Peer Relationships of Bereaved Siblings and Comparison Classmates After a Child's Death from Cancer*

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Objectives To compare peer relationships among bereaved siblings and matched classmates, and to examine gender, grade level, and time since death as moderators. **Methods** Families were recruited from cancer registries at four hospitals 3–12 months after a child's death. Measures of social behavior and peer acceptance were completed by children in the classrooms of 105 bereaved siblings (ages 8–17 years). Teachers also reported on children's social behavior. Three classmates were matched for gender, race, and age to each bereaved sibling to form a comparison group ($n = 311$). **Results** Teachers reported bereaved siblings were more prosocial than comparison classmates. Peers perceived bereaved boys as more sensitive-isolated and victimized, while bereaved siblings in elementary grades were perceived by peers as less prosocial, more sensitive-isolated, less accepted, and as having fewer friends. Peers and teachers viewed bereaved siblings in middle/high school grades as higher on leadership–popularity. **Conclusions** Bereaved siblings who were male and in elementary grades were more vulnerable to social difficulties, while those in middle/high school may exhibit some strengths. Ongoing research to inform the development of interventions for bereaved siblings is warranted.

Key words cancer; children; friendship; grief; peer relationships; siblings; social functioning.

Introduction

Almost 80% of children grow up with a sibling in the home (Kreider, 2007). The sibling relationship is a unique and powerful bond that often spans a lifetime (Brody, 1998; Cicirelli, 1995; McHale, Kim, & Whiteman, 2006). Siblings share many experiences and are described as attachment figures that can serve as teachers, friends, comforters, protectors, competitors, and antagonists (Cicirelli, 1995; Davies, 1999; McHale et al., 2006). Thus, the sibling relationship is a key component of socialization and development (Brody, 1998, 2004; Cicirelli, 1995; McHale et al., 2006). However, nearly 60,000 children under the age of 20 years die each year in the United States and Canada (Heron et al., 2010; Statistics Canada, 2007) raising concern about the social effects on bereaved siblings.

Cancer is the leading cause of death by disease in childhood (Heron et al., 2010; Statistics Canada, 2007)

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and in such cases, a child's death is often preceded by years of stressful treatments. As such, much of a family's attention and resources focus on the ill child (Wilkins & Woodgate, 2005). Siblings often care for their ailing brother or sister or assume other adult roles in the home (Martinson & Campos, 1991). Furthermore, bereaved siblings may experience a ''double loss'' due to the death of their brother or sister, as well as the unavailability of parents who are overwhelmed with grief (Sood, Razdan, Weller, & Weller, 2006). Although the death of a brother or sister poses multiple challenges for bereaved siblings, it has received little empirical attention relative to other types of loss (e.g., parent or spouse).

Not surprisingly, a meta-analysis suggests that siblings of children with chronic illnesses are at risk for multiple difficulties (Sharpe & Rossiter, 2002). Research with bereaved siblings suggests similar risk for emotional and behavioral problems. Bereaved siblings have reported feelings of sadness, anxiety, and guilt (Davies, 1991; Fanos & Nickerson, 1991; Hogan & Greenfield, 1991; Martinson & Campos, 1991). They have been rated by both parents and teachers as having higher internalizing and externalizing scores than norms or control groups within two years of the death (Birenbaum, Robinson, Phillips, Stewart, & McCown, 1989; Hutton & Bradley, 1994; McCown & Davies, 1995).

Given the risk for emotional and behavioral difficulties, the social adjustment of bereaved siblings is also a con cern. Qualitative studies suggest that bereaved siblings have feelings of isolation and demonstrate social withdrawal at home and with peers (Davies, 1991; Martinson & Campos, 1991; Rosen, 1985). Bereaved siblings have reported feeling estranged from peers after the death, and ordinary peer activities may seem less important, further isolating them from friends (Davies, 1991; Martinson & Campos, 1991). Compared to norms, bereaved siblings have been reported by parents and teachers to have lower social competence and higher social withdrawal within two years of the death (Birenbaum et al., 1989; Hutton & Bradley, 1994). This is especially concerning as social isolation in childhood is predictive of subsequent internalizing and social difficulties later in life (Burt, Obradovic, Long, & Masten, 2008; Masten et al., 2004; Rubin, Chen, McDougall, Bowker, & McKinnon, 1995).

However, not all siblings have difficulties following the death of a brother or sister. Bereaved siblings can also exhibit competencies and personal growth, such as being kinder, more compassionate, and more tolerant of others (Hogan & DeSantis, 1996; Hogan & Greenfield, 1991). Bereaved siblings have reported increased maturity and self-concept, as well as changes in life perspective, new social roles and identity, and closer family relationships (Hogan & DeSantis, 1996; Hogan & Greenfield, 1991; Martinson, Davies, & McClowry, 1987). Because bereaved siblings can exhibit a range of outcomes, other factors (e.g., age, gender, time since death) may differentiate who experiences psychosocial difficulties or resilience. To date, these types of moderators have not been examined in relation to social outcomes among bereaved siblings.

Much of the literature on bereaved siblings has focused on adolescence (Balk, 1990; Hogan & Greenfield, 1991; Oltjenbruns, 2001). Fanos (Fanos & Nickerson, 1991) found that adolescents (ages 13–17 years) whose sibling died of cystic fibrosis reported more guilt, anxiety, and somatic complaints compared to bereaved children and young adults. Adolescent girls may be particularly vulnerable to emotional or behavioral difficulties when a sibling is treated for cancer (Alderfer et al., 2010; Barrera, Chung, & Fleming, 2004) or when a sibling dies (Worden, Davies, & McCown, 1999). Research with parentally bereaved children has found that adolescents are at higher risk for internalizing symptoms than younger children (Mireault & Compas, 1996; Worden, 1996). Furthermore, parentally bereaved girls are at higher risk for internalizing symptoms (Worden & Silverman, 1996), which may have a more stable trajectory than that of boys (Schmiege, Khoo, Sandler, Ayers, & Wolchik, 2006) and lead to greater risk for depression in adulthood (Harris, Brown, & Bifulco, 1990; Reinherz, Giaconia, Hauf, Wasserman, & Silverman, 1999). Although it appears that bereaved adolescents and girls may have more adjustment difficulties, it is unclear whether this risk extends to social outcomes.

There are little data regarding factors associated with the illness and death that predict variability in functioning for families, especially siblings (Field & Behrman, 2003). Qualitative reports offer some guidance, but often characteristics of the illness or death are not able to be examined due to lengthy retrospective designs. Some evidence from research with bereaved children and adults indicates that deaths which were: (a) more recent (e.g., within 1–1.5 years), (b) viewed as untimely or unexpected, (c) in the hospital versus at home, and (d) associated with a lengthy illness and/or suffering may be associated with more severe grief reactions and distress (Barry, Kasl, & Prigerson, 2002; Field & Behrman, 2003; Gamino, Sewell, & Easterling, 2000; Hogan, 1988; Hogan & Greenfield, 1991; Mulhern, Lauer, & Hoffmann, 1983; Seecharan, Andresen, Norris, & Toce, 2004).

Despite some evidence of difficulties, varying study designs and methodological issues limit the ability to draw firm conclusions about the impact of a brother or sister's death on the social adjustment of bereaved siblings. Most studies are retrospective over long periods of time and qualitative in nature, reflecting the early state of research in this area. It is notable that we found only one controlled study of sibling grief (Hutton & Bradley, 1994). Recruitment from newspaper advertisements, home care, or support groups has been a common practice that may introduce ascertainment bias, and participation rates have been low. Most importantly, peer report is the most reliable and valid source of data regarding social competence (Parker & Asher, 1987), but it has not been used in studies of bereaved children. Children spend a large portion of their lives at school interacting with peers, and extensive work has documented the importance of peer ratings of social functioning as predictors of long-term academic, emotional, and behavioral adjustment (Burt et al., 2008; Masten et al., 2004; Rubin et al., 1995).

The aim of this study was to address previous methodological challenges while comparing multiple perspectives of social functioning among bereaved siblings and classmates. Bereaved families were recruited from cancer registries at four children's hospitals 3–12 months after a child died. We compared school-aged bereaved siblings to demographically similar classmates on measures of social behavior, peer acceptance, and friendship and examined whether gender, grade level, or time since death moderated group differences. We expected that bereaved siblings would exhibit fewer behaviors reflecting leadership and popularity, fewer prosocial behaviors, more aggressive disruptive behavior, and more social isolation than comparison classmates. We also expected that bereaved siblings would be less accepted by peers and have fewer mutual friendships than comparison classmates. Finally, we expected that discrepancies between bereaved siblings and comparison classmates would be greater for siblings who were female, in middle/high school grades, and closer in time to the death.

Methods

This research was part of an ongoing longitudinal study of families following the death of a child from cancer. Data collection in the larger study involved visits to bereaved siblings' schools and homes, on average, within one year after the death, followed by a second home visit 1 year later. This article includes cross-sectional data collected at the initial school visit.

Participants

At recruitment, eligible siblings were: (a) 8- to 17-years old, (b) in school without full-time special education,[1] (c) English speaking, and (d) living within a 100-mile radius of the hospital. To be inclusive of diverse family structures, half, step, and adoptive siblings were eligible if the parent reported that regular ongoing contact had occurred between the siblings even if they did not live together at the time of death. One eligible sibling was randomly selected to participate in each family.

Based on information from cancer registries and medical teams at the four sites, 199 families were screened and identified as potentially eligible for the study. Of these, 18 (9%) families could not be located. Physicians for 3 (1.5%) families declined to send a letter of introduction, and 9 (4.5%) families chose not to be contacted about the study. Thus, parents of 169 siblings meeting all eligibility requirements were approached for recruitment. Of these, 47 (28%) declined, and 122 (72%) permitted school contact. Data were collected in the schools of 105 (86%) of the 122 bereaved siblings. Eleven (9%) principals declined, and 6 (5%) presented other barriers (i.e., child changed schools late in year, classroom too small). The final sample of 105 bereaved siblings represented the following sites: Cincinnati Children's Hospital Medical Center ($n = 10$),[2] Vanderbilt University Medical Center ($n = 29$), Nationwide Children's Hospital ($n = 32$), and Hospital for Sick Children ($n = 34$).

A majority of siblings were female (54%, $n = 57$) and White (81%, $n = 85$), with an average age of 12.79 years ($SD = 2.56$). Relationships among siblings were classified as full (83%, $n = 87$), half (10%, $n = 10$), step (5%, $n = 5$), or adoptive (2%, $n = 2$). Deceased children averaged 11.86 years of age ($SD = 5.17$) at the time of death, with approximately 2.50 years ($SD = 2.25$) from diagnosis until death. Cancer diagnoses included lymphomas ($n = 10$, 10%), leukemias ($n = 23$, 22%), brain tumors ($n = 26$, 25%), and other solid tumors ($n = 44$, 42%).[3] Data collection occurred 3–19 months ($M = 9.78$, $SD = 3.34$) after the child's death.

Data were provided by 105 (100%) teachers and 1,889 (77%) classmates in 105 classrooms. Teachers were

[1]The restricted composition and smaller size of special education classrooms threaten the reliability and validity of sociometric measures. Bereaved siblings who received special education services remained eligible if they were mainstreamed for one or more required academic subjects.

[2]Only 10 families were enrolled in Cincinnati before the principal investigator moved to Nationwide Children's Hospital.

[3]Specific cancer diagnoses were unavailable for two children.

primarily female (71%) and White (90%). On average, 18 students ($SD = 4.9$, range = 5–31) participated in each class. A comparison group was constructed by identifying three participating classmates of each bereaved sibling who were matched for gender, race, and closest birth date. Three classmates, rather than a single child, were chosen to more closely approximate an ''average'' nonbereaved comparison. In two classrooms, only two matching classmates were available, and in one instance, only one classmate matched the bereaved sibling, resulting in 311 comparison classmates in total. This group included 141 (45%) boys and 170 (55%) girls. The average age of comparison classmates was 12.79 years ($SD = 2.55$), and most were White (86%, $n = 268$).

Procedures

Institutional Review Board approval was obtained at each of the four participating children's hospitals in the United States and Canada. All bereaved families who potentially had eligible surviving siblings were identified from local cancer registries. Families were mailed a letter from the child's attending physician to introduce the study 3–12 months after the child's death. The letter included a toll free number that families could use to leave a confidential voice message if they did not wish to be contacted further. Approximately 2 weeks later, a study staff member phoned families who did not opt out to describe the study further and assess interest in participating. If a parent was interested, staff members confirmed eligibility and obtained permission to contact the sibling's principal regarding a school-based assessment of the sibling's social functioning.

School principals received written information about the study and a phone call to obtain permission to contact the bereaved sibling's teacher. A meeting was held with the teacher to explain the study and complete their measures. Each teacher was given parental consent forms to distribute and collect from their students. When the majority (e.g., 80%) of students returned consent forms to the teacher, a date for school data collection was scheduled at the teacher's convenience.

All bereaved parents, principals, and teachers were told of our interest in the social outcomes of bereaved siblings, and parents were able to inform the bereaved sibling at their discretion. However, to ensure the confidentiality of bereaved siblings and prevent bias in the classroom, the research was described to classmates as a general study about friendships without mentioning cancer, death, or the specific bereaved child. Research staff administered questionnaires in a fixed order to participating students during a single group session in the primary classroom for elementary school students or a required academic subject (e.g., English, math) for students in middle or high school. Children with similar abilities and interests are often grouped together in these types of classes, ensuring they were sufficiently familiar with one another to provide valid peer assessments.

Measures

Revised Class Play

Revised Class Play (RCP; Masten, Morison, & Pellegrini, 1985), a descriptive matching instrument asked students and teachers to imagine that they were the director of a play and to ''cast'' members of the class into 42 hypothetical ''roles.'' Participants nominated only one student per role, but students could be picked to play more than one role. Nominations were limited to classmates of the same gender as the bereaved sibling to avoid gender role stereotyping, and students were asked not to choose themselves.

Item scores, reflecting teacher selections (0 or 1) or the number of peer nominations each child received for each role, were created. Peer item scores were standardized or converted to Z-scores ($M = 0$, $SD = 1$) to adjust for unequal class sizes and participation rates. Item scores were summed for each source to create five dimension scores. Four behavioral dimensions have been identified by previous factor analytic work and demonstrate good internal consistency (α's range from .81–.95) across a wide age range: (a) Leadership–Popularity (e.g., a person everyone likes to be with), (b) Prosocial (e.g., a person who is polite), (c) Aggressive–Disruptive (e.g., a person who is too bossy), and (d) Sensitive–Isolated (e.g., someone who is usually sad) (Zeller, Vannatta, Schafer, & Noll, 2003). Three items reflecting victimization by peers (e.g., someone who gets teased by other children) were added based on previous research to form a fifth dimension (Crick & Nelson, 2002). Stability and predictive validity have been well documented (Gest, Sesma, Masten, & Tellegen, 2006; Masten et al., 1999; Morison & Masten, 1991; Zeller et al., 2003). Peer and teacher-report dimension scores were standardized to allow a common metric between subscales.

Self-perceptions were assessed on a second RCP by 4-point ratings indicating how well students thought they could play each role. Mean self-report ratings were computed for each dimension and standardized within gender in each class. Internal consistencies for the five dimensions in this sample were .79–.91 for peers, .45–.75 for teachers, and .73–.81 for self-report.

Peer Acceptance Ratings

In Peer Acceptance Ratings (Asher, Singleton, Tinsley, & Hymel, 1979), students rated how much they liked each

classmate on a 5-point scale. Mean acceptance ratings were standardized ($M = 0$, $SD = 1$) within gender for each class and are considered a reliable index of a child's relative social acceptance with test–retest correlations of .81–.86 over a 4-week interval (Asher et al., 1979; Ladd, 1981).

Best Friend Nominations

In Best Friend Nominations (Bukowski & Hoza, 1989), students nominated three best friends from a list of classmates, yielding a social preference score for the total number of nominations received and a mutual friendship score for the number of reciprocated friendships. This provides a stable and valid index of peer acceptance (Bukowski & Hoza, 1989; Gottman, Gonso, & Rasmussen, 1975). Total scores reflect overall acceptance, whereas the reciprocated score reflects mutual, dyadic friendships. Both scores were standardized ($M = 0$, $SD = 1$) within gender for each class.

Medical Chart Review

Information about the deceased child's diagnosis, treatment, and death (e.g., date of diagnosis and death, type of diagnosis) was obtained from medical records.

Analysis Plan

Hierarchical linear mixed models (Jennrich & Schluchter, 1986; ''The MIXED procedure [computer program]. Version changes and enhancements,'' 1996) were used to examine group differences between bereaved siblings and comparison classmates, as this procedure allows for potential correlations among children in the same classroom. Initial multivariate comparisons simultaneously considered peer, teacher, and self-reports for each behavioral dimension on the RCP. Given the novelty of the data, univariate tests were conducted for each source, as well as for each peer acceptance and friendship variable to inform future research efforts.[4] To examine moderation, models were constructed to include interaction terms between group status (i.e., bereaved vs. comparison) and demographic variables (i.e., gender, $<$ or $\geq$ 6th grade level) or time since death (based on median split at 9 months). With 105 bereaved siblings and 311 comparison classmates, we had $\geq$90% power to detect moderate effects ($d = .5$) for all group comparisons, and for small effects ($d = .3$), power was 49–71% for peer-reports, 53–61% for self-reports, and 49–78% for teacher-reports. Power varied from 46–74% to detect moderate sized interactions for the RCP variables, but it dropped to 25–39% for peer acceptance variables and smaller interaction effects.

[4]Due to recent debate on best practices of error control (e.g., how and when to use corrections, how to define a family of variables), corrections for multiple comparisons were not calculated, and effect sizes were discussed (Cribbie, 2003; Keselman, Cribbie, & Holland, 2002).

Results

Between-group Comparisons of Social Behavior

Multivariate tests on the five RCP dimensions of social behavior indicated significant differences between bereaved siblings and comparison classmates on aggressive–disruptive behavior, $F(1, 102) = 2.77$, $p < .05$ (Table I). However, subsequent univariate effects were small ($d = -.16$ to .18) and nonsignificant. No significant multivariate effects were found on the remaining RCP dimensions. Univariate tests yielded one exception; teachers described bereaved siblings as more prosocial than comparison classmates, $F(1, 99) = 5.40$, $p < .05$, which was a small effect ($d = .26$).

Between-group Comparisons of Peer Acceptance and Friendship

Contrary to hypotheses, peer acceptance ratings were similar for bereaved siblings ($M = 0.16$, $SD = 0.98$) and comparison classmates ($M = 0.18$, $SD = 0.88$), $F(1, 100) = 0.04$, $p =$ ns, $d = -.02$. Furthermore, there were no significant group differences in total best friend nominations (bereaved: $M = 0.16$, $SD = 0.95$; comparison: $M = 0.14$, $SD = 0.95$), $F(1, 104) = .02$, $p =$ ns, $d = .02$, or reciprocated friendships (bereaved: $M = 0.09$, $SD = 0.98$; comparison: $M = 0.07$, $SD = 0.92$), $F(1, 102) = .01$, $p =$ ns, $d = .02$.

Gender, Grade Level, and Time Since Death as Moderators

Group differences in social behavior varied as a function of gender and grade level, but not as expected (Table II). Bereaved boys, but not girls, were perceived by peers as more sensitive-isolated, $F(1, 105) = 6.94$, $p < .01$, as well as more victimized, $F(1, 99) = 5.48$, $p < .05$, relative to comparison classmates. These effects were small to moderate in size ($d = .45$–$.50$). Bereaved siblings in elementary grades, but not middle/high school, were more likely to be perceived by peers as less prosocial, $F(1, 120) = 4.06$, $p < .05$, and more sensitive-isolated, $F(1, 105) = 7.86$, $p < .01$, relative to classmates, indicating small to moderate effects ($d = -.38$–$.65$). Bereaved siblings in elementary grades also had lower peer acceptance, $F(1, 99) = 5.02$, $p < .05$, and fewer best friend nominations, $F(1, 103) = 3.91$, $p < .05$, with small effects ($d = -.43$ to $-.40$). Bereaved siblings in middle/high school grades were perceived by peers and teachers as higher on leadership-popularity, $F(1, 111) = 5.79$, $p < .05$

Table I. *Social Behavior of Bereaved Siblings (n = 105) and Comparison Classmates (n = 311)*

Variable	Informant	Sibling *M (SD)*	Classmates *M (SD)*	Group difference *F*	*p*	*d*
	Multivariate effect			0.79	.50	
Leadership–Popularity	Peer	0.27 (1.11)	0.07 (0.99)	2.22	.14	.20
	Self	0.15 (0.84)	0.07 (0.80)	0.45	.51	.10
	Teacher	0.11 (0.98)	0.04 (1.01)	0.27	.61	.07
	Multivariate effect			2.24	.09	
Prosocial	Peer	0.09 (1.06)	0.12 (0.92)	0.08	.78	−.03
	Self	−0.05 (0.90)	0.00 (0.87)	0.22	.64	−.06
	Teacher	0.35 (1.51)	0.03 (0.88)	5.40	.02*	.26
	Multivariate effect			2.77	.05*	
Aggressive–Disruptive	Peer	0.11 (1.18)	−0.07 (0.75)	2.28	.13	.18
	Self	−0.02 (0.94)	−0.07 (0.88)	0.14	.71	.05
	Teacher	−0.17 (0.67)	−0.06 (0.76)	1.34	.25	−.16
	Multivariate effect			1.14	.34	
Sensitive– Isolated	Peer	0.03 (0.84)	−0.09 (0.86)	1.22	.27	.14
	Self	0.05 (1.01)	−0.05 (0.78)	0.63	.43	.11
	Teacher	0.12 (1.16)	−0.10 (0.75)	3.21	.08	.22
	Multivariate effect			0.58	.63	
Victimization	Peer	−0.09 (0.73)	−0.13 (0.75)	0.12	.73	.05
	Self	−0.17 (0.84)	−0.06 (0.78)	0.97	.33	−.14
	Teacher	−0.07 (0.64)	−0.05 (0.75)	0.04	.85	−.03

Note. Standardized scores ($M = 0$, $SD = 1$) are presented to adjust for class composition and participation rates. *d*, Cohen's effect size estimate (small = .20, medium = .50, and large = .80). Positive values represent higher means for bereaved siblings than comparison classmates, negative values the reverse.
* $p < .05$

and $F(1, 104) = 5.61$, $p < .05$, respectively. These effects were small ($d = .28$–$.41$). No significant interactions were found for group differences in self-report of social behavior or for interactions including time since death.

Discussion

Sibling relationships are one of the longest, often spanning nearly a lifetime. When this relationship is interrupted prematurely due to death, the social impact on surviving siblings may be significant. Unfortunately, research on sibling bereavement has been limited, primarily qualitative, and subject to numerous methodological challenges (e.g., ascertainment bias, retrospective designs, no controls). Thus, using a controlled, multi-site design, we assessed multiple perspectives of social behavior and peer acceptance among bereaved siblings and matched classmates, on average, in the first year after the death. Recruitment directly from cancer registries and improved participation rates helped to minimize ascertainment bias. We found that as a group, bereaved siblings were generally similar to comparison classmates on nearly all social outcomes, and there was some evidence of strengths. However, multiple social vulnerabilities were found for subgroups of bereaved siblings, particularly bereaved boys and bereaved siblings in elementary school grades.

Research has suggested that bereaved siblings may experience more social isolation and withdrawal (Davies, 1991; Martinson & Campos, 1991; Rosen, 1985), but this has been based on retrospective qualitative reports, which can be subject to recall bias. Although previous quantitative data from parents and teachers also suggested bereaved siblings experienced lower social competence and higher social withdrawal earlier in the grief process (Birenbaum et al., 1989; Hutton & Bradley, 1994), group means were within the normal range. Generally, we found consistently negligible or small effects across multiple informants, including peer, teacher, and self-reports. When significant effects were found, these were primarily on peer report, which is generally more reliable and valid as it is based on the collective report of 15–20 classmates. It is interesting to note that there were several trends and effect sizes from teacher and self-report data (e.g., teacher report of bereaved boys as sensitive-isolated), however, that were consistent with significant findings from peers.

As in previous work, there was some evidence of strengths among the group of bereaved siblings as a whole. We found small effects for teacher reports of

Table II. *Moderating Influence of Gender and Grade Level on Social Functioning*

Variable	Informant	Gender				Grade level			
		Subgroup	d^1	P_1	P_2	Subgroup	d^1	P_1	P_2
Leadership–Popularity	Peer	Girls	.32	.07		<Grade 6	−.24	.28	
		Boys	.05	.80	.30	≥Grade 6	.41	.01	.02*
	Self	Girls	.23	.23		<Grade 6	−.09	.73	
		Boys	−.06	.77	.31	≥Grade 6	.19	.30	.38
	Teacher	Girls	.27	.13		<Grade 6	−.37	.11	
		Boys	−.17	.38	.09	≥Grade 6	.28	.08	.02*
Prosocial	Peer	Girls	.00	.98		<Grade 6	−.38	.07	
		Boys	−.07	.70	.79	≥Grade 6	.13	.36	.05*
	Self	Girls	−.10	.57		<Grade 6	.19	.42	
		Boys	−.01	.97	.73	≥Grade 6	−.19	.25	.19
	Teacher	Girls	.29	.05		<Grade 6	.25	.19	
		Boys	.21	.20	.69	≥Grade 6	.25	.06	.99
Aggressive–Disruptive	Peer	Girls	.30	.07		<Grade 6	.24	.25	
		Boys	.04	.81	.29	≥Grade 6	.15	.31	.72
	Self	Girls	−.09	.63		<Grade 6	.05	.85	
		Boys	.25	.23	.22	≥Grade 6	.05	.75	.98
	Teacher	Girls	−.06	.73		<Grade 6	.08	.73	
		Boys	−.27	.19	.46	≥Grade 6	−.27	.10	.22
Sensitive–Isolated	Peer	Girls	−.16	.35		<Grade 6	.65	.01	
		Boys	.50	.01	.01**	≥Grade 6	−.10	.51	.01**
	Self	Girls	−.07	.71		<Grade 6	.11	.64	
		Boys	.33	.11	.15	≥Grade 6	.11	.51	.99
	Teacher	Girls	.02	.92		<Grade 6	.51	.02	
		Boys	.47	.01	.07	≥Grade 6	.09	.56	.12
Victimization	Peer	Girls	−.27	.19		< Grade 6	.42	.12	
		Boys	.45	.05	.02*	≥Grade 6	−.13	.48	.09
	Self	Girls	−.40	.04		<Grade 6	−.34	.18	
		Boys	.17	.45	.06	≥Grade 6	−.04	.81	.34
	Teacher	Girls	−.24	.25		<Grade 6	.19	.47	
		Boys	.23	.32	.13	≥Grade 6	−.14	.45	.30
Peer Acceptance ratings		Girls	.18	.29		<Grade 6	−.43	.05	
		Boys	−.26	.16	.08	≥Grade 6	.17	.27	.03*
Total BF nominations		Girls	.18	.47		<Grade 6	−.40	.13	
		Boys	−.17	.53	.34	≥Grade 6	.23	.22	.05*
Reciprocated friendships		Girls	.05	.86		<Grade 6	−.25	.52	
		Boys	−.01	.97	.88	≥Grade 6	.15	.57	.39

Note. *d*, Cohen's effect size estimate (small = .20, medium = .50, and large = .80). Positive values represent higher means for bereaved siblings than comparison classmates. P_1, significance of the difference between bereaved siblings and comparison classmates within this subgroup. P_2, significance of difference in magnitude of the effect for the two subgroups.

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

prosocial behavior, and bereaved siblings in middle/high school grades were perceived by both peers and teachers as higher on leadership-popularity. Because internal consistency for three of the teacher RCP scales was low (i.e., prosocial behavior $\alpha = .45$, popular/leader $\alpha = .61$, sensitive isolated $\alpha = .60$), it is surprising that we found significant results. Low reliabilities, however, are not unusual given that scores are based on single teacher informants who select one student for each role from the entire classroom. Also, teachers were not blind to the study aims and may have been biased. Alternatively, it is possible that they were indeed more perceptive of positive changes or the development of competencies in siblings. Thus, prosocial and leadership behaviors, such as kindness, compassion, tolerance, and maturity, noted in other studies (Hogan & DeSantis, 1996; Hogan & Greenfield, 1991) may have helped preserve or even enhance peer relationships for the average bereaved sibling.

Research with adults has demonstrated that bereavement, a universal human experience, often results in resilient outcomes, but there is variation among grief responses (Bonanno, 2004; Bonanno & Mancini, 2008). The task is to identify those individuals or subgroups that struggle or diverge from resilient pathways. Our results suggest that some bereaved siblings may indeed be vulnerable to social difficulties in the peer group. Specifically, bereaved boys, but not girls, were perceived by peers as more sensitive–isolated, as well as more victimized relative to comparison classmates. These effects were small to moderate in magnitude. This is in contrast to research with parentally bereaved children (Harris et al., 1990; Reinherz et al., 1999; Schmiege et al., 2006; Worden & Silverman, 1996) and other work that has suggested girls are at greater risk for difficulties than boys when a sibling has cancer (Alderfer et al., 2010; Barrera et al., 2004) or dies (Worden et al., 1999). It should be noted that these studies focused on emotional and behavioral outcomes as opposed to social functioning. Similar negative effects have been found on the peer relationships of boys whose mothers were treated for breast cancer (Vannatta, Grollman, Noll, & Gerhardt, 2008). This could indicate a common mechanism by which the stress of having an ''absent'' (e.g., ill or grieving) mother uniquely affects the social well-being of boys, or it may reflect a gender difference in soliciting social support from peers in response to stress. For example, the peer group can be a safe haven for bereaved children (Fleming & Balmer, 1996; Nolbris & Helstrom, 2005), particularly for girls who may be more likely to share their feelings and elicit sympathy from others.

We also found that bereaved siblings in elementary grades, but not middle/high school, were more likely to be perceived by peers as less prosocial, more sensitive-isolated, less accepted, and as having fewer friends relative to classmates. These effects were small to moderate in magnitude. While most literature indicates that bereaved adolescents are at higher risk for difficulties, again, these are primarily for emotional and behavioral outcomes (Balk, 1990; Fanos & Nickerson, 1991; Mireault & Compas, 1996; Oltjenbruns, 2001; Worden, 1996). Younger children may be more socially vulnerable, because they are more dependent on parents, who are grieving and not as emotionally available to help them understand, process, and cope with the death. Practically speaking, they may also require parents to initiate and structure social activities more frequently than adolescents. Lastly, adolescents may have larger social networks and rely more on peers for support relative to younger children.

Interestingly, we did not find that group differences in peer relationships varied as a function of time since death. Hutton & Bradley (1994) found similar stability in psychosocial difficulties among children bereaved for less than 1 year compared to those bereaved for more than 14 months. There has been limited research in this area as most studies of sibling grief have been qualitative and conducted many years after the death. Findings suggest that grief can be prolonged and resurface later in development when bereaved siblings process the death from a different vantage point or perspective (Davies, 1999; Oltjenburns, 2001). In addition, peer relationships are generally stable (Parker & Asher, 1987) and may be resistant to the early effects of grief on social functioning. Only when changes in sibling behavior (e.g., withdrawal, aggression) persist might we find more substantial effects on peer relationships. Lastly, using a median split of 9 months post-death is a rudimentary approach to examining the effects of time on social outcomes. Longitudinal data over a longer time, or the use of assessments conducted on a more consistent schedule (e.g., 1, 6, 12 months), may shed light on this issue.

Our results should be replicated and considered in the context of several additional limitations. Although this is one of the largest studies of bereaved siblings, our power for interactions was limited. In general, these effects were significant only when they were moderate to large and occurred in opposite directions for the groups. Despite rigorous recruitment strategies, we were able to enroll approximately half of all eligible families, and our sample was primarily White. While some of our results may translate to other samples of bereaved children, we did not find absolute consistency with previous research. There has been recognition in the field regarding the importance of ''who'' or ''how'' in bereavement research (Cleiren, Diekstra, Kerkhof, & van der Wal, 1994). In other words, our results should be considered cautiously and may not generalize to all children bereaved of other significant relationships or those who experienced a death from other causes. We took a broad approach to sibling relationships to be inclusive of diverse family structures, but future research might consider if other factors, such as relationship status (e.g., biological, step, adoptive), amount of time living together, or relationship quality, differentially affect outcomes for bereaved siblings. Lastly, it is impossible to know whether our findings are due specifically to the death of a sibling, as changes in peer relationships may have resulted from the ongoing stress of having a brother or sister with cancer. Prospective research with siblings from diagnosis would be ideal (Alderfer et al., 2010).

Despite these limitations, this is the first controlled study of bereaved children that has examined multiple perspectives of peer relationships early in the grief process. Our results suggest that as a group, bereaved siblings

may appear socially resilient and relatively comparable to peers in the school environment. However, concern for bereaved boys and siblings in elementary school is warranted. Families, clinicians, and school personnel may not always be aware of the social challenges as reported by the peers of bereaved siblings. Periodic assessment of social functioning at school is recommended, as well as strategies that may facilitate the social well-being of siblings at risk for difficulties (e.g., improving peer understanding and support for boys, facilitating peer activities for younger children). Additional research to examine predictors of risk and resilience among bereaved siblings is important to inform the development and evaluation of interventions that promote adjustment following the death of a brother or sister. This is especially pertinent given recent controversy with regard to the limited efficacy and even potential harm from current grief interventions (Currier, Holland, & Neimeyer, 2007; Jordan & Neimeyer, 2003; Larson & Hoyt, 2007).

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