

Running head: THE IMPACT OF SIBLING BEREAVEMENT AND COPING

Sibling Bereavement from Childhood Cancer:  
Impact on the Surviving Children and Their Coping Responses

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### Abstract

The death of a sibling is potentially one of the most traumatic events for children and adolescents. The purpose of this study is to examine the relationship between siblings' psychosocial adjustment following the death of a brother or sister and the way they cope with loss. Forty bereaved families and 31 control families of the same demographic background participated in the current study within 3 – 12 months after death of a child from cancer. Data were collected using questionnaires completed by siblings, parents, teachers and peers. Results showed that bereaved siblings do not display more internalizing and externalizing symptoms than control siblings. They also indicated that primary control coping is related to less externalizing problems while secondary control coping is related to less internalizing problems. Implications, limitations, and areas of future research are also discussed.

## Sibling Bereavement from Childhood Cancer:

### Impact on the Surviving Children and Their Coping Responses

Although childhood cancer is rare, it remains the number one disease killer of American children. The loss of a child is one of the most traumatic and painful experiences for families, yet little is known about its impact on parents and siblings. After the loss of a loved one, people generally go through a period of mourning. This period is called bereavement whereas mourning is the process by which people adapt to a loss. Grief, on the other hand, is the individual's reaction to a loss. According to the National Cancer Institute (2005), the bereavement process can be divided into four phases: (1) shock and numbness; (2) yearning and searching; (3) disorganization and despair; and (4) reorganization. For most people, although the feelings of grief can be overwhelming at first, they eventually come to terms with the loss. For others, however, their response to loss remains unresolved. This kind of prolonged and unhealthy reaction to loss is also known as complicated grief, which puts individuals at a higher risk for developing psychological disorders like depression. There are important individual differences in how people grieve, but what contributes to these individual differences, or what makes some people more resilient than others, remains unclear. Therefore, bereavement is an important area to study because in order to prevent and treat complicated grief, we must first understand the process of bereavement and identify factors that might help or hinder this process.

The death of a child is no doubt devastating for every parent. Nonetheless, the experience of loss is just as profound for the surviving siblings as for the parents. Siblings share a unique bond of relationship. It begins early in life, and continues throughout life. Siblings can serve as teachers, companions, and friends for one another (Davies, 1999). They are the "principal agents for defining each other's personality" (Bank & Kahn, 1982, cited in Hogan & Greenfield, 1991).

Hence, the death of a sibling can have a tremendous impact in the formation and development of identity in the surviving child, which in turn affects the child's social functioning. In addition, cancer is a dreaded illness. Death from cancer is often preceded by prolonged and painful treatments. During the time of treatment, the sibling's needs might have been neglected by the parents who spend most of the time taking care of their dying child. This is especially problematic if the ill child needs to be hospitalized. Older siblings might even need to take on greater responsibilities at home, such as taking care of their younger brothers or sisters and doing house chores. Some siblings may therefore feel resentment towards their dying brothers or sisters. Sometimes resentment may even lead to guilt at the time of death. For instance, some young children may believe that their hostile feelings are the cause of their siblings' death (Black, 1998).

Following the death of a child, the role of the sibling within the family may be jeopardized. Hindmarch (2000) emphasizes how the impact of the death on the existing family system may affect the sibling. First, the child may feel pressure to replace and fulfill the roles previously associated with his or her dead sibling. Second, the surviving sibling may become a scapegoat for the anger and guilt of their parents with regards to the child's death. Third, the status of the surviving child within the family is fundamentally changed. They may become treated as an only child, or they may move from being the youngest child to being the oldest. The parents may also become more overprotective of the surviving child as an attempt to protect them from the same fate as their deceased brother or sister; this may have an effect on the self-esteem and independence on the child (Gibbons, 1992). On the other hand, surviving siblings may try to protect their parents as well, by hiding their negative emotions and putting up a stronger front in the family. As a result, they cut themselves off from one of the most important

sources of support, i.e. their parents. Moreover, bereaved parents may be preoccupied with their own grief process, and thus leading to inadequate parenting towards the surviving child. Finally, Black (1998) also notes that longing for reunion is common in children and may lead to suicidal thoughts. Hence, the emotional suffering of bereaved siblings is tremendous, perhaps even more so than we would expect.

The results from previous studies that have been done on sibling bereavement are mixed. While some researchers have suggested that siblings are at risk for problems with adjustment and psychopathology, others found that siblings' experience with loss might have fostered personal and family growth in spite of the difficult grief process. For instance, in a retrospective study, Fanos and Nickerson (1991) explored the long-term consequences of bereavement on surviving siblings. They found that survivors who were between 13 and 17 years old at the time of loss were troubled by a sense of guilt over their dealing with the sibling's illness and death, as well as by survival guilt. They also expressed more internalizing symptoms, such as fear, anxiety and depression, as well as somatic complaints. In a longitudinal study done by Birenbaum, Robinson, Philips, Stewart, and McCown (1989), 61 siblings were interviewed at four different times: before death, 2 weeks after death, 4 months after death, and 12 months after death. The results revealed no significant differences across different time waves. However, they indicated that bereaved siblings demonstrated significantly higher levels of behavioral problems, such as aggression, and significantly lower social competence in comparison to non-bereaved children.

When a child who has lost a sibling continues to attend school, social activity may be undermined by the need to find outlets for grief. Apathy and withdrawal may be misunderstood by others. Tearfulness and outbursts may cause embarrassment. The school environment can be aggressive and competitive, and weakness may provoke contempt or humiliation. Many

bereaved siblings struggle with loss of concentration in school and intrusive thoughts and memories. However, some children, by shutting out the loss and denying its significance, they enhance their school life, and thereby enjoy school more (Abdelnoor, & Hollins, 2004).

In addition, just as Hindmarch (2000) suggests, Balk (1991) found that bereaved adolescents often see their family members as being too preoccupied with their own grief to be present and available. Parents are emotionally unavailable to their grieving children because the parents themselves have been traumatically affected by the death of their child. Besides, parent's emotional stress often leads to more spousal disputes. Such a volatile home environment resulted from parental bereavement can easily preclude the bereaved adolescents from disclosing their own needs, thoughts, and feelings within the family unit (Balk, 1991, cited in Hogan & DeSantis, 1994).

Interestingly, Martinson and Campos (1991) found that most siblings regard their experience with loss as having fostered their personal or family growth later on in life. For example, they may develop increased sensitivity and empathy for other children who are going through the same experience (Kramer, 1981, as cited in Murray, 1999). Some bereaved children also have a greater appreciation of life. They learn to value their family and friends more, which result in less conflict and greater cohesion within the family. Higher cohesion in a family in turn leads to better adjustment and fewer behavior problems in children (Davies, 1988). Nonetheless, while the experience of grief may lead some children to develop a new perspective in life, they may view school work as less important, and thus do poorly in school (Davies, 1988). It is also noteworthy that although most bereaved children experience positive growth, this sense of personal growth may lead to feelings of being different from peers, which may cause some children to withdraw from peers and result in loneliness and depression, as well as social

difficulties later in their lives (Davies, 1991).

Besides differences in bereavement outcomes, there might be gender differences among bereaved children as well. For example, Hogan and Greenfield (1991) find that male adolescents are less likely to disclose information openly than female adolescents. Without appropriate social support outlets available, they are vulnerable to long-term negative outcomes. On the contrary, some studies have found that adolescent girls may be particularly vulnerable to emotional or behavioral difficulties when a sibling dies. For example, Worden, Davies, and McCown (1999) found no significant difference between parentally bereaved children and sibling bereaved children in the total number of problems, on any of the clinical syndrome scales, or in the percentage of children at risk. However, when the two groups were compared by gender, differences appeared. Boys, especially preteen boys, were more affected by the loss of a parent than by the loss of a sibling. They demonstrated more withdrawn behaviors, as indicated by their parents on the Child Behavioral Checklist (CBCL). On the other hand, both preteen and adolescent girls were most affected by the loss a sibling, especially a sister, than by the loss of a parent. Anxiety and depression symptoms were found in great numbers among the preteen girls, whereas adolescent girls showed high levels of internalizing and externalizing behaviors, including attention problems and anger. Nonetheless, the results might be biased due to the fact that seventy-five percent of the parentally bereaved boys had lost a father, and that the majority of girls in the sibling bereaved study had lost a sister. Boys, especially preteen boys, usually confided more in their fathers during their preteen and teenage years. On the contrary, girls reported greater disclosure with same-sex friends and siblings than boys.

In addition to gender differences in sibling bereavement, there appears to be age differences as well. Fanos and Nickerson (1991) find that siblings who are adolescents at the



time of loss experience more psychological difficulties. With the death of a sibling during this period, adolescents are caught between their own developmental needs to become independent from family and concern for their bereaved parents. Hence, parents who suddenly refocus their attention around their surviving children after they lost a child put additional stress on the bereaved siblings. In addition, adolescents have higher cognitive abilities in understanding the meaning and significance of death than young children. They are more likely to express concerns about why it happens. Furthermore, during adolescence, there is a strong peer pressure to conform. Thus, the sense of being different may cause bereaved siblings to feel like they do not belong, and eventually result in social withdrawal. Adolescence is also a time when siblings are just beginning to work through competitive relationships and form better relationships. Thus, the loss of a sibling whom adolescents are developing an intimate and trusting relationship with can be very devastating, and may even be seen as unfair. Based on the findings from the studies mentioned above, gender and age may act as moderators in sibling bereavement, with female adolescents being at the highest risk of developing psychological difficulties.

In order to understand why some siblings do better than others, few studies were conducted to examine potential risk and protective factors in sibling bereavement. For instance, in one study, Hogan and DeSantis (1994) found that social support both helped and hindered the coping process in bereaved adolescents. Support that was considered as helpful was perceived as having parents and friends being there for them and sharing feelings with them. Support that was considered as unhelpful included the insensitivity of people and rumors about the dead sibling. Parental discord and parental grief also hindered adolescents' sibling bereavement. Results from the study conducted by Barrera, Fleming, and Khan (2004) also indicated that high social support might serve as a protective factor in psychological adjustment of siblings of cancer patients.

More specifically, Davies (1998) found a relationship between family environment and sibling behavior after bereavement. She discovered that families with a higher cohesion, active/recreational orientation, and moral/religious emphasis had children with fewer behavior problems up to 3 years after a sibling's death. In addition to support from family and others, communication might play an important role in sibling bereavement as well. Birenbaum (1989) investigated whether good communication about death and dying between parents and the surviving children would help the process of sibling bereavement. His study showed that parent-sibling communication was inversely related to total behavior problems and internal and external behavior problems. In other words, good communication was associated with fewer behavior problems.

As indicated above, the death of a sibling is a significant psychological stressor, and it could affect many aspects of the surviving children's lives. It is therefore important for us to have a better understanding of the ways bereaved siblings cope with stress, loss and death. Based on the model developed by Compas, Connor-Smith, Saltzman, Thomsen and Wadsworth (2001), there are two types of stress responses: (a) controlled, voluntary coping responses, and (b) involuntary, automatic responses. Coping responses are defined as "conscious volitional efforts to regulate emotion, cognition, behavior, physiology, and the environment in response to stressful events or circumstances" (Compas et al., 2001). Coping includes primary control engagement responses that involve efforts to directly change the source of stress or one's emotional reactions to it (e.g., problem solving, emotional expression), secondary control engagement responses that involve attempts to adapt to the stressor (e.g., acceptance, cognitive restructuring), and disengagement coping that involves efforts to avoid the source of stress and one's emotional response (e.g., denial, wishful thinking, avoidance). Involuntary responses,

which include involuntary engagement (e.g., emotional and physiological arousal, intrusive thoughts) and involuntary disengagement (e.g., emotional numbing, cognitive interference), are automatic processes that are not under one's control, and thus are not considered as coping (Compas et al., 2001).

To date, no studies have been done on examining specific coping strategies used by bereaved siblings. However, previous studies found that primary control engagement coping and secondary control engagement coping were related to fewer emotional and behavioral problems, while disengagement coping was associated with more emotional and behavioral problems (Wadsworth & Compas, 2002; Jaser et al., 2005). Specifically, Grant and Compas (1995) noted that secondary control engagement coping (e.g., cognitive restructuring and positive reframing) might be particularly effective in response to uncontrollable events, such as the loss of family member(s). In fact, in a study on coping in siblings of children with cancer, Grootenhuis et al. (1996) showed that the ill child, as well as his/her parents and siblings were more likely to rely on secondary control coping strategies because they took into account the uncontrollability of the situation. They felt that this kind of strategies could help them resist the threat and reduce the unpleasant feelings associated with the situation. Hence, in uncontrollable circumstances like the loss of a child, family members might rely on secondary control coping strategies that are directed at redefining the situation and relieving their negative feelings.

Although previous studies have provided us with interesting and important results, they can only serve as suggestions for possible hypotheses in future research because most of these studies have used qualitative rather than quantitative methodologies. Besides, there are numerous problems in the design of these studies. First, almost all of them are retrospective studies in which respondents were asked of the death of their siblings that happened many years ago. Thus,

the results may have been altered due to memory recall bias. Second, most of these studies also had small samples ( $n < 50$ ) and limited power to detect difficulties among bereaved siblings. The large effects found in these studies might have been inflated. Moreover, few studies included multiple informants. Parent reports were often used as the primary sources of information about bereaved children. Information about family function and adjustment following the death of a child obtained from multiple informants, including siblings, parents, peers and teachers, will give us a clearer and less biased picture. Finally, cultural or demographic difference was not addressed in these studies due to the homogeneity of the samples. There are also theoretical problems in some of the studies that were mentioned above. For instance, the process of bereavement and any change that might have occurred over time were not assessed. To date, no studies have compared the adjustment of bereaved siblings and controls over time to establish the type and degree of difficulties experienced by bereaved siblings when a return to normal functioning might be expected for children of different ages. Most studies also failed to look at family functioning before death and how it might have affected the process of grief work. In addition, no studies have looked at the kind of strategies or methods siblings used to cope with the stress of observing pain and loss of function in the sick child.

### *Current Study*

The current study provides a replication and extension of past research on sibling bereavement, while also addressing several methodological limitations of previous studies in the following ways. First, in order to control for memory recall bias and to examine the adjustment of bereaved siblings over time, we conducted a longitudinal and prospective study. Data were collected both at school and at home during the first year post-loss (T1), but only at home one year after the initial visit (T2). Second, existing studies of siblings' responses rely on parents'

reports of their children's behavior. Since parents themselves are experiencing grief following the death of a child, reports may be confounded by their own grief process. It is important to also obtain data about siblings' responses from other reliable sources. Hence, in the current study, data was obtained from multiple sources, including bereaved siblings, parents, teachers and peers. Third, given the low incidence of childhood cancer and sibling bereavement, a multi-site study was also required for a larger sample. Fourth, a specific measure was included to study how bereaved siblings coped with illness and death. Finally, measures used in this study were expected to tap both social competence and behavior problems.

### *Research Questions*

As mentioned earlier, the results from previous studies done on sibling bereavement are mixed. Siblings' responses are found to be positive in some studies, but negative in others. These findings raise the question of what accounts for poor adjustments in some siblings and not in others. Hence, the purpose of this study is to differentiate subgroups of siblings in need of assistance and identify factors associated with adjustment. More specifically, this study will examine the ways bereaved siblings cope with death. The goal of my analyses is to answer two major questions: (1) Do bereaved siblings exhibit more emotional and behavioral problems (i.e. internalizing and externalizing behaviors) than non-bereaved siblings? (2) What is the association between bereaved siblings' different methods of coping and their psychosocial adjustment?

Based on some of the findings from earlier studies, I first hypothesize that bereaved siblings will display more internalizing and/or externalizing symptoms than control siblings due to their experience with loss of a loved one. Second, since secondary control engagement coping might be particularly effective in dealing with uncontrollable events, it might help

siblings to cope with the loss of a brother or a sister more efficiently, and thereby prevent them from developing emotional or behavior problems. As a result, I hypothesize that secondary control engagement coping can help the process of bereavement, and lead to better psychosocial adjustment in bereaved siblings. It will be significantly correlated with fewer internalizing and externalizing symptoms in bereaved siblings.

## Method

### *Participants*

A review of deaths for the past five years has been completed at each site (Vanderbilt Children's Hospital, Nashville, TN; Hospital for Sick Children, Toronto, ON; and Nationwide Children's Hospital; Columbus, OH) to estimate the number of participants expected to be eligible for the study over the period of four years. Based on this review, the total sample is expected to be of 180 bereaved families and 180 matched control families by the end of the fourth year. At our site (i.e., Nashville), the goal is to recruit 50 bereaved families and 50 control families every year. At the present we are into our third year of this multisite study.

Siblings were included in this study if they who had a brother or sister who died from cancer 3 – 12 months prior to recruitment. We selected this time frame because it was be “too soon” for the families, but we also wanted to catch these families before they felt like they were ready to move forward, and thus refused to bring up the subject again. One sibling (aged 8 – 17 years) from each bereaved family was randomly selected to participate. This developmental period is associated with a more formulated concept of death, a more stable self-concept, and a more stable relationship with their classmates. The upper age limit was set to ensure that the child was still living at home and accessible during follow-up interviews. Other inclusion criteria include: (a) siblings must attend school without full-time special education, (b) they must be

fluent in English and have a parent who is fluent, and (c) they must live within 100 miles of the medical center. Adopted, half, and step siblings would be eligible if they lived in the home during the deceased child's treatment or of the parent report that the sibling had regular contact with the deceased child. Biological parents who lived outside of the home and step-parents were also included in this study as long as they had regular contact with the child.

Each bereaved sibling was matched to a classmate of the same gender, race, and age whose family also participated as a control family. Matched classroom comparison peers and their families were recruited on a case-by-case basis from amongst peers who participated in classroom data collection. Specifically, class rosters identified classmates who were of the same gender, same race, and closest in date of birth to the bereaved target child. Once a matched control family was identified, the family would be phoned and invited to participate in the home data collection (i.e., home visit). If a family declined to participate, researchers would contact the family of a child with the next closest date of birth. Families were excluded as a comparison if they had lost a child who died after birth. Attempts were also made to achieve group-level matching for families in terms of socioeconomic status, family size, parental age, parental education and marital status.

At the present time, data are available on 40 bereaved families and 31 control families who have volunteered to participate in the current study. Of the bereaved families, 27 included both parents; 2 families included only a father and 11 families included only a mother. Of the bereaved siblings, 24 (60 %) were female and 19 (40 %) were male. Participants were recruited from three sites: 14 bereaved families (35 %) and 12 control families (38.7 %) from Vanderbilt Children's Hospital/Vanderbilt University (VU), 14 bereaved families (35 %) and 12 control families (38.7 %) from Nationwide Children's Hospital/Ohio State University (OSU), and 12

bereaved families (30 %) and 7 control families (22.6 %) from the Hospital for Sick Children/University of Toronto (UT).

The average age of the bereaved siblings was 12.25 years old, ranging from 8 to 18 (SD = 2.59). The average age of the control siblings was 11.74 years old, ranging from 9 to 18 (SD = 3.31). Within the bereaved group, 17 (42.5 %) are racial/ethnic minorities: 9 (22.5 %) are Black/African-American, 3 (7.5 %) are Hispanic/Latino, 1 (2.5 %) is Asian and 4 (10 %) are others. Among the healthy controls, only 5 (16.13%) are racial/ethnic minorities: 3 (9.68 %) are Black/African-Americans, 1 (3.23 %) is Hispanic/Latino, and 1 (3.23 %) is other. Data concerning parental education was also collected. 55.8 % (N = 67) of parents had attended at least some college, and 24.2 % (N = 29) had graduated from high school. 4.17 % (N = 5) had attended some high school but not graduated. 16.7 % (N = 20) parents had attended graduate school.

### *Procedure*

Data management was conducted centrally at the Denver site upon receipt of the eligibility data from participating institutions. Siblings meeting inclusion criteria were identified and registered through databases at the participating sites. At approximately 3 months after the death, parents of siblings who met the inclusion criteria would be sent a letter from their deceased child's attending physician stating that the family would be contacted soon regarding a study about sibling bereavement. If the parents did not wish to be contacted further, they could call the given toll-free number and leave their name at the voice mail. About one week after sending out the letters, a research assistant would call the parents. He or she would explain to the parents about the study, request their HIPAA consent to contact sibling's school about the school visit, and schedule a home visit. If parents thought it was too soon, or that they were not ready to



do this yet, we would ask for their permission to contact them later within the 3 – 12 months time frame. Siblings eligible to participate in the study were then enrolled through an internet site for data management in Denver.

Upon enrollment of bereaved families in the study, researchers would send school principals packets of information describing the measures to be used in classroom data collection, proof of IRB approval, and letters of endorsement by institution. Then, researchers would make follow-up phone calls to address principal's concerns, to obtain their consent to participate, and to identify sibling's teachers. In addition, they would also schedule a visit with each teacher to explain the study, to obtain cooperation and informed consent, and to complete the Revised Class Play (RCP, Masten, Morison, & Pellegrini, 1985). Teachers would then distribute the consent forms to all students in the class. We explained the study to the class as a science project about friendships without mentioning cancer and bereavement in order to avoid stigmatization of target siblings. Only children who returned signed consent forms could participate in school data collection. Data would be obtained in class during a 40-minute session.

Home visits with bereaved families were scheduled at initial recruitment. However, home data collection only took place after the completion of school data collection. Potential control families were identified from class rosters collected in the school visit. Research assistants then called parents of potential control families to describe the details of the study, to ensure their eligibility for the study, and to obtain their permission for home visit. All participants completed a second informed consent form during home visit. Two staff members went on each home visit (i.e. one to work with parent(s) and one to work with the sibling). At the end of the visit, each family would receive a \$100 reimbursement for its participation. One year after the initial home

visit (T1), research assistants would contact both bereaved and control families about a follow-up home visit (T2).

Researchers administered questionnaires to all child and adult participants in a standard order, one at a time, with a verbal review of instructions. Research assistants checked all data forms immediately to ensure completeness. They also marked each form with a subject identification number. Moreover, a detailed manual of this procedure was available for researchers who needed further instructions or guidance during each home visit. Within two weeks after the home visit, researchers would send a copy of the each data form to Denver, which is the central data management site. In addition, they kept the original forms in a locked file cabinet at each site.

### *Measures*

*Demographics.* Demographic information was obtained from the parents in a questionnaire concerning siblings' age and gender, and background family characteristics such as family size, family income, parental marital status, parental levels of education, parents' occupation, and ethnicity.

*Siblings' Internalizing and Externalizing Symptoms.* To assess siblings' emotional or behavioral problems and distress, questionnaires concerning their problems were completed by the siblings and their parents. The Youth Self Report (YSR, Achenbach & Rescorla, 2001) is designed for use with children who are 10.5 years and older. It is a self-report inventory that contains two sections: (a) 20 competence items, and (b) 112 items that measure both emotional and behavioral problems during the past 6 months. It yields eight subscale scores for emotional and behavioral problems and two subscales for social competence. Higher order factors include Total Competence, Total Problems, Internalizing, Externalizing scores. The YSR Internalizing

score combines the Withdrawal/Depression, Anxiety, and Somatic Behavior scales, while Externalizing score combines the Opposition Defiant Behavior, Conduct Behavior and Aggression scales (Achenbach, 1991). The YSR has established excellent internal consistency, test-retest reliability ( $> .75$ ) and criterion-related validity (Achenbach & Rescorla, 2001). The Child Behavior Checklist (CBCL, Achenbach & Rescorla, 2001) were given to both parents and teachers, regarding siblings' competencies and behavioral/emotional problems. It contains two sections: (a) 20 competence items, and (b) 120 items that measure the child's emotional and behavioral problems during the past 6 months. It yields eight subscale scores for emotional and behavioral problems and three subscales for social competence. Higher order factors include Total Competence, Total Problems, Internalizing, and Externalizing scores. The CBCL Internalizing score combines the Withdrawal/Depression, Anxiety, and Somatic Behavior scales, while Externalizing score combines the Opposition Defiant Behavior, Conduct Behavior and Aggression scales (Achenbach, 1991). Like the YSR, the CBCL has also established strong test-retest reliability (.79 - .95) and construct validity (Achenbach & Rescorla, 2001). These two corresponding questionnaires allow direct comparisons between the reports of siblings about their emotional and behavioral problems with their parents' reports on their problems.

*Bereavement and Coping.* The coping and stress responses of the bereaved siblings were also examined. Each bereaved sibling completed the grief specific version of the Response to Stress Questionnaire (RSQ, Connor-Smith, Compas, Wadsworth, Thomsen, and Saltzman, 2000). Meanwhile, each control sibling completed the social stress version of the RSQ. Although questions on both versions of the RSQ refer to context-specific stressors and coping responses to stress, the item structure remains consistent across stressors. The RSQ is a 57-item measure designed for children over age 10.5. It consists of two sections. The first section assesses how

often in the past 6 months the target child experienced each of the 11 stressful events, and the second session assesses how he or she responded to and coped with those stressors. Items are rated on a scale of 1 (not at all) to 4 (a lot) indicating the frequency of responses used by the individual.

Through factor analyses of the RSQ, five primary factors have been identified (Connor-Smith, et al., 2000): primary control engagement coping (problem solving, emotional expression, emotional modulation), secondary control engagement coping (cognitive restructuring, positive thinking, acceptance, distraction), disengagement coping (avoidance, denial, wishful thinking), involuntary engagement (emotional arousal, physiological arousal, rumination, intrusive thoughts, impulsive action), and involuntary disengagement (cognitive interference, emotional numbing, inaction, escape). A distinction is made between voluntary coping responses (primary control engagement coping, secondary control engagement coping, and disengagement coping) and involuntary stress responses (involuntary engagement and disengagement). Connor-Smith, et al. (2000) has evidenced good internal consistency, test-retest reliability, and convergent and discriminant validity for the RSQ. In this study, the focus was on the voluntary coping responses of the children as reported by the bereaved siblings and their parents. Furthermore, to control for response bias and individual differences, proportion scores were calculated by dividing the total score for each factor by the total score for the entire RSQ (Connor-Smith et al., 2000; Osowiecki & Compas, 1998; Vitaliano, Maiuro, Russo, & Becker, 1987).

## Results

### *Preliminary Analyses*

As previous studies have shown age and gender as moderators between sibling bereavement and their psychosocial adjustment, I conducted preliminary analyses to examine

adolescents' age gender and potential confounds within this sample. There were no group differences on age and gender of siblings, and no significant correlations were found between siblings' age and gender with their coping styles, as well as their emotional and behavioral symptoms. Because there were no significant associations between siblings' age and gender with key variables, age and gender were not included in any further analyses.

#### *Group Differences in Internalizing and Externalizing Symptoms*

In order to test the first hypothesis, I first examined the group differences in internalizing/externalizing symptoms. To do this, means and standard deviations for parent-reported CBCL internalizing/externalizing symptoms and self-reported YSR internalizing/externalizing symptoms were compared by groups (bereaved and control siblings). Raw scores on the CBCL and YSR were converted to age-standardized scores ( $T$  scores with a mean of 50 and standard deviation of 10), which could be compared with scores obtained from normative samples of children within the same broad age range.  $T$  scores were used in statistical analyses for the Internalizing and Externalizing scales.  $T$  scores less than 60 are considered in the normal range,  $T$  scores ranging from 60-63 are considered to be borderline clinical, and  $T$  scores above 63 are in the clinical range (Achenbach, 1991).

Means and standard deviations for the internalizing and externalizing symptoms in bereaved and control siblings are displayed in Table 1. All scores on both the YSR and CBCL internalizing and externalizing scales are within the normal range. According to the YSR internalizing problem scale, bereaved siblings reported that they experienced slightly above average symptoms of anxiety/depression ( $M T$  score = 55.60,  $SD = 8.37$ ). While control siblings experienced less anxiety/depression symptoms than bereaved siblings, they reported having slightly more internalizing problems than average ( $M T$  score = 53.80,  $SD = 11.21$ ). According

to the YSR externalizing problem scale, bereaved siblings reported only somewhat above average symptoms of externalizing behavioral problems, such as conduct disorder ( $M T$  score = 51.60,  $SD = 7.43$ ). In comparison, control siblings reported having about average, and less externalizing symptoms than bereaved siblings ( $M T$  score = 50.76,  $SD = 8.13$ ).

When the bereaved parents reported on the child's emotional distress on the CBCL were examined, parents reported somewhat more internalizing symptoms on average, but less than what their children reported on the YSR ( $M T$  score = 53.18,  $SD = 11.33$ ). In comparison, control parents reported noticing less internalizing symptoms in their children than bereaved parents ( $M T$  score = 51.83,  $SD = 10.78$ ). On the CBCL externalizing scale, bereaved parents reported about average, and less symptoms of externalizing behaviors than what bereaved siblings reported on the YSR ( $M T$  score = 49.67,  $SD = 9.48$ ). On the other hand, control parents reported slightly more symptoms of externalizing problems than bereaved parents ( $M T$  score = 51.00,  $SD = 9.88$ ).

In order to evaluate these group differences on siblings' internalizing and externalizing symptoms, an independent sample t-test was performed. A p-value of  $< 0.05$  would be considered statistically significant. Nonetheless, opposed to my first hypothesis, no group difference in internalizing and externalizing symptoms on both YSR and CBCL was significant. Bereaved siblings did not exhibit significantly more of these symptoms than their matched control peers.

#### *Descriptive Analyses on Coping Strategies*

Means and standard deviations for bereaved siblings' coping strategies are displayed in Table 2. Bereaved siblings reported using secondary control engagement coping the most ( $M =$

.24,  $SD = .053$ ); this type of coping was favored over primary control engagement coping ( $M = .17$ ,  $SD = .031$ ) and disengagement coping ( $M = .16$ ,  $SD = .034$ ).

#### *Correlations between Coping Strategies and Internalizing/Externalizing Symptoms*

As a test of my second hypothesis, bivariate correlations were conducted in order to examine the associations between RSQ coping strategies (i.e., primary control engagement, secondary control engagement, disengagement), and CBCL/YSR internalizing and externalizing symptoms in bereaved siblings (Table 3).

Child reports and parents' reports on bereaved siblings' internalizing symptoms were significantly correlated ( $r = .41$ ,  $p < .05$ ). Likewise, child reports and parents' reports on bereaved siblings' externalizing symptoms were also significantly correlated ( $r = .43$ ,  $p < .01$ ).

When bereaved siblings reported using more primary control engagement coping, they reported using significantly less disengagement coping ( $r = -.41$ ,  $p < .05$ ). When they reported using more secondary control engagement coping, they reported using significantly less disengagement coping as well ( $r = -.37$ ,  $p < .05$ ).

Both child and parents' reports on internalizing and externalizing symptoms (i.e. YSR and CBCL) were examined in respect to different types of coping. There was a trend that when bereaved siblings reported less internalizing symptoms on the YSR, they reported using less primary control engagement coping and less disengagement coping. There was another trend that when bereaved siblings reported less externalizing symptoms on the YSR, they reported using less secondary control engagement coping and disengagement coping. However, none of these associations was significant. Likewise, parents tended to report less symptoms of internalizing behaviors on the CBCL when their children reported using more primary control coping. Parents also tended to report less symptoms of externalizing behaviors on the CBCL when bereaved

siblings reported using more primary control coping, secondary control coping, as well as disengagement coping. Again, none of these associations were significant. Nonetheless, an association approaching significance was observed between reduced internalizing symptoms on the YSR and increased use of secondary control engagement coping as reported by the siblings ( $r = -.36, p = .054$ ). Another association approaching significance was also found between reduced externalizing symptoms on the YSR and increased use of primary control engagement coping as reported by the siblings ( $r = -.37, p = .051$ ). In other words, using more primary control coping is associated with less externalizing symptoms; using more secondary control coping is associated with less internalizing symptoms. The latter finding, though only approaching significance, supports my second hypothesis. It is surprising, however, to discover the negative associations between disengagement coping and siblings' internalizing and externalizing symptoms even though they are insignificant. It is also noteworthy that involuntary engagement is positively and significantly correlated with sibling-reported internalizing and externalizing symptoms on the YSR ( $r = .58, p < .001$ ;  $r = .50, p < .01$ ).

### Discussion

In this study, I examined the impact of death of a sibling on children and adolescents, and how they coped with such a traumatic experience. First, I examined whether bereaved siblings suffered from more emotional and/or behavioral problems than their control peers within 3 – 12 months after the death of a brother or sister. Second, I attempted to look at the association between emotional and behavioral problems and how these siblings coped. Therefore, through correlational analyses, I examined the association of bereaved children's coping methods with their emotional and/or behavior problems. Information on all these variables was obtained from the siblings and their parents.



Parents and siblings reported symptoms of internalizing and externalizing symptoms that were somewhat, although not significantly, elevated when compared to norms for children in this age range. Further, according to both parents and siblings in the sample, bereaved siblings used secondary control engagement coping method the most when specifically coping with the stress of losing a family member. They used primary control engagement coping the second most. Bereaved siblings seem to be using potentially adaptive types of coping for the type of stressor with which they are dealing. Like the previously mentioned article about coping with pediatric cancer (Grootenhuis et al., 1996), death of a loved one is an uncontrollable incidence; there is nothing one could do to prevent it from happening. Hence, it is appropriate for bereaved siblings to use secondary control coping strategies, such as cognitive restructuring, positive thinking, acceptance, and distraction.

Their use of primary control engagement coping (problem solving, emotional expression, or emotional modulations) is expected as well. Although some bereaved siblings choose to hide their negative emotions from their parents and their peers, some do feel the need to express their sadness and grief to people they rely on. Many siblings also like to express themselves in diary. Hence, emotional expression, which is one of the primary control coping strategies, probably plays an important role in coping with death and loss.

#### *Research Question 1: Group Differences in Internalizing and Externalizing Symptoms*

When the siblings' self-reports and parent's reports on internalizing and externalizing problems were compared between the bereaved group and the healthy controls, no significant differences were found. Contrary to my first hypothesis, the two groups did not differ on the YSR and CBCL scales. In other words, bereaved siblings in this sample did not seem to experience more emotional distress or display more behavioral problems than non-bereaved

siblings. This suggests that either the experience with loss of a loved one is not a significant stressor for bereaved siblings, or these siblings are more resilient than we thought. As mentioned earlier, the loss of a loved one is probably one of the most traumatic events in people's lives. In addition, as the RSQ indicated, bereaved siblings of the current study reported having involuntary engagement slightly more than secondary control engagement coping ( $M = .25$ ,  $SD = .040$ ). Involuntary engagement, which includes emotional arousal, physiological arousal, rumination, intrusive thoughts, and impulsive actions, is not considered as one of the coping methods. However, it is a good measure of stress reactivity. Hence, the finding shows that bereaved siblings experience high levels of stress due to the death of their brothers or sisters. In other words, the experience with loss of a loved one is a significant stressor for the surviving children.

Perhaps then, the bereaved siblings are more resilient than we expected. They might even experience personal and family growth as a result of their loss. As previous studies suggest, some bereaved experience positive growth, such as increased sensitivity and empathy for peers who are going through the same experience, greater appreciation of life, as well as their family and friends (Kramer, 1981, as cited in Murray, 1999). In fact, many bereaved siblings of the current study indicated in the grief interview (the last part of the home visit) that they experienced positive changes ever since the death of their brothers or sisters. For instance, some children mentioned that they had gotten closer with their parents since the death of their siblings. They were able to spend more time with their parents who no longer needed to visit the hospital or take care of their ill child. Thus, greater family support and less family conflict probably contribute to the high resilience in bereaved siblings. However, some siblings also mentioned that they felt different from their peers because of the positive growth that they experienced.

They had new priorities; they no longer saw things in life the same way as they did before. They felt like they were more mature than the children of their age. It is therefore important to examine what factor(s) contributes to their resilience. Given that the loss of a sibling is a significant stressor, how do these children or adolescents cope with it efficiently? What kind of coping strategies would help (or hinder) the process of bereavement? These questions were addressed in my second hypothesis. If we could identify the kind of coping methods that they use, we might be able to use this piece of information to help individuals who have a difficult time dealing with the death of a sibling.

*Research Question 2: Coping and Psychological Symptoms*

Bereaved siblings who reported more primary and secondary control engagement coping in this study also used less disengagement coping (i.e. avoidance, denial, or wishful thinking). Siblings who used more primary control engagement coping also reported using more secondary control engagement coping. Overall, it seems that bereaved siblings favor the two most effective forms of coping with their loss; also, if they use one form of effective coping, they are more likely to use the other form.

In this study, there is no significant correlation between different types of coping methods and psychological problems. However, the correlations between secondary control engagement coping and internalizing problems ( $p = .054$ ), and between primary control engagement coping and externalizing problems ( $p = .051$ ), approached statistical significance, and are important to consider. In support of my second hypothesis, a frequent use of secondary control engagement coping seems to be associated with reduced internalizing symptoms (i.e. anxiety, depression) in bereaved siblings; this finding is corroborated by the siblings' self-reports, but not by their parents' reports. Just as what I expected and what previous studies indicated, secondary control

engagement coping may be particularly well-suited to coping with the uncontrollable nature of death and loss, and may be associated with a better psychosocial adjustment in bereaved siblings.

In addition, the use of primary control engagement coping is associated with reduced symptoms of externalizing behavior. Again, this finding is only corroborated by the siblings' self-reports, and not the parents' reports. Such an unexpected result suggests that primary control engagement coping might be just as effective as secondary control engagement coping with this type of stressor. One of the strategies in primary control engagement coping is emotional expression. This could be an effective way of coping with loss for two reasons. First, it might imply a strong system of social support. In order for them to openly express their feelings about their loss, bereaved children or adolescents must have somebody they trust, or someone they can rely on, such as their parents, teachers, friends, etc. Second, emotional expression might help to prevent these siblings from manifesting their hidden emotions or handling their feelings of sadness, anger, and grief, in a different way, i.e. by negatively acting on the external environment. This can explain why primary control engagement coping is correlated with reduced externalizing symptoms, but not reduced internalizing symptoms.

Contrary to what I expected, disengagement coping was not significantly and positively correlated with internalizing and externalizing problems. Instead, it was not correlated with either internalizing or externalizing symptoms. This suggests that disengagement coping does not help or hinder the process of bereavement.

### *Limitations*

Although this study has a number of strengths, there are limitations to its scope that we must consider. First, although it is a multi-site study (i.e. Toronto, Nashville, Columbus), there still exists the problem of homogeneity of the sample. The majority of the participating siblings are

Caucasian, and only a few of them are of diverse racial or ethnical backgrounds. In addition, most bereaved parents attended at least some college; some of them even hold graduate or professional degrees. This suggests that most of the bereaved siblings of the current study are from relatively well-educated and affluent families. Due to the homogeneity of the sample, the findings thereby might not be generalizable to individuals of other social groups or ethnicity.

Second, self-selection might have occurred in the process of recruiting families insofar as only those who willingly signed the consent participated in the study. It is likely that only those who felt comfortable talking about their experience participated. The experience of those who chose not to participate might be different; they might be the ones with the most difficult time in dealing with death, and thereby the ones who needed help the most. At our site, only one family refused to participate so far. However, it is unclear how many families refused to participate at other sites.

Third, the CBCL data were obtained from parents with regard to their surviving children. The impact of parental bereavement on the parents' perceptions of their children's responses might influence the validity of the parents' ratings. The parent's reports might be confounded by their own grief process. Although one would expect the CBCL data to be inflated due to parents' own grief, this was not the case in the current study. Instead, bereaved parents actually reported less internalizing and externalizing symptoms on the CBCL than bereaved siblings did on the YSR. Furthermore, the parents' reports on siblings' psychological symptoms did not correlate with any type of coping methods used by bereaved siblings. It is possible that bereaved parents were too preoccupied with their own grief process, and thus they failed to notice what was wrong with their children, or how they were coping with such a traumatic event. Another possibility is

that bereaved siblings might force themselves to put up a good front at home in order to lessen their parents' worry.

Fourth, only Time 1 data was used in the current study because only a few Time 2 home visits were completed at the time of performing data analysis. As a result, this study did not examine how bereaved siblings adjusted to death over time. Like many previous studies, the present study also has a small sample ( $N = 41$ ) because it is difficult to find families that have just lost a child to cancer, and meet all of our inclusion criteria. Thus, the data analyses were limited in statistical power due to a small sample size, which made it difficult to detect small differences. Finally, an independent t-test was not performed for the RSQ as the control data on RSQ were not available at the time of performing data analysis. Therefore, group differences on coping between bereaved and control siblings were not addressed.

### *Implications*

In spite of these limitations, there are several clinical implications of this study. First, although bereaved siblings of the current study did not display a higher frequency of psychosocial problems than non-bereaved siblings, they did show a high level of stress reactivity, which indicated that the death of a sibling was a significant stressor for them. In addition, according to a national survey of the care available to families when a child has died unexpectedly (Dent et al., 1996), few families with surviving siblings were offered help and guidance. Of the 42 families who took part in the survey only four received help from a professional even though all of the families claimed that they would have liked more help in explaining death to the surviving children. This suggests that the demand for help for bereaved children may be larger than what we would have expected. Therefore, it is important for researchers and health professionals to help bereaved children and adolescents go through this

difficult time.

Second, although coping is important for predicting adjustment for those exposed to adverse events, such as bereavement, no previous studies have examined specific coping strategies used by bereaved siblings. Hence, the present study was designed to identify adaptive and maladaptive coping in bereaved children and adolescents. The results from this study told us that both secondary and primary control engagement coping are protective factors for bereaved siblings. While secondary control coping is associated with less emotional and internalizing problems, primary control coping is associated with less behavioral and externalizing problems. With this piece of information, researchers could design early intervention programs that teach and encourage bereaved siblings to use both secondary control coping skills (e.g. distraction, positive thinking, acceptance, cognitive restructuring) and primary control coping skills (e.g. problem-solving and emotional expression) in response to their loss and other stressors in their lives.

#### *Future Research*

In order to prevent problems and reduce the possible suffering of bereaved siblings, it is essential for researchers to become actively involved in identifying what factors help or hinder the process of sibling bereavement. Thus, there are several suggestions for future research. First, the present study must be replicated with a larger sample in the future. The current data were drawn from a large ongoing study that will yield a much larger sample by the time of the completion of the project. Second, future studies could focus on bereaved siblings' social competence by looking at their relationships with peers or how they do in school after the death of a child. Third, it will be interesting to examine how parental bereavement and sibling bereavement are related. For instance, they could address whether parental sadness or grief leads

to poorer parenting and communication skills, which further leads to poorer adjustment to death in bereaved siblings. Finally, researchers could also study how the characteristics of the deceased child, such as the length of illness and the length of hospitalization, could affect sibling bereavement. The longer the illness or the longer the hospitalization, the more time and energy the parents devote to the sick child, and thereby might neglect the healthy sibling for a prolonged period of time.



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Table 1

*Group Differences on Siblings' Internalizing and Externalizing Symptoms*


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	<u>Bereaved Siblings</u>		<u>Control Siblings</u>		<i>F</i> value	<i>t</i> value
	Mean	<i>SD</i>	Mean	<i>SD</i>		
YSR Int.	55.60	8.37	53.80	11.21	2.10	.675
YSR Ext.	51.60	7.43	50.76	8.13	.06	.407
CBCL Int.	53.18	11.33	51.83	10.78	.24	.665
CBCL Ext.	49.67	9.48	51.00	9.88	.34	-.745

*Note.* M = mean, SD = standard deviation; Sig. = significance; YSR = Youth Self Report; CBCL = Child Behavior Checklist; Int. = Internalizing symptoms; Ext. = Externalizing symptoms; Means for internalizing and externalizing symptoms are *T* scores calculated from parent and child reports on the CBCL and YSR for those scales.

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

Table 2

*Means and Standard Deviations for Bereaved Siblings' Coping Strategies*

<b>RSQ Coping Strategies</b>	<b>M</b>	<b>SD</b>
1. Primary Control Engagement Coping	.17	.031
2. Secondary Control Engagement Coping	.24	.053
3. Disengagement Coping	.16	.034

*Note.* M = Mean; SD = Standard deviation; RSQ = Response to Stress Questionnaire. Means for coping strategies are ratio calculated from siblings' reports on the RSQ.

Table 3

*Correlations between Bereaved Siblings' Coping and Bereaved Siblings' Internalizing and Externalizing Symptoms*

	YSR Int.	YSR Ext.	CBCL Int.	CBCL Ext.	RSQ- PCC	RSQ- SCC	RSQ- DC	RSQ- IE	RSQ- ID
YSR Int.	---								
YSR Ext.	.47**	---							
CBCL Int.	.41*	.12	---						
CBCL Ext.	.22	.43**	.56***	---					
RSQ-PCC	-.13	-.37^	-.067	-.24	---				
RSQ-SCC	-.36^	-.28	.050	-.18	.33	---			
RSQ-DC	-.15	-.11	.009	-.045	-.41*	-.37*	---		
RSQ-IE	.58***	.50**	.016	.27	-.39*	-.71***	-.19	---	
RSQ-ID	.21	.34	.038	.31^	-.62***	-.81***	.18	.51**	---

*Note.* YSR = Youth Self Report; CBCL = Child Behavior Checklist; Int. = Internalizing symptoms; Ext. = Externalizing symptoms; RSQ = Response to Stress Questionnaire; PCC = Primary control engagement coping; SCC = Secondary control engagement coping; DC = Disengagement coping; IE = Involuntary engagement; ID = Involuntary disengagement

\*  $p < .05$ , \*\*  $p < .01$ , \*\*\* $p < .001$ , ^approaching significance, p-values reported in text