Brief Report: Empathy and Psychological Adjustment in Siblings of Children with Cancer

Larissa E. Labay, PsyD, and Gary A. Walco, PhD

Department of Pediatrics, Hackensack University Medical Center, and University of Medicine and Dentistry of New Jersey, New Jersey Medical School

Objective To examine relationships between empathy, illness concepts, sibling relationship variables, and psychological adjustment among siblings of children with cancer. Methods Participants were 29 siblings and 14 children diagnosed with acute lymphoblastic leukemia, acute myelocytic leukemia, or non-Hodgkin’s lymphoma. Data included self- and parent-report questionnaires completed during active treatment. Results Siblings did not exhibit increased rates of behavior problems, but did display more social and academic difficulties. Empathy was a significant predictor of externalizing and total problems. Cancer knowledge was not related to adjustment, but was associated with empathy. Birth order of the child with cancer and closeness within the sibling relationship were associated with less positive adjustment. Conclusions Empathy may play an important role in sibling adjustment following the diagnosis of cancer. Specific sibling relationship and family variables may be helpful in identifying siblings who are at greater need for psychosocial intervention.

Key words childhood cancer; sibling adjustment; empathy; sibling relationships.

Despite studies showing that the entire family system is impacted by a diagnosis of childhood cancer, limited attention has been paid to the experience of siblings. Data are contradictory regarding the short- and long-term impact of cancer on siblings. Some studies emphasize intense disruption and negative outcomes, such as increased behavioral and emotional distress (Sahler et al., 1994; Alderfer, Labay, & Kazak, 2003). Others suggest that there are no significant differences in the adjustment of siblings of children with cancer and controls, even pointing out that there are positive outcomes following the diagnosis of cancer, such as closer family relationships and increased compassion, maturity, and independence (Sargent et al., 1995; Barbarin et al., 1995). The purpose of the present study was to examine the psychological adjustment of siblings of children on active cancer treatment, with an emphasis on identifying protective factors, such as empathy, illness concepts, and aspects of the sibling relationship (warmth, status, conflict, rivalry).

The capacity for empathy, which generally increases with age and is more developed in girls than in boys, has been associated with psychological adjustment in children (Miller & Eisenberg, 1988; Strayer & Roberts, 1997). Empathy involves both affective arousal and a cognitive ability to assume the psychological role of another individual. Although some studies have shown that siblings of children with cancer have higher levels of empathy when compared with children with healthy brothers and sisters (Murray, 1998; Heffernan & Zanelli, 1997), the relationship between empathy and adjustment among healthy siblings has not been examined.

Receiving information about a family member’s cancer has been related to positive psychological adjustment in children (Eiser & Havermans, 1992), and group interventions designed to increase siblings’
understanding of illness and disability have resulted in significant improvements in behavioral problems (Lobato & Kao, 2002). These findings suggest that receiving age-appropriate knowledge about cancer may be an additional protective factor for healthy siblings.

Dunn, Slomkowski, Beardsall, and Rende (1994) found that sibling relationship quality was related to perceived self-competence and attractiveness, as well as internalizing and externalizing behaviors. Although the importance of the sibling relationship to a child's social and psychological functioning has been emphasized throughout the literature, no study has thoroughly explored these variables as they relate to the adjustment of siblings of children with cancer.

Three general hypotheses were generated: (1) There is a positive relationship between empathy and psychological adjustment among siblings; (2) empathy is related to gender (females greater than males) and age; and (3) there is a relationship between illness concepts and adjustment.

**Method**

**Sample Recruitment and Procedure**

Eligibility criteria included: (1) The sibling was English speaking and between the ages of 7 and 16 years; (2) the child with cancer was on active treatment and at least 3 months postdiagnosis; and (3) the child with cancer was diagnosed with acute lymphoblastic leukemia (ALL), acute myelocytic leukemia (AML) or non-Hodgkin's lymphoma (to minimize differences due to variations in medical treatment). A limited number of families met criteria for inclusion, due to the large number of families that were non–English speaking or did not fulfill the cancer diagnosis criteria. Families were contacted by mail inviting participation, and informed consent was obtained from parents and assent from children age 9 and above. Siblings completed measures of empathy, sibling relationships, and illness concepts. Parents reported on sibling adjustment, and children with cancer age 7 and above completed a sibling relationship questionnaire. Data were obtained during inpatient stays, outpatient clinic visits, or home visits. (This study was approved by the university medical center's institutional review board.)

**Participants**

Participants included 29 healthy siblings (20 males, 9 females; M age = 11.23 years, SD = 2.97; range = 7–16) and 14 children on active treatment for ALL (69%), AML (3.4%) and non-Hodgkin's lymphoma (27.6%) (9 males, 5 females; M age = 10.73 years, SD = 4.72; range = 8–15). A total of 20 families participated. Time since diagnosis ranged from 0.41 to 2.56 years (M = 1.51, SD = .72). Roughly half (55.2%) of siblings were older than the child with cancer, and the mean age difference between the sibling and the child with cancer was 1.15 years (SD = 4.51). The sample was 55.2% white, 6.9% black, 17.2% Latino, 6.9% Asian, and 13.8% Middle Eastern. Only two eligible families chose not to participate, due to concern that talking about cancer might be distressing for the sibling. All families completed their participation in the study. The mother was the parental respondent in 26 (89.7%) of the cases.

**Measures**

**Index of Empathy (IEC) for Children**

The IEC (Bryant, 1982) is a 22-item questionnaire to which children 6 years and older respond by endorsing statements about affective behavior. Test-retest reliability was reported to be .81, with an a of .68 among a sample of fourth graders.

**Concepts of Illness**

A semistructured interview that assesses children's understanding of the definition of the illness and its causality, treatment, and prognosis was used (Walco, Gavaghan, & Roach, 1985). Responses are rated in discrete categories, reflecting Piagetian cognitive development. Interrater reliability checks (with 89% of the protocols) yielded a Cohen's kappa of .88.

**Child Behavior Checklist (CBCL)**

The 113-item CBCL (Achenbach & Edelbrock, 1983) asks parents to assess the presence and intensity of behavioral and emotional problems and report on social relationships and school activities. One-week test-retest reliabilities range from .82 to .91.

**Sibling Relationship Questionnaire (SRQ)**

The SRQ (Furman & Buhrmester, 1985) is a 48-item inventory that provides four factor scores: warmth/closeness, relative status/power, conflict, and rivalry. Test-retest reliability ranges from .58 to .86 with a mean of .71. The SRQ can be used with children as young as second grade, with a visual analog scale for younger children to help them understand items and response choices (Farber-Daniel, 1998).
Results

Preliminary analyses showed that outcome scores were not related to disease-related variables (diagnosis, time since diagnosis, severity of cancer type). Of the demographic variables, family size and birth order of the child with cancer were significantly correlated with psychological adjustment variables. Given limited sample size, all regression analyses controlled for only variables that were shown through correlational analyses to be potential confounds.

One-sample t-tests comparing CBCL total problem, externalizing, internalizing, and social competence scores with standardized norms (M = 50) revealed that siblings scored significantly below the mean only on the three social competence subscales: activities (M = 44.5, SD = 8.01; t = −3.71, p = .001), social relationships (M = 44.1, SD = 9.71; t = −3.19, p = .004), and school performance (M = 45.5, SD = 9.48; t = −2.59, p = .015). Multiple regression models with birth order of the child with cancer, family size, and empathy as independent variables were significant for CBCL total problem scores (adjusted $R^2 = .30, F = 4.98, p = .008$) and externalizing behavior problem scores (adjusted $R^2 = .44, F = 8.20, p = .001$). Standardized regression coefficients indicated that controlling for family size and birth order, empathy remained a significant predictor, with a large effect size for both models. Models examining internalizing problems (adjusted $R^2 = .16, F = 3.62, p = .041$) and social competence (adjusted $R^2 = .51, F = 7.92, p < .0001$) were also significant, but empathy was not found to be a significant predictor.

Gender differences in empathic responding were noted in the expected direction (males: M = 14.00, SD = 2.73; females: M = 15.78, SD = 2.11), but they failed to reach statistical significance ($t = 1.73, p = .096$). Level of empathy was positively correlated with age ($r = .46, p < .05$). An analysis of covariance, with age as a covariate, revealed no significant relationship between concepts of cancer, empathy, and psychological adjustment. Level of empathy was significantly related to a more sophisticated understanding of cancer treatment ($F = 9.94, p = .001$) and prognosis ($F = 6.61, p = .002$), with a medium effect size for both models.

Children with cancer and their siblings did not differ in their perceptions of conflict ($t = −.79, p = .43$), rivalry ($t = −1.15, p = .25$), warmth/closeness ($t = .55, p = .59$), and relative status/power ($t = .46, p = .65$). Warm relationships, as reported by the child with cancer, were associated with higher externalizing ($r = .49, p = .02$) and total problem scores ($r = .42, p = .05$) among healthy siblings. Social competence scores were negatively correlated with reports of warmth and closeness, as perceived by healthy siblings ($r = −.52, p = .01$) and by children with cancer ($r = −.57, p = .01$). Warmth/closeness scores of healthy siblings were also associated with less mature illness concepts ($r = −.50, p = .01$).

An examination of age revealed interesting associations with sibling relationship variables. Specifically, the older the healthy sibling, the less rivalry ($r = −.42, p = .05$) and conflict ($r = −.42, p = .04$) were reported. Sibling age was also associated with the perception of power in the relationship as reported by the siblings ($r = .46, p = .03$) and by the children with cancer ($r = −.60, p = .01$). This same relationship held true for children with cancer, with self-perceptions ($r = .50, p = .04$) and sibling perceptions ($r = −.72, p = .01$) of power increasing with age. Finally, the age difference between siblings was associated with the quality of their relationships. Specifically, a greater difference in age was associated with more warmth ($r = .43, p = .04$) and less rivalry ($r = −.52, p = .01$) between siblings.

Discussion

Present results are consistent with earlier findings that the psychological adjustment of healthy siblings does not differ significantly from that of control groups or standardized norms (e.g., Van Dongen-Melman, 1997). One exception was found in the area of social competence, where healthy siblings were less involved and successful in academic, extracurricular, and social activities. Of note, present findings suggest that siblings with greater empathy experience fewer difficulties in psychological adjustment.

Empathy may help children reconcile differences in the allocation of family resources (e.g., parents’ time and attention, material possessions, privileges) that are common following a diagnosis of cancer. It is also possible that children who are less effective at understanding emotional states have difficulty communicating their emotional needs and resort to impulsive or aggressive means of expression. The present findings are consistent with reports by Bryant (1987), who found empathy to predict both externalizing and total problem scores on the CBCL, but not internalizing problems.

As hypothesized, empathy was significantly correlated with age, supporting the idea that social, cognitive,
and emotional development are integral. Although not statistically significant, mean empathy scores were higher for girls than boys. Because siblings of children with serious medical conditions tend to be more empathic than their peers (Janus & Goldberg, 1995), it is possible that the disease experience overshadows other factors that may be related to gender.

Although cancer knowledge was not related to adjustment, which is consistent with some earlier findings (e.g., Sargent et al., 1995), it is still important to provide age-appropriate knowledge about a sibling’s illness. Our findings suggest an association between a more sophisticated understanding of cancer and a sibling’s level of empathy, which in turn may influence psychological adjustment postdiagnosis.

Results indicated that when the child with cancer was later in the birth order, siblings exhibited more behavioral, social, and academic problems. This may reflect an increase in family responsibilities placed on older siblings, increased involvement in cancer-related discussions, or an expectation to become more self-sufficient as parental attention shifts to the care of a younger child with cancer. Family size was also significantly correlated with psychological adjustment. It stands to reason that as the number of individuals in a family increases, the complexity of relationships expands geometrically and the potential for struggle in meeting individuals’ needs intensifies. In addition, there may be increased competition for limited material and emotional resources, which only further complicates the coping needs of all involved.

While one typically thinks of warm and caring relationships as a buffer, in this instance it actually served to increase risk of problematic adjustment and decreased social competence. More intimate relationships may heighten the impact of exposure to the distress and suffering of the child with cancer, as well as increase vulnerability to periods of separation and changes in responsiveness and reciprocity within the sibling relationship. Simply stated, stressors are amplified.

There were methodological limitations of this study. First, the small sample size limited statistical power, making it difficult to assess more intricate relationships among variables and to offer definitive findings regarding gender differences. Second, recruiting multiple siblings from a family may have introduced bias that could have confounded observed relationships and limited the generalizability of findings. Third, multiple methods of assessment may have been helpful when assessing empathy because children may have difficulty reporting accurately on internal states or may provide socially acceptable responses. Fourth, preexisting sibling maladjustment was not assessed, which may impact the significance of our results. Finally, because a comparison group of siblings without the experience of cancer was not included, the degree to which results are unique to families coping with childhood cancer is unclear. Future investigations may want to include comparison groups of siblings of healthy children, as well as children with chronic illnesses that differ from cancer in terms of factors such as life threat, level of disruption, and treatment course.

While the lack of a comparison group may be viewed as a limitation, some have argued that it is important to emphasize within- rather than between-group variance, identifying variables that are related to favorable outcomes among family members (Kazak & Nachman, 1991; Kupst, 1994). Thus, in the present study, the goal was to examine empathy and other factors that correlate with siblings’ adjustment, which would not be accomplished by focusing on between-group differences.

The present results suggest specific areas of intervention. Empathy training programs that teach skills such as discriminating affective signals, role-taking ability, and the experiencing and expression of emotions have lasting positive results for children, including increased empathy and prosocial behavior, less interpersonal aggression, and more positive self-concept (Feshbach, 1997). Methods are easily adapted to a variety of settings and therefore offer a practical option for those working with siblings of pediatric cancer patients. Observed difficulty in the area of social competence offers support for increasing communication between home and school, sensitizing peers and teaching staff concerning the unique needs of siblings of pediatric cancer patients and maintaining sibling involvement in age-appropriate activities, which are often interrupted as families dedicate resources to the child with cancer.

The present data may be used to help identify siblings at risk for difficulties following the diagnosis of cancer. Specifically, siblings who have a close relationship with the child with cancer or siblings from large families or families in which the child with cancer is later in the birth order may experience unique challenges that increase the stress and disruption they experience. Recognizing these vulnerabilities through comprehensive assessment at the time of diagnosis will help professionals respond more effectively to the needs of these siblings.
Understanding sibling adjustment is a complex task given the multitude of individual, family, and system variables that mediate the impact of childhood cancer. This complexity underscores the importance of applying a socioecological framework when conceptualizing research and interventions targeting siblings. While the current study offers a limited perspective on some key variables, results should be interpreted with caution until replicated and expanded in studies that focus on larger samples and that utilize a contextual framework, taking developmental differences and variability over time into account. Such efforts will result in a more comprehensive understanding of the ways in which healthy siblings are affected by cancer, thus allowing medical and psychosocial providers to select maximally effective interventions for this unique population.

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