brother and a sister had been told the location of a chocolate bar, but the brother moved the chocolate bar without the sister's knowledge. After hearing each story, children were asked six corresponding questions for which the first two were training questions; if the child's training response was incorrect, the child was corrected by the research assistant in order to ensure that the child understood basic events and emotions in the story. Child responses to questions regarding first-order feelings (EPT) or second-order beliefs (CPT) of the characters and the rationales were later coded by a research assistant as 1 (correct response), 0 (incorrect response), or 0 (miscellaneous response). Interrater reliability with a second research assistant was established on 25% of the sample using intraclass correlations (Shrout & Fleiss, 1979). The intraclass correlation value was .91 for EPT and .89 for CPT. The EPT and CPT total scores were the sum of the two trial questions from the respective stories. These total scores were significantly correlated, $r(185) = .29$ and $p < .001$. An overall perspective taking score, ranging from 0 to 4 with higher scores indicating higher perspective taking abilities ($M = 2.07$ and $SD = 0.94$), was created by averaging the two total scores.

2.3.3 | Social competence (Y1 and Y2)

Mothers completed the social skills rating system questionnaire (Gresham & Elliott, 1990) during the Y1 laboratory assessment and again in the Y2 online survey. The measure consists of 39 social skills for which mothers were asked to describe how often their child exhibits each behavior. Response options were 0 (never), 1 (sometimes), and 2 (very often). The social skills rating system measures four subscales: cooperation, assertion, responsibility, and self-control. A social skills total score was calculated as the sum of the raw scores for the 39 items at Y1 ($M = 52.67$ and $SD = 8.77$) and Y2 ($M = 54.16$and $SD = 8.33$). Higher scores indicated a stronger affinity to demonstrate socially acceptable behaviors as perceived by the child's mother. The internal reliability (Cronbach's alpha) for the total score was 0.86 at both time points.

2.3.4 | Covariates

The target child's age, the family's income-to-needs ratio, and the total number of people in the household were reported by mothers. All were related to at least one study variable and were thus controlled for in subsequent analyses.

3 | RESULTS

Means and standard deviations for Y1 perspective taking, Y1 social skills, and Y2 social skills among various relevant groups can be seen in Table 1. Two hierarchical regression analyses were conducted to evaluate sibling characteristics as predictors of perspective taking and changes in social skills. First, we tested a hierarchical regression with perspective taking at Y1 as the dependent variable: (a) step one included all covariates in the model to account for child's age, family income-to-needs ratio, and total number of people in the household; (b) step two included all dummy codes for older brother, older sister, younger brother, and younger sister compared to the only-child reference group to account for main effects; and (c) step three included all dummy code interactions with child's gender. Second, we tested a hierarchical regression with social skills at Y2 as the dependent variable: (a) step one included all covariates in the model to account for child's age, family income-to-needs ratio, total number of people in the household, and social skills at Y1; (b) step two included all dummy codes for older brother, older sister, younger brother, and younger sister compared to the only-child reference group to account for main effects; and (c) step three included all dummy code interactions with child's gender.

Results for these regressions can be seen in Tables 2 and 3. For perspective taking, there was no significant main effect for child gender or sibling characteristics. However, there was a significant interaction between older brother and child gender and a significant interaction between younger brother and child gender. Tests of simple slopes were used to probe the interaction effects (Aiken & West, 1991). Girls with an older brother had significantly poorer perspective taking than girls without a sibling; whereas, boys with an older sibling had marginally better perspective taking than boys without a sibling (see Figure 1). Although a similar direction of effects was observed for boys and girls with a younger brother, neither simple slope was significantly different than zero (see Figure 2). For changes in social skills, there was a significant main effect for younger sister, such that children with a younger sister had significantly greater social skills at Y2 controlling for Y1 than children with no siblings. However, there were no significant interactions between sibling characteristics and child gender in predicting changes in social skills.

4 | DISCUSSION

Past research has clearly demonstrated that having siblings influences children's social development (Dunn, 1983; Dunn & Munn, 1985; Brody, 1998). In this study, we examined how specific sibling characteristics (having an older brother, younger brother, older sister, or younger sister versus being an only child) influence concurrent perspective taking and changes in social skills for boys and girls. Sibling characteristics were shown to be more complicated than simply having a sibling or not (Whiteman et al., 2011; Jenkins & Astington, 1996; Perner et al., 1994). Specifically, girls with an older brother had lower perspective taking than girls without siblings. On the other hand, boys with

TABLE 1 Descriptives for sibling characteristics and gender

	Mean (SD)							
	Siblings (n = 76)	No siblings (n = 36)	Older brother (n = 15)	Older sister (n = 22)	Younger brother (n = 24)	Younger sister (n = 15)	Girls (n = 50)	Boys (n = 62)
Perspective taking (Y1)	2.14 (.97)	1.92 (.87)	2.07 (1.05)	2.16 (.93)	2.08 (1.10)	2.30 (.80)	2.05 (0.96)	2.09 (0.93)
Social skills (Y1)	52.45 (8.62)	53.14 (9.20)	51.67 (7.38)	53.27 (7.72)	51.50 (10.16)	52.67 (8.77)	53.22 (9.56)	52.23 (8.14)
Social skills (Y2)	54.47 (8.20)	53.50 (.8.68)	51.33 (8.97)	54.82 (7.66)	54.08 (7.33)	57.73 (9.00)	55.14 (8.82)	53.37 (7.90)

Note. Mean comparisons within sibling and no sibling, older–younger brother–sister, and gender categories that did not show significant differences. SD = standard deviation; Y1 = year one; Y2 = year two.

TABLE 2 Hierarchical regression analysis for perspective taking by sibling characteristics and child gender

Variable	β	t	*p*	F	df	*p*	Adj. R^2
Overall model				3.35	12, 99	.001**	.20
Step one							
Child age	.32	3.71	.001**				
Family income-to-needs ratio	.06	.68	.502				
Total people in household	.10	1.13	.260				
Step two							
Child gender[a]	.02	.13	.900				
Older brother[b]	.09	.30	.763				
Older sister[b]	.12	.42	.674				
Younger brother[b]	.11	.39	.698				
Younger sister[b]	.28	.86	.391				
Step three							
Older brother x child gender	2.43	4.26	.001**				
Older sister x child gender	.42	.86	.391				
Younger brother x child gender	1.22	2.72	.008**				
Younger sister x child gender	.51	.96	.340				

Note. Y1 = year one; t = t-statistic from relevant t-test, F = F statistic from relevant regression analyses; df = degrees of freedom.

[a]Male coded as 1. Female coded as 0.

[b]Reference group is only children.

**$p < .01$.

*$p < .05$.

an older brother had marginally greater perspective taking than boys without siblings. Past research has shown that boys tend to be less skilled at understanding their own and others' emotions compared to girls (Eisenberg, Martin, & Fabes, 1996), and opposite gender siblings tend to have less nurturing relationships than same-gender pairs (Tucker et al., 1997; Rowe & Gulley, 1992). Therefore, older brothers may not often engage in teaching behaviors known to bolster perspective taking for their younger sisters such that girls with an older brother would not receive the benefit that previous researchers have found in perspective taking for those with siblings (Jenkins & Astington, 1996; Perner et al., 1994). Additionally, parents tend to spend more time talking to girls about emotions and emphasizing relationships compared to boys (Fivush, 1989). If parents have more time to do this with an only child compared to a daughter with an older brother, this may explain why girls with older brothers not only received no benefit of having a sibling, but actually displayed lower perspective taking than girls without siblings.

A similar pattern of findings was found when probing an interaction between younger brothers and child gender. Although simple slopes were not significant for either group, the direction of effects suggests that boys benefited from having a younger brother compared to being an only child, whereas girls benefited from being an only child compared to having a younger brother. Future research should continue to explore this pattern to better determine whether this seemingly similar effect can be generalized to children with brothers in general, or whether there is something unique in terms of perspective taking abilities for having an older brother versus a younger brother.

To further understand the influence of siblings on the development of social competence, we examined associations between sibling characteristics and child gender in relation to changes in children's social skills over 1 year. Previous research has shown that children with a sibling gained more social skills between kindergarten and fifth grade than children without siblings (Downey et al., 2015). However, our results suggest that the gender of the sibling may be particularly important for social skill development. Children with a younger sister experienced greater

TABLE 3 Hierarchical regression analysis for changes in social skills by sibling characteristics and child gender

Variable	β	t	*p*	F	df	*p*	Adj. R^2
Overall model				8.91	13, 98	.001**	.48
Step one							
Child age	.25	.42	.674				
Family income-to-needs ratio	.48	.81	.420				
Total people in household	.15	.26	.799				
Social skills at Y1	5.68	9.54	.001**				
Step two							
Child gender[a]	−.82	−.70	.484				
Older brother[b]	−.15	−.08	.940				
Older sister[b]	2.22	1.18	.240				
Younger brother[b]	2.62	1.43	.156				
Younger sister[b]	4.97	2.33	.022*				
Step three							
Older brother x child gender	−3.22	−.79	.431				
Older sister x child gender	−4.92	−1.43	.156				
Younger brother x child gender	−3.35	−.88	.380				
Younger sister x child gender	−.56	−.18	.861				

Note. Y1 = year one; t = t-statistic from relevant t-test, F = F statistic from relevant regression analyses; df = degrees of freedom.

[a]Male coded as 1. Female coded as 0.

[b]Reference group is only children.

**$p < .01$.

*$p < .05$.

†< .10.

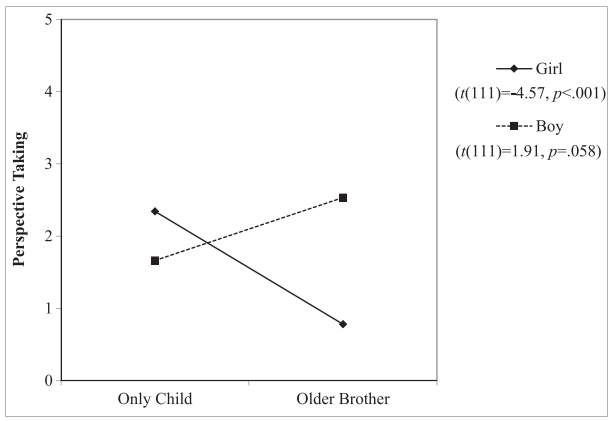

FIGURE 1 Simple slope test for older brother by child gender interaction predicting perspective taking

increases in social skills than only children. Through their roles as caregivers and teachers, older siblings offer younger siblings direction on how to behave (Brody et al., 1985), and specifically, older siblings mention feeling states more frequently to female siblings than to male siblings (Brown et al., 1996). Therefore, children with younger sisters may have more opportunities to practice their social skills such as cooperating with their sibling, initiating play, sharing, and giving compliments (Gresham, 1988), which allow for greater increases in social skills over time.

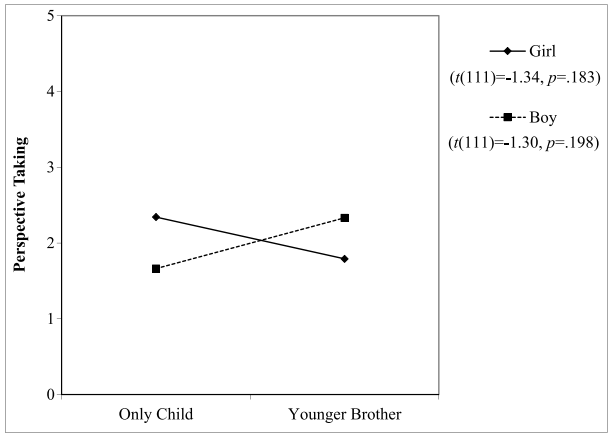

FIGURE 2 Simple slope test for younger brother by child gender interaction predicting perspective taking

There are limitations to the current investigation. Our longitudinal design is an improvement upon cross-sectional work in terms of reducing preexisting differences between children that may bias our results; however, children were only followed for 1 year. Social competence is an enduring developmental process that is affected by different mechanisms at different points in time. Furthermore, all sibling relationships are not equal. Temperament and language skills may moderate the associations investigated in the current study. When the temperaments of children and their siblings are different, they may have poorer relationship quality (i.e., less warmth, more conflict; Kitzmann et al., 2002) and avoid interacting with each other (Cutting & Dunn, 1999). Also, additional opportunity for discussion with siblings may be particularly beneficial to children with lower language skills (Jenkins & Astington, 1996). Finally, it is clear that when studying children, the entire family network plays an important role (Dunn & Munn, 1987); thus, examining additional relationships and interactions beyond sibling structure may further enhance our knowledge of children's social competence.

Overall, our results from this study suggest that sibling interactions can be beneficial. They also show that the sibling experience is dependent on additional factors such as birth order, gender constellation, and the aspect of social competence under evaluation. Sibling relationships are often overlooked in social development research, despite the unique opportunities present in sibling relationships that do not appear in any other type of relationship (Dunn & McGuire, 1992). Siblings provide a distinctive set of interactions including caregiving, play, and conflict that present naturally occurring, frequent opportunities to enhance children's social development.

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