

2012

The Impact of Family Functioning, Peer Support, and Teacher Support on Academic Performance in Siblings of Children with Cancer

Jilda Hodges Ulicny
Lehigh University

Follow this and additional works at: <http://preserve.lehigh.edu/etd>

Recommended Citation

Ulicny, Jilda Hodges, "The Impact of Family Functioning, Peer Support, and Teacher Support on Academic Performance in Siblings of Children with Cancer" (2012). *Theses and Dissertations*. Paper 1353.

This Dissertation is brought to you for free and open access by Lehigh Preserve. It has been accepted for inclusion in Theses and Dissertations by an authorized administrator of Lehigh Preserve. For more information, please contact preserve@lehigh.edu.

The Impact of Family Functioning, Peer Support, and
Teacher Support on Academic Performance in Siblings of Children with Cancer

by

Jilda Hodges Ulicny

Presented to the Graduate and Research Committee

of Lehigh University

in Candidacy for the Degree of

Doctor of Philosophy

in

School Psychology

Lehigh University

Copyright by Jilda Hodges Ulicny

2012

Certificate of Approval

Approved and recommended for acceptance as a dissertation in partial fulfillment of the requirements of Doctor of Philosophy.

Date

Dissertation Director
Patricia H. Manz, Ph.D.
Associate Professor of School Psychology &
Director, School Psychology Program

Approved Date

Committee Members

Melissa A. Alderfer, Ph.D.
Assistant Professor of Pediatrics
University of Pennsylvania School of Medicine
Clinical Psychologist, The Cancer Center of
The Children's Hospital of Philadelphia

Grace I.L. Caskie, Ph.D.
Associate Professor of Counseling Psychology

George J. DuPaul, Ph.D.
Professor of School Psychology

Acknowledgements

There are many people who are in need of recognition in this work for their support, love, and encouragement not only in the completion of this project but in the path I have taken throughout my graduate career. First, I would like to thank my advisor, Dr. Patti Manz, for her help in working through my dissertation and for her help in guiding me on my desired path in this program. If not for her belief in me, I may not have had the opportunity to connect with the people necessary to complete this work. In this line, I owe a great deal of gratitude to Dr. Melissa Alderfer. Not only did she willingly agree to supervise me as a practicum student in oncology, but she opened her research to me and allowed me to a part of her projects. Without her ongoing body of research and her invitation to me, this project would not have been possible. Further, she assisted in the review of this work as a member of my committee. I owe many thanks to the members of Dr. Alderfer's ACS and SIB-C studies who spent their time on participant recruitment, data collection, and data entry. In addition, I thank the children and families who welcomed myself and the other members of these research teams into their home at such a challenging time. I would also like to extend a great deal of gratitude to the other members of my committee, Dr. George DuPaul and Dr. Grace Caskie, for their feedback and guidance during this process. It is through your research and teaching over the years that I have learned so much and truly wanted your feedback for this project.

I am extremely blessed to have wonderful friends and family, who have provided support throughout this entire experience. First, I would like to thank my friends for being my personal cheering section. In particular, Laura Rutherford and Lisa Thomas

have acted as my sounding-board and motivators as I completed this work. I would also like to thank my mom, Mary Ann Hodges. If not for being encouraged to go to college and being supported to go beyond, I would not have made it this far. She has been my biggest fan as long as I can remember. I would also like to thank my mother-in-law, Sharon Ulicny, for the extra babysitting she offered as I worked to meet deadlines for this project. My husband, Paul, is deserving of a great deal of thanks. He has supported me throughout my entire graduate career and has particularly worked hard to help me get to this point. Though it wasn't always easy, his support and encouragement has helped to make this work possible. Finally, I would like to thank my little girl, Julia. I hope one day she will understand that there is no greater motivation to complete this project than the hope that she can one day be as proud of me as all of the other people in my life.

Table of Contents

Abstract	1
Chapter I. Statement of the Problem	2
Purpose, Questions, and Hypotheses	6
Chapter II. Literature Review	8
The Child in the Family Environment	8
The Impact of Cancer Diagnosis on Healthy Siblings	13
Behavioral and Health Problems	13
Psychological and Emotional Problems	14
Academic Problems	16
The Importance of Social Support and School	16
Social Support from Teachers	17
Social Support from Peers	18
Chapter III. Method	20
Participants	20
Procedure	21
Measures	22
Family Assessment Device	22
Child and Adolescent Social Support Scale	24
Academic Competence Evaluation Scales	25
Data Analysis	26
Chapter IV. Results	28
Introduction	28

Preliminary Analyses	28
Descriptive Statistics and Tests of Equivalence by Study	28
Testing of Assumptions	29
Hypothesis 1	30
Hypothesis 2	31
Correlational Analyses Between Demographic and Outcome Variables	32
Family Functioning	32
CASSS Summary	32
ACES Summary	33
Intercorrelations Between Predictor and Outcome Variables	33
Multiple Regression Analyses	34
Power Analysis	35
Chapter V. Discussion	36
Research Question 1	36
Research Question 2	38
Limitations	40
Contributions	42
Implications for Future Research	44
Conclusions	46
References	47
Tables	64

List of Tables

Table 1: Cancer Diagnosis Category

Table 2: Annual Household Income

Table 3: Descriptive Statistics by Study

Table 4: Correlational Analyses Between Descriptive Variables and Outcome Variables

Table 5: Intercorrelations Between Predictor and Outcome Variables

Table 6: Regression Summary Analysis for Reading Skills (Hypothesis 1)

Table 7: Regression Summary for Academic Enablers (Hypothesis 2)

Abstract

When a diagnosis of childhood cancer is made, all family members are impacted. Siblings of children with cancer, in particular, often experience a drop in academic achievement following this diagnosis. Teachers and friends may be an important source of support to these children. This study examined the impact of family functioning, perceived social support from teachers, and perceived social support from friends on the academic functioning of siblings of children with cancer. Nearly half (47%) of the sample perceived their family to be functioning in the unhealthy range. Multiple regression analysis yielded results indicating that family variables could predict teacher-rated Reading and Language Arts skills, while perceived teacher support could predict teacher-rated Academic Enablers. These findings suggest that understanding the role of family functioning as well as support from individuals in the school is important in assisting siblings of children with cancer to experience school success.

Chapter I. Statement of the Problem

In 2011, an estimated 11,210 new cases of cancer will be diagnosed and an estimated 1320 cancer-related deaths will occur in children aged 0-14 (American Cancer Society, ACS, 2011). Although survival rates continue to increase due to more aggressive treatments (Kazak, 2001), cancer continues to be the second leading cause of death in children (ACS, 2011). A child's diagnosis with cancer places new stressors on the family, in part due to the disruptive treatments. Alderfer and Kazak (2006) noted that children suspected of having cancer typically undergo many tests and may need to be transferred to a large unfamiliar hospital for thorough evaluation. This drastically alters the lives of parents and siblings alike. In order to understand how a child is functioning, it is important to consider the functioning of the systems surrounding the child, especially the family system. Kazak, Simms, and Rourke (2002) noted that families are interactive systems with shared histories. It is for this reason that how a family is functioning following a child's diagnosis with cancer impacts all members of the family. How siblings are affected by their family's response to cancer can be understood according to Bronfenbrenner's (1979) developmental ecological theory. According to this model, a child exists within social systems that represent the settings and environments in which he spends his time. Such systems both shape the development of the child and are influenced by the child. Changes in the general functioning of the family, changes in the parent-healthy child relationship, and changes in the parent-ill child relationship can influence the healthy child.

A child's diagnosis with cancer often results in altered roles and duties of a parent. For example, parents often face role changes both at work and at home

(McCubbin, Balling, Possin, Friedrich, & Bryne, 2002). A child's cancer diagnosis and treatment often requires a large commitment of parental time, leaving less room for participation in social and recreational activities (Williams, Lorenzo, & Borja, 1993). The marital relationship is impacted as a result of a child's diagnosis with cancer, and mothers appear to have a difficult time dealing with this diagnosis. On an individual level, mothers of an ill child report significantly elevated levels of fatigue (Williams et al., 1999) and significantly lower levels of well-being (Sahler et al., 1997). Furthermore, both mothers and fathers report more psychological distress (Hoekstra-Weebers, Jasper, Kamps, & Klip, 1998; Pai et al., 2007) and more psychiatric symptoms (Hoekstra-Weebers et al., 1998) than mothers and fathers of healthy children. In addition to personal and marital changes, families also report financial difficulties following a cancer diagnosis (Patistea, Makrodimitri, & Panteli, 2000).

Given the serious impact of a child's cancer diagnosis on the parents, it is not surprising that serious changes in the parent-healthy sibling interactions occur. Siblings report feeling marginalized within the family system (Carpenter & Levant, 1994; Havermans & Eiser, 1994; Madan-Swain, Sexson, Brown, & Ragab, 1993). These feelings of isolation extend to social relationships outside of the family as well (Bendor, 1990; Hamama, Ronin, & Geigin, 2000). Aside from feeling isolated, healthy siblings have been found to exhibit more behavior problems than the general population (Alderfer & Hodges, 2010; Barbarin et al., 1995; Sahler et al., 1994; Wang & Martinson, 1996) as well as elevated levels of posttraumatic stress (Alderfer & Hodges, 2010; Alderfer, Labay, & Kazak, 2003) and diminished quality of life (Houtzager, Grootenhuis, Caron, & Last, 2004; Houtzager, Grootenhuis, Hoekstra-Weebers, & Last, 2005; Houtzager,

Grootenhuis, Hoekstra-Weebers, Caron, & Last, 2003; Houtzager, Oort, et al., 2004; Packman et al., 2005). Impacts on healthy siblings also extend to the school setting, where siblings' grades dropped following the cancer diagnosis (Fife, Norton, & Groom, 1987; Lansky et al., 1984; Williams et al., 1993).

It is important to recognize the link between family functioning and academic performance. Families who are more satisfied with how their family is functioning also reported more satisfaction with their child's school achievement (Green, Fine, & Tollefson, 1988). Furthermore, children from less supportive families with less parental availability experience more school problems (Crosnoe, 2004; Domagala-Zysk, 2006; Masselam, Marcus, & Stunkard, 1990). A similar trend has been found for healthy siblings. Within families of children with cancer, better family functioning is associated with better school performance (Fife et al., 1987; Hodges & Alderfer, 2007; Hodges, Alderfer, & Manz, 2007). Although academics are important to consider, skills that facilitate academic achievement are also important to understand. DiPerna and Elliott (1999) referred to these as academic enablers. These include constructs such as study skills, motivation, engagement, and interpersonal skills, all of which can influence student achievement (DiPerna, Volpe, & Elliott, 2002).

Relationships outside of the family, especially social relationships that occur in schools, can also impact academic performance. Zins, Bloodworth, Weissberg, and Walberg (2004) proposed the notion of social, emotional, and academic learning (SEAL). Similar to Bronfenbrenner's (1979) theory, SEAL recognizes the importance of relationships in the development of a child. Specifically, SEAL arose from research demonstrating that social and emotional behaviors impact school success. Kress, Norris,

Schoenholz, Elias, and Seigle (2004) proposed that socially and emotionally competent classrooms are at the core of effective learning and are necessary for student achievement. In fact, social and emotional learning is purported to impact children's connection to school, behavior, and academic performance (Payton et al., 2008). SEAL is believed to create a feeling of warmth and connectedness within the context of the classroom and school. When an emotional connection exists between students and their peers and teachers, students tend to adopt values similar to those around them (Hawkins, Guo, Hill, Battin-Pearson, & Abbott, 2001). If those "others" value learning and high academic performance, then those values are likely to be adopted by the emotionally connected child. Furthermore, Osterman (2000) noted that students who experience positive relationships and interactions with others in the school subsequently exhibit greater academic performance and commitment to school. Teachers are the role models for expected classroom behavior (Knoll & Patti, 2003); therefore, when they model mutual respect, appreciation, and acceptance of others, students in the classroom are likely to take on those same beliefs.

Given the many benefits of supportive classrooms, social support is an important construct to understand. Generally, it has been demonstrated to aid in positive coping with stressors and serves to buffer one from adverse outcomes (Demaray & Malecki, 2002a, 2002b; DuBois, Felner, Meares, & Krier, 1994; Dubow, Tisak, Causey, Hryshko, & Reid, 1991; Malecki & Demaray, 2006; Printz, Shermin, & Webb, 1999; Torsheim, Aaroe, & Wold, 2003). Although the family is the primary social support system of children and adolescents (Newman, Newman, Griffen, O'Connor, & Spas, 2007), there is evidence to support the notion that perceived social support within the school setting

plays an important role. Aside from emotional benefits, support from teachers (Alderfer & Hodges, 2010; Chen, 2005; Domagala-Zysk, 2006) and peers (DuBois, Felner, Brand, Adan, & Evans, 1992) can impact a child's academic performance. Social support is a particularly important construct to examine in the population of siblings of children with cancer given that they report a high need for social support from others during this challenging time (Alderfer & Hodges, 2010; Patterson, Miller, & Visser, 2011; Sloper, 2000).

Because the healthy siblings are directly impacted by this illness, it is particularly important to obtain their input regarding their perceptions of family functioning as well as perceived social support. Numerous studies have noted that early literature relied solely on parent report rather than including data from siblings (Havermans & Eiser, 1994; Heffernan & Zanelli, 1997; Horwitz & Kazak, 1990; Sloper, 2000), and these data can be biased (Kazak & Nachman, 1991). Obtaining input directly from the healthy siblings is considered highly important in order to understand their experiences (Havermans & Eiser, 1994; Sloper, 2000).

Purpose, Question, and Hypotheses

The purpose of this study was to understand how healthy siblings' perceptions of family functioning, teacher social support, and peer social support are related to their reading performance and academic enablers. Although research is limited with this population, preliminary evidence suggests that there is a relationship between family functioning and academic functioning for siblings of children with cancer (Hodges & Alderfer, 2007; Hodges et al., 2007) as well as a relationship between perceived social support and academic functioning of siblings of children with cancer (Alderfer &

Hodges, 2010; Hodges & Alderfer, 2007). This study was aligned with recommendations made by the authors of a recent literature review (Alderfer et al., 2010) that calls for the use of a theoretical model to drive the research (developmental social ecology model) and for obtaining information from someone outside of the family (teachers). Furthermore, reports of family functioning and perceived social support were made by the siblings only because their perspective on these constructs is particularly important.

Two research questions were explored. First, do children's perceived family functioning and perceived teacher and friend social support significantly predict academic skills of siblings of children with cancer? It was hypothesized that family functioning, peer support, and teacher support would significantly predict the reading skills of siblings of children with cancer. Second, do children's perceived family functioning and perceived teacher and friend social support significantly predict academic enablers of siblings of children with cancer? It was hypothesized that family functioning, peer support, and teacher support would significantly predict the academic enablers of siblings of children with cancer.

Chapter II. Literature Review

A disruption in family functioning, such as that experienced in families of children with cancer, can impact all of its members, particularly the healthy siblings. The avenues in which siblings are affected by their family's response to cancer can be understood according to Bronfenbrenner's (1979) developmental ecological model. This model presents the child at the center of several social systems that represent the settings and environments in a child's life, where a child is impacted by and impacts these systems. At the microsystem level, direct interactions between children and systems closely connected with them, such as parents, siblings, teachers, and friends are considered. The mesosystem level considers the interrelations between two or more microsystems who have an active role with the child. This could include interactions between the parents, between parents and the ill child, or between the parents and teachers.

The purpose of this chapter is to provide a context for studying these three areas. The chapter begins with a review of family functioning and its impact on the children within the family unit. Next, how healthy siblings are impacted by the cancer diagnosis is reviewed. Finally, the role of social support and school are presented with information regarding how teachers and peers can impact a child's academics.

The Child in the Family Environment

In order to understand how a child is functioning, it is important to consider the functioning of the systems surrounding the child, especially the family system. Kazak et al. (2002) noted that families are interactive systems with shared histories. It is for this reason that how a family is functioning following a child's diagnosis with cancer impacts

all members of the family. Parents are the first to hear this diagnosis and initially react with shock (Brett & Davies, 1988; McCubbin et al., 2002) and fear for the life of their child (Patistea et al., 2004; Patterson et al., 2004). The challenging and tumultuous experience of having a child treated for cancer places burdens on the family; in particular, parents report role changes (McCubbin et al., 2002; McGrath, 2001); financial hardships (Patistea et al., 2000; Patterson, Holm, & Gurney, 2004); and engagement in fewer social activities (Fife et al., 1987; Williams et al., 1993). Such changes often lead to stress within a marriage (Fife et al., 1987; Fletcher & Clarke, 2003; McGrath, 2001; Patistea et al., 2000).

Because the family's routine and roles are drastically altered, relationships between family members are impacted. One way that the relationship between healthy siblings and their parents is altered is in the amount of time parents can devote to the healthy child. Parents report having less time to care for their healthy children (McGrath, 2001; Patterson et al., 2004; Sidhu, Passmore, & Baker, 2005; Williams et al., 1993; Williams et al., 2009). Horwitz and Kazak (1990) noted that parents of children with cancer not only have less time to spend with their healthy children, but they are also unable to provide consistent emotional support to their healthy children. Because parents of children with cancer often have less time to spend with their healthy children, it is likely that school performance may be adversely affected by their sibling's illness and the disrupted family routine (Bronfenbrenner, 1986).

How well a family is functioning is associated with a healthy sibling's behavior, feelings of support, and academics. Associations have been found between maternal mood and family cohesion (Williams et al., 1999) as well as between maternal depression

and behavior problems (Cohen, Friedrich, Jaworski, Copeland, & Pendergrass, 1994). Furthermore, family cohesion has been shown to directly impact the behavior of healthy siblings (Cohen et al., 1994; Williams et al., 2002) and on the sibling's perceptions of social support (Williams et al., 2002). Children from more cohesive families experience fewer behavior problems. When a family feels supported, there is less conflict within the family and better behavior by the sibling (Dolgin et al., 1997; Wang & Martinson, 1996).

Poor family functioning has been shown to adversely impact the academic functioning of children, and much of what is known about this relationship has been studied with the general population of children. Poor family cohesion is related to lower levels of psychological health (Amerikaner, Monks, Wolfe, & Thomas, 1994) and less school success (Masselam et al., 1990). Family satisfaction can also play a role in how an individual is functioning. Higher levels of global family satisfaction were associated with greater overall psychological health (Amerikaner et al., 1994) and more satisfaction with their child's academic achievement (Green et al., 1988).

Parental availability also plays a role in children's school performance. In particular, Crosnoe (2004) found that children with emotionally-distant parents showed declines in academic achievement over a 2-year period. Similarly, parental social support can impact a child's success in school. Students who are successful in school have been found to receive about twice as much social support from parents than students experiencing less school success (Domagala-Zysk, 2006). Furthermore students experiencing school failure tend to feel less important to, less understood by, and less accepted by their parents. In general, children who experience greater levels of school

failure come from less supportive families (Domagala-Zysk, 2006; Masselam et al., 1990).

Although most of what is known about the relationships between family functioning and academic performance comes from the literature on families of children with no reported chronic illness, similar results have been seen in the few studies of families having a child with cancer. Studies have similarly found that poorer family functioning is related to poorer academic functioning for siblings of children with cancer (Fife et al., 1987; Hodges et al., 2007; Hodges & Alderfer, 2007). With a majority of siblings of children with cancer perceiving their family to be functioning at “unhealthy” levels of communication, affective responsiveness, affective involvement, and behavioral control (Hodges & Alderfer, 2007), it is reasonable to hypothesize that family functioning will impact the school performance of siblings of children with cancer.

A study by Fife et al. (1987) revealed that four out of the five children from dysfunctional families had a 0.5 point or more drop in GPA from the year preceding the sibling’s cancer diagnosis, while only one child from a functional family showed this large a decrease. Hodges, and colleagues (2007) also found that greater family satisfaction was related to higher teacher ratings of mathematics and reading/language arts skills. Furthermore, strong correlations were found between child-rated family functioning and teacher-rated academic skills (Hodges & Alderfer, 2007). In fact, all nine aspects of family functioning from the Family Assessment Device (FAD; Epstein, Baldwin, & Bishop, 1983) were significantly correlated with academic enablers, or skills that support performance in the classroom. Furthermore, the general family functioning and roles subscales were correlated with both mathematics and reading skills.

Although there is a good deal of literature regarding the relationship between family functioning and school performance, there are some problems with the research to date. There is limited information on this relationship in families with a seriously ill child. Across most studies, including families with and without a chronically ill child, many measures were not psychometrically sound. Despite the use of measures lacking psychometric support, three studies (Amerikaner et al., 1994, Green et al., 1988 and Masselam et al., 1990) did use the well-researched Family Adaptability and Cohesion Scales (FACES III; Olson, Portner, & Lavee, 1985) to measure family functioning. Hodges et al. (2007) used the updated FACES IV (Olson & Gorall, 2004) to measure family functioning, while Hodges and Alderfer (2007) used the FAD. A second problem concerns the assessment of achievement. Across the studies examining this variable, several different means for assessing academic performance were employed, including GPA, achievement measures, a study-created teacher report form, and self-reports. Many of the published studies focus on a very select group of individuals, including only middle school males from upper-middle class families who were identified as gifted (Green et al., 1988), young adults attending college (Amerikaner et al., 1994), students attending alternative school due to behavior problems (Masselam et al., 1990), teenagers only (Domagala-Zysk, 2006), families of children with leukemia (Fife et al., 1987), and all Caucasian families (Hodges et al., 2007). One common problem specific to the literature on siblings of children with cancer is the prevalent use of small sample sizes. Sample sizes ranged from 15 participants (Hodges et al., 2007) to 31 participants (Fife et al., 1987). Although 31 families participated in the Fife et al. study, only 10 families

were identified for examination of the impact of family functioning on academic performance.

The Impact of Cancer Diagnosis on Healthy Siblings

While it is important to understand how a family unit is impacted by a child's cancer diagnosis, it is especially important to understand the impact on the healthy child. Sibling relationships are considered a subsystem within a family that can indirectly influence other subsystems and directly influence the siblings themselves (Cicirelli, 1995). Although there is often a high degree of conflict between siblings, children also report their sibling to be a key source of companionship (Lempers & Clark-Lempers, 1992). A sibling's cancer diagnosis leads to fear and concern for the life of their ill brother or sister (Alderfer et al., 2003; Bendor, 1990; Brett & Davies, 1988; Chesler, Allswede, & Barbarin, 1991; Havermans & Eiser, 1994) as well as jealousy towards this sibling (Freeman, 2000; Williams et al., 2009; Woodgate, 2006). These emotional responses not only alter the sibling relationship, but these can lead to a great deal of difficulty when a brother or sister is diagnosed with cancer. Research has found behavioral, health, psychological, emotional, and academic problems in siblings of children with cancer.

Behavioral and Health Problems. It is not uncommon for healthy siblings of children with cancer to exhibit a range of behavioral problems. In an attempt to isolate whether a sibling's cancer diagnosis was the source of these problems, Barbarin et al. (1995) obtained parental reports of children's behavior prior to and following the cancer diagnosis. They found that the children evidenced adaptation problems as well as more internalizing and externalizing problems after their sibling was diagnosed with cancer.

Furthermore, about 34% of siblings who had pre-existing behaviors problems displayed greater levels of problem behaviors following the cancer diagnosis. Sahler et al. (1994) noted that the incidence of new-onset problems is 77% for children with pre-existing problems and 60% for children without pre-existing problems. A vast majority of problems that develop are a concern but do not require treatment. Some of the common health-related problems reported include problems sleeping (Heffernan & Zanelli, 1997; Houtzager et al., 2005; Lahteenmaki, Sjoblom, Korhonen, & Salmi, 2004; Zeltzer et al., 1996), eating (Houtzager et al., 2005; Zeltzer et al., 1996), and general health complaints (Heffernan & Zanelli, 1997; Houtzager et al., 2005; Lahteenmaki et al., 2004; Sidhu et al., 2005). Increases in aggression (Alderfer & Hodges, 2010, Fife et al., 1997) and withdrawal (Fife et al., 1997) are also reported. Healthy siblings also demonstrate greater levels of externalizing (Alderfer & Hodges, 2010; Cohen et al., 1994) and internalizing behaviors on the CBCL (Alderfer & Hodges, 2010; Cohen et al., 1994; Wang & Martinson, 1996) when compared to the general population.

Psychological and Emotional Problems. Although healthy siblings often exhibit behavior problems, numerous psychological and emotional problems have also been reported. Quality of life has often been studied in this population of children. Healthy siblings have a lower quality of life compared to the normal population (Houtzager et al., 2003; Houtzager et al., 2005; Houtzager, Grootenhuis, et al., 2004; Houtzager, Oort., et al., 2004; Packman et al., 2005). Although the healthy siblings typically do not experience the actual medical procedures, they do appear to experience elevated levels of posttraumatic stress. Alderfer et al. (2003) found that about one-third of siblings in their study displayed moderate to severe posttraumatic stress reactions,

while Alderfer & Hodges (2010) found that 54% of siblings in their study experienced moderate to severe levels of posttraumatic stress.

Siblings of children with cancer also experience feelings of anxiety (Barrera, Chung, & Fleming, 2004; Bendor, 1990; Hamama et al., 2000; Nolbris, Enskar, & Hellstrom, 2006; Packman et al., 1997; Williams et al., 2009). Siblings' perceptions of loneliness and isolation from friends and family are another impact of a cancer diagnosis. Support from peers is perceived as highly important to this group of children (Alderfer & Hodges, 2010; Patterson et al., 2011), yet Patterson et al. found that this need often goes unmet. This is likely a result of family changes leading to less participation in social activities with their peers (Bendor, 1990; Houtzager, Grootenhuis et al., 2004; Labay & Walco, 2004; Williams et al., 1993). Freeman (2000) found that siblings experienced altered relationships with peers. It is reasonable to assume that, as a result of these limited social interactions with peers, siblings feel lonely and socially isolated from their peers (Bendor, 1990; Hamama et al., 2000).

Siblings feel not only isolated from their peers, but they feel isolated from their families as well. Carpenter and Levant (1994) found that siblings feel both isolated and depersonalized within the family system. Many siblings report feeling left out or less involved with their family (Havermans & Eiser, 1994; Madan-Swain et al., 1993) as well as losing their sense of self (Woodgate, 2006). They recognize that their ill sibling is given more attention (Woodgate, 2006) and is treated differently (i.e., better, fewer expectations, etc.) than themselves (Havermans & Eiser, 1994). Given these feelings of isolation and depersonalization, it is not surprising that healthy siblings report the desire to run away (Bendor, 1990; Heffernan & Zanelli, 1997). These reports are particularly

concerning given that depressive symptoms, such as feelings of loneliness and isolation, can negatively impact cognitive and academic functioning (Puig-Antich et al., 1993; Ward, Friedlander, & Silverman, 1987).

Academic Impacts. Related to changes within the family environment and within the self, it is not surprising that healthy siblings of children with cancer also experience some school difficulties. Healthy siblings demonstrate more learning problems as reported by their teachers (Packman et al., 1997; Packman, Gong, VanZutphen, Shaffer, & Crittenden, 2004). Similarly, on a teacher measure of academic skills, Hodges and Alderfer (2007) found that 56% of siblings were in the “Developing” range (indicating areas targeted for intervention) for reading and 42% were in the “Developing” range for math. Healthy siblings’ grades have been shown to drop following the cancer diagnosis (Fife et al., 1987; Lansky et al., 1984; Williams et al., 1993). In particular, Fife et al. (1987) found that 38.7% of healthy siblings had a drop of 0.5 points in their grade point average (GPA on a 4.0 scale) from the year preceding diagnosis, while Lansky et al. (1984) found that grades dropped in 4 out of 7 school subjects from the year preceding diagnosis.

The Importance of Social Support and School

Although it is critical to consider the impact of family functioning on academic performance, it is also important to consider support from outside of the family. Given that school-age children spend a large portion of their day in school surrounded by peers and teachers, perceptions of social support from these individuals may also impact academic performance. Socially and emotionally competent classrooms considered to be a critical component of effective learning student achievement (Kress et al., 2004). In

fact, social and emotional learning is purported to impact children's motivation, behavior, and academic performance (Ragozzino, Resnik, Utne-O'Brien, & Weissberg, 2003).

Social support from various individuals in one's life has been found to relate to better adjustment to stressful events for a healthy population of children (Demaray, Malecki, Davidson, Hodgson, & Rebus, 2005; Newman et al., 2007; Printz et al., 1999). For siblings of children with cancer, those with high levels of social support compared to those with low levels, had significantly fewer self- and parent-reported symptoms of depression, anxiety and behavioral problems (Barrera, Fleming, & Khan, 2004).

Social Support from Teachers. Teacher social support can impact academic performance. Higher perceived teacher supportiveness was positively related to students' interest in and value placed on academic work (Goodenow, 1993; Midgley, Feldlaufer, & Eccles, 1989; Wentzel, 1998). Teacher support is also associated with academic performance (Alderfer & Hodges, 2010; Chen, 2005; Domagala-Zysk, 2006). Students with higher levels of achievement often report more teacher support. In addition to the impact teacher supportiveness has on academics, higher quality teacher-student relationships is related to skills that support academics including engagement (Birch & Ladd, 1997; Hamre & Pianta, 2001) and motivation (Moje, 1996). There are many positives associated with better teacher student; however, this appears to be the opposite for lower levels of support. Domagala-Zysk (2006) found that students who experience school failure reported their teachers as less helpful in learning, less frequently offering help, and less frequently motivating them. In addition to supporting students academically, increased teacher support is also related to reduced psychological distress (DuBois et al., 1992). This is critical given that increased exposure to life stress is

strongly associated with poorer academic performance and behavior problems (Dubow & Tisak, 1989; Rowlison & Felner, 1988).

Social Support from Peers. Peer social support is another form of social support that impacts academic performance. It is particularly important in families where a child has a chronic illness as children often report that friends provide more social support than the family (Alderfer & Hodges, 2010; LaGreca et al., 1995). Social support from peers can positively impact academic performance and can serve as a protective factor for children considered “at risk” for potential difficulties (Search Institute, 2006). Higher levels of peer support are related to higher GPA (DuBois et al., 1992), better reading and math skills (Alderfer & Hodges, 2010), higher value placed on academics (Goodenow, 1993), and greater expectations of success (Goodenow, 1993). Students who experience school failure nominate fewer classmates as friends and report feeling unequal to their peers (Domagala-Zysk, 2006). In addition to having a positive impact on academic performance, support from peers can positively impact other areas that are crucial to academic success. Social support from friends or classmates has been found to predict emotional adjustment and resilience, while it relates negatively to psychological distress (Demaray & Malecki, 2002a, 2002b; Varni, Katz, Colegrove, & Dolgin, 1994; Wentzel, 1998) and behavioral maladjustment (Demaray & Malecki, 2002a, 2002b). In chronically ill children, more social support from their peers is related to better overall adjustment and adaptation (Varni et al., 1994; Wallander & Varni, 1989).

Although there is a good deal of literature regarding the relationship between social support from people in a child’s school and school performance, there are some problems with the research to date. There is limited information on this relationship in

families with a seriously ill child. Problems with measurement selection also are noted in these studies. Finally, small sample sizes are evident in research conducted with chronically ill populations.

What is known about the relationship between perceived social support and academic achievement is largely limited to the general population of children. Some studies have examined this relationship in children with chronic illness and with cancer; however, studies have not examined the impact of social support outside of the family for siblings of children with cancer. As was noted in the family literature, many of the scales in these studies were developed specifically for the study (Chen, 2005; Domagala-Zysk, 2006; Goodenow, 1993; Wentzel 1994). All of the studies examining the impact of social support on children with chronic illness did use well-established measures with adequate psychometric properties. A major difference between studies of ill children and studies with healthy children concerns sample size. All of the studies of children without known illness in the family had large sample sizes, while sample size varied in the studies of social support for chronically ill children. In fact, the sample sizes ranged from 30 to 153 participants in the three studies of children with chronic illness.

Chapter III. Method

Participants

Participants were 80 (48 females, 32 males) healthy siblings of children with cancer and their teachers. Healthy was defined as having no documented chronic illness as determined by parent report. A sibling was defined as a child with a direct blood relation to the child, as a child who was adopted into the family, or as a half sibling or step sibling residing full-time in the same home as the child with cancer. All family types (e.g., married, single parent) were invited to participate in the study. The majority of children ($N = 67$) were from families where parents were married or partnered. The majority of children participating in this study were White ($N = 67$). Children were between the ages of 8 and 17 years of age ($M = 11.8$ years, $SD = 2.5$), were enrolled in school full-time, and had a sibling whose was still receiving cancer treatment. Sibling's cancer diagnosis was made between 4 and 39 months of participation in the study ($M = 18.5$ months, $SD = 7.3$). The majority of healthy siblings were older than the child with cancer ($N = 57$). The mean age difference between siblings was 47.7 months ($SD = 26.5$).

Children in this study had siblings diagnosed with all major types of cancer, which is shown in Table 1. These children also resided in homes with a wide range of annual household income categories, which is shown in Table 2. Racial background of the sample was 83.8% White, 11.3% Black or African American, 1.3% multiple races, and 2.5% were unknown. A majority of children (83.8%) were from families where parents were married or partnered, while 10% of parents were never married, 5% were divorced, and 1.3% were widowed.

Procedure

Participants were recruited for two separate large-scale studies conducted at The Children's Hospital of Philadelphia, with a subset of participants from each study participating in the current study. The current study included children ($n= 29$) from Study 1 (Hodges et al., 2007) and children ($n = 51$) from Study 2. Study 1 applied the following procedures. Potential participant families were identified via tumor registries and patient listings in the Division of Oncology at Children's Hospital of Philadelphia. Letters describing the purpose and procedure of the study were sent to parents of siblings who appeared to meet study criteria and follow-up phone calls were made to ensure eligibility, answer questions, and invite participation in the study. Trained study staff scheduled and conducted home visits. These visits were scheduled with interested families at which time the family signed the informed consent document, granted permission to contact the sibling's teacher, and completed measures. The sibling's teacher was then contacted by mail and asked to complete their questionnaires. To ensure that teacher ratings were accurate, teacher data were collected no less than three months into the new school year to ensure that teachers had proper knowledge of student abilities. School data collection occurred within one month of home visit.

Study 2 involved recruitment methods like Study 1 in regard to identifying and contacting the potentially eligible families. Upon interest in the study, parents were asked to sign a consent form and HIPAA release to allow for the sibling's school to be contacted prior to family data collection. Differences occurred with regard to home and school visits, where the school visit occurred prior to the home visit. In Study 2, teachers were asked to complete an academic competence rating scale during a school visit where

additional data were being collected. This visit was planned to take place during a literacy class (i.e., English, Reading, Language Arts). A visit was then scheduled to meet with the family in their home for completion of the demographic data and other measures. In an attempt to ensure that teacher ratings were accurate, teacher data were collected no less than three months into the new school year to ensure that teachers have proper knowledge of student abilities. Home visits occurred within six months of school visits.

Measures

Family Assessment Device (FAD; Epstein et al., 1983). The FAD is a 53-item self-report measure assessing seven dimensions of family functioning. These dimensions include: problem solving, communication, roles, affective responsiveness, affective involvement, behavioral control, and global functioning. Each item contains a 4-point Likert rating scale. Higher scores reflect greater levels of dysfunction. Internal consistency using Cronbach's alpha scores as reported by Epstein et al. (1983) are as follows: Problem Solving = .74, Communication = .75, Roles = .72, Affective Responsiveness = .83, Affective Involvement = .78, Behavior Control = .72, and General Functioning = .71. The following two scales were included for validation of this measure: Family Adaptability and Cohesion Scales II (FACES II; Olson, Sprenkel, & Russell, 1979) and the Family Unit Inventory (FUI; Van der Veen & Olson, 1981). All FAD scales, except Roles and Behavior Control, had correlations greater than .50 when correlated with the FUI Integration scale. All scales except Roles were moderately to highly correlated with the FACES II Cohesion scale. Similarly, all subscales except

Roles and Behavior Control were moderately to highly correlated with the FACES II Adaptability scale.

One-week test-retest reliability for the FAD subscales were as follows: Problem Solving = .66, Communication = .72, Roles = .75, Affective Responsiveness = .76, Affective Involvement = .67, Behavior Control = .73, and General Functioning = .71. Miller. et al. also studied the discriminant validity of the FAD through a combination of family therapist ratings and placement on the FAD into the “healthy” and “unhealthy” ranges of functioning. Following a lengthy family interview, one of four therapists placed a family in the “healthy” or “unhealthy” range for the various FAD dimensions. These families also completed the FAD and were placed into the “healthy” or “unhealthy” range for functioning on each of the FAD subscales. These studies revealed a range of 68% to 89% were placed in the same range using both the family therapist ratings and FAD scores.

Epstein et al. (1983) reported that the General Functioning subscale of the FAD assesses the overall health or pathology of the family unit. Items on this subscale include the following: “In times of crisis, we can turn to each other for support” and “We feel accepted for what we are”. Only the General Functioning subscale was used in this study. The child completed the FAD without any differences in items or wording. In a review of published research using family measures, Alderfer et al. (2007) noted that general functioning is frequently the only subscale reported and has internal consistency ranging from .85 to .90. Furthermore, Bihun, Wamboldt, Gavin, and Wamboldt (2002) examined internal consistency of the FAD in children, with a group of 7 to 11 year olds and a group of 12 to 18 year olds. On the General Functioning subscale, alpha was

greater than .65 for the younger children and greater than .70 for the older children.

Internal consistency of the general functioning scale (Cronbach's α) for the present study was .65.

Child and Adolescent Social Support Scale (CASSS; Malecki, Demaray, Elliott, & Nolten, 1999). This is a 60-item self-report rating scale measuring four types of perceived social support from five sources. The types of social support include: emotional, informational, appraisal, and instrumental. Each source of social support is considered a separate subscale. The subscales include: Parent, Teacher, Classmate, Close Friend, and School. Each phrase consists of a frequency and importance rating. The frequency ratings consist of a 6-point Likert scale. The importance ratings consist of a 3-point Likert scale. Malecki and Demaray (2002) reported the results of reliability and validity studies. Internal consistency ranged from .87 to .93 for students in 3rd through 6th grade and ranged from .89 to .94 for students in 6th through 12th grade. The 8-week test-retest reliability ranged from .60 to .76 for the subscales. In validation studies, the following two measures were used to validate this measure: Social Support Scale for Children (SSSC; Harter, 1985) and Social Support and Appraisals Scale (SSAS; Dubow & Ullman, 1989). The CASSS had a strong positive correlation with the SSSC with the subscale correlations ranging from .55 to .66 (Malecki & Demaray, 2002). The CASSS had a moderate positive correlation with the SSAS. Only raw score frequency ratings of social support from the Teacher and Close Friend subscales were included in the study. Internal consistency (Cronbach's α) for the present study was .91 for the Teacher subscale and .95 for the Close Friend subscale.

Academic Competence Evaluation Scales (ACES; DiPerna & Elliott, 2000).

The ACES is a 73-item teacher-completed measure of academic competence. This scale is designed to be used for children from kindergarten through 12th grade. This measure includes two scales: academic skills and academic enablers. The academic skills scale is composed of three subscales: Reading/Language Arts Skills, Mathematics Skills, and Critical Thinking Skills. The academic enablers scale is composed of four subscales: Interpersonal Skills, Motivation, Engagement, and Study Skills. Internal consistency (Cronbach's α) for the subscales ranged from .94 to .99 (DiPerna & Elliott, 2000). The two to three week test-retest reliability was 0.95 for academic skills and 0.96 for academic enablers.

DiPerna and Elliott (1999) reported on the validation of the ACES. Academic skills scores on the ACES were highly correlated with student performance on the Iowa Test of Basic Skills (Hoover, Hieronymous, Frisbie, & Dunbar, 1993). Furthermore, scores on the ACES had high correlations with the Academic Competence scores and had moderate negative correlations with Problem Behaviors scores on the Social Skills Rating Scales for Teachers (Gresham & Elliott, 1990). Principal Components Analysis supported a two-factor model (two subscales) with three factors within the Academic Skills items and four factors in the Academic Enablers items. Because school visits during Project 2 occurred in a Reading or Language Arts class, data for math were limited and comprised less than half of the sample; therefore, only raw total scores from the reading skills scale and academic enablers scale were used for data analysis. Internal consistency (Cronbach's α) for the present study was .97 for the Reading subscale and .98 for the Academic Enablers scale.

Data Analysis

To obtain information about the children and families participating in this study, descriptive statistics from a parent-completed demographics questionnaire were provided for age, race, gender, birth order, cancer diagnosis, parental marital status, and annual household income. Pearson correlations (r) were calculated to determine whether any statistically significant correlations existed between the FAD general functioning scores, ACES Reading raw scores, ACES Academic Enablers raw scores, CASSS perceived teacher and close friend social support, and the demographic variables. Scores on the FAD were examined to determine whether families were scoring in the “healthy” or “unhealthy” range of functioning as determined by recommended cut-scores (Miller, Ryan, Keitner, Bishop, & Epstein, 2000). Ratings on the ACES were examined to characterize the range of academic performance of the siblings. Because of differences in methodology between Study 1 and Study 2, descriptive statistics were calculated for both Study 1 and Study 2 data. An Analysis of Variance (ANOVA) was conducted to test for equivalence among the demographic, predictor, and outcome variables.

Multiple regression analysis¹ was selected to answer the primary research questions because this data analytic technique is used to predict a dependent variable from a set of predictors (Stevens, 2002). Data were screened to ensure that the assumptions for multiple regression were met. Assessments for univariate and multivariate outliers were conducted. Any univariate outliers having a z -score less than -3.29 or higher than 3.29 were removed. In order to rule out collinearity, Variance

¹ This project was proposed to include at least 100 participants and to use structural equation modeling as data analysis. Because of the lower number of participants, communication was made with the dissertation committee to alter the analysis to multiple regression analysis.

Inflation Factor (VIF) was computed for each analysis (Myers, 1990). To examine the relationship between the predicted variables and academic performance, two linear multiple regression analyses were calculated with the child-reported family functioning, teacher social support, and friend social support variables as predictors and either ACES Reading/Language Arts scores or ACES Academic Enabler scores as outcomes.

Chapter IV. Results

Introduction

Because research is limited in understanding children's perceptions of their family's functioning and the level of social support they receive from outside of the family and how this relates to academic functioning in siblings of children with cancer, this study sought to build on previous preliminary research. The purpose of this study was to understand how healthy siblings' perceptions of family functioning, teacher social support, and peer social support are related to their reading performance and academic enablers. The following two research questions and hypotheses were posed: (1) Does children's perceived family functioning, teacher social support, and friend social support significantly predict reading skills of siblings of children with cancer? (2) Does children's perceived family functioning, teacher social support, and friend social support significantly predict academic enablers of siblings of children with cancer? It was hypothesized that perceived family functioning and social support from friends and teachers would significantly predict the reading skills of siblings of children with cancer (H1). It was hypothesized that perceived family functioning, teacher social support, and peer social support would significantly predict academic enablers (H2).

Preliminary Analyses

Descriptive Statistics and Tests of Equivalence by Study. Because of the differences in methodology between Study 1 and Study 2, the descriptive statistics were compared across the two years. Table 3 presents mean and standard deviation of the predictor and dependent variables as well as variables such as age of the participants and time since cancer diagnosis. With regard to age, siblings in Study 1 were 1.3 years older

than siblings in Study 2. Time since diagnosis was slightly different, with Study 2 participants having a sibling an average of 3.4 months further from the cancer diagnosis. Though the means were different for all of the variables included in the proposed regression analyses, the differences for the ACES Reading, ACES Enablers, and FAD corresponded to similar descriptive categories. The ratings were different on both CASSS subscales, with ratings in Study 1 lower than in Study 2.

Because of the different data collection techniques across studies within this sample (i.e., home data collected prior to school data for Study 1; school data collected prior to home data in Study 2), an analysis of variance (ANOVA) was conducted on the five variables included in the research questions as well as sibling age and time since diagnosis. A one-way ANOVA was conducted with year of participation as the independent variable and the following as dependent variables: age of sibling, time since cancer diagnosis, FAD general functioning, ACES Reading, ACES Enablers, CASSS teacher, and CASSS friend. Age of sibling differed significantly between study participation, $F(1, 78) = 4.866, p = .030$. Time since diagnosis differed significantly between study participation, $F(1, 77) = 4.012, p = .049$. CASSS teacher scores differed significantly between year of participation, $F(1, 76) = 5.590, p = .02$. CASSS friend scores differed significantly between year of participation, $F(1, 76) = 7.896, p = .006$. FAD general functioning, ACES Reading, and ACES Enablers did not differ significantly between study participation.

Testing of Assumptions. The research questions were analyzed using the Statistical Package for the Social Sciences version 19.0 (SPSS 19.0). Prior to conducting the analysis, the data set was examined for missing data, outliers (univariate and

multivariate), normality, linearity, homoscedasticity, and multicollinearity. A detailed review of missing data and assumption violations are discussed in the following section.

Univariate outliers were examined next. Any cases with a *z-score* greater than 3.29 or less than -3.29 were removed. Next, the data set was examined for multivariate outliers. Mahalanobis distance scores for each case were compared to a critical value of 16.26 based on 3 degrees of freedom and $p < 0.001$ (Tabachnick & Fidell, 2007).

Normality of the data was checked by visual inspection of graphs as well as examining the skewness and kurtosis of the independent and dependent variables. All variables were examined for skewness and kurtosis scores of +/- 1.96 (Tabachnick & Fidell, 2007). A deleted residual histogram was also visually inspected for normality.

Linearity of the data was examined using a scatterplot matrix of the independent variables compared with the dependent variable to verify that this relationship was linear in nature. To evaluate for homoscedasticity, a scatterplot of predictive equations and residuals for each sample was inspected. Results from the scatterplot graphs were examined to ensure that the variance in the residuals was generally equal at all levels of the dependent variable, which would indicate that the assumption of homoscedasticity has been met. In order to assess for possible multicollinearity, correlations between each of the predictors were examined. Tolerance levels and Variance Inflation Factor (VIF) were also considered to further rule-out multicollinearity. According to Cohen, Cohen, West, and Aiken (2002), a VIF of 10 or greater and tolerance values of .10 or less are indicative of problems with multicollinearity.

Hypothesis 1. Fifteen cases were identified as missing on the ACES Reading subscale. Because ACES Reading scores were the variable of interest, missing cases

were removed pairwise. One univariate outlier was found on the CASSS teacher social support measure and on the CASSS friend social support measure. The outlying scores were from the same participant. This case was removed due to the extreme response pattern. No multivariate outliers were detected. The final analysis was comprised of 64 cases.

The final data set met appropriate degrees of skewness and kurtosis. It appears that the data met the assumptions of normality, linearity, and homoscedasticity. When multicollinearity was examined, some significant correlations were present. The FAD general functioning rating was significantly correlated with the CASSS teacher support and CASSS peer support rating at the $p < .01$ level. The CASSS teacher support was significantly correlated with the CASSS peer support rating at the $p < .01$ level. None of the correlations exceeded .70. For all predictor variables, VIF statistics were between 1.20 and 1.61, and all tolerance levels were greater than .60. Multicollinearity did not appear to be of concern.

Hypothesis 2. Five cases were missing on the ACES Enablers scale. Because ACES Enablers scores were the variable of interest, missing cases were removed pairwise. One univariate outlier was found on the CASSS teacher social support measure, and two univariate outliers were found on the CASSS friend social support measure. One case had an extreme score on both the friend and teacher support. Two cases in total were removed due to the extreme response pattern. When multivariate outliers were examined, one case was above the critical value and removed. The final analysis was comprised of 72 cases.

The final data set met appropriate degrees of skewness and kurtosis. It appears that the data met the assumptions of normality, linearity, and homoscedasticity. When multicollinearity was examined, some significant correlations were present. The FAD general functioning rating was significantly correlated with the CASSS teacher support and CASSS peer support rating at the $p < .01$ level. The CASSS teacher support was significantly correlated with the CASSS peer support rating at the $p < .01$ level. None of the correlations exceeded .70. For all predictor variables, VIF statistics were between 1.20 and 1.61, and all tolerance levels were greater than .60. Multicollinearity did not appear to be of concern.

Correlational Analysis Between Demographic and Outcome Variables

Correlational analyses for the descriptive variables and academic variables are reported in Table 4. Only one descriptive variable was correlated with the academic variables. Age was significantly correlated with academic enablers ($r = -.26, p = .02$).

Family Functioning

Scores on FAD general functioning scale were calculated to determine whether children rated their family as functioning in the healthy or unhealthy range. There was a mean rating of 1.90, with a standard deviation of .44. Overall scores were averaged and compared to a cutoff score of 2.0. In this sample, 47% of children perceived their family to be functioning in the unhealthy range.

CASSS Summary

Responses to items on the two subscales were summed to produce teacher and peer social support scores. The lowest score that can be obtained on a CASSS subscale is 12 and 72 is the highest possible score. In this sample, there was a mean score of 58.9

and a standard deviation of 10.6 for the teacher subscale. This would correspond to a rating of “Almost Always” for all 12 items. Similarly, there was a mean score of 59.9 and a standard deviation of 11.6 for the friend subscale, which corresponds to a rating of “Almost Always” for all 12 items.

ACES Summary

Item responses on the ACES subscales were summed and compared to preset cut points to determine whether a child’s skills were in the Developing, Competent, or Advanced range. Scores falling in the Developing range are considered areas in need of intervention. For the ACES reading subscale, there was a mean score of 35.4 and a standard deviation of 8.7. In this sample, 47.7% of siblings’ reading skills fell in the Developing range. Only 10.8% fell in the Advanced range. For the Academic Enablers scale, there was a mean score of 153.1 and a standard deviation of 33.8. In this sample, 9.2% of siblings’ skills fell in the Developing range, while 21.1% fell in the Advanced range.

Intercorrelations Between Predictor and Outcome Variables

Correlational analyses between the family variable, support variables, and academic variables are shown in Table 5. These analyses yielded several statistically significant relationships. The academic variables displayed high correlations with one another, while the three child-reported variables (family functioning, teacher social support, and peer social support) were highly correlated with one another. Several significant correlations emerged between the child variables and academic variables. Family functioning ratings were significantly correlated with Reading performance on the

ACES ($r = -.47, p < .001$) and ACES Enablers ($r = -.29, p = .01$). Teacher social support was significantly correlated with the Enablers scores on the ACES ($r = .34, p = .001$).

Multiple Regression Analyses

Research Question 1: A multiple regression analysis was conducted to explore whether child-reported variables, as assessed by the FAD general functioning score, CASSS teacher support, and CASSS peer support, could significantly predict ACES Reading/Language Arts scores. This regression model explained a significant amount of variance in Reading/Language Arts scores ($R = .474, R^2 = .225, F(3,60) = 5.80, p = .002$). Specifically, a significant beta coefficient was found for family functioning ($\beta = -0.5, p < .001$) but not for the other two variables. Increases in general functioning ratings (which indicates poorer family functioning) were associated with decreases in ACES Reading/Language Arts scores. For every one unit increase in family functioning reading achievement, scores are predicted to decrease by 0.5 units. The standardized beta coefficients for all predictor variables are listed in Table 6.

Research Question 2: A multiple regression analysis was conducted to explore whether child-reported variables, as assessed by the FAD general functioning score, CASSS teacher support, and CASSS peer support, could significantly predict ACES Enablers scores. This regression model explained a significant amount of the variance in the Academic Enablers scores ($R = .386, R^2 = .149, F(3,69) = 4.03, p = .02$). A statistically significant beta coefficient in the model was found for Teacher Social Support ($\beta = .41, p = 0.01$) but not for the two additional variables. Specifically, teacher social support was positively correlated with Academic Enablers scores. For every one unit increase in teacher social support, academic enabler scores are predicted to increase

by .41 units. The standardized beta coefficients for all predictor variables are listed in Table 7.

Power Analysis

A post-hoc power analysis for both regression analyses was conducted using the software package PASS (Hintze, 2008). For research question one, the sample size of 64 was used for the statistical power analysis, and a 3 predictor variable equation was used as a baseline. The alpha level used for this power analysis was $p < .05$. The post hoc analysis revealed 96% power to detect an *R*-Squared of .23 for a medium effect size. For research question two, the sample size of 73 was used for the statistical power analysis, and a 3 predictor variable equation was used as a baseline. The alpha level used for this power analysis was $p < .05$. The post hoc analysis revealed 75% power to detect an *R*-Squared of .12 for a medium effect size.

Chapter V. Discussion

The purpose of this study was to examine perceptions of family functioning, teacher social support, and friend social support as predictors of teacher-rated reading performance and academic enablers in siblings of children with cancer. It was hypothesized that family functioning, teacher support, and friend support would predict reading skills and academic enabling skills on the teacher-completed rating scale. Within the present sample, nearly half of children perceived their families to be functioning in the unhealthy range, which is consistent with a previous study reporting that half of adolescents report unhealthy levels of family functioning than their parents (Alderfer, Navsaria, & Kazak, 2009). When academic skills were examined, nearly half of this sample was rated as having reading skills in need of intervention. This supports previous research reporting that healthy children experience academic difficulties following a sibling's diagnosis with cancer (Fife et al., 1987; Hodges & Alderfer, 2007; Lansky et al., 1984; Packman et al., 1997; Packman, Gong, VanZutphen, Shaffer, & Crittenden, 2004; Williams et al., 1993).

Research Question One

The regression analysis predicting reading skills was statistically significant; however, family functioning was the only significant predictor. This finding is consistent with previous findings that better family functioning is associated with better achievement (Fife et al., 1987; Hodges et al., 2007; Hodges & Alderfer, 2007; Masselam et al., 1990). In the area of reading, more time spent engaged in literacy activities at home are related to better literacy skills (Tabors, Roach, & Snow, 2001). Research has shown two possible impacts of a cancer diagnosis on families: increased family closeness

and less parental time devoted to the healthy sibling. It is reasonable to assume that less parental involvement with the healthy sibling means that less time is spent assisting this child in developing and improving their academic skills. On the other hand, when families experience increased closeness within a family may mean more assistance is offered on academics.

Social support from teachers and peers were also included in the regression analysis; however, these two variables did not significantly predict reading skills. This is different from previous research, which has found that students reporting more support from their teachers experienced greater levels of academic achievement (Alderfer & Hodges, 2010; Chen, 2005; Domagala-Zysk, 2006). Past research has also shown that more peer support was associated with higher GPA (DuBois et al., 1992) and with better reading skills (Alderfer & Hodges, 2010). One possible reason for the differences in outcomes could be the differences in measures used in the studies. With the exception of the study by Alderfer and Hodges, the measures used in the other studies were developed for each study and psychometric properties were not examined. It is also possible that the differences in CASSS scores between Study 1 and Study 2 contributed to the lack of statistical significance. Because there was a statistically significant difference between the means for both CASSS teacher and peer scores, there was a very wide range of scores on these measures. The true impact of teacher and peer support may have been missed because of the distinct difference across study years.

As Bronfenbrenner (1979) has noted, the family is the most proximal influence in a child's life. The influence of the family is even more critical during times of stress, as is evidenced by reports of increased family closeness following a child's diagnosis with

cancer (Bjork, Nordstrom, Wiebe, & Hallstrom, 2011; Sargent et al., 1995; Wang & Martinson, 1996; Williams et al., 2009) and reports by healthy siblings of the desire to spend time with their family (Woodgate, 2006). This could explain why family functioning was the only predictor significantly associated with reading skills. Furthermore, literacy is a process that begins at an early age in the home (Tabors et al., 2001). Given the age of the present sample, it is of note that early literacy skills predict later reading skills (Muter, Hulme, Snowling, & Stevenson, 2004), and these reading skills tend to show stability over time (Landerl & Wimmer, 2008; Lervag, Braten, & Hulme, 2009). Thus, reading is likely to be more impacted by the family rather than by teachers and friends, particularly in this sample where the mean age was 11 years.

Research Question Two

The regression analysis predicting academic enablers was statistically significant; however, teacher support was the only significant predictor. Previous research has shown that perceived social support from teachers was positively related to students' interest in and value place on academic work (Goodenow, 1993; Midgley et al., 1989; Wentzel, 1998). Ratings on academic enablers may reflect this interest in and value of academics. For example, enablers such as motivation, study skills, and engagement were included in this rating. Although these enablers may reflect an interest in the academic task, it could also be reflective of the teacher-student relationship, which could explain this significant association. Research has shown that students with better teacher relationships display more social and prosocial behaviors (Luckner & Pianta, 2011). Furthermore, relationships with teachers impacts engagement within the classroom (Birch & Ladd, 1997; Hamre & Pianta, 2001) and appear to be a strong predictor of behavioral outcomes

rather than academic outcomes (Hamre & Pianta, 2001). A positive relationship with a teacher can also impact students' motivation to use classroom strategies at the secondary level, which does not transfer to courses taught by a different teacher (Moje, 1996).

Family functioning and social support from friends were also included in the regression analysis; however, these two variables did not significantly predict academic enablers. If relationships between each specific academic enabler (e.g., motivation, interpersonal skills, study skills) and a specific predictor variable were examined, certain enablers may have been significantly correlated with others. For example, family functioning and study skills or peer support and social skills may have been significantly correlated. When the enablers are examined together, these two predictors are not significantly related. Like a previous study (Alderfer & Hodges, 2007) a significant correlation between family functioning and academic enablers was present, but it did not equate to a predictive relationship in this study. It is possible that the weaker reliability of the FAD in this study could have led to problems with the stability of this measure; therefore leading to results that were not statistically significant. No previous studies have examined the relationship between support from friends and academic enablers; however, much research has shown peer social support to be a protective factor helping to buffer one from psychological distress and promote resilience (Demaray & Malecki, 2002a, 2002b; Varni et al., 1994; Wallander & Varni, 1989; Wentzel, 1998). It is possible that the differences between scores for Study 1 and Study 2 participants could have contributed to the lack of statistical significance for the CASSS friend support. Although peer social support is important to this population of children (Alderfer &

Hodges, 2010; Patterson et al., 2011), results from this study do not show that greater support from peers is related to better reading skills or academic enabling skills.

Limitations

These findings are not without their limitations. First, the participants in this study comprised a smaller sample size than is ideal. Although there was an initial sample of 80 children, data were lost due to missing information, which resulted in even fewer data points being included in the study. Although adequate power was achieved for Research Question One, power for Research Question Two was slightly below 80%. According to Cohen (1992) a sample size of 76 would be necessary to detect a medium effect size, which is 4 participants less than the final sample. Furthermore, in order to use a statistical analysis technique like structural equation modeling, which would have provided richer detail of the relationships between variables, 100 participants is considered a minimum sample size for this analytical technique (Schumacker & Lomax, 2004).

Second, there were differences in the methodology applied between Study 1 and Study 2. A major difference is that, in Study 2, school data were collected during a classroom visit; however, this visit occurred prior to the home visit. In Study 1, school data were collected following home visits. Third, there was some time lapse between collection of home and school data in project 2. Ideally, data collection would take place within three months, yet 25% of school data were collected within six months of the home data collection. ANOVA conducted on the descriptive, predictor, and outcome variables showed that there was a significant difference in sibling age, time since diagnosis, and CASSS teacher and friend scores between Studies 1 and 2. Lower CASSS

ratings occurred in Study 1. These differences may have occurred due to the altered methodology and time lapse, which could partially account for some of the nonsignificant findings. Furthermore, in Study 1, the cancer diagnosis was made three and one-half months earlier, with was also statistically significant. Research shows that the greater the time lapse since diagnosis, the better a sibling functions (Houtzager, Grootenhuis, et al., 2004; Houtzager, Oort., et al., 2004); therefore, siblings in Study 1 may have had more general difficulty given that they are closer to the initial date of diagnosis. This could have lead to subgroups within the project that that caused the data to appear not significant.

A fourth limitation is that this study included siblings from a wide age group. This is potentially problematic given that siblings younger in age tend to have more behavioral problems (Cohen et al., 1994), feel more lonely (Hamama et al., 2000), and experience long-term impairments in quality of life (Houtzager, Grootenhuis, et al., 2004) than older siblings. As a result of these impairments, younger siblings may perceive themselves as experiencing less support from others given the elevations in loneliness or their behaviors could have impacted school ratings. Age could also be a limitation because, as children age, social support from teachers decreases (Bokhorst, Sumter, & Westenberg, 2010; Malecki & Demaray, 2002).

Next, input on family functioning was obtained solely from the healthy sibling. Although this is a unique characteristic of this study, it could also be problematic. Because children, particularly adolescents, tend to view their families as more unhealthy than their parents, this could have impacted study findings. Additionally, the FAD showed only moderate internal consistency in this study, falling slightly below the

recommended cutoff of .70. This could have led to problems with the FAD measuring what it was expected to be measuring in this group of children. Furthermore, a majority of siblings were rated to have reading skills that were in need of additional help, which could have influenced how well they read and understood items on this measure; therefore, this could lead to less stability of the measure within this sample. An additional limitation was the lack of previous information available to determine whether pre-existing academic problems were present, which makes it difficult to know whether the lower ratings in the area of reading were actually due to the diagnosis of cancer. Finally, this study did not have a comparison group of children with healthy siblings; therefore, it is difficult to know whether the findings from this study are unique to siblings of children with cancer or may be similar for all children.

Contributions

Despite the limitations of the present study, several contributions to the current body of research have been made. First, this study used psychometrically validated measures. As noted earlier, many studies of social support and academics included measures created for the study; therefore, the psychometric properties of such measures are unknown. Second, as recommended in a recent review of literature (Alderfer et al., 2010) input was obtained from teachers, particularly in the area of academics. In addition, previous studies have administered the Child Behavior Checklist (CBCL) to gauge academic performance in this population of children, whereas the ACES was administered in the present study. The ACES allowed teachers to rate children on specific aspects of reading as well as various academic enablers. Third, input was obtained directly from healthy siblings regarding family functioning and perceptions of

social support, which is considered to be important in order to understand their experiences (Havermans & Eiser, 1994; Sloper, 2000). Fourth, this study provided more information on what variables may be impacting siblings of children with cancer. Previous studies have shown that healthy siblings experience a drop in grades (Fife et al., 1987; Lansky et al., 1984; Williams et al., 1993) and that this is associated with how well a family is functioning (Domagala-Zysk, 2006; Fife et al., 1987; Hodges et al., 2007; Hodges & Alderfer, 2007; Masselam et al., 1990); however, this study examined the role of perceived teacher and peer support as well.

The findings from this study demonstrated that there is a relationship between family functioning and academic performance, which may delineate a potential role for schools. Although intensive family-based interventions may be beyond the capability of most school professionals, Gaughan (1995) suggests examining family functioning as a means for supporting and understanding students. In general, family-based interventions have been the primary focus of intervention in the literature on childhood cancer, but this does not mean that school interventions are of no use. Educational interventions alone may be helpful for students struggling academically; however, given the relationship to family functioning, educational interventions paired with some family interventions is warranted. One form of support may include communication between home and school. In fact, Fife et al. (1987) found that communication between the family and school may impact the amount of additional help teachers offer to siblings of children with cancer. Furthermore, previous studies have indicated that family support interventions (Fischer, 2003) and home-school collaborations (Cox, 2005) can lead to positive outcomes for students.

Implications for Future Research

Although more studies are examining how healthy children are impacted by a sibling's cancer diagnosis, there is still relatively little information about how their academics are impacted. Future studies should include a control group to learn whether the relationships found in this study differ for siblings of children with cancer. Specifically, there are two potential control groups that could be considered. One control group could be a control group with no known family illness, while another group could include siblings of children with a different chronic illness (e.g., cystic fibrosis, HIV). Another area for future research could examine the academic functioning of siblings prior to the diagnosis of cancer. Such studies could review report card grades as well as standardized test scores, including state-mandated tests or progress monitoring assessments used by individual schools. It is critical to understand how a healthy sibling was functioning prior to the cancer diagnosis in order to determine the contribution of the cancer experience as opposed to pre-existing academic problems.

Future research could examine the role of parental social support on academic variables. Studies have shown that support from parents positively influences both psychological (Demaray & Malecki, 2002a, 2002b; Demaray et al., 2005; DuBois et al., 1992; Newman et al., 2007) and academic variables (Demaray & Malecki, 2002b; DuBois et al., 1992; Newman et al., 2007) in the general population. Alderfer and Hodges (2010) found that greater levels of parental support was related to better psychological and academic functioning in siblings of children with cancer; therefore, additional examination of the relationship between parent support and academic variables in this population may be beneficial. It may also be important to examine whether family

functioning moderates the relationship between teacher support and academic enablers. Previous research has shown that support from adults in school were more strongly related to reduced psychological distress among youth who reported a low level of support from family members than among those who reported higher levels of family support (DuBois et al., 1992) and family support acts a buffer from stress for negative life events (DuBois et al., 1994). Carefully examining the role of parental support in siblings of children with cancer could allow a greater understanding of how best to support these children.

Qualitative research to learn from siblings what supports they need from friends and teachers may also be very important. Previous research has found that support from friends is rated as highly important for this group of siblings (Alderfer & Hodges, 2010; Patterson et al., 2011), yet support from friends did not influence academic variables in this study. Getting input directly from siblings could allow us to understand what specifically they need from friends or teachers, which could inform future research and intervention. Given that there are many aspects to the cancer experience, detailed attention to the functioning of the family at various points in time should occur with the components of their functioning highlighted. The entire cancer experience may entail aspects such as the time of diagnosis, beginning of treatment, treatment cessation, remission, and recurrence. Qualitative studies providing input from parents and siblings sharing what is happening in their family at these various times in the cancer experience could inform future research for how to support these families.

Conclusions

Although the family is the primary social support system for children and adolescents (Newman et al., 2007), a diagnosis of childhood cancer disrupts the patterns and routines of families. Due to the many changes a family must undergo to cope with this diagnosis, family functioning is often negatively impacted. How well a family is functioning has been shown to impact healthy sibling's academic performance (Fife et al., 1987; Hodges et al., 2007; Hodges & Alderfer, 2007). As Alderfer and Hodges (2010) noted, support from people in the school is considered important by siblings of children with cancer. Support from teachers and friends can also impact academic performance.

Results from this study revealed that nearly half of healthy siblings believed their families to be functioning in the unhealthy range. Furthermore, nearly half of siblings were rated by their teachers to have reading skills in the developing range, which is considered to be a target for intervention. Consistent with previous literature, this study found that family functioning significantly predicted reading skills. Contrary to previous literature, this study found that teacher and peer support was not significantly related to reading skills; however, teacher support was significantly associated with academic enabling skills. Additional research is needed to further understand the complicated relationship between these variables, particularly in this population. Although partnerships between the family, school, and hospital can be very beneficial, understanding the clear needs of these children is critical. Future research should aim to thoroughly understand the needs of healthy children as it relates to others in the school.

References

- Alderfer, M.A., Fiese, B.H., Gold, J.I., Cutuli, J.J., Holmbeck, G.N., Goldbeck, L., ... Patterson, J. (2008). Evidence-based assessment in pediatric psychology: Family measures. *Journal of Pediatric Psychology*, *33*, 1046-1061.
- Alderfer, M.A., & Hodges, J.A. (2010). Supporting Siblings of Children with Cancer: A need for family-school partnerships. *School Mental Health*, *2*, 72-81.
- Alderfer, M.A., & Kazak, A.E. (2006). Family issues when a child is on treatment for cancer. In R.T. Brown (Ed.), *Pediatric Hematology/Oncology: A Biopsychosocial Approach* (pp. 53-74). New York: Oxford.
- Alderfer, M.A., Labay, L.E., & Kazak, A.E. (2003). Brief report: Does posttraumatic stress apply to siblings of childhood cancer survivors? *Journal of Pediatric Psychology*, *28*, 281-286.
- Alderfer, M.A., Long, K.A., Lown, E.A., Marsland, A.L., Ostrowski, N.L., Hock, J.M., & Ewing, L.J. (2010). Psychosocial adjustment of siblings of children with cancer: A systematic review. *Psycho-Oncology*, *19*, 789-805.
- Alderfer, M.A., Navsaria, N., & Kazak, A.E. (2009). Family functioning and posttraumatic stress disorder in adolescent survivors of childhood cancer. *Journal of Family Psychology*, *23*, 717-725.
- American Cancer Society. (2011). *Cancer facts and figures 2011*. Atlanta, GA: American Cancer Society.
- Amerikaner, M., Monks, G., Wolfe, P., & Thomas, S. (1994). Family interaction and individual psychological health. *Journal of Counseling and Development*, *72*, 614-620.

- Barbarin, O.A., Sargent, J.R., Sahler, O.J.Z., Carpenter, P.J., Copeland, D.R., Dolgin, M.J., ... Zeltzer, L.K. (1995). Sibling adaptation to childhood cancer collaborative study: Parental views of pre-and postdiagnosis adjustment of siblings of children with cancer. *Journal of Psychosocial Oncology, 13*, 1-20.
- Barrera, M., Chung, J. Y. Y., & Fleming, C. F. (2004). A group intervention for siblings of pediatric cancer patients. *Journal of Psychosocial Oncology, 22*, 21-39.
- Barrera, M., Fleming, C.F., & Khan, F.S. (2003). The role of emotional social support in The psychological adjustment of siblings of children with cancer. *Child: Care, Health and Development, 30*, 103-111.
- Bendor, S.J. (1990). Anxiety and isolation in siblings of pediatric cancer patients: The need for prevention. *Social Work in Health Care, 14*, 17-35.
- Bjork, M., Nordstrom, B., Wiebe, T., & Hallstrom, T. (2011). Returning to a changed ordinary life—families' lived experience after completing a child's cancer treatment. *European Cancer Care, 20*, 163-169.
- Bihun, J.T., Wamboldt, M.Z, Gavin, L.A., & Wamboldt, F.S. (2002). Can the Family Assessment Device (FAD) be used with school aged children? *Family Process, 41*, 723-731.
- Birch, S.H., & Ladd, G.W. (1997). The teacher-child relationship and children's early school adjustment. *Journal of School Psychology, 35*, 61-79.
- Bokhorst, C.L., Sumter, S.R., & Westenberg, P.M. (2010). Social support from parents, friends, classmates, and teachers in children and adolescents aged 9 to 18 years: Who is perceived as most supportive? *Social Development, 19*, 417-426.

- Brett, K.M., & Davies, E.M.B. (1988). "What does it mean?" Sibling and parental appraisals of childhood leukemia. *Cancer Nursing, 11*, 329-338.
- Bronfenbrenner, U. (1979). *The ecology of human development: Experiments by nature and design*. London: Harvard.
- Bronfenbrenner, U. (1986). Ecology of the family as a context for human development: Research perspectives. *Developmental Psychology, 22*, 723-742.
- Carpenter, P.J., & Levant, C.S. (1994). Sibling adaptation to the family crisis of childhood cancer. In D.J. Bearison & R.K. Mulhern (Eds.), *Pediatric psychooncology: Psychological perspectives on children with cancer* (pp. 122-142). New York: Oxford.
- Chen, J.J. (2005). Relation of academic support from parents, teachers, and peers to Hong Kong adolescents' academic achievement: The mediating role of academic engagement. *Genetic, Social, and General Psychology Monographs, 131*, 77-127.
- Chesler, M.A., Allswede, J., & Barbarin, O.O. (1991). Voices from the margin of the family: Siblings of children with cancer. *Journal of Psychosocial Oncology, 9*, 19-42.
- Cicirelli, V.G. (1995). *Sibling relationships across the lifespan*. New York: Plenum.
- Cohen, D.S., Friedrich, W.N., Jaworski, T.M., Copeland, D., & Pendergrass, T. (1994). Pediatric cancer: Predicting sibling adjustment. *Journal of Clinical Psychology, 50*, 303-319.
- Cohen, J.S. (1992). A power primer. *Psychological Bulletin, 112*, 155-159.
- Cohen, J., Cohen, P., West, S.G., & Aiken, L.S. (2002). *Applied Multiple Regression/*

- Correlation Analysis for the Behavioral Sciences (3rd Ed.)*. Routledge Academic.
- Cox, D.D. (2005). Evidence-based interventions using home-school collaboration. *School Psychology Quarterly*, 20, 473-497.
- Crosnoe, R. (2004). Social capital and the interplay of families and schools. *Journal of Marriage and Family*, 66, 267-280.
- Demaray, M.K. & Malecki, C.K. (2002a). Critical levels of perceived social support associated with student adjustment. *School Psychology Quarterly*, 17, 213-241.
- Demaray, M.K. & Malecki, C.K. (2002b). The relationship between perceived social support and maladjustment for students at risk. *Psychology in the Schools*, 39, 305-316.
- Demaray, M.K., Malecki, C.K., Davidson, L.M., Hodgson, K.K., & Rebus, P.J. (2005). The relationship between social support and student adjustment: A longitudinal analysis. *Psychology in the Schools*, 42, 691-706.
- DiPerna, J.C., & Elliot, S.N. (1999). Development and validation of the Academic Competence Evaluation Scales. *Journal of Psychoeducational Assessment*, 17, 207-225.
- DiPerna, J.C., & Elliott, S.N. (2000). *ACES Academic Competence Evaluation Scales: Manual K-12*. San Antonio, TX: The Psychological Corporation.
- DiPerna, J.C., Volpe, R.J., & Elliott, S.N. (2002). A model of academic enablers and elementary reading/language arts achievement. *School Psychology Review*, 31, 298-312.
- Dolgin, M.J., Blumensohn, R., Mulhern, R.K., Orbach, J., Sahler, O.J., Roghmann, K.J., ... Copeland, D.R. (1997). Sibling adaptation to childhood cancer collaborative

- study: Cross-cultural aspects. *Journal of Psychosocial Oncology*, 15, 1-14.
- Domagala-Zysk, E. (2006). The significance of adolescents' relationships with significant others and school failure. *School Psychology International*, 27, 232-247.
- DuBois, D.L., Felner, R.D., Brand, S., Adan, A.M., & Evans, E.G. (1992). A prospective study of life stress, social support, and adaptation in early adolescence. *Child Development*, 63, 542-557.
- DuBois D.L., Felner, R.D., Meares, H., & Krier, M. (1994). Prospective investigation of the effects of socioeconomic disadvantage, life stress, and social support on early adolescent adjustment. *Journal of Abnormal Psychology*, 103, 511-522.
- Dubow, E.F., & Tisak, J. (1989). The relation between stressful life events and adjustment in elementary school children: The role of social support and social problem-solving. *Child Development*, 60, 1412-1523.
- Dubow, E.F., Tisak, J., Causey, D., Hryshko, A., & Reid, G. (1991). A two-year longitudinal study of stressful life events, social support, and social problem-solving skills: Contributions to children's behavioral and academic adjustment. *Child Development*, 62, 583-599.
- Dubow, E.F., & Ullman, D.G. (1989). Assessing social support in elementary school children: The survey of children's social support. *Journal Clinical Child Psychology*, 18, 52-64.
- Epstein, N.B., Baldwin, L., & Bishop, D. (1983). The McMaster family assessment device. *Journal of Marital and Family Therapy*, 9, 213-228.
- Fife, B., Norton, J., & Groom, G. (1987). The family's adaptation to childhood

- leukemia. *Social Science and Medicine*, 24, 159-168.
- Fischer, R.L. (2003). School-based family support: Evidence from an exploratory field study. *Families in Society*, 84, 339-347.
- Fletcher, P.C., & Clarke, J. (2003). When your child has cancer: A discussion of factors that affect mother's abilities to cope. *Journal of Psychosocial Oncology*, 21, 81-99.
- Freeman, K., O'Dell, C., & Meola, C. (2000). Issues in families of children with brain tumors. *Oncology Nursing Forum*, 27, 843-848.
- Gaughan, E. (1995). Family assessment in psychoeducational evaluations: Case studies with the Family Adaptability and Cohesion Evaluation Scales. *Journal of School Psychology*, 33, 7-28.
- Goodenow, C. (1993). Classroom belonging among early adolescent students: Relationships to motivation and achievement. *Journal of Early Adolescence*, 13, 21-43.
- Green, K., Fine, M.J., & Tollefson, N. (1988). Family systems characteristics and underachieving gifted adolescent males. *Gifted Child Quarterly*, 32, 267-272.
- Gresham, F., & Elliott, S. (1990). *The Social Skills Rating System*. Circle Pines, MN: American Guidance Service.
- Hamama, R., Ronen, T., & Feigin, R. (2000). Self-control, anxiety, and loneliness in siblings of children with cancer. *Social Work in Health Care*, 31, 63-83.
- Hamre, B.K., & Pianta, R.C. (2001). Early teacher-child relationships and the trajectory of children's school outcomes through eight grade. *Child Development*, 72, 625-638.

- Harter, S. (1985). *Manual for the Social Support Scale for Children*. Denver, CO: University of Denver.
- Havermans, T., & Eiser, C. (1994). Siblings of a child with cancer. *Child: Care, Health, and Development*, 20, 309-322.
- Hawkins, D.E., Guo, J., Hill, K.G., Battin-Pearson, S., & Abbott, R.D. (2001). Long-term effects of the Seattle Social Development Intervention on School Bonding Trajectories. *Applied Developmental Science*, 5, 225-236.
- Heffernan, S.M., & Zanelli, A.S. (1997). Behavior changes exhibited by siblings of pediatric oncology patients: A comparison between maternal and sibling descriptions. *Journal of Pediatric Oncology Nursing*, 14(1), 3-14.
- Hintze, J. L. (2008). Multiple regression. In Author, PASS help system (860-1-860-16). Kaysville, UT: NCSS.
- Hodges, J.A., & Alderfer, M.A. (2007). *Siblings of oncology patients: Perceived family functioning and school performance*. Poster presented at the 115th Annual Meeting of the American Psychological Association, San Francisco, CA.
- Hodges, J.A., Alderfer, M.A., & Manz, P.H. (2007). *Family functioning after childhood cancer and healthy siblings' school performance*. Unpublished master's thesis, Lehigh University, Bethlehem, Pennsylvania.
- Hoekstra-Weebers, J.E.H.M., Jaspers, J.P.C., Kamps, W.A., & Klip, E. C. (1998). Gender differences in psychological adaptation and coping in parents of pediatric cancer patients. *Psycho-Oncology*, 7, 16-36.
- Hoover, H.D., Hieronymous, A.N., Frisbie, D.A., & Dunbar, S.B. (1993). *Iowa Test of Basic Skills*. Chicago: Riverside.

- Horwitz, W., & Kazak, A.E. (1990). Family adaptation to childhood cancer: Sibling and family systems variables. *Journal of Clinical Child Psychology, 19*, 221-228.
- Houtzager, B.A., Grootenhuis, M.A., Caron, H.N., & Last, B.F. (2004). Quality of life and psychological adaptation in siblings of paediatric cancer patients, 2 years after diagnosis. *Psycho-Oncology, 13*, 499-511.
- Houtzager, B.A., Grootenhuis, M.A., Hoekstra-Weebers, J.E.H.M., Caron, H.N., & Last, B.F. (2003). Psychosocial functioning in siblings of paediatric cancer patients one to six months after diagnosis. *European Journal of Cancer, 39*, 1423-1432.
- Houtzager, B.A., Grootenhuis, M.A., Hoekstra-Weebers, J.E.H.M., & Last, B.F. (2005). One month after diagnosis: Quality of life, coping, and previous functioning in siblings of children with cancer. *Child: Care, Health, and Development, 31*, 75-87.
- Houtzager, B.A., Oort, F.J., Hoekstra-Weebers, H.M., Caron, H.N., Grootenhuis, M.A., & Last, B.F. (2004). Coping and family functioning predict longitudinal psychological adaptation of siblings of childhood cancer patients. *Journal of Pediatric Psychology, 29*, 591-605.
- Kazak, A.E. (2001). Comprehensive care for children with cancer and their families: A social ecological framework guiding research, practice, and policy. *Children's Services: Social Policy, Research, and Practice, 4*, 217-233.
- Kazak, A.E., Simms, S., & Rourke, M.T. (2002). Family systems practice in pediatric psychology. *Journal of Pediatric Psychology, 27*, 133-143.
- Knoll, M., & Patti, J. (2003). Social-emotional learning and academic achievement. In M.J. Elias, H. Arnold, & C.S. Hussey (Eds.), *EQ + IQ = Best leadership*

- practices for caring and successful schools* (pp. 36-49). Thousand Oaks, CA: Corwin.
- Kress, J.S., Norris, J.A., Schoenholz, D.A., Elias, M.J., & Seigle, P. (2004). Bringing together educational standards and social and emotional learning: Making the case for educators. *American Journal of Education, 111*, 68-89.
- Labay, L.E., & Walco, G.A. (2004). Brief Report: Empathy and psychological adjustment in siblings of children with cancer. *Journal of Pediatric Psychology, 29*, 309-314.
- LaGreca, A.M., Auslander, W.F., Greco, P., Spetter, D., Fisher, E.B., Jr., & Santiago, J.V. (1995). I get by with a little help from my family and friends: Adolescents' support for diabetes care. *Journal of Pediatric Psychology, 20*, 449-476.
- Lahteenmaki, P.M., Sjoblom, J., Korhonen, T., & Salmi, T.T. (2004). The siblings of Childhood cancer patients need early support: A follow up study over the first year. *Archives of Disease in Childhood, 89*, 1008-1013.
- Landerl, K., & Wimmer, H. (2008). Development of word reading fluency and spelling in a consistent orthography: An 8-year follow-up. *Journal of Educational Psychology, 100*, 150-161.
- Lansky, S.B., Cairns, G.F., Cairns, N.U., Stephenson, L., Lansky, L.L., & Garin, G. (1984). Central nervous system prophylaxis: Studies showing impairment in verbal skills and academic achievement. *The American Journal of Pediatric Hematology/Oncology, 6*(2), 183-190.
- Lempers, J.D., & Clark-Lempers, D.S. (1992). Young, middle, and late adolescents' comparisons of the functional importance of five significant relationships.

Journal of Youth and Adolescence, 21, 53-96.

Lervag, A., Braten, I., & Hulme, C. (2009). The cognitive and linguistic foundations of early reading development: A norwegian latent variable longitudinal study.

Developmental Psychology, 45, 764-781.

Luckner, A.E., & Pianta, R.C. (2011). Teacher-student interactions in fifth grade classrooms: Relations with children's peer behavior. *Journal of Applied*

Developmental Psychology, 32, 257-266.

Madan-Swain, A., Sexson, S.B., Brown, R.T., & Ragab, A. (1993). Family adaptation and coping among siblings of cancer patients, their brothers and sisters, and nonclinical controls. *American Journal of Family Therapy, 21, 60-70.*

Malecki, C.K., & Demaray, M.K. (2002). Measuring perceived social support:

Development of the Child and Adolescent Social Support Scale (CASSS).

Psychology in the Schools, 39, 1-18.

Malecki, C.K., & Demaray, M.K. (2006). Social support as a buffer in the relationship between socioeconomic status and academic performance. *School Psychology*

Quarterly, 21, 375-395.

Malecki, C.K., Demaray, M.K., Elliott, S.N., & Nolten, P.W. (1999). *The Child and*

Adolescent Social Support Scale. DeKalb, IL: Northern Illinois University.

Masselam, V.S., Marcus, R.F., & Stunkard, C.L. (1990). Parent-adolescent

communication, family functioning, and school performance. *Adolescence, 25, 725-737.*

McCubbin, M., Balling, K., Possin, P., Friedrich, S., & Byrne, B. (2002). Family

resiliency in childhood cancer. *Family Relations, 51, 103-111.*

- McGrath, P. (2001). Findings on the impact of treatment for childhood acute lymphoblastic leukaemia on family relationships. *Child and Family Social Work*, 6, 229-237.
- Midgley, C., Feldlaufer, H., & Eccles, J.S. (1989). Student/teacher relations and attitudes toward mathematics before and after the transition to junior high school. *Child Development*, 60, 981-992.
- Miller, I.W., Epstein, N.B., Bishop, D.S., & Keitner, G.I. (1985). The McMaster Family Assessment Device: Reliability and validity. *Journal of Marital and Family Therapy*, 11, 345-356.
- Miller, I., Ryan, C., Keitner, G., Bishop, D., & Epstein, N. (2000). The McMaster approach to families: Theory, assessment, treatment and research. *Journal of Family Therapy*, 22, 168-189.
- Moje, E.B. (1996). "I teacher students, not subjects": Teacher-student relationships as contexts for secondary literacy. *Reading Research Quarterly*, 31, 172-195.
- Muter, V., Hulme, C., Snowling, M.J., & Stevenson, J. (2004). Phonemes, rimes, vocabulary, and grammatical skills as foundations of early reading development: Evidence from a longitudinal study. *Developmental Psychology*, 40, 665-681.
- Myers, .R (1990). *Classical and modern regression with applications* (2nd ed.). Boston, MA: Duxbury.
- Newman, B.M., Newman, P.R., Griffin, S., O'Connor, K., & Spas, J. (2007). The relationship of social support to depressive symptoms during the transition to high school. *Adolescence*, 42, 441-459.
- Nolbris, M., Enskar, K., & Hellstrom, A. (2006). Experience of siblings of children

- treated for cancer. *European Journal of Oncology Nursing*, 11, 106-112.
- Olson, D., Portner, J., & Lavee, Y. (1985). *FACES-III*. St Paul, MN: University of Minnesota.
- Olson, D.H., Sprenkel, D.H., & Russell, C. (1979). Circumplex model of marital and family systems I: Cohesion and adaptability dimensions, family types, and clinical applications. *Family Process*, 18, 3-28.
- Osterman, K.E. (2000). Students' need for belonging in the school community. *Review of Educational Research*, 70, 323-367.
- Packman, W.L., Crittenden, M.R., Schaeffer, E., Bongar, B., Fischer, J.B.R., & Cowan, M.J. (1997). Psychosocial consequences of bone marrow transplantation in donor and nondonor siblings. *Developmental and Behavioral Pediatrics*, 18, 244-253.
- Packman, W., Gong, K., VanZutphen, K., Shaffer, T., & Crittenden, M. (2004). Psychosocial adjustment of adolescent hematopoietic stem cell transplant patients. *Journal of Pediatric Oncology Nursing*, 21, 233-248.
- Packman, W., Greenhalgh, J., Chesterman, B., Shaffer, T., Fine, J., VanZutphen, K.,...Amylon, M.D. (2005). Siblings of pediatric cancer patients: The quantitative and qualitative nature of quality of life. *Journal of Psychosocial Oncology*, 23, 87-108.
- Pai, A. L.H., Greenley, R. N., Lewandowski, A., Drotar, D., Youngstrom, E., & Peterson, C.C. (2007). A meta-analytic review of the influence of pediatric cancer on parent and family functioning. *Journal of Family Psychology*, 21, 407-415.
- Patistea, E., Makrodimitri, P., & Panteli, V. (2000). Greek parents' reactions,

- difficulties, and resources in childhood leukaemia at the time of diagnosis.
European Journal of Cancer Care, 9, 86-96.
- Patterson, J.M., Holm, K.E., & Gurney, J.G. (2004). The impact of childhood cancer on the family: A qualitative analysis of strains, resources, and coping behaviors.
Psycho-oncology, 13, 390-407.
- Patterson, P., Millar, B., & Visser, A. (2011). The development of an instrument to assess the unmet needs of young people who have a sibling with cancer: Piloting the Sibling Cancer Needs Instrument (SCNI). *Journal of Pediatric Oncology Nursing*, 28, 16-26.
- Payton, J., Weissberg, R.P., Durlak, J.A., Dymnicki, A.B., Taylor, R.D., Schellinger, K.B., & Pachan, M. (2008). *The positive impact of social and emotional learning for kindergarten to eighth-grade students: Findings from three scientific reviews*. Chicago: Collaborative for Academic, Social, and Emotional Learning.
- Printz, B.L., Shermis, M.D., & Webb, P.M. (1999). Stress-buffering factors related to adolescent coping: A path analysis. *Adolescence*, 34, 715-734.
- Puig-Antich, J., Kaufman, J., Ryan, N.D., Williamson, D.E., Dahl, R.E., Lukens, E., ...Nelson, B. (1993). The psychosocial functioning and family environment of depressed adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, 32, 244-253.
- Ragozzino, K., Resnik, H., Utne-O'Brien, M., & Weissberg, R.P. (2003). Promoting academic achievement through social and emotional learning. *educational HORIZONS*, 169-171.
- Rowlison, R.T., & Felner, R.D. (1988). Major life events, hassles, and adaptation in

adolescence: Confounding in the conceptualization and measurement of life stress and adjustment revisited. *Journal of Personality and Social Psychology*, 55, 432-444.

Sahler, O.J.Z., Roghmann, K.J., Carpenter, P.J., Mulhern, R.K., Dolgin, M.J., Sargent, J.R.,...Zeltzer, L.K. (1994). Sibling adaptation to childhood cancer collaborative study: Prevalence of sibling distress and definition of adaptation levels. *Developmental and Behavioral Pediatrics*, 15, 353-366.

Sahler, O.J.Z., Roghmann, K.J., Mulhern, R.K., Carpenter, P.J., Sargent, J.R., Copeland, D.R., ... Dolgin, M.J., (1997). Sibling adaptation to childhood cancer collaborative study: The association of sibling adaptation with maternal well-being, physical health, and resource use. *Developmental and Behavioral Pediatrics*, 18, 233-243.

Sargent, J.R., Sahler, O.J.Z., Rohmann, K.J., Mulhern, R.K., Barbarin, O.A., Carpenter, P.J.,...Zeltzer, L.K. (1995). Sibling adaptation to childhood cancer collaborative study: Siblings' perceptions of the cancer experience. *Journal of Pediatric Psychology*, 20, 151-164.

Search Institute. (2006). *40 developmental assets for adolescents (ages 12-18)*.

Downloaded on March 12, 2007 from <http://www.search-institute.org/system/files/40AssetsMC.pdf>

Schumacker, R. E. & Lomax, R. G. (2004). A beginner's guide to structural equation modeling. (2nd ed.). Mahwah, NJ: Lawrence Earlbaum Associates.

Sidhu, R., Passmore, A., & Baker, D. (2000). An investigation into parent perceptions of the needs of siblings of children with cancer. *Journal of Pediatric Oncology*

- Nursing*, 22, 276-287.
- Sloper, P. (2000). Experiences and support needs of siblings of children with cancer. *Health and Social Care in the Community*, 8, 298-306.
- Stevens, J.P. (2002). *Applied multivariate statistics for the social sciences (4th ed.)*. Mahwah, NJ: Lawrence Erlbaum.
- Tabachnick, B.G., & Fidell, L.S. (2007). *Using multivariate statistics (5th ed.)*. Boston, MA: Allyn and Bacon.
- Tabors, P.O., Roach, K.A., & Snow, C.E. (2001). Home language and literacy environment: Final results. In D.K. Dickinson and P.O. Tabors (Eds.), *Beginning literacy with language* (pp. 111-138). Baltimore, MD: Paul H. Brookes.
- Torsheim, T., Aaroe, L.E., & Wold, B. (2003). School-related stress, social support, and distress: Prospective analysis of reciprocal and multilevel relationships. *Scandinavian Journal of Psychology*, 44, 153-159.
- Van der Veen, F., & Olson, R. (1981). Manual and handbook for the family concept assessment method. Unpublished manuscript.
- Varni, J.W., Katz, E.R., Colegrove, R., & Dolgin, M. (1994). Perceived social support and adjustment of children newly diagnosed cancer. *Developmental and Behavioral Pediatrics*, 15, 20-26.
- Wallander, J.L., & Varni, J.W. (1989). Social support and adjustment in chronically ill and handicapped children. *American Journal of Community Psychology*, 17, 185-201.
- Wang, R., & Martinson, I.M. (1996). Behavioral responses of healthy Chinese siblings to the stress of childhood cancer in the family: A longitudinal study. *Journal of*

Pediatric Nursing, 11, 383-391.

- Ward, L.G., Friedlander, M.L., & Silverman, W.K. (1987). Children's depressive symptoms, negative self-statements, and causal attributions for success and failure. *Cognitive Therapy and Research, 11*, 215-227.
- Wentzel, K.R. (1994). Relations of social goal pursuit to social acceptance, classroom behavior, and perceived social support. *Journal Educational Psychology, 86*, 173-182.
- Wentzel, K.R. (1998). Social relationships and motivation in middle school: The role of parents, teachers, and peers. *Journal of Educational Psychology, 90*, 202-209.
- Williams, P.D., Lorenzo, F.D., & Borja, M. (1993). Pediatric chronic illness: Effects on Siblings and mothers. *Maternal-Child Nursing Journal, 21*, 111-121.
- Williams, P.D., Ridder, E.L., Setter, R.K., Liebergen, A., Curry, H., Piamjariyakul, U., & Williams, A.R. (2009). Pediatric chronic illness (cancer, cystic fibrosis) effects on well siblings: Parents' voices. *Issues in Comprehensive Pediatric Nursing, 32*, 94-113.
- Williams, P.D., Williams, A.R., Graff, J.C., Hanson, S., Stanton, A., Hafeman, C., ... Sanders, S. (2002). Interrelationships among variables affecting well siblings and mothers in families of children with a chronic illness or disability. *Journal of Behavioral Medicine, 25*, 411-424.
- Williams, P.D., Williams, A.R., Hanson, S., Graff, J.C., Ridder, L., Curry, H., ... Karlin-Setter, R. (1999). Maternal mood, family functioning, and perceptions of social support, self-esteem, and mood among siblings of chronically ill children. *Children's Health Care, 28*, 297-310.

- Woodgate, R.L. (2006). Siblings' experience with childhood cancer: A different way of being in the family. *Cancer Nursing*, 29, 406-414.
- Zeltzer, L.K., Dolgin, M.J., Sahler, O.J.Z., Roghmann, K., Barbarin, O.A., Carpenter, P.J.,... Sargent, J.R. (1996). Sibling adaptation to childhood cancer collaborative study: Health outcomes of siblings of children with cancer. *Medical and Pediatric Oncology*, 27, 98-107.
- Zins, J.E., Bloodworth, M.R., Weissberg, R.P., & Walberg, H.J. (2004). The scientific base linking social and emotional learning to school success. In (Eds.), *Building Academic Success on Social and Emotional Learning: What Does the Research Say?* (pp. 3-22). New York: Teachers College, Columbia University.

Table 1

Cancer Diagnosis Category

Cancer Diagnosis	Number	Percent
Leukemia	24	30%
Lymphoma	11	13.8%
Solid Tumor	33	41.4%
Brain Tumor	11	13.8%
Other	1	1.3%

Table 2
Annual Household Income

Income Range	Number	Percent
Less than \$24,999	8	10%
\$25,000 to \$49,999	17	21.3%
\$50,000 to \$74,999	15	18.8%
\$75,000 to \$99,999	7	8.8%
\$100,000 to \$124,000	8	10%
\$125,000 to \$149,000	9	11.3%
Over \$150,000	13	16.3%

Table 3.

Descriptive Statistics by Study.

Variable	Study 1		Study 2	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age*	12.66	2.61	11.39	2.38
Time since diagnosis*	16.45	5.69	19.82	7.95
FAD	1.96	0.42	1.86	0.45
CASSS teacher*	55.34	11.93	61.14	9.17
CASSS close friend*	55.34	13.66	63.24	9.09
ACES Reading	33.09	10.00	36.64	7.82
ACES Enablers	145.67	37.82	157.16	31.08

Note: * $p < .05$, ** $p < .01$

Table 4.

Correlational Analyses Between Descriptive Variables and Outcome Variables

Demographic Variable	ACES Reading	ACES Academic Enablers
Age	-.14	-.26*
Gender	-.06	-.21
Race	-.14	-.19
Diagnosis	-.05	.07
Time Since Diagnosis	-.02	-.09
Income	.25	.17
Marital Status	-.18	-.19

Note: * $p < .05$

Table 5.

Intercorrelations Between Predictor and Outcome Variables

Measures	1	2	3	4	5
1. FAD General Functioning	---	-.34**	-.40**	-.47**	-.29**
2. CASSS Teacher		---	.60**	.14	.34**
3. CASSS Friend			---	.12	.18
4. ACES Reading				---	.60**
5. ACES Academic Enablers					---

Note: ** $p < .01$

Table 6.

Regression Summary Analysis for Reading Skills (Hypothesis 1)

Variable	<u>B</u>	<u>SEB</u>	<u>β</u>	<u>p</u>
Teacher Support	-.09	.14	-.09	.000
Peer Support	-.01	.13	-.01	.540
Family Functioning	-.95	.23	-.51	.919

Note. $R^2 = .226$ ($N = 63, p < .01$)

Table 7.

Regression Summary for Academic Enablers (Hypothesis 2)

Variable	<u>B</u>	<u>SEB</u>	<u>β</u>	<u>p</u>
Teacher Support	1.30	.52	.36	.133
Friend Support	-.63	.49	-.18	.015
Family Functioning	-1.18	.77	-.19	.207

Note. $R^2 = .372$ ($N = 73, p < .05$)

Jilda Hodges Ulicny

Education

May 2012 January 2007	Ph.D., School Psychology M.Ed., Human Development Lehigh University Bethlehem, PA
May 2002	M.A., Child Development Tufts University Medford, MA
May 2000	B.S., Psychology Ursinus College Collegeville, PA

Professional and Research Experience

2007-2009, 2011-present 2009-2010 2006-2007	School Psychologist Pre-Doctoral Intern School Psychology Practicum Student Allentown School District
2007-present	Psychometrician Lehigh Psychological Services
2005-2006	Pediatric School Psychology Practicum Student Children's Hospital of Philadelphia School Psychology Practicum Student Philadelphia School District
2004-2005	Behavior Specialist Consultant CONCERN Professional Services
2003-2005	Data Collector Project PASS, Lehigh University
2002-2003	Clinical Coordinator Pennsylvania MENTOR
2001-2002	Research Assistant/Project Coordinator New England Medical Center
2000-2001	Graduate Teaching Assistant Tufts Educational Day Care Center

Conference Presentations and Publications

Alderfer, M.A., & **Hodges, J.A.** (2010). Supporting Siblings of Children with Cancer: A need for family-school partnerships. *School Mental Health, 2*, 72-81.

Wodrich, D., Daley, K., Wolcott, C. M., **Hodges, J.A.**, Stein, R. R., Manz, P.H., Alderfer, M.A., & Chenneville, T. (2008, February). *Helping students with chronic illness: The importance of school-based data*. Symposium presented at the 40th Annual Meeting of the National Association of School Psychologists. New Orleans, LA.

Hodges, J.A., & Alderfer, M.A. (2007, August). *Siblings of Oncology Patients: Perceived Family Functioning and School Performance*. Poster presented at the 115th Annual Meeting of the American Psychological Association. San Francisco, CA.

Hodges, J.A., Manz, P.H., & Alderfer, M.A. (2007, August). *Family Functioning and Academic Performance When a Sibling has Cancer*. Poster presented at the 115th Annual Meeting of the American Psychological Association. San Francisco, CA.

Hodges, J.A., Manz, P.H., & Alderfer, M.A. (2007, March). *Family Functioning after Childhood Cancer and Siblings' School Performance*. Poster presented at the 39th Annual Meeting of the National Association of School Psychologists. New York, NY.