

©Copyright 2016  
Joy S. Kawamura

Indirect Effects of Parental Coping on Children's Psychosocial Adjustment in the Context of  
Pediatric Cancer

Joy S. Kawamura

A dissertation  
submitted in partial fulfillment of the  
requirements for the degree of

Doctor of Philosophy

University of Washington

2016

Reading Committee:

Lynn Fainsilber Katz, Chair

Liliana Lengua

Kevin King

Program Authorized to Offer Degree:

Psychology

University of Washington

**Abstract**

Indirect Effects of Parental Coping on Children's Psychosocial Adjustment in the Context of  
Pediatric Cancer

Joy Sumie Kawamura

Chair of the Supervisory Committee:  
Lynn Fainsilber Katz, PhD  
Psychology

A significant body of literature suggests that children with cancer are at an increased risk for psychosocial maladjustment. Parents' adjustment and family functioning have been identified as among the strongest predictors of child adjustment to cancer. Emerging research has implicated parents' individual and dyadic coping as predictors of parents' psychological and marital adjustment in the face of stressful experiences. Coping has historically been defined and categorized in numerous ways, but recent studies suggest that a control model of coping is particularly salient when examining uncontrollable stressors, such as medical illnesses. While relations between parents' coping and parents' psychosocial adjustment, and between parental adjustment and children's adjustment have been examined separately, no studies have tested relations among these three constructs in a single model.

The current study examined the indirect effects of parents' individual and dyadic coping on children's psychosocial adjustment through parents' psychopathology and marital adjustment.

Primary and secondary caregivers of 130 children who were newly diagnosed with cancer completed questionnaire at diagnosis, 6 months post-diagnosis, and 12 months post-diagnosis. Caregivers' coping was measured using the Parent's Response to Stress Questionnaire, psychopathology was measured using the Center for Epidemiological Studies—Depression (CES-D), the Impact of Events Scale—Revised (IES-R), and the Penn State Worry Questionnaire (PSWQ), and marital adjustment was measured using the Dyadic Adjustment Scale (DAS). Primary caregivers' also reported on children's psychosocial adjustment using the Child Behavior Checklist (CBCL) and the UCLA Posttraumatic Stress Disorder Reaction Index (UCLA PTSD-RI). All questionnaires were completed at all three time points. Indirect effects models were tested using regression.

Results suggested significant indirect effects of primary control engagement coping (PCEC) on children's internalizing, externalizing, and posttraumatic stress symptoms through caregivers' psychopathology. Contrary to our hypotheses, models examining the indirect effects of secondary control engagement coping (SCEC), disengagement coping (DC), and dyadic coping on children's adjustment through caregivers' psychopathology and marital adjustment were not supported. Results of exploratory analyses examining the indirect effects using a contemporaneous approach suggested significant indirect effects of SCEC and DC on children's adjustment through caregivers' psychopathology, and an indirect effect of DC on children's posttraumatic stress symptoms through caregivers' marital adjustment.

Despite paucity of significant indirect effects, the current study highlights potential importance of examining caregivers' functioning in understanding children's psychosocial adjustment among children with cancer. The results of the current study add to what is known about the relations among caregiver and child functioning by focusing on caregivers' coping as

risk factor in a longitudinal model. Implications and potential avenues for future research in pediatric psycho-oncology are highlighted.

## Table of Contents

List of Figures.....	i
List of Tables .....	ii
CHAPTER 1   Introduction .....	1
Background.....	1
Children’s Psychological Adjustment.....	4
Parents’ Psychological Well-being.....	9
Marital Adjustment .....	11
Parental Coping .....	14
Correlates of Parents’ Individual Coping .....	16
Dyadic Coping.....	21
Correlates of Parents’ Dyadic Coping .....	23
The Current Study .....	25
CHAPTER 2   Methods .....	30
Overview .....	30
Participants.....	30
Procedures.....	33
Measures .....	33
CHAPTER 3   Results.....	38
Overview of Data Analyses.....	38
Preliminary Analyses.....	39
Indirect Effects .....	42
CHAPTER 4   Discussion.....	50
Individual Coping .....	51
Dyadic Coping .....	58
Limitations .....	61
Strengths .....	63
Conclusions.....	64
REFERENCES.....	65

## List of Figures

	Page
Figure 1. Conceptual model for Aim 1.....	83
Figure 2. Conceptual model for Aim 2.....	84
Figure 3. Conceptual model for Aim 3.....	85
Figure 4. Conceptual model for Aim 4.....	86

## List of Tables

	Page
Table 1. Indirect Effects Models.....	87
Table 2. Descriptive Statistics for Key Study Variables.....	88
Table 3. Bivariate Correlations Between Individual Coping and Caregivers' Adjustment Variables.....	89
Table 4. Bivariate Correlations Between Caregivers' Dyadic Coping and Caregiver's Adjustment Variable.....	90
Table 5. Bivariate Correlations Between Caregivers' Adjustment and Children's Psychosocial Adjustment Variables.....	91
Table 6. Bivariate Correlations Between Individual Coping and Child Adjustment Variables.....	92
Table 7. Bivariate Correlations Between Dyadic Coping and Child Adjustment Variables.....	93
Table 8. Indirect Effects Models Examining Primary Caregivers' Psychopathology Mediating the Relation Between Individual Coping and Children's Psychosocial Adjustment.....	94
Table 9. Indirect Effects Models Examining Primary Caregivers' Marital Adjustment Mediating the Relation Between Individual Coping and Children's Psychosocial Adjustment.....	95
Table 10. Indirect Effects Models Examining Primary Caregivers' Psychopathology Mediating the Relation Between Dyadic Coping and Children's Psychosocial Adjustment.....	96
Table 11. Indirect Effects Models Examining Primary Caregivers' Marital Adjustment Mediating the Relation Between Dyadic Coping and Children's Psychosocial Adjustment.....	97
Table 12. Contemporaneous Indirect Effects Models Examining Primary Caregivers' Psychopathology Mediating the Relation Between Individual Coping and Children's Psychosocial Adjustment.....	98

Table 13. Contemporaneous Indirect Effects Models Examining Primary Caregivers' Marital Adjustment Mediating the Relation Between Individual Coping and Children's Psychosocial Adjustment .....	99
Table 14. Contemporaneous Indirect Effects Models Examining Primary Caregivers' Psychopathology Mediating the Relation Between Dyadic Coping and Children's Psychosocial Adjustment.....	100
Table 15. Contemporaneous Indirect Effects Models Examining Primary Caregivers' Marital Adjustment Mediating the Relation Between Dyadic Coping and Children's Psychosocial Adjustment .....	101

## CHAPTER 1 | Introduction

### **Background**

Each year, over 13,000 children and adolescents are diagnosed with cancer in the United States (Howlader et al., 2013). Advances in the treatment of pediatric cancer over the past few decades have dramatically increased five-year survival rates to over 80% for these children and adolescents. As such, a growing population of survivors and their families has emerged. However, due to the deleterious effects of cancer and its treatment, survivors are at an increased risk for physical and psychological late effects (Patenaude & Kupst, 2000; K. D. Stein, Syrjala, & Andrykowski, 2008). Furthermore, parents and families of children with cancer are at an increased risk for psychosocial maladjustment (M. S. Cohen, 1999).

Numerous studies have examined children's psychosocial adjustment outcomes in pediatric cancer populations and have found mixed results. Particularly around the time of diagnosis, numerous studies have shown that children with cancer are at higher risk for depression, anxiety and posttraumatic stress symptoms (Bruce, 2006; Compas et al., 2014; Myers et al., 2014; Sawyer, Antoniou, Toogood, & Rice, 1997). Survivors also appear to be at higher risk of social difficulties (Katz, Leary, Breiger, & Friedman, 2011; Schultz et al., 2007) and suicidal ideation (Recklitis et al., 2010). Prevalence rates of psychopathology and psychosocial adjustment problems in children with cancer are not consistent in the literature. A recent meta-analysis examining depression symptoms in children with and without chronic illnesses found that, on average, children with chronic physical illnesses have higher depressive symptoms than healthy children,  $d = .19$  (Pinquart & Shen, 2011). However, looking specifically at the 62 studies that examined pediatric cancer populations, children with cancer did not differ significantly from their healthy peers,  $d = .07$ , 95% CI [-0.18, 0.04]. Similarly, some studies have

found no differences between survivors of pediatric cancer and comparison groups with respect to total adjustment problems (Sawyer et al., 1997), posttraumatic stress symptoms (Kazak et al., 1997), and health-related quality of life (Calaminus, Weinspach, Teske, & Göbel, 2007). Given the heterogeneity in these findings, it is important to identify factors that predict which children are at risk for psychosocial adjustment problems.

Social ecological theories of child development posit that parents and families serve as the primary subsystem within which children develop (Bronfenbrenner, 1979). Indeed, parental well-being and family functioning have been identified as being among the strongest predictors of child adjustment to medical illnesses (Kazak, Rourke, & Navsaria, 2009). In the pediatric cancer literature, several studies have found that parents' mental health is consistently associated with children's internalizing symptoms (Robinson, Gerhardt, Vannatta, & Noll, 2007; Trask et al., 2003). Furthermore, overall family functioning predicts children's internalizing and externalizing symptoms (Foley, Barakat, Herman-Liu, Radcliffe, & Molloy, 2000). These associations are consistent with those found in families of typically developing children (Brennan, Hammen, Katz, & Le Brocque, 2002; Goodman et al., 2011; Langrock, Compas, Keller, Merchant, & Copeland, 2002), and a recent study found that the relation between parent and child distress may be even stronger in the context of pediatric cancer (Okado, Long, & Phipps, 2014). Although well-established in the broader developmental literature (Cummings, Davis, & Simpson, 1994; Katz & Gottman, 1993; Zimet & Jacob, 2002), the link between marital conflict, distress, and dissatisfaction and children's psychosocial adjustment has been largely neglected in the pediatric cancer literature.

Parental coping, or the way in which parents respond to a stressor, is one factor that has been associated with both parent and child adjustment (Bennett Murphy, Flowers, McNamara, &

Young-Saleme, 2000; Goldbeck, 2001; Grootenhuis & Last, 1997; Trask et al., 2003). Given that pediatric cancer can be conceptualized as a relatively uncontrollable medical stressor, the control-based model of coping is a particularly appropriate approach to categorizing and examining coping behaviors in this population (Compas, Jaser, Dunn, & Rodriguez, 2012).

While a rapidly growing body of literature has documented the prevalence of psychosocial adjustment problems among children with cancer, the lack of consistency among findings necessitates a shift toward identifying factors that predispose children to these sequelae. The relation between parental and child adjustment in typically developing and medically ill children has been well supported in the literature, but few studies have focused on establishing mechanisms through which parents' responses to the pediatric cancer experience influence children's psychopathology. The current study was designed to examine the indirect effects of parents' individual and dyadic coping on children's psychosocial adjustment through parents' psychopathology and marital adjustment, in families of children with cancer (Figure 1).

We will first review the literature examining children's psychosocial adjustment and parents' psychosocial and marital adjustment as it relates to children's adjustment in the context of pediatric cancer. Then, we will define coping and review known correlates of parents' individual coping efforts. We will then explore differences between parents' coping styles and review what is known about how these differences may contribute to parent's psychosocial adjustment. Finally, we will discuss the how parents' psychopathology and marital adjustment may mediate the relation between parental coping and child adjustment in the context of pediatric cancer.

## **Children's Psychological Adjustment**

A growing body of literature has examined the impact of pediatric cancer on children's psychological adjustment among both children undergoing active treatment and long term survivors of pediatric malignancies. While the majority of these studies have measured children's symptomatology cross-sectionally or retrospectively, several studies have utilized a prospective approach to examine the prevalence and course of children's psychosocial adjustment outcomes.

A report from the Childhood Cancer Survivor Study, the largest epidemiological database of childhood cancer survivors in the United States and Canada, examined behavioral and social functioning more broadly in 2979 adolescent (12- to 17-year-old) survivors of heterogeneous cancer diagnoses as compared to 649 siblings (Schultz et al., 2007). Participants in this study completed the behavior problem index, which is a parent-report measure composed of 32 items taken from the CBCL. Compared to siblings, adolescent survivors reported higher depression/anxiety symptoms (e.g., "is unhappy, sad, or depressed," "is too fearful or anxious"), headstrong behaviors (e.g., "argues too much," "has a very strong temper and loses it easily"), problems with attention (e.g., "has difficulty concentrating, cannot pay attention"), peer conflict/social withdrawal (e.g., "is disobedient at school"), and antisocial behaviors (e.g., "has trouble getting along with other children"). Survivors were at highest risk for depression/anxiety, attention deficit, and antisocial symptoms, with odds ratios ranging from 1.4-1.7 times the likelihood of exhibiting significant symptomatology.

Looking specifically at depression, several cross-sectional studies have found that children in this population have clinically elevated symptoms. Among 50 children on active treatment, Çavuşoğlu (2001) found that 22% had Child Depression Inventory (CDI) scores that

were exceeded the clinical cutoff score of 19 as compared to 0% of healthy peers in the comparison group. Furthermore, mean CDI total scores were significantly higher for children in the cancer group. Another study examining 54 youth survivors of pediatric brain tumors found inconsistencies in rates of depression between multiple questionnaire measures (Barrera, Schulte, & Spiegler, 2007). While children did not differ from population norms on total of depression symptoms as measured by the CDI, on average, depression scores on the both CBCL and YSR were significantly higher than those of a normative population.

In contrast, other studies have found that children in this population are not at higher risk for depression. Robinson et al. (2007) measured depression symptoms among 95 children undergoing active treatment and 98 healthy comparison peers using the CDI and the Roberts Apperception Test for Children. On both measures, there were no significant differences in levels of depression between the cancer and control groups. A report from the Childhood Cancer Survivor Study measured depression symptoms among 5736 adult survivors of childhood leukemia, Hodgkin's disease, and non-Hodgkin's lymphoma and 2565 sibling controls (Zebrack et al., 2002). While prevalence rates of clinically significant self-reported depressive symptoms on the Brief Symptoms Inventory were comparable to prevalence rates in the general population, survivors were 1.6 times as likely to report significant symptoms.

There is also considerable variability in the prevalence rates of posttraumatic stress disorder and, more broadly, posttraumatic stress symptoms (Bruce, 2006). The prevalence rates of children meeting criteria for PTSD in the pediatric cancer population generally range from 4.7% to 21.0% (Butler, Rizzi, & Handwerger, 1996; Hobbie et al., 2000; Kazak, Alderfer, Rourke, et al., 2004). Butler et al. (1996) used the PTSD Symptoms Scale to measure cancer-specific trauma symptoms in 72 children who were currently receiving treatment or who had

completed treatment. Per parent-report, 21.0% of children met full criteria for PTSD, and the incidence of PTSD in this study was not correlated with cancer diagnosis or treatment modality. Similarly, Hobbie et al. (2000) found that 20.1% of young adult survivors who had undergone cancer treatment as children met criteria for PTSD on the SCID at some point since they completed treatment.

On the contrary, several studies have found that rates of PTSD are equivalent to that of the general population. Measured using adolescents' self-report on the UCLA Posttraumatic Stress Disorder Reaction Index (UCLA PTSD-RI), Kazak and colleagues (2004) found that 4.7% of adolescent survivors met criteria for current PTSD, and 8.0% met criteria for a PTSD diagnosis since being diagnosed with cancer. Some have suggested that this is due to the difficulty of applying the diagnostic criteria for PTSD to a medical trauma like pediatric cancer, which is often complex and protracted (Bruce, 2006). Furthermore, with this category of traumatic events, it is difficult to disentangle physiological symptoms from the side effects of medical treatment. As such, many studies examining posttraumatic stress in pediatric cancer have moved toward reporting symptom severity in addition to or in place of PTSD 'caseness' Among survivors of heterogeneous pediatric cancer diagnoses, 17.6% of adolescents endorsed moderate to severe post-traumatic stress symptoms on the UCLA PTSD-RI (Kazak, Alderfer, Rourke, et al., 2004), and 32.1% of young adults reported post-traumatic stress symptoms in the moderate to severe range on the Impact of Events Scale – Revised (Hobbie et al., 2000). Another study utilized a cohort design based on time since cancer diagnosis found that posttraumatic stress symptoms, as measured by self-report on the UCLA PTSD Index for DSM-IV and the Impact of Events Scale-Revised (IES-R), were highest among children who were recently diagnosed and significantly lower in the children 18-30 months post-diagnosis (Phipps, Long,

Hudson, & Rai, 2005). Furthermore, the group of children who were 5 years post-diagnosis had significantly lower posttraumatic stress symptoms than the two more recently diagnosed groups. There is some evidence to suggest that one sub-population, children with brain tumors, may be at an increased risk for posttraumatic stress. A study focusing exclusively on survivors of pediatric brain tumors found that 35% of survivors reported severe posttraumatic stress symptoms on the IES-R (Bruce, Gumley, Isham, Fearon, & Phipps, 2011).

Despite the recent proliferation of studies documenting the prevalence of psychopathology in this population, few studies have tracked children's symptomatology longitudinally. In a study examining 159 children undergoing treatment for standard-risk acute lymphoblastic leukemia across the first year of treatment, Myers et al. (2014) found that although there were no significant differences between mean levels of psychological symptoms and population norms, a higher percentage of children than would be expected in the general population exhibited at-risk or clinical levels of symptoms on the Behavior Assessment System for Children. Specifically, a higher percentage of children scored in this elevated range for depression at 1, 6, and 12 months post-diagnosis. Further, there was a higher percentage of children in the at-risk/clinical range for anxiety symptoms. A similar pattern was observed in a study examining the psychosocial adjustment of 38 2- to 5-year-old children with acute lymphoblastic leukemia (Sawyer, Antoniou, Toogood, and Rice, 1997). Parent reports of children's internalizing, externalizing, and total problems on the Child Behavior Checklist were compared with those 39 healthy peers in the community, at the time of diagnosis, one year post-diagnosis, and two years post-diagnosis. Immediately following diagnosis, parents reported that children with leukemia exhibited significantly greater internalizing symptoms and total problems than their peers in the community. However, there were no significant differences between

groups at subsequent assessment points, suggesting that the period following diagnosis may be a time of heightened distress.

A recent prospective study examined the psychological adjustment of 80 2- to 18-year-old children with low-grade gliomas for five years following photon-based conformal radiation therapy (Willard, Conklin, Wu, & Merchant, 2015). Parents completed the Child Behavior Checklist pre-radiation therapy, and 6, 12, 24, 36, 48, and 60 months post-radiation therapy as part of neuropsychological evaluations. Prior to radiation, parent-reported t-scores on the internalizing symptoms scale did not significantly differ from the normative mean, and the mean externalizing symptoms t-score was significantly lower than that of typically-developing children, suggesting that, prior to initiating radiation therapy, these children were as well-adjusted or better adjusted than population norms. Children's internalizing and externalizing scores were stable over time, as tested using linear mixed modeling. These results suggest that children who receive conformal radiation therapy may be as well adjusted or better adjusted than healthy comparison peers. Furthermore, the majority of children included in this study had previously received surgical or chemotherapy treatments and were, on average, 26.34 months post-diagnosis. Thus, these adjustment findings may be more representative of children who have been actively receiving treatment.

By utilizing prospective, repeated-measures designs, these longitudinal studies allowed the authors to examine changes in or to directly test the trajectory of children's adjustment over time. However, all psychosocial outcome variables were measured using a single, parent-report questionnaire. Use of multiple informants may have strengthened the findings in these prospective studies by reducing effects of single-reporter bias. Further, the use of multiple,

psychosocial domain-specific measures, such as depression or post-traumatic stress symptom questionnaires may allow for more sensitive detection of symptomatology.

### **Parents' Psychological Well-being**

It has been well established that parents of children with cancer experience increased levels of psychological distress, particularly during the first year following diagnosis. A recent meta-analysis indicates that both mothers and fathers report higher levels of distress than comparison groups (Pai et al., 2007). Several studies have examined whether the prevalence of increased parental distress is higher in pediatric cancer samples, and have found this to be the case particularly around the time of diagnosis. Bonner and colleagues compared psychological functioning in parents of children with cancer and found that nearly one third of mothers and half of fathers report clinically elevated levels of distress (Bonner, Hardy, Willard, & Hutchinson, 2007). Similarly, Maurice-Stam and colleagues reported that two thirds of the mothers and over half of the fathers in their study endorsed clinical levels of distress around two months following the end of treatment (Maurice-Stam, Oort, Last, & Grootenhuis, 2008). One year later, the prevalence rates of clinically elevated distress dropped to about one third of all mothers and fathers in their sample. The percentages of mothers and fathers with high overall distress were comparable to normative populations at around two years post-treatment. Other studies that have used general psychological screeners as proxies for overall distress have also found clinical elevations across the first year following diagnosis (Sloper, 2000; Wijnberg-Williams, Kamps, Klip, & Hoekstra-Weebers, 2006a).

In addition to indices of global distress, a large body of literature has examined the prevalence of specific parental psychopathology in the context of childhood cancer. Relative to healthy comparison groups, both mothers and fathers in this population report elevated anxiety

and depression, although mothers tend to report higher symptomatology than fathers do (Barrera et al., 2004; Creswell, Wisk, Litzelman, Allchin, & Witt, 2014; Dahlquist et al., 1993; Norberg, Lindblad, & Boman, 2005; Yeh, 2002). Similarly, numerous studies have reported higher rates of posttraumatic stress symptoms and posttraumatic stress disorder in parents of children with cancer (Bruce, 2006; Kazak, Boeving, Alderfer, Hwang, & Reilly, 2005; Kazak, Alderfer, Rourke, et al., 2004; McCarthy, Ashley, Lee, & Anderson, 2012; Norberg & Boman, 2008), and rates of parental posttraumatic stress symptoms tend to be highest around the time of diagnosis (Phipps et al., 2005).

While the literature documenting parental psychological distress and psychopathology is generally consistent, some studies have found that parents of children with cancer are not at an increased risk of psychological symptomatology. Specifically, several studies of parents of children reported no differences between parents of children with cancer and the general population with respect to posttraumatic stress symptoms (Jurbergs, Long, Ticona, & Phipps, 2009; Phipps et al., 2015). In a recent multi-site study of parents of children undergoing active treatment for cancer, parents of survivors, and parents in a control group, Phipps and colleagues (2015) found that parents of children receiving treatment reported PTSS levels comparable to those in the control group. Further, parents in the off-treatment group reported significantly lower levels of PTSS than parents in the other two groups. Rates of PTSD diagnoses were also equivalent across the three groups of parents. The authors offered few explanations for these discrepant findings, other than potential differences in treatment sites.

The relation between parental psychological distress and child adjustment has been consistently found families of children with cancer. In a cross-sectional study examining 28 adolescents with cancer and their parents, Trask and colleagues found a significant relation

between parent distress and adolescents' self-reported internalizing problems (Trask et al., 2003). However, parent distress and adolescents' externalizing problems were not correlated. A large study comparing 95 families of children with cancer with 98 control families focused specifically on the relation between parent and children's internalizing problems (Robinson et al., 2007). While maternal and paternal self-reported distress ratings significantly reported parent-ratings of children's internalizing problems in both groups, parent distress did not predict self-reported child anxiety and depression. Moreover, the relation between parent and child adjustment was moderated by gender and age, such that younger children and boys were more vulnerable to the impact of paternal distress. A recent study examining distress in parents of children with and without a history of cancer also found that the relation between parent and child symptoms may be strengthened as a function of the experience of childhood cancer (Okado et al., 2014). Collectively, this body of literature suggests that exploring parental psychopathology and, specifically, identifying the predictors of parental psychopathology pediatric cancer populations may help us to better understand variability in child adjustment outcomes in this population.

### **Marital Adjustment**

A large body of literature has also examined the impact of pediatric cancer on marital relationships, and the results are variable. Two population-based studies have found that parental separation and divorce rates in this population does not differ from that of the general population (Grant et al., 2012; Syse, Loge, & Lyngstad, 2010). Using data from the Danish Cancer Registry, Grant and colleagues (2012) examined parental cohabitation rates in a cohort of 2450 families of 0- to 20-year-old children diagnosed with cancer between 1980 and 1997 in Denmark. The rate ratio for changes in cohabitation were not significantly different for families in this cohort as compared to parents of 44,853 age- and gender-matched children that were randomly sampled

from Denmark's Central Population Register. Similarly, a study examining the entire Norwegian population of married couples ( $n = 977,928$  couples) found no differences in divorce rates between parents of children with and without cancer (Syse et al., 2010). To our knowledge, no studies have examined divorce rates among pediatric cancer families in the United States, but numerous studies have examined self-report ratings of parents' marital adjustment.

Some studies have found that marital distress is prevalent among families coping with pediatric cancer. Compared to parents of typically developing children, a higher percentage of parents of children with cancer report marital disharmony as measured by the Arnold Sign Indicator on the MMPI (Lansky, Shirley, Cairns, Hassanein, Wehr, & Lowman, 1978) and marital distress as measured by the Dyadic Adjustment Scale (Dahlquist et al., 1993). In addition, both mothers and fathers report a deterioration in their sexual relationship following their child's diagnosis (Lavee & Mey-Dan, 2003). Some studies suggest that marital relationships may be particularly affected around the time of diagnosis, as parents of children who are newly diagnosed or are currently undergoing treatment report lower marital satisfaction relative to parents with children who have completed treatment (Brown et al., 1992; Yeh, 2002). However, a recent study by Wijnberg-Williams and colleagues (2015) found that mothers' self-reported marital dissatisfaction, measured using the Maudsley Marital Questionnaire, increased significantly from the time of diagnosis to five years post-diagnosis.

The marital adjustment literature is mixed, as other studies have found that marital relationships are not affected (Barbarin, Hughes, & Chesler, 1985; Hoekstra-Weebers, Jaspers, Kamps, & Klip, 1998b; Larson, Wittrock, & Sandgren, 1994) or are improved (Brody & Simmons, 2007) in couples with a child with cancer. Barbarin, Hughes, and Chesler (1985) conducted semi-structured interviews with 32 married couples of children with cancer and found

that 72% of couples reported no marital problems. Although Hoekstra-Weebers et al. (1998b) found that marital distress, as measured using the Maudsley Marital Questionnaire-Satisfaction increased significantly over time, the means levels of marital stress in parents of children with cancer did not significantly differ from those of a community comparison sample. Similarly, parents' of children undergoing active treatment for cancer reported scores comparable to parents in a control group on measures of dyadic satisfaction, cohesion, consensus, and affection expression on the Dyadic Adjustment Scale (Larson et al., 1994). One qualitative study of fathers of children with cancer found that most fathers reported improvements in their relationship with their wives (Brody & Simmons, 2007).

To our knowledge, no studies have examined the link between marital adjustment and child psychosocial outcomes in the context of pediatric cancer. However, the association between marital adjustment and child outcomes has been examined in other populations of medically ill children. In a meta-analysis examining predictors of adjustment to pediatric physical disorders, (e.g., cystic fibrosis, spina bifida, asthma, inflammatory bowel disease), Lavigne and Faier-Routman (1993) found that marital and family adjustment were positively associated with child psychosocial adjustment. Other studies have found that marital satisfaction is negatively associated with internalizing and externalizing behaviors problems in children with epilepsy (Rodenburg, Marie Meijer, Deković, & Aldenkamp, 2006) and spina bifida (Friedman, Holmbeck, Jandasek, Zukerman, & Abad, 2004).

Given that parents' marital adjustment has been identified as a consistent predictor of child outcomes in families of both healthy children and of children with chronic medical illnesses, it is likely that marital adjustment is also associated with child adjustment in the context of pediatric cancer. It has been suggested that various childhood chronic illnesses share

commonalities in treatment, life threat, and medical demands (Stein & Jessop, 1982). However, it is possible that the relation between marital and child adjustment is differentially impacted in the context of cancer treatment, due to the increased potential for physical separation of families for treatment and lengthy hospitalizations. These stressors may lead to both heightened strain on marriages, as well as increased contact between the child with cancer and parents.

Identifying poor marital adjustment as a risk factor for children's symptomatology would inform future treatment approaches, as there is some research to support the effectiveness of intervening at the family level for children in this population (Kazak et al., 2004). It may be particularly effective to intervene at the level of the marriage, since ill children may be particularly sensitive to family cohesion and conflict due to the stressful nature of their health status (Wallander, Varni, Babani, Banis, & Wilcox, 1989). The current study seeks to address this gap in the literature by examining the relation between marital and child adjustment.

### **Parental Coping**

Coping is a central human process that generally refers to individuals' responses to stressful situations (Folkman & Lazarus, 1980). Despite the large body of literature that has examined coping processes, there is little consensus as to how this construct is defined, measured, and classified (Skinner, Edge, Altman, & Sherwood, 2003). Some have defined coping as "cognitive and behavioral efforts to master, reduce, or tolerate the internal and/or external demands that are creating the stressful transaction" (Folkman, 1984, p. 843), or as "a collection of purposeful, volitional efforts that are directed at the regulation of aspects of the self and the environment under stress" (Compas, Jaser, Dunn, & Rodriguez, 2012, p. 458). A large body of literature has examined different classifications of individuals' coping efforts, the two most common of which include coping functions (e.g., problem-focused coping, emotion-

focused coping) and coping actions (e.g., primary control engagement coping, secondary control engagement coping, disengagement coping; Skinner et al., 2003).

The most common distinction drawn in the coping literature is that between problem-focused coping and emotion-focused coping. Originally proposed by Folkman and Lazarus (1980), problem-focused coping typically refers to coping behaviors aimed directly at the stressor, such as problem solving, information seeking, and planning (Folkman & Lazarus, 1980). Conversely, emotion-focused coping refers to coping behaviors aimed at reducing the emotional distress caused by the problem, such as wishful thinking, denial, venting, and self-blame. Social support seeking is inconsistently categorized as problem-focused or emotion-focused strategy, as instrumental support seeking is typically viewed as a problem-focused behavior and emotional support seeking is viewed as an emotion-focused strategy.

Another categorization used in the coping literature is based on theories of perceived control, and refers to individuals' use of primary control engagement coping, secondary control engagement coping, and disengagement coping (Rothbaum, Weisz, & Snyder, 1982). According to the two-process model of control, individuals act with the goal of either bringing the environment under their control, known as primary control, or with the goal of aligning themselves with the environment, known as secondary control. Thus, primary control coping includes behaviors that are intended to modify or influence stressful situations, such as problem solving, emotional expression, and emotion regulation, and secondary control coping refers to behaviors aimed at adjusting the self to accommodate the situation, such as cognitive restructuring, acceptance, and distraction (Band & Weisz, 1988; Connor-Smith, Compas, Wadsworth, Thomsen, & Saltzman, 2000; Morling & Evered, 2006). Both primary control and secondary control are classified as engagement coping strategies because they refer to behaviors

oriented toward the stressor or distress response. Further, while both engagement strategies are considered effective coping strategies, secondary control engagement coping seems to be particularly adaptive when dealing with chronic illnesses and medical procedures (Band & Weisz, 1988; Connor-Smith et al., 2000), which is likely due to the relatively uncontrollable nature of health-related stressors that calls for a more assimilative response (Compas et al., 2012). A third classification of coping behaviors, disengagement coping, refers to strategies that are oriented away from the stressor or an individual's response to a stressor, such as wishful thinking, denial, and avoidance (Connor-Smith et al., 2000). Collectively, these three categories of coping capture individuals' voluntary responses to stressful situations.

### **Correlates of Parents' Individual Coping**

A large body of literature has examined correlates of parents' coping styles in normative and chronically ill populations. Specifically, parental coping has been found to be associated with parents' overall psychological distress and mental health, marital adjustment, and children's psychosocial adjustment. Each of these areas will be reviewed.

**Parents' psychological well-being.** The majority of the literature examining parental coping has focused on the relation between individual coping efforts and parents' psychological well-being, which includes their overall level of psychological distress and specific mental health outcomes. Across studies of parents with typically developing and medically ill children, emotion-focused coping consistently predicts poor adjustment (Barrera et al., 2004; Bennett Murphy et al., 2000; Norberg et al., 2005). Conversely, problem-focused coping tends to be associated with better adjustment, although this relation is less consistent. Particularly in the context of illness, emotion-focused coping is conceptualized as a maladaptive coping strategy because it involves avoidant strategies that preclude individuals from actively dealing with the

realities of their situation and ruminative behaviors that reduce positive affect (Felton & Revenson, 1984). Furthermore, the use of emotion-focused behaviors may suggest a learned helplessness reaction to the distressing situation (Folkman, 1984) or a lack of acceptance that a problem exists (Bombardier, D'Amico, & Jordan, 1990). In contrast, the use of problem-focused coping is thought to be adaptive, particularly in situations that are more controllable, because it involves actively engaging with or solving the problem (Osowiecki & Compas, 1998).

A growing body of literature has examined the psychosocial correlates of parents' use of primary control engagement, secondary control engagement, and disengagement coping in the context of pediatric illness. A recent cross-sectional study of children who were newly diagnosed with cancer showed that, in both mothers and fathers, the use of primary control and secondary control engagement coping strategies were negatively correlated with depression symptoms on the BDI-II, and the use of disengagement coping was positively correlated with depression (Compas et al., 2015). Similarly, in a study of adolescents with cancer, parents' use of disengagement coping was found to be significantly correlated with parents' overall level of psychological distress (Trask et al., 2003). A similar pattern of results was found in a study of mothers of adolescents with type 1 diabetes. Mothers' use of primary and secondary control strategies was negatively correlated with depression scores on the CES-D and anxiety, which was measured using the STAI (Jaser, Linsky, & Grey, 2014). Again, disengagement coping was positively correlated with both maternal depression and anxiety. Interestingly, correlational findings from a pediatric cancer study examining parenting coping as a predictor of parents' posttraumatic stress symptoms suggested that both passive and active coping strategies were associated with parental PTSS (Stoppelbein, Greening, & Wells, 2013).

Correlates of the three dimensions of control coping have also been examined in medically-ill adults. In a sample of women with breast cancer, the use of primary control and secondary control engagement coping was negatively correlated with self-reported depression symptoms, avoidance, and intrusive thought, while disengagement coping was positively correlated with these symptoms (Compas et al., 2006). Similarly, the use of both primary and secondary control strategies was negatively correlated with depression symptoms in a sample of HIV-positive men (Thompson, Nanni, & Levine, 1994), and disengagement coping was correlated with higher depression and anxiety and lower self-esteem in men and women with HIV/AIDS (Varni, Miller, McCuin, & Solomon, 2012).

Although this has not been examined in adults, several studies examining children's use of coping strategies have found that secondary control coping may be particularly adaptive when dealing with chronic illnesses and medical procedures (Rudolph, Dennig, & Weisz, 1995). In a study of 6- to -12-year-old children, Band and Weisz (1988) found that secondary control coping strategies were used most frequently in the context of uncontrollable medical situations. Among children being undergoing treatment for leukemia, the use of secondary control coping strategies, but not primary control strategies was associated with general behavioral adjustment and illness-specific adjustment (Weisz, McCabe, & Dennig, 1994). It has been argued that this matching between stressor and coping style is likely due to the relatively uncontrollable nature of health-related stressors, which calls for a more assimilative response (Compas et al., 2012).

Consistent across the studies reviewed, both primary control and secondary control engagement strategies are associated with positive psychosocial adjustment, and disengagement coping is associated with poorer adjustment. However, it is important to note that the reviewed studies have all examined the relation between coping and adjustment cross-sectionally, and it is

unclear whether this relation is supported longitudinally. The current study seeks to address this gap in the literature by testing whether parental coping predicts parental psychopathology using a repeated measures design.

**Marital adjustment.** Few studies have examined the association between individual coping and ratings of marital adjustment in parents of children with cancer. Hoekstra-Weebers and colleagues found that fathers' use of emotion-focused coping was negatively associated with marital satisfaction when measured both concurrently and longitudinally, but this relation does not hold for mothers (Hoekstra-Weebers et al., 1998b). However, fathers' self-reported problem-focused and emotion-focused coping significantly predicted mothers' marital satisfaction. In contrast, others have found no relation between parents' individual problem- and emotion-focused coping efforts and their marital functioning (Barbarin et al., 1985). One study focusing exclusively on problem-focused coping also found no relation between parents' individual coping efforts and marital distress, but found that the sum of parents' individual coping efforts significantly predicts higher marital distress at the time of diagnosis for both mother and fathers (Dahlquist et al., 1993). This study did not examine the relations between parents' marital distress and their spouses' coping.

To our knowledge, no studies have examined the association between marital adjustment and parents' use of primary control engagement, secondary control engagement, and disengagement coping. Given the applicability of the control model of coping to pediatric cancer as a relatively uncontrollable medical stressor, it is important to understand how these domains of coping are related to marital adjustment in this context. It may be that the use of certain control-based coping strategies are particularly suited for stressors that are unique to parenting a medically ill child, such as tolerating uncertainty related to their child's treatment or accepting

that their family may need to temporarily relocate their home to seek quality care. Therefore, understanding patterns of effective coping strategy use may help to explain variability in the current marital adjustment literature by identifying the approaches to cancer-related stress that place parents at the highest risk of marital difficulties.

**Child adjustment.** In addition to examining the relation between parents' coping behaviors and their own adjustment, several studies in the pediatric cancer literature have explored the direct link between parents' coping and children's psychosocial adjustment. Mothers' use of emotion-focused coping has been positively associated with children's internalizing and externalizing problems, while problem-focused coping predicts fewer adjustment problems (Bennett Murphy et al., 2000). Further, parents' use of cognitive restructuring negatively predicts adolescents' internalizing and externalizing symptoms in the context of pediatric cancer (Trask et al., 2003). Among children with cystic fibrosis, parents' use of maladaptive coping strategies, including behavioral disengagement, venting, and self-blame, has also been associated with increased child depression and anxiety (Wong & Heriot, 2008).

To our knowledge, no studies have examined the association between parents' use of primary control engagement, secondary control engagement, and disengagement coping strategies and child adjustment. As with associations between control coping and parents' psychological and marital adjustment, it is important to understand the unique role that control-based coping strategies play in the context of pediatric cancer. Understanding the relation between parental coping and child outcomes may be particularly powerful, as there is some evidence to suggest that parents' modeling of coping strategies may play a critical role in the socialization of children's own coping skills (Kliewer, Fearnow, & Miller, 1996).

## **Dyadic Coping**

In the face of a child's cancer diagnosis, mothers and fathers must cope with a variety of emotional, financial, and logistical stressors, both individually and as a couple. A recent review of parent's adjustment to pediatric cancer revealed that there are significant gender differences in parents' coping styles (Clarke, McCarthy, Downie, Ashley, & Anderson, 2009). Consistent with patterns found in parents of healthy children (Clarke et al, 2009), mothers of children with cancer tend to endorse more coping behaviors than fathers (Goldbeck, 2001; for exceptions, see Eiser, Haverman & Eiser, 1995; Patistea, 2005). Qualitative studies have highlighted gender differences between mothers' and fathers' willingness to discuss emotions (Chesler & Parry, 2001; Clarke, 2006), and both mothers and fathers report that the differences between their own and their partner's coping strategies put a strain on their marital relationship (Fletcher & Clarke, 2003; Patterson, Holm, & Gurney, 2004).

Several studies have examined gender differences in parents' use of specific coping strategies. Among studies that categorize coping in terms of emotion-focused and problem-focused strategies, gender differences tend to be more strategy-specific. In a study examining predictors of parental coping efforts, Gage-Bouchard, Devine, and Heckler (2013) found that mothers were more likely than fathers to use some emotion-focused strategies, such as religious coping and emotional support, and less likely to use planning, which is a problem-focused strategy. However, mothers were also more likely than fathers to use active coping and instrumental support, which are both types of problem-focused coping. Similarly, Barbarin, Hughes & Chesler (1985) found that mothers use more information-seeking and religious coping, while fathers use more denial. Several studies have also examined gender differences in control-based coping strategies. One study that focused exclusively on secondary control strategies found that mothers

endorsed more illusory control and interpretive control than fathers, which are two forms of secondary control coping (Grootenhuis, Last, De Graaf-Nijerk, & Van Der Wel, 1996). More globally, mothers tend to use more engagement coping strategies than fathers, and do not differ in their usage of disengagement strategies (Larson et al., 1994). To our knowledge, only one study has examined gender differences in coping in parents of children with cancer (Compas et al., 2015). In a study of 317 mothers and 166 fathers, Compas and colleagues (2015) found that mothers of children recently diagnosed with cancer reported using more primary control engagement coping strategies and fewer disengagement strategies than fathers. There was not a statistically significant difference between mothers and fathers in their use of secondary control engagement coping.

The observed gender differences in parental coping tendencies are similar to the demand/withdraw pattern that has been studied extensively in the marital literature (Bradbury, Fincham, & Beach, 2000). According to this pattern of interaction, couples in which one partner (typically the woman) demands conflict resolution while the other partner (typically the man) withdraws tend to report increased marital conflict and decreased marital satisfaction (Christensen & Heavey, 1990). Given the presence of similar gender differences in coping, it is not surprising that a growing body of research has examined the interplay of couples' coping styles. The measurement and analysis of how couples cope together is often referred to as dyadic coping (Bodenmann, 2005). To quantify dyadic coping differences, researchers have used a comparative approach to studying couples' coping, which emphasizes the discrepancy or congruency between partners' individual coping strategies or overall styles. To measure dyadic coping using the comparative approach, difference scores, averages, or correlations of coping styles within couples are typically used to quantify levels of congruence. Other studies have used

the sum of individual coping scores to quantify total dyadic coping efforts or cluster analyses to identify patterns of dyadic coping. Consistent across all of these methods of analysis is the statistical comparison or integration of individual partners' coping efforts within couples.

### **Correlates of Parents' Dyadic Coping**

Previous studies have examined associations between parents' dyadic coping and parents' psychological well-being and their marital adjustment. Relations between various quantifications of dyadic discrepancies in coping and parents' adjustment in each of these areas will be reviewed.

**Parents' psychological well-being.** Dyadic discrepancies in coping have been associated with poor psychosocial adjustment for parents. For coping efforts that would typically be categorized as problem-focused strategies, such as problem solving and cognitive restructuring, discrepancies between partners is associated with overall psychological distress (Hoekstra-Weebers, Jaspers, Kamps, & Klip, 1998a). While one study found that discrepancies between parents' emotion-focused coping strategies, such as social support seeking and religious coping, are associated with increases in parents' quality of life over time (Goldbeck, 2001), another found that greater discrepancies in social support and emotional disclosure predict increased parental distress (Hoekstra-Weebers et al., 1998).

**Marital adjustment.** Several studies have found that different patterns of discrepancy and congruence in parental coping predict marital adjustment. One study categorized couples into four groups based on symmetrical (both high or both low) or complementary (wife high and husband low, or wife low and husband high) use of emotion-focused and problem-focused coping (Barbarin et al., 1985). Categorized in this way, couples that were in either symmetrical group for emotion-focused coping reported higher spousal support than the couples in either

complementary group. Conversely, couples that were in either complementary group for problem-focused coping reported higher marital satisfaction than the couples in either symmetrical group. Hoekstra-Weebers and colleagues found a similar pattern, such that the discrepancy in emotion-focused coping, but not in problem-focused coping, predicts greater marital distress longitudinally for both mothers and fathers (Hoekstra-Weebers et al., 1998b). These findings suggest that symmetry in emotion-focused coping and discrepancy in problem-focused coping behaviors predict higher marital adjustment.

Other studies have measured couples' combined coping styles by calculating a sum of individual coping efforts. In a series of studies examining parent dyads of children with cancer, Dahlquist and colleagues (1993) found no relation between the discrepancy between couples' approach-coping styles and marital distress. Because the discrepancy was not predictive of marital distress at the first assessment, the longitudinal association was not tested. However, the sum of their approach-coping efforts was associated with marital distress cross-sectionally around the time of diagnosis (Dahlquist et al., 1993). This relation did not hold longitudinally when parent dyads were assessed 18 months later (Dahlquist, Czyzewski, & Jones, 1996).

Among studies of both psychological and marital adjustment, there is considerable variability in the specific classifications of coping discrepancies that predict parents' adjustment outcomes. Further, as with other aspects of the parental coping literature, no studies have examined correlates of the association between discrepancies in couples' use of primary control engagement, secondary control engagement, or disengagement coping and parents' psychological well-being. Examining discrepancies in these domains of coping will help us to understand whether differences in parents' tendencies to approach, accept, or avoid stressors contributes to their psychological distress.

## The Current Study

Pediatric cancer is a highly stressful experience that places tremendous strain on children with cancer and their families. Although many survivors are well adjusted following the end of treatment, there is a significant subset of children that experience psychosocial adjustment difficulties. Similar to the literature examining child outcomes, there is significant variability in the parents' psychosocial adjustment, with respect to both psychopathology and marital adjustment. To date, there is limited research examining longitudinal predictors of children's psychosocial adjustment outcomes. Previous cross-sectional research has identified parents' individual coping style as a correlate of their own and of their children's adjustment, and there is some evidence to suggest that parents' dyadic coping is also associated with parents' adjustment. Furthermore, parents' psychological and marital adjustment have been identified as among the strongest predictors of children's adjustment. While relations between parental coping and adjustment, and between parental adjustment and child adjustment have been examined separately, no studies to date have examined this pathway in a comprehensive model (Figure 1). Thus, the current study tested longitudinal indirect effects models of parental coping on children's psychosocial adjustment through parents' psychopathology and marital adjustment, thereby examining parents' own psychosocial adjustment as a mechanism through which their responses to stress affect children's adjustment.

**Aim 1.** The first aim of the current study was to examine the relations among caregivers' individual coping styles, caregivers' psychopathology, and children's psychosocial adjustment. Previous research in medically ill and healthy adults supports a positive relation between engagement coping strategies and positive adult and child adjustment outcomes. Conversely, these studies suggest a negative relation between disengagement coping and adjustment

outcomes. Furthermore, there is a well-established link between caregivers' and children's mental health. Thus, Aim 1 examined whether primary caregivers' individual coping styles predicted their own psychopathology, and in turn, whether caregivers' adjustment predicted children's adjustment outcomes (Figure 1).

**Hypothesis 1a.** Our first hypothesis was that there would be an indirect effect of primary caregivers' use of primary control engagement coping around the time of diagnosis (Time 1) on children's psychosocial adjustment 12 months post-diagnosis (Time 12) through caregiver's own psychopathology six months post-diagnosis (Time 6). Specifically, we predicted that higher use of primary control engagement coping at Time 1 would predict lower caregiver psychopathology at Time 6, and, in turn, lower caregiver psychopathology at Time 6 would predict better child adjustment outcomes at Time 12.

**Hypothesis 1b.** Second, we hypothesized that there would be an indirect effect of primary caregivers' use of secondary control engagement coping at Time 1 on children's psychosocial adjustment at Time 12 through caregiver's own psychopathology at Time 6. We predicted that higher use of secondary control engagement coping at Time 1 would predict lower caregiver psychopathology at Time 6, and lower caregiver psychopathology would predict better child adjustment outcomes at Time 12.

**Hypothesis 1c.** Finally, we hypothesized that there would be an indirect effect of primary caregivers' use of disengagement coping at Time 1 on children's psychosocial adjustment at Time 12 through caregiver's own psychopathology at Time 6. We hypothesized that higher use of disengagement coping at Time 1 would predict higher caregiver psychopathology at Time 6, and, in turn, higher caregiver psychopathology would predict poorer child adjustment outcomes at Time 12.

**Aim 2.** The second aim of the study was to examine relations among caregivers' individual coping styles, caregivers' dyadic adjustment, and children's psychosocial adjustment. Previous research has demonstrated significant relations between individual coping and dyadic adjustment, and between dyadic adjustment and children's psychosocial adjustment. Thus, this aim examined whether primary caregivers' individual coping styles predicted their own ratings of dyadic adjustment, and in turn, whether dyadic adjustment predicted children's adjustment outcomes (See Figure 2).

**Hypothesis 2a.** We hypothesized that there would be an indirect effect of primary caregivers' use of primary control engagement coping around the time of diagnosis (Time 1) on children's psychosocial adjustment 12 months post-diagnosis (Time 12) through caregivers' overall dyadic adjustment six months post-diagnosis (Time 6). We predicted that higher use of primary control engagement coping would predict better dyadic adjustment, and in turn, better dyadic adjustment would predict better child adjustment outcomes.

**Hypothesis 2b.** Next we hypothesized that there would be an indirect effect of primary caregivers' use of secondary control engagement coping at Time 1 on children's psychosocial adjustment at Time 12 through caregivers' dyadic adjustment at Time 6. We expected that higher use of secondary control engagement coping would predict higher marital adjustment, and higher marital adjustment would predict better child adjustment outcomes.

**Hypothesis 2c.** Finally, we hypothesized that there would be an indirect effect of primary caregivers' use of disengagement coping on children's psychosocial adjustment at Time 12 through caregivers' dyadic adjustment at Time 6. We expected that greater use of disengagement coping would predict lower dyadic adjustment, which would in turn predict poorer child adjustment.

**Aim 3.** The third aim of the proposed study was to examine the discrepancy between primary and secondary caregivers' individual coping styles as an alternative predictor of children's adjustment 12 months post-diagnosis. Specifically, this aim tested the indirect effect of a discrepancy between caregivers' use of primary control and secondary control engagement coping strategies as predictors of primary caregivers' psychopathology, and their psychopathology as a predictor of children adjustment. The discrepancy between caregivers' use of disengagement coping was not tested because the use of disengagement strategies by either caregiver has been associated with negative adjustment outcomes (See Figure 3).

**Hypothesis 3a.** First, we hypothesized that there would be an indirect effect of the discrepancy between caregivers' use of primary control engagement coping at Time 1 on child adjustment at Time 12 through primary caregivers' psychopathology at Time 6, such that a larger discrepancy between caregivers would predict higher caregiver psychopathology, and higher psychopathology would predict poorer child adjustment.

**Hypothesis 3b.** Second, we predicted that there would be an indirect effect of the discrepancy between caregivers' use of secondary control engagement coping at Time 1 on child adjustment at Time 12 through primary caregivers' psychopathology at Time 6, such that a larger discrepancy between caregivers would predict higher caregiver psychopathology, and higher psychopathology will predict poorer child adjustment.

**Aim 4.** The final aim was to examine dyadic adjustment as a mediator of the relation between the discrepancy between caregivers' coping and child adjustment. Again, only discrepancies between caregivers in their use of primary control and secondary control engagement coping were tested as independent variables (See Figure 4).

**Hypothesis 4a.** We hypothesized an indirect effect of a discrepancy in the use of primary control engagement coping on child adjustment through primary caregiver-rated dyadic adjustment. Specifically, we expected that a high discrepancy in coping at Time 1 would predict lower dyadic adjustment at Time 6, and lower dyadic adjustment would predict poorer child adjustment at Time 12.

**Hypothesis 4b.** Similarly, we expect that there would be an indirect effect of a discrepancy in the use of secondary control engagement coping on child adjustment through primary caregiver-rated dyadic adjustment. We predict that a larger discrepancy at Time 1 will predict lower dyadic adjustment at Time 6, which will in turn predict poorer child adjustment at Time 12.

## CHAPTER 2 | Methods

### **Overview**

The current study is part of a larger prospective study examining predictors of psychosocial adjustment in children and adolescents who are newly diagnosed with cancer or a central nervous system (CNS) tumor and their families. The primary caregivers of these children participate in a family interaction around the time of diagnosis, two semi-structured interviews, and completed monthly questionnaire packets for a year. In addition, children's secondary caregivers, when available, participate in the family interaction, the two interviews, and complete questionnaire packets at the one-, six-, and twelve-month marks. The proposed study will focus exclusively on a subset of the questionnaires that were completed by both caregivers at diagnosis (Time 1), six months following diagnosis (Time 6), and at 12 months post-diagnosis (Time 12).

### **Participants**

Children and adolescents were recruited from cancer registries at Seattle Children's Hospital (SCH) in Seattle, Washington and at Vanderbilt Children's Hospital (VCH) in Nashville, Tennessee. All participants were between 2 and 18 years old at the time of diagnosis, and were newly diagnosed with any form of cancer or CNS tumor (i.e., relapses are excluded). In addition, children were excluded if they were diagnosed with a pervasive developmental disorder, intellectual disability, or any previous physical disability that is unrelated to their current cancer or tumor diagnosis. Children's primary and secondary caregivers, defined as the two adults who were most involved with their daily care, were required to be the same individuals who served as primary and secondary caregivers for the child prior to diagnosis, and must have been involved in the child's life for at least two years. Furthermore, caregivers were required to be literate in English in order to complete the questionnaire packets. Research

assistants at the two medical centers screened potential participants prior to their invitation to ensure that the children and their caregivers met the necessary criteria prior to being approached.

A total of 176 families were enrolled across both sites. 116 families were enrolled in Seattle, WA, and 60 families were enrolled in Nashville, TN. Of these families, 130 primary caregivers ( $M = 36.19$  years,  $SD = 8.16$  years) and 114 secondary caregivers ( $M = 37.57$  years,  $SD = 8.61$  years) reporting on 130 children ( $M = 6.33$  years old,  $SD = 3.69$  years, 51.1% female) completed at least one questionnaire packet during the three time points, and were therefore included in the current study.

The majority of children were diagnosed with leukemia (35.6%), followed by a CNS tumor (24.4%), lymphoma (11.9%), sarcoma (10.4%), Wilm's tumor (8.1%), neuroblastoma (4.4%), and other (5.2%). Most children identified as White/Caucasian (84.5%), 4.7% identified as Black/African American, 1.6% as Asian American, 0.8% as American Indian, and 8.6% identified as more than one race. Furthermore, 15.5% identified as being of Hispanic origin.

The majority of primary caregivers were mothers (89.6%), followed by fathers (10.8%), and grandmothers (2.3%). With respect to the education level, 3.2% of primary caregivers reported no high school diploma, 27.0% reported earning a high school diploma, 56.3% reported some college education, and 13.5% reported some graduate or professional school. The majority of primary caregivers identified as White/Caucasian (89.0%), with the remainder identifying as Black/African American (4.1%), Asian American (1.6%), Native Hawaiian/Pacific Islander (0.8%), and 2.6% identifying as multiethnic. Furthermore, 9.4% of primary caregivers identified as being of Hispanic origin.

Secondary caregivers consisted primarily of fathers (78.9%), mothers (7.9%), step-parents (7.0%), grandparents (4.4%), and other family members (1.8%). Among secondary

caregivers, 5.3% reported no high school diploma, 30.7% reported earning a high school diploma, 45.6% reported some college education, and 18.4% reported some graduate or professional school. The majority identified as White/Caucasian (86.6%), with the remainder identifying as 6.1% identifying as Black/African American, 0.9% identifying as Asian American, and 5.3% identifying as multiethnic. Further, 12.6% of secondary caregivers identified as being of Hispanic origin.

Families in the current study were diverse with respect to SES. Of the 130 families, 1.7% reported an annual family income less than \$10,000, 13.0% reported \$10,000 – \$19,000, 8.7% reported \$20,000 – \$29,000, 9.6% reported \$30,000 – \$39,000, 7.8% reported \$40,000 – \$49,000, 5.2% reported \$50,000 – \$59,000, 7.8% reported \$60,000 – \$69,000, 5.2% reported \$70,000 – \$79,000, 7.8% reported \$80,000 – \$89,000, 7.0% reported \$90,000 – \$99,000, 19.1% reported \$100,00 – \$149,000, 4.3% reported \$150,000 – \$199,000, and 2.6% reported earning greater than \$200,000 per year. The median total family income ranged from \$60,000 – \$69,000 per year. While all caregivers included in the current study were romantically involved, 76.7% of caregivers were married.

Of the full sample, 75 families (57.70%) completed questionnaire data at all three time points and were therefore included in our regression-based indirect effects models. This subset of families did not differ from the full sample on child age ( $t = -1.13, p = 0.32$ ), primary caregivers' age ( $t = 0.59, p = 0.56$ ), secondary caregivers' age ( $t = 1.14, p = 0.26$ ), marital status ( $t = -0.44, p = 0.66$ ), total family income ( $t = 1.10, p = 0.27$ ), primary caregivers' education ( $t = 0.41, p = 0.69$ ), or secondary caregivers' education ( $t = 1.14, p = 0.26$ ).

## Procedures

Primary and secondary caregivers were mailed monthly questionnaire assessments during the first year following their child's diagnosis. Both caregivers completed self-report questionnaires about their own coping behaviors, mental health symptoms, ratings of marital adjustment, and parent-report measures of their child's psychosocial adjustment around the time of diagnosis (Time 1), six-months post-diagnosis (Time 6), and 12 months post-diagnosis (Time 12). Caregivers were given a two-week period to complete the questionnaire packets at each time point, and they were compensated when completed packets were returned. The study was approved by the institutional review board at each participating hospital. Informed consent was obtained from primary and secondary caregivers, and assent was obtained from child participants.

## Measures

**Demographics.** Primary caregivers completed a demographics questionnaire that assesses background information about each caregiver, including age, gender, level of education, and race/ethnicity. In addition, primary caregivers reported family-level information, including marital status and family income.

**Caregiver coping.** Both primary and secondary caregivers completed the Parent Self-Report Response to Stress Questionnaire, In-Treatment version at Time 1, Time 6, and Time 12 to measure their use of coping strategies in response to their children's cancer diagnosis and treatment (RSQ: Connor-Smith, Compas, Wadsworth, Thomsen, & Saltzman, 2000). The RSQ is a 57-item measure that uses a four-point Likert scale to measure parents' voluntary and involuntary responses to stress. Given the conceptualization of coping as a voluntary action, only the three voluntary domains of caregivers' responses (e.g., primary control engagement coping,

secondary control engagement coping, and disengagement coping) will be used in our analyses. Items on the RSQ specifically measure parents' own responses to cancer-related stressors.

Caregivers' individual coping was measured using prorated factor ratio scores measuring caregivers' individual use of primary control engagement coping (PCEC), secondary control engagement coping (SCEC), and disengagement coping (DC). Specific coping strategies load on to each of the three factors. Primary Control Engagement Coping includes the Problem Solving, Emotional Regulation, and Emotional Expression scales; Secondary Engagement Coping includes the Acceptance, Distraction, Cognitive Restructuring, and Positive Thinking Scales; and Disengagement Coping includes Denial, Avoidance, and Wishful Thinking. Prorated scale scores account for missing data by multiplying the mean of valid items by the total possible items for each scale, and prorated factor scores are then computed based on the number of valid scales. Factor ratio scores (i.e., prorated factor score divided by prorated total coping score) will be used in our analyses, rather than the simple prorated factor scores, to control for overall responding biases. The internal reliability for each of the scales was calculated in the current sample and ranged from  $\alpha = .65$  to  $\alpha = .83$ .

Dyadic coping was measured as the discrepancy between primary and secondary caregiver dyads on measures of primary control engagement coping (PCEC-D) and secondary control engagement coping (SCEC-D). Discrepancy scores were calculated based on the recommendations of Kenny and Cook (1999). These scores were derived by calculating the absolute value of the difference between primary and secondary caregivers' individual prorated ratio scores for the two engagement coping factors. Thus, two dyadic discrepancy scores were calculated for each pair of caregivers at each of the three time points. Because the use of disengagement coping by either or both caregivers is associated with negative caregiver and

child outcomes, a discrepancy score in the use of disengagement coping was not calculated or tested in our analyses.

**Dyadic adjustment.** Primary caregivers' dyadic adjustment was measured using the Dyadic Adjustment Scale (DAS; Spanier, 1976) at Time 1, Time 6, and Time 12. The DAS is a 32-item scale that is commonly used to measure the quality of intimate relationships. The literature suggests that this measure is a reliable predictor of marital adjustment in couples with chronically ill children (Walker, Manion, Cloutier, & Johnson, 1992). The DAS yields four scales including consensus, cohesion, adjustment, and affectional expression, as well as an overall dyadic adjustment score. Higher scores on each scale and the total score indicate better marital adjustment. Only the overall dyadic adjustment score, which is calculated as the sum of all 32 items, will be used in the current study. This scale has high internal consistency at all time points ranging from  $\alpha = .94$  to  $\alpha = .97$ .

**Primary caregivers' mental health.**

**Depression.** Primary caregivers' depressive symptoms were measured using the short form of the Center for Epidemiological Studies Depression Scale (CES-D; Andresen et al., 1994) at Time 1, Time 6, and Time 12. The short form of the CES-D is a 10-item scale, and each item is rated on a four-point scale ranging from *Rarely or none of the time (less than 1 day per week)* to *All of the time (5-7 days per week)*. The total score, which is calculated as the sum of all 10 items, will be used in the current study. This scale has high internal consistency at all time points ranging from  $\alpha = .82$  to  $\alpha = .83$ .

**Anxiety.** Primary caregivers' anxiety symptoms were measured using the Penn State Worry Questionnaire (PSWQ; Meyer et al., 1990) at Time 1, Time 6, and Time 12. This 16-item scale measures adults' overall level of anxiety. Each item is rated on a 5-point scale ranging from

*Not at all typical of me* to *Very typical of me*. The total score, which is calculated as a sum of the 16 items, will be used in the current study. This scale has high internal consistency at all time points ranging from  $\alpha = .93$  to  $\alpha = .95$ .

***Posttraumatic stress.*** Primary caregivers' posttraumatic stress symptoms were measured using the Impact of Events Scale—Revised (IES-R; Weiss and Marmar, 1997) at Time 1, Time 6, and Time 12. The IES-R is a 22-item measure, with each item rated on a 5-point scale ranging from *Not at all* to *Extremely* distressing. The total score, which is calculated as the sum of all 22 items, will be used in the current study. This scale has high internal consistency at all time points ranging from  $\alpha = .80$  to  $\alpha = .86$ .

***Mental health POMP scores*** Primary caregivers' mental health was measured using a mean percentage of maximum possible (POMP) scores. (Cohen, Cohen, Aiken, & West, 1999). POMP scores represent the percent of total possible points in a given scores, calculated as follows:

$$\text{POMP} = [(\text{observed} - \text{minimum}) / (\text{maximum} - \text{minimum})] \times 100,$$

where observed = the observed score for a single case,

minimum = the minimum possible score on the scale, and

maximum = the maximum possible score on the scale.

POMP scores allow for meaningful aggregation of scores originally measured on different metrics. Further, they are neither population nor time-point dependent. Primary caregivers' scores on the CES-D, PSWQ, and IESR were first converted into POMP scores at each time point. The mean of these scores was then calculated to represent Primary Caregivers' mental health at each time point, with higher scores representing higher symptomatology.

**Child adjustment.**

***Overall psychosocial adjustment.*** Children's psychosocial adjustment was measured using the Child Behavior Checklist (CBCL: Achenbach & Edelbrock, 1983) at Time 1, Time 6, and Time 12. The CBCL is a widely used measure with well-established reliability and validity. Primary caregivers of children who are 2 to 5 years old completed the 100-item preschool form, and primary caregivers of children who are 6 to 18 years old completed the 113-item school-age form. Each item was rated on a three-point scale ranging from *not true* to *often true*. Because there is evidence to suggest that the Somatic Complaints subscale should be used with caution in samples of medically-ill children, this subscale will not be used in the current study. In addition, the Total Problems and Total Internalizing Symptoms scales will not be used, as they both include the Somatic Complaints scale. Children's internalizing symptoms, measured using the Anxious/Depressed scale t-score, and the Total Externalizing Symptoms scale t-score were used in the current study.

***Posttraumatic stress symptoms.*** Children's posttraumatic stress symptoms were measured using the UCLA Posttraumatic Stress Disorder Reaction Index (UCLA-PTSD RI; Pynoos et al., 1998) at Time 1, Time 6, and Time 12. This measure is a 21-item caregiver-report measure that rates both posttraumatic stress symptom severity and provides PTSD diagnostic information. Caregivers rated each symptom's frequency on a 5-point scale ranging from *None* to *Most*. The Overall Symptom Severity score, which is calculated a sum of the 21 items, will be used in the current study. This scale has high internal consistency ( $\alpha = .92$ ).

## CHAPTER 3 | Results

### Overview of Data Analyses

Descriptive statistics and bivariate correlations between key study variables were calculated. Aims 1-4 were first tested using linear regression models that tested whether caregivers' adjustment at Time 6 mediated the relation between caregivers' coping at Time 1 and child adjustment at Time 12. For Aims 1 and 2, three individual coping variables at Time 1, which included primary control engagement coping (PCEC), secondary control engagement coping (SCEC), and disengagement coping (DC), were tested as independent variables. There were also three child adjustment dependent variables, including children's internalizing symptoms, externalizing symptoms, and posttraumatic stress symptoms. Primary caregivers' psychopathology was tested as the single mediator for models under Aim 1, and primary caregivers' rating of overall marital adjustment was tested as the single mediator for models under Aim 2. Thus, there were a total of nine regression-based indirect effects models tested under Aim 1 (see Table 1a) and nine indirect effects models tested under Aim 2 (see Table 1b). Aims 3 and 4 examined two dyadic coping variables, including the discrepancy between caregivers' use of primary control engagement coping (PCEC-D) and secondary control engagement coping (SCEC-D) as independent variables. As with the previous two aims, there were three child outcomes variables and two different mediators tested under Aims 3 and 4. Thus, there were a total of six regression-based indirect effects models tested under Aim 3 (see Table 1c), and six indirect effects models tested under Aim 4 (see Table 1d). These regression-based indirect effects models tested whether the total variability in caregivers' adjustment

mediated the relation between total variability in caregivers' coping and total variability in children's adjustment.

Finally, exploratory contemporaneous indirect effects models at time 1 were conducted to test whether caregivers' psychopathology and marital adjustment mediated the relation between caregivers' coping and children's internalizing, externalizing, and posttraumatic stress symptoms. Time 1 was selected for these analyses to maximize the sample size.

### **Preliminary Analyses**

Table 2 displays the means, standard deviations, skew, and kurtosis statistics for all study variables by time point. Bivariate correlations between key study variables were also calculated.

**Individual coping and caregiver adjustment.** Bivariate correlations between primary caregivers' individual coping and caregivers' adjustment (psychopathology and marital adjustment) by time point are presented in Table 3. Primary control engagement coping (PCEC) at Time 1 was significantly negatively correlated with primary caregivers' psychopathology at Time 1,  $r = -.24, p < .05$  and Time 12,  $r = -.23, p < .05$ . Similarly, PCEC at Time 6 was negatively correlated with psychopathology at both Time 1,  $r = -.30, p < .001$ , Time 6,  $r = -.43, p < .01$ , and at Time 12,  $r = -.47, p < .01$ . SCEC at Time 12 negatively correlated with Time 12 psychopathology,  $r = -.30, p < .05$ . There was a similar pattern with respect to correlations between PCEC and marital adjustment. PCEC at Time 1 was positively correlated with Time 1 marital adjustment,  $r = .21, p = .03$ , and not significantly correlated with marital adjustment at Time 6 or Time 12. Similarly, use of PCEC at Time 6 was positively correlated with marital adjustment at Time 6,  $r = .31, p = .002$  and at Time 12,  $r = .30, p = .02$ . PCEC at Time 12 was not significantly correlated with Time 12 marital adjustment.

Secondary control engagement coping (SCEC) was consistently negatively associated with psychopathology across all three time points. Time 1 SCEC was significantly correlated with psychopathology at Time 1,  $r = -.60, p < .01$  and Time 6,  $r = -.26, p < .05$ . Similarly, Time 6 SCEC was negatively correlated with psychopathology at Time 6,  $r = -.61, p < .01$ , and Time 12,  $r = -.54, p < .01$ , and Time 12 SCEC was significantly correlated with Time 12 psychopathology,  $r = -.56, p < .01$ . There was a trend toward a positive correlation between SCEC and marital adjustment at Time 1,  $r = .17, p = .06$ , and no significant correlations between Time 1 SCEC and marital adjustment at subsequent time points. Further, there was a significant correlation between SCEC and marital adjustment at Time 6,  $r = .31, p = .03$ , and no other significant correlations between these two variables.

Finally, disengagement coping tended to be correlated with poorer primary caregiver adjustment across all three time points. DC at Time 1 was positively correlated with psychopathology at Time 1,  $r = .38, p < .001$ , and Time 6,  $r = .32, p < .05$ , and there was a trend toward a positive correlation with psychopathology at Time 12,  $r = .22, p < .10$ . Similarly, DC at Time 6 was positively correlated with psychopathology at Time 6,  $r = .42, p < .05$ . Finally, Time 12 DC was positively correlated with Time 12 psychopathology,  $r = .51, p < .01$ . With respect to marital adjustment, DC was negatively correlated with adjustment at Time 1,  $r = .23, p = .01$ , and there was a trend toward a negative correlation between DC at Time 1 and marital adjustment at Time 12,  $r = .22, p = .08$ . While there were no significant correlations between DC at T6 and marital adjustment at subsequent time points, there was a negative correlation between DC and adjustment at Time 12,  $r = .30, p = .02$ .

**Dyadic coping and caregiver adjustment.** Bivariate correlations between caregivers' dyadic coping and caregivers' adjustment are presented in Table 4. There were no significant

correlations between PCEC-D and caregivers' psychopathology or marital adjustment at any time point. The discrepancy in SCEC at Time 1 was negatively correlated with caregiver psychopathology at Time 12,  $r = -.51, p < .01$ .

**Caregiver adjustment and child adjustment.** Bivariate correlations between primary caregivers' psychosocial adjustment and child adjustment (internalizing symptoms, externalizing symptoms, and posttraumatic stress symptoms) are presented in Table 5. Caregivers' psychopathology at Time 1 was significantly positively correlated with children's internalizing symptoms,  $r = .35 - .43$ , externalizing symptom symptoms,  $r = .32 - .36$ , and posttraumatic stress symptoms,  $r = .36 - .40$  at Times 1 and 6. Similarly, Time 6 psychopathology was positively correlated with children's internalizing,  $r = .30 - .52$ , externalizing,  $r = .25 - .54$ , and posttraumatic stress symptoms,  $r = .40 - .55$ , at Times 6 and 12. Finally, psychopathology at Time 12 was correlated with internalizing,  $r = .37$ , externalizing,  $r = .34$ , and posttraumatic stress symptoms at Time 12,  $r = .48$ . Caregivers' marital adjustment at Time 1 was significantly negatively correlated with Time 1 posttraumatic stress symptoms,  $r = -.25$ , Time 6 externalizing,  $r = .33$ , and posttraumatic stress symptoms,  $r = -.27$ , and Time 12 externalizing symptoms,  $r = -.24$ . Time 6 marital adjustment was significantly correlated with Time 6 externalizing symptoms,  $r = .23$ , and Time 12 marital adjustment was negatively correlated with Time 12 externalizing symptoms,  $r = -.27$ , and posttraumatic stress symptoms,  $r = -.27$ .

**Individual coping and child adjustment.** Bivariate correlations between primary caregivers' individual coping and child adjustment variables are presented in Table 6. PCEC at Time 1 was negatively correlated with children's externalizing,  $r = -.19, p = .03$ , and posttraumatic stress symptoms at Time 1,  $r = -.24, p = .006$ , and with externalizing symptoms at Time 6,  $r = -.26, p = .01$ . Similarly, PCEC at Time 6 was negatively correlated with Time 6

internalizing symptoms,  $r = -.23, p = .02$ , externalizing symptoms,  $r = -.33, p = .001$ , and posttraumatic stress symptoms,  $r = -.23, p = .02$ , and with Time 12 externalizing,  $r = -.28, p = .01$ , and posttraumatic stress symptoms,  $r = -.29, p = .01$ .

There were consistent negative relations between caregivers' use of SCEC and children's adjustment outcomes across all three time points. SCEC at Time 1 was negatively associated with children's posttraumatic stress symptoms at Time 1,  $r = .29, p = .001$ , and negatively correlated with children's externalizing,  $r = -.26, p = .01$ , and posttraumatic stress symptoms,  $r = -.23, p = .02$ , at Time 6. Time 6 SCEC was negatively correlated with internalizing,  $r = -.27, p = .03$ , externalizing,  $r = -.31, p = .01$ , and posttraumatic stress symptoms,  $r = -.44, p < .000$  at Time 6, and there was a trend toward a negative correlation with posttraumatic stress symptoms at Time 12,  $r = -.26, p = .07$ .

There was only one significant correlation between primary caregivers' use of DC and children's adjustment. DC at Time 6 was significantly correlated with children's internalizing symptoms,  $r = -.35, p = .02$ . In addition, there was a trend toward a negative relation between DC and externalizing symptoms,  $r = -.26, p = .08$ .

**Dyadic coping and child adjustment.** Bivariate correlations between caregivers' dyadic coping and child adjustment are presented in Table 7. The discrepancy between caregivers' use of PCEC at Time 6 was significantly positively correlated with children's internalizing symptoms at Time 12,  $r = .32, p = .02$ . There were no other significant correlations between discrepancies between caregivers' coping and children's adjustment.

### **Indirect Effects**

As recommended by Preacher and Hayes (2008), the indirect effects of primary caregivers' individual and dyadic coping at Time 1 on children's adjustment at Time 12 through

caregivers' psychopathology and marital adjustment at Time 6 were tested using 95% bias-corrected (BC) bootstrapped confidence intervals. Unlike the Sobel method, which assumes multivariate normality, this bootstrapping approach does not assume that variables are normally distributed. Given the non-normal distribution of key study variables, a bootstrapping approach was selected. Each model controlled for caregivers' adjustment and child adjustment at Time 1. By controlling for initial levels of both the mediator and dependent variable, we can prevent the spurious inflation of pathway estimates and also infer that we are testing whether the predictor and mediator variables are predicting changes from initial levels of both the mediator and outcome variables, respectively (Cole & Maxwell, 2003). Thus, these models estimate the effects of coping at Time 1 on change in child adjustment from Time 1 to Time 12. In addition, given that there are differences in children's psychosocial adjustment outcomes based on age and gender, child age and child gender were included as covariates in each model. For each model, 10,000 samples were generated to estimate unstandardized regression coefficients and standard errors for each pathway, estimates of indirect effects, and confidence intervals for each indirect effect. Confidence intervals that did not contain zero indicated significant indirect effects.

**Aim 1.** To address Aim 1, we tested the indirect effects of primary caregivers' individual coping on child adjustment through their own psychopathology (see Table 8). Consistent with Hypothesis 1a, there were significant indirect effects of caregivers' use of PCEC on change in children's internalizing, externalizing, and posttraumatic stress symptoms from Time 1 to Time 12, mediated by caregivers' psychopathology at Time 6. Specifically, higher Time 1 PCEC predicted lower psychopathology at Time 6,  $b = -124.08 - 135.13$ ,  $SE = 42.74 - 47.74$ , and in turn, lower psychopathology at Time 6 predicted decreases in children's psychosocial adjustment,  $b = 0.25 - 0.34$ ,  $SE = 0.09 - 0.34$ . For the model examining children's internalizing

symptoms as the outcome, the results suggest that, for every 1 SD increase in percentage of total coping that primary caregivers engaged in PCEC, there was a 0.32 SD decrease in children's internalizing symptoms, and for every 1 SD increase in PCEC, there was a 0.18 SD decrease in children's externalizing symptoms. Finally, for every 1 SD increase in PCEC, there was a 0.34 SD decrease in children's posttraumatic symptoms.

Contrary to Hypotheses 1b and 1c, there were no significant indirect effects of SCEC or DC at Time 1 on children's internalizing, externalizing, or posttraumatic symptoms at Time 12 through caregivers' psychopathology at Time 6. There are several possible explanations for the lack of significant indirect effects. First, in each of these models, the *a* path, indicating the relationship between Time 1 coping and Time 6 psychopathology was not significant. Although there were significant zero-order correlations between Time 1 coping and Time 6 psychopathology, there were also significant zero-order correlations between Time 1 and Time 6 psychopathology. Thus, it is possible that controlling for Time 1 of the mediator washed out the effect of coping on psychopathology. Similarly, there was only one significant *b* pathway. There were significant zero-order correlations between Time 6 psychopathology and Time 12 internalizing and posttraumatic symptoms. However, there was also significant stability in child adjustment outcomes from Time 1 to Time 6 ( $r = .38 - .61$ ), suggesting that controlling for Time 1 of the outcome may have washed out effects of Time 6 coping on Time 12 child adjustment.

**Aim 2.** The effects of primary caregivers' individual coping on child adjustment through their ratings of marital adjustment are presented in Table 9. Contrary to what was predicted under Hypotheses 2a, 2b, and 2c, there were no significant indirect effects of caregivers' use of PCEC at Time 1 on children's adjustment at Time 12 through marital adjustment at Time 6. There was one significant *a* pathway between Time 1 SCEC and Time 6 marital adjustment in

the model predicting children's PTSS at Time 12. For every 1 SD increase in percentage of total coping caregivers engaged in SCEC, there was a 0.21 SD increase in marital adjustment at Time 6. The lack of significant indirect effects is likely due to several factors, including the lack of zero-order correlations between Time 1 coping and Time 6 marital adjustment across all domains of coping and the potential wash out of the effect of Time 6 marital adjustment on child adjustment due to controlling for Time 1 child adjustment.

**Aim 3.** The effects of dyadic coping on child adjustment through primary caregivers' psychopathology are presented in Table 10. Contrary to Hypothesis 3a, there were no significant indirect effects of the discrepancy in caregivers' coping at Time 1 on children's adjustment at Time 12 through caregivers' psychopathology at Time 6. There were several significant *a* pathways, indicating significant relation between discrepancies in PCEC and SCEC and caregivers' psychopathology. For every 1 SD increase in the discrepancy between caregivers' use of PCEC, there was a 0.28 SD decrease in caregivers' psychopathology. Similarly, for every 1 SD decrease in SCEC, there was a 0.32 – 0.36 SD decrease in caregivers' psychopathology at Time 6. These relations were in the opposite direction of what was hypothesized. There were no significant *b* pathways, representing relations between Time 6 psychopathology and children's psychosocial adjustment at Time 12. As with previously tested models, despite a significant zero-order correlation between Time 6 psychopathology and Time 12 child adjustment outcomes, controlling for Time 1 child adjustment may have washed out significant effects.

**Aim 4.** To address Aim 4, we tested the indirect effects of dyadic coping on child adjustment through primary caregivers' ratings of marital adjustment (see Table 11). There were no significant indirect effects of the discrepancy in caregivers' coping at Time 1 on children's adjustment at Time 12 through caregivers' marital adjustment at Time 6. There were no

significant *a* pathways, representing the relation between discrepancies in coping and caregivers' marital adjustment. This is likely due to there being no zero-order correlations between the independent variable and mediator. There was a significant *b* pathway between caregivers' marital adjustment at Time 6 and children's adjustment at Time 12 in both model with PCEC-D and SCEC-D as the independent variable. For every 1 SD increase in marital adjustment, there was a 0.60 decrease in children's posttraumatic stress symptoms.

### **Exploratory Analyses: Contemporaneous Models**

Given the overall lack of significant results when testing our hypothesized effects longitudinally, we then tested the same set of 30 indirect effects using a contemporaneous approach. Testing all variables measured at a single time point precludes us from deducing temporal precedence, but it allows us to examine relations between key variables of interest. For each of these models, caregivers' coping, psychopathology or marital adjustment, and children's psychosocial adjustment were measured at Time 1. We also controlled for child age and gender in each model.

**Aim 1.** To address Aim 1 using contemporaneous models, we tested the indirect effects of individual coping on children's psychosocial adjustment outcomes through caregivers' psychopathology, all of which were measured at Time 1 (see Table 12). There were six significant indirect effects. Consistent with Hypothesis 1B, caregivers' psychopathology mediated the relation between SCEC and children's internalizing symptoms,  $a*b = -42.66$ ,  $SE = 28.45$ , 95% CI [-116.59, -5.06], externalizing symptoms,  $a*b = -88.40$ ,  $SE = 44.06$ , 95% CI [-193.85, -24.91], and posttraumatic stress symptoms,  $a*b = -41.86$ ,  $SE = 18.50$ , 95% CI [-88.36, -15.06]. Primary caregivers' use of SCEC was negatively associated with psychopathology,  $b = -234.98 - -238.70$ ,  $SE = 37.85$ , and caregiver psychopathology as positively associated with

children's internalizing symptoms,  $b = 0.18$ ,  $SE = 0.07$ , externalizing symptoms,  $b = 0.37$ ,  $SE = 0.10$ , and posttraumatic stress symptoms,  $b = 0.18$ ,  $SE = 0.08$ . This means that for every 1 SD increase in SCEC, there was a 0.59 – 0.60 SD decrease in caregivers' psychopathology, and in turn, a 1 SD decrease in caregivers' psychopathology was associated with a 0.14 SD decrease in children's internalizing symptoms, 0.52 SD decrease in externalizing symptoms, and 0.32 SD decrease in posttraumatic stress symptoms.

Similarly, psychopathology mediated the relation between DC and children's internalizing symptoms,  $a*b = 26.96$ ,  $SE = 15.92$ , 95% CI [14.27, 70.10], externalizing symptoms,  $a*b = 44.67$ ,  $SE = 26.63$ , 95% CI [7.55, 118.70], and posttraumatic stress symptoms  $a*b = 44.87$ ,  $SE = 18.65$ , 95% CI [16.85, 92.35]. Primary caregivers' use of DC was positively associated with psychopathology,  $b = -270.02 - -270.70$ ,  $SE = 56.39 - 56.87$ , and caregiver psychopathology as positively associated with children's internalizing symptoms,  $b = 0.13$ ,  $SE = 0.06$ , externalizing symptoms,  $b = 0.22$ ,  $SE = 0.09$ , and posttraumatic stress symptoms,  $b = 0.22$ ,  $SE = 0.07$ . This means that for every 1 SD increase in DC, there was a 0.39 SD increase in caregivers' psychopathology, and in turn, a 1 SD increase in caregivers' psychopathology was associated with a 0.36 SD increase in children's internalizing symptoms, 0.31 SD increase in externalizing symptoms, and 0.40 SD increase in posttraumatic stress symptoms.

There were no significant indirect effects under Hypothesis 1A, likely due to the relatively weaker relation between PCEC and caregivers' psychopathology.

**Aim 2.** We similarly tested contemporaneous indirect effects of individual coping on children's adjustment outcomes through caregivers' marital adjustment (see Table 13). Under Hypothesis 2a, there were no significant indirect effects. This is likely due to a weak relation between marital adjustment and children's adjustment outcomes ( $b$  pathway), as the  $a$  pathway

was significant in each model; PCEC was associated with a 0.23 – 0.25 SD increase in marital adjustment. There was only one significant *b* pathway, suggesting that for every 1 SD increase in marital adjustment, there was a 0.17 SD decrease in children’s posttraumatic stress symptoms.

In contrast to the results under Hypothesis 2a, there were no significant *a* pathways under Hypothesis 2b, suggesting that SCEC was not associated with marital adjustment. There was again a significant *b* pathway between marital adjustment and posttraumatic stress symptoms, suggesting that, for every 1 SD increase in marital adjustment, there was a 0.20 SD decrease in children’s posttraumatic stress symptoms.

There was one significant indirect effect under Hypothesis 2c, suggesting that marital adjustment mediates the relation between DC and children’s posttraumatic stress symptoms,  $a*b = 18.10$ ,  $SE = 10.84$ , 95% CI [2.75, 48.01]. For every 1 SD increase in DC, there was a 0.27 SD decrease in marital adjustment, and for every 1 SD decrease in marital adjustment, there was a 0.22 SD increase in children’s posttraumatic stress symptoms. For the models examining children’s internalizing symptoms as the outcome variable, the *a* pathway was also significant, suggesting that for every 1 SD increase in DC, there was a 0.30 SD decrease in marital adjustment. However, the *b* pathway for these models was not significant, indicating a weak relation between marital adjustment and children’s internalizing and externalizing symptoms.

**Aim 3.** There were no significant indirect effects among the models examining psychopathology as a mediator between dyadic coping and children’s adjustment. PCEC-D and SCEC-D were not significantly associated with psychopathology, as indicated by a lack of significant *a* pathway coefficients. There was one significant *b* pathway between caregivers’ psychopathology and children’s posttraumatic stress symptoms, suggesting that, for every 1 SD

increase in psychopathology, there is a 0.32 SD increase in children's posttraumatic stress symptoms.

**Aim 4.** There were no significant indirect effects of dyadic coping on children's adjustment outcomes through caregivers' ratings of marital adjustment. In each of the models, there were no significant *a* or *b* pathway coefficients, suggesting weak relations between dyadic coping and marital adjustment, and between marital adjustment and child adjustment.

## CHAPTER 4 | Discussion

As advancements in medical treatments have led to increasing survival rates for children with cancer, research in the pediatric psycho-oncology has shifted to focus on the psychosocial adjustment of these children and their families (Patenaude & Kupst, 2000). A growing body of literature has documented inconsistencies in the prevalence of psychosocial adjustment problems for children with cancer, with some studies suggesting that these children are at an increased risk for adjustment difficulties (e.g., Zeltzer et al., 2009) and others reporting no differences between children with cancer and healthy peers (e.g., Zebrack et al., 2010). Given the variability in child outcomes, it is important to identify risk and resilience factors for children with cancer. Previous research has demonstrated that parents of children with cancer are at higher risk for psychological symptomatology and marital adjustment problems (e.g., Pai et al., 2007), and recent studies have identified parental coping as a predictor of these adjustment outcomes (e.g., Compas et al., 2015). Understanding parents' psychosocial adjustment is important due to the significant relation between parent and child outcomes (e.g., Kazak et al., 2009). To our knowledge, no studies have examined relations among parental coping, parental adjustment, and child adjustment in mediation framework as potential pathways through which parents' approaches to dealing with cancer may affect children's long-term adjustment outcomes. Determining whether this model of parent and child adjustment is supported would inform psychosocial interventions targeting families of children with cancer. Thus, the current study aimed to examine the indirect effect of caregivers' coping on children's psychosocial adjustment through caregivers' psychopathology and marital adjustment.

## **Individual Coping**

The first two aims of the current study were to examine the indirect effects of caregivers' individual coping on children's adjustment through caregivers' psychopathology and their marital adjustment. Given the large body of literature suggesting that engagement coping is adaptive and disengagement coping is maladaptive, we hypothesized that both primary and secondary control engagement coping would be associated with lower caregiver psychopathology and better marital adjustment, which would in turn be associated with lower child adjustment problems. Additionally, we expected that disengagement coping would be associated with higher caregiver psychopathology and poorer marital adjustment, both of which would predict greater child adjustment problems.

Our hypotheses examining individual coping were largely not supported when indirect effects were tested longitudinally, with the exception of three models that examined the caregiver psychopathology as a mediator of the relation between PCEC and children's internalizing, externalizing, and posttraumatic stress symptoms. When a less stringent, contemporaneous approach was used, there were several more significant indirect effects, suggesting that caregivers' psychopathology mediates the relation between SCEC and DC and children's psychosocial adjustment. When examining marital adjustment as the mediator, there was only one significant indirect effect, which suggested marital adjustment mediated the relation between disengagement coping and children's posttraumatic stress symptoms. The largely null results were surprising and may be better understood through an examination of individual pathways.

**Parental Psychopathology.** With respect to the  $\alpha$  pathways, caregivers' individual coping at Time 1 did not significantly predict their own psychopathology at Time 6 using prospective regression analyses as expected. One possible explanation for the lack of significant

relations between is that primary caregivers' psychopathology was relatively stable over time, leaving limited variability to be predicted by coping. While the majority of longitudinal studies of parents of children with cancer have found that parents' psychopathology and psychological distress tend to attenuate over time (e.g., Maurice-Stam et al., 2008; Wijnberg-Williams et al., 2006a), others have found that parental psychological distress is fairly stable (Sloper, 2000). Furthermore, one prospective study reported significant correlations between repeated measurements of parents' psychopathology (Dahlquist et al., 1996). Notably, parents' trait anxiety has been identified as one of the strongest predictors of parents' posttraumatic stress symptoms (Best, Streisand, Catania, & Kazak, 2001). Thus, it may be that parents who are anxious prior to their child's diagnosis remain anxious throughout their child's treatment, despite their coping style. Additional longitudinal studies are needed to understand trajectories of parents' adjustment in this population and to disentangle the direction of effects between caregivers' adjustment and coping.

It is also possible that the way in which caregivers are coping with cancer-related stressors at Time 1 may not be predictive of their psychosocial functioning at Time 6 because the frequency or nature of the cancer-related stressors have changed. Pediatric cancer has been conceptualized within a pediatric medical traumatic stress (PMTS) framework, which characterizes various medical events and procedures as potentially traumatic events for children with cancer and their families (Kazak et al., 2006). Treatments for pediatric illnesses such as cancer may involve numerous potentially traumatic events, and the frequency and intensity of these stressors may vary over the course of a child's treatment. The majority of studies examining trauma in this population find that the intensity of treatment is not associated with trauma symptoms (e.g., Kazak et al., 2005), other studies suggest that the frequency of illness-

related events, such as hospitalizations, is associated with parental distress (Rodriguez et al., 2012; Sloper, 2000). Although temporal precedence is necessary to infer causality, it may be that the way that caregivers are coping with current stressors, rather than stressors around the time of diagnosis, is a stronger predictor of their psychosocial adjustment at Time 6. Indeed, when examining relations between coping and adjustment cross-sectionally, each of the three domains of parents' individual coping are correlated in the expected directions with caregivers' psychopathology and marital adjustment. These results are consistent with several studies of parents of children with cancer (Compas et al., 2015) and type 1 diabetes (Jaser et al., 2014) that have found concurrent relations between control coping and adjustment. Testing cross-lagged models that examine past and concurrent treatment-related stressors as predictors of parents' coping and psychosocial adjustment may help to elucidate patterns of parental adjustment.

The results from our exploratory contemporaneous models lend some support for these possible explanations. When all variables were examined at Time 1, there were significant relations between individual coping and caregivers' psychopathology, and between individual coping and marital adjustment. It is notable, however, that PCEC was significantly associated with psychopathology in the longitudinal models only, and SCEC and DC were exclusively associated with psychopathology in the contemporaneous models. It may be that primary control strategies, such as problem solving, may be associated with more long-term effects, whereas secondary control and disengagement strategies are associated with more immediate effects on parents' psychopathology. These results suggest that interventions that focus on increasing caregivers' use of secondary control coping strategies, such as acceptance, cognitive restructuring, and distraction, and decreasing disengagement coping strategies, such as avoidance and denial, may be helpful in reducing caregivers' overall levels of psychosocial maladjustment.

Third wave behavioral and cognitive therapies, such as Dialectical Behavior Therapy (DBT) and Acceptance and Commitment Therapy (ACT), emphasize the effective balance of acceptance and change, and would be well-suited interventions to address coping skill building (Hayes, 2004; Linehan, Armstrong, Suarez, Allmon, & Heard, 1991). These interventions have a wealth of empirical evidence support their effectiveness in decreasing psychopathology in adults (e.g., Forman, Herbert, Moitra, Yeomans, & Geller, 2007; Linehan et al., 2015), and there is emerging evidence that DBT may be effective in decreasing depression and treatment nonadherence in adolescents with chronic kidney disease (Hashim, Vadnais, & Miller, 2013).

In contrast to what we expected regarding the  $\beta$  pathway, primary caregivers' psychopathology at Time 6 did not consistently predict children's psychosocial adjustment at Time 12 in our regression models. These results were surprising, given the large body of literature suggesting that parental adjustment is among the strongest predictors of children's psychosocial adjustment in this population (Okado et al., 2014; Robinson et al., 2007; Trask et al., 2003). One possibility is that, as with caregivers' psychopathology, children's internalizing, externalizing, and post-traumatic stress symptoms were relatively stable from Time 1 to Time 12. Thus, after controlling for Time 1 adjustment variables, there was little variability in child adjustment to be predicted by caregivers' psychopathology. That is, controlling for initially levels of our outcome variable washed out the effects of the mediator. When we tested our indirect effects using contemporaneous models, caregivers' psychopathology was consistently and significantly associated with children's internalizing, externalizing, and posttraumatic stress symptoms at Time 1. Another possibility is that there may be child-related factors, such as children's own coping, that are stronger predictors of their psychosocial functioning than parents' psychosocial functioning. A recent review of studies examining child and adolescent

coping in the context of chronic illnesses found that children's use of control-coping strategies is significantly associated with their own psychosocial outcomes (Compas et al., 2012).

**Marital adjustment.** To our knowledge, this is the first study to examine relations between control coping and marital adjustment. Using longitudinal regression models, we found only one significant relations between caregivers' individual coping (SCEC) at Time 1 and marital adjustment at Time 6. These null findings are likely due to the fact that the zero-order correlations between individual coping and marital adjustment were not significant, suggesting that individuals' coping styles are not temporally associated with marital relationships. However, contemporaneous zero-order correlations between individual coping and marital adjustment were significant, suggesting that the effects of coping on relationships may be more immediate. Indeed, the *a* pathway coefficients in the models examining contemporaneous indirect effects suggested significant relations between coping and marital adjustment at Time 1 for PCEC and DC.

In looking at relations between caregivers' marital adjustment and children's psychosocial adjustment, similar patterns as those observed between caregivers' psychopathology and children's adjustment emerged. Tested using longitudinal and contemporaneous regression, caregivers' marital adjustment at Time 6 did not significantly predict children's psychosocial adjustment at Time 12.

**Indirect effects of individual coping on children's adjustment.** Examined longitudinally there were three significant indirect effects of caregivers' use of primary control engagement coping on children's internalizing, externalizing, and posttraumatic stress symptoms through caregivers' psychopathology. There were no significant indirect effects of SCEC or DC. Further, when examined contemporaneously, there were significant indirect effects of secondary

control engagement coping and disengagement coping on all domains of children's psychosocial adjustment through caregiver's psychopathology. There were no significant indirect effects of PCEC. The discrepancy between longitudinal and contemporaneous effects in models examining caregivers' psychopathology as the mediator suggest that acceptance and avoidance strategies may have more immediate effects on caregivers' adjustment, whereas strategies aimed at changing the stressor may have more long-term effects. There was only one significant indirect effects of individual coping on children's adjustment when caregivers' marital adjustment was examined as the mediator, which suggested that higher disengagement coping was associated with lower marital satisfaction, which was in turn associated with increased posttraumatic stress symptoms. Collectively, there is some evidence to suggest that caregivers' individual coping and their psychopathology may be important targets of intervention in this population.

To date, few interventions have been developed to specifically target parental coping or psychopathology (Eccleston, Palermo, Fisher, & Law, 2015). Two intervention programs have focused on skill building in parents. Although not designed to target parental coping more broadly, the Problem-Solving Skills Training intervention (PSST; Sahler et al., 2002) focuses on enhancing problem solving skills in mothers of children who are newly diagnosed with cancer. Problem solving skills, which are the focus of PSST, are categorized in the control model of coping as PCEC skills because the goal of problem solving is to actively change the stressor. Indeed, three randomized trials examining the effectiveness of PSST in English- and Spanish-speaking mothers have found that the intervention significantly reduces mothers' negative affectivity, depression, anxiety, and posttraumatic stress symptoms (Sahler et al., 2002; Sahler et al., 2005; Sahler et al. 2013). Furthermore, mothers who received PSST demonstrated

significantly greater gains than mothers who received a non-directive supportive intervention (Sahler et al., 2013).

The Surviving Cancer Competently Intervention Program (SCCIP; Kazak et al., 1999) is another program that targets posttraumatic stress symptoms in parents of children with cancer. SCCIP focuses specifically on enhancing coping skills through psychoeducation and cognitive reframing (Kazak et al., 1999). Results from two randomized trials suggest that this intervention may effectively reduce parents' posttraumatic stress symptoms and state anxiety (Kazak et al., 1999; Kazak, Alderfer, Streisand, et al., 2004; Kazak et al., 2005). In addition, the SCCIP has been implemented with adolescents with cancer, and has been shown to significantly reduce hyperarousal symptoms as compared to a control group (Kazak et al., 2005). While both interventions appear to effectively reduce parental and adolescent psychopathology, additional research is needed to determine whether these results extend to children's adjustment.

The significant indirect effects involving SCEC specifically further highlight the salience of secondary control coping efforts for caregivers and ultimately children in the context of pediatric cancer. Increases in caregivers' use of SCEC were associated with improvement in their psychopathology, which were, in turn, associated with improvements in children's adjustment. To our knowledge, there are currently no evidence-based interventions designed to teach effective coping strategies that are based on the control model of coping. However, there are some studies suggesting that teaching acceptance-based strategies using interventions informed by Acceptance and Commitment Therapy may be effective for children and parents of children with cancer (Burke et al., 2014) and other chronic illnesses, such as diabetes (Hadlandsmyth, White, Nesin, & Greco, 2013). Acceptance is a critical component of secondary control engagement coping, but it is also not the only effective strategy in service of individuals aligning

with the environment. Future research is needed to integrate other strategies, such as cognitive restructuring and distraction into coping interventions.

Given that caregivers' psychosocial adjustment, particularly their psychopathology, consistently predicted children's adjustment, additional research is needed to identify factors that predict variability in caregivers' adjustment. Several studies have identified parental stress, social support, hope, and marital status as factors that are associated with parents' psychosocial functioning (Hullmann, Fedele, Molzon, Mayes, & Mullins, 2014; Sulkers et al., 2014; Wijnberg-Williams, Kamps, Klip, & Hoekstra-Weebers, 2006b). However, these studies have focused primarily on the identifying predictors of parent adjustment without extended these relations to child adjustment. Future studies should continue to pursue the identification of mediation pathways that explain relations between parent and child adjustment in the context of pediatric cancer.

### **Dyadic Coping**

The second set of aims examined the indirect effects of dyadic coping on children's adjustment through caregivers' psychopathology and marital adjustment. We conceptualized dyadic coping as the discrepancy between primary and secondary caregivers' individual coping styles, and hypothesized that discrepancies between caregivers' use primary and secondary control engagement coping would be associated with negative caregiver, and, in turn, child outcomes. Our hypotheses examining dyadic coping were not supported when indirect effects were tested longitudinally and contemporaneously, suggesting that neither caregivers' psychopathology nor marital adjustment mediates the relation between dyadic coping and children's psychosocial adjustment. These null results were surprising and may be better understood through an examination of individual pathways.

**Parental psychopathology.** Examined longitudinally, there were several significant negative relations between dyadic coping and caregivers' psychopathology, suggesting that a higher discrepancy was associated with lower psychopathology. Contrary to what we expected, there was a positive relation between the discrepancy in caregiver's use of secondary control coping and primary caregivers' psychopathology when indirect effects were tested using regression. These effects were in the opposite direction of what we hypothesized and suggest that a greater difference between caregivers' coping styles predicted greater positive child outcomes. Similar results were found when these aims were tested using MLM; both between- and within-individuals variability in caregivers' use of SCEC significantly predicted lower caregiver psychopathology. Although largely inconsistent with previous studies suggesting that dyadic discrepancies are associated greater psychological distress (Hoekstra-Weebers et al., 1998a), our results are somewhat consistent with a study that examined congruence in parents' use of various coping strategies (Goldbeck, 2001). Goldbeck (2001) conceptualized dissimilarity in parents' coping strategy use as complementary, and found that differences in social support seeking and religious coping were positively correlated with parents' quality of life. The RSQ does not have subscales representing these two coping strategies. However, three functions of social support seeking (e.g., problem solving, emotional regulation, and emotional expression) are conceptualized as facets of primary control engagement coping (Connor-Smith et al., 2000). Thus, our results are not fully consistent with Goldbeck's (2001) findings.

Another possible explanation of these findings is that our method of measuring dyadic coping did not fully capture the coping efforts being used by the dyad. In the current study, we measured dyadic coping by calculating absolute difference scores between caregivers' coping styles. That is, the absolute difference between two caregivers who are using similarly high

levels of SCEC could be the same as the difference between two caregivers who are using similarly low levels of SCEC. It may be the case that high discrepancy scores were due to one caregiver reporting high use of SCEC. If so, the discrepancy score may not represent conflict between caregivers' coping styles, but the skillful use of an effective style of coping by one caregiver. Although our primary question regarding dyadic coping was whether the discrepancy between styles was associated with poorer psychosocial adjustment, it may be that the use of SCEC by either caregiver is associated with positive outcomes. A recent study by Compas and colleagues (2015) tested the interaction, rather than the discrepancy, between mothers' and fathers' coping styles as a predictor of parental depression. They found that mothers' use of SCEC buffered the relation between fathers' use of disengagement coping and fathers' depressive symptoms. Thus, it may be that the interaction between caregivers' coping styles is a stronger predictor of their psychosocial adjustment. Future studies may test the interaction between caregivers' use of the same coping style (i.e., interaction between primary and secondary caregivers' use of secondary control engagement coping) as a predictor of caregiver and child psychosocial adjustment.

**Marital adjustment.** There were no significant relations between dyadic coping and marital adjustment when indirect effects were tested longitudinally and contemporaneously. Although this is the first study to examine discrepancies in control coping as predictors of marital adjustment, these results are inconsistent with previous studies that have found that discrepancies in other domains of couples' coping styles are associated with poorer marital outcomes (Barbarin et al., 1985; Hoekstra-Weebers et al., 1998b). As previously discussed with respect to relations between dyadic coping and caregivers' psychopathology, these unexpected findings are likely explained by our conceptualization of dyadic coping as the absolute value of

the difference between caregivers' individual coping styles. Future studies should replicate these models using alternative methods of quantifying dyadic coping.

**Indirect effects of dyadic coping on children's adjustment.** Tested both longitudinally and contemporaneously, there were no significant indirect effects of SCEC-D on children's internalizing, externalizing, and posttraumatic stress symptoms through caregivers'. However, additional research is needed to better understand the mechanisms underlying the positive relation between the discrepancy in coping and psychopathology. For example, if it is the case that the large discrepancy in coping is driven by one caregiver using high level of SCEC, future studies should examine any differences in psychological correlates between dyads for which one individual uses high levels of SCEC as compared to dyads for which that both use high levels of SCEC. That is, it may be that a high discrepancy in SCEC is being conflated with the effective use of SCEC by one caregiver.

### **Limitations**

The current study has a number of limitations that should be acknowledged. First, as alluded to previously, there was significant attrition over the course of the study. While the current study exclusively examined questionnaire data from Time 1, Time 6, and Time 12, the larger prospective study involved monthly questionnaire packets and additional study procedures. Additionally, we were asking families to participate during a highly stressful period of time. As a result, the majority of families did not complete all study procedures. The families who were included in the current study, particularly those who completed all three packets (Time 1, Time 6, and Time 12) that were required to be included in the regression analyses, likely represented a subset of families who were functioning relatively well. Thus, they were likely not representative of typical families of children undergoing active treatment. Future studies that

have fewer assessment points may yield lower attrition rates and attract families that are more representative of typical families in the pediatric cancer population.

Single reporter bias may also have influenced our results (Achenbach, Krukowski, Dumenci, & Ivanova, 2005). For Aims 1 and 2, primary caregivers' report was used exclusively to measure all variables of interest. While secondary caregivers' report of their coping style was calculated into the discrepancy scores for dyadic coping in Aims 3 and 4, primary caregivers' report was still used to measure caregivers' psychosocial adjustment and child adjustment. In the current study, secondary caregivers were less consistent with completing and returning packets. Thus, using their report of caregiver and child adjustment through composite scores or latent variables would have further reduced our sample size. Future studies should aim to incorporate multiple reporters to increase internal validity. In addition, different methods of measurement, such as observations of parents' coping behaviors, may also decrease potential response bias.

Another limitation of the current study is that our regression analyses were limited by our sample size. Per Fritz and MacKinnon (2010), a sample size of 148 is needed to achieve .8 power with small – medium pathway coefficients. The current study examined data spanning the full 12 months of families' participation, and there was significant attrition in our sample over time. Out of our full sample of 130 families, only 58% completed all three time points of data, which was necessary to be included in the regression analyses. This requirement limited our sample size to 75 for the regression-based indirect effects models. Thus, it may be that we lacked sufficient power to detect bias-corrected mediated effects.

Finally, it is important to note that our significant findings may be due to chance, given the large number of models tested in the current study. Across the four study aims, 30 unique longitudinal indirect effects were tested longitudinally, of which three models were statistically

significant. We tested an additional 30 indirect effects using contemporaneous models, of which six were significant. Thus, replication is needed to strengthen confidence in our results.

### **Strengths**

Despite these limitations, the current study has a number of noteworthy strengths. First, to our knowledge, this is the first study to test the indirect effects of caregivers' coping styles on children's adjustment through caregivers' psychopathology and marital adjustment in the context of pediatric cancer. A large body of literature has examined both child and caregiver adjustment in this population, but it is important to identify factors that predict adjustment outcomes as well as mediational pathways that explain the range of outcomes that have been documented. The current study adds to the current literature by exploring caregivers' coping as a predictor of the relation between caregiver and child adjustment.

Although previously discussed as a factor contributing to attrition, the prospective, repeated measures design of our study provides us with a rich, quantitative documentation of these families' experiences. The majority of the current literature has examined child and parent adjustment using cross-sectional designs. Prospective data collection allowed us to establish temporal precedence when testing our longitudinal indirect effects, and using repeated measures allowed us to identify and predict changes in our variables over time.

Additionally, despite the fact that our sample may not be representative of all families of children with cancer with respect to psychosocial functioning, a real strength of our sample is its diversity with respect to children's cancer diagnoses, race, and socio-economic status. Sampling from a wide range of cancer diagnoses increases the generalizability of these results to the larger pediatric cancer population. However, it is possible that there are differences in patterns of psychosocial adjustment that we did not detect because we did not look for diagnosis-specific

effects. Future studies with larger sample sizes may test whether the observed effects are similar across diagnostic groups. Participants in our study were also representative of the racial and socio-economic demographics of the two recruitment sites. The diversity of our sample increases the external validity of our results. Similar what was previously discussed with respect to cancer diagnoses, future studies should examine potential differences in patterns of adjustment based on the aforementioned demographic variables.

### **Conclusions**

Despite an overall paucity of significant indirect effects, the current study highlights the potential relevance primary control engagement coping, secondary control engagement coping, and disengagement coping in the context of pediatric cancer. With respect to individual coping, the use of primary control strategies appears to be predictive of caregivers' future psychopathology, which in turn is associated with children's psychosocial adjustment. Further, secondary control and disengagement coping strategies appear to be consistently associated with caregivers' own psychopathology and children's adjustment within a given time point. Ultimately, these results suggest that it is important to identify effective caregiver behaviors that set the stage for downstream effects on children's psychosocial adjustment. The results of the current study add to what is known about the significant relations among caregiver and child functioning, and suggest potential avenues for future research in pediatric psycho-oncology. Continuing to identify risk and resilience factors both at the level of the child and caregiver will set the stage for the development of interventions for children with cancer and their families.

## REFERENCES

- Achenbach, Thomas, M., & Edelbrock, C. S. (1983). *Manual for the child behavior checklist and revised child behavior profile*. Burlington, VT: Department of Psychiatry, University of Vermont.
- Achenbach, T. M., Krukowski, R. a, Dumenci, L., & Ivanova, M. Y. (2005). Assessment of adult psychopathology: Meta-analyses and implications of cross-informant correlations. *Psychological Bulletin*, *131*(3), 361–382. <http://doi.org/10.1037/0033-2909.131.3.361>
- Aldao, A., Nolen-Hoeksema, S., & Schweizer, S. (2010). Emotion-regulation strategies across psychopathology: A meta-analytic review. *Clinical Psychology Review*, *30*(2), 217–237. <http://doi.org/10.1016/j.cpr.2009.11.004>
- Band, E. B., & Weisz, J. R. (1988). How to feel better when it feels bad: Children’s perspectives on coping with everyday stress. *Developmental Psychology*, *24*(2), 247–253. <http://doi.org/10.1037//0012-1649.24.2.247>
- Barbarin, O. A., Hughes, D., & Chesler, M. A. (1985). Stress, coping, and marital functioning among parents of children with cancer. *Journal of Marriage and the Family*, *47*(2), 473–480.
- Barrera, M., D’Agostino, N. M., Gibson, J., Gilbert, T., Weksberg, R., & Malkin, D. (2004). Predictors and mediators of psychological adjustment in mothers of children newly diagnosed with cancer. *Psycho-Oncology*, *13*(9), 630–41. <http://doi.org/10.1002/pon.765>
- Barrera, M., Schulte, F., & Spiegler, B. (2007). Factors influencing depressive symptoms of children treated for a brain tumor. *Journal of Psychosocial Oncology*, *26*(1), 69–81. <http://doi.org/10.1300/J077v26n01>

- Bennett Murphy, L. M., Flowers, S., McNamara, K. A., & Young-Saleme, T. (2000). Fathers of children with cancer: Involvement, coping, and adjustment. *Journal of Pediatric Health Care, 22*(3), 182–9. <http://doi.org/10.1016/j.pedhc.2007.06.003>
- Best, M., Streisand, R., Catania, L., & Kazak, A. E. (2001). Parental distress during pediatric leukemia and parental posttraumatic stress symptoms after treatment ends. *Journal of Pediatric Psychology, 26*(5), 299–307.
- Bodenmann, G. (2005). Dyadic coping and its significance for marital functioning. In T. A. Revenson, K. Kayser, & G. Bodenmann (Eds.), *Couples coping with stress: Emerging perspectives on dyadic coping* (pp. 33–49). Washington, D.C.: American Psychological Association.
- Bombardier, C. H., D'Amico, C., & Jordan, J. S. (1990). The relationship of appraisal and coping to chronic illness adjustment. *Behaviour Research and Therapy, 28*(4), 297–304.
- Bonner, M. J., Hardy, K. K., Willard, V. W., & Hutchinson, K. C. (2007). Psychosocial functioning of fathers as primary caregivers of pediatric oncology patients. *Journal of Pediatric Psychology, 32*(7), 851–856.
- Bradbury, T. N., Fincham, F. D., & Beach, S. R. H. (2000). Research of the nature and determinants of marital satisfaction: A decade in review. *Journal of Marriage and the Family, 62*, 964–980.
- Brennan, P. a., Hammen, C., Katz, A. R., & Le Brocque, R. M. (2002). Maternal depression, paternal psychopathology, and adolescent diagnostic outcomes. *Journal of Consulting and Clinical Psychology, 70*(5), 1075–1085. <http://doi.org/10.1037/0022-006X.70.5.1075>
- Brody, A. C., & Simmons, L. A. (2007). Family resiliency during childhood cancer: The father's perspective. *Journal of Pediatric Oncology Nursing, 24*(3), 152–165.

<http://doi.org/10.1177/1043454206298844>

- Bronfenbrenner, U. (1979). Contexts of child rearing: Problems and prospects. *American Psychologist*, 34(10), 844–850. <http://doi.org/10.1037//0003-066X.34.10.844>
- Brown, R. T., Kaslow, N. J., Hazzard, A. P., Madan-Swain, A., Sexson, S. B., Lambert, R., & Baldwin, K. (1992). Psychiatric and family functioning in children with leukemia and their parents. *Journal of the American Academy of Child and Adolescent Psychiatry*, 31(3), 495–502.
- Bruce, M. (2006). A systematic and conceptual review of posttraumatic stress in childhood cancer survivors and their parents. *Clinical Psychology Review*, 26(3), 233–56. <http://doi.org/10.1016/j.cpr.2005.10.002>
- Bruce, M., Gumley, D., Isham, L., Fearon, P., & Phipps, K. (2011). Post-traumatic stress symptoms in childhood brain tumour survivors and their parents. *Child: Care, Health and Development*, 37(2), 244–251. <http://doi.org/10.1111/j.1365-2214.2010.01164.x>
- Burke, K., Muscara, F., McCarthy, M., Dimovski, A., Hearps, S., Anderson, V., & Walser, R. (2014). Adapting acceptance and commitment therapy for parents of children with life-threatening illness: Pilot study. *Families, Systems & Health*, 32(1), 122–7. <http://doi.org/10.1037/fsh0000012>
- Butler, R. W., Rizzi, L. P., & Handwerker, B. a. (1996). Brief report: The assessment of posttraumatic stress disorder in pediatric cancer patients and survivors. *Journal of Pediatric Psychology*, 21(4), 499–504.
- Calaminus, G., Weinspach, S., Teske, C., & Göbel, U. (2007). Quality of survival in children and adolescents after treatment for childhood cancer: The influence of reported late effects on health related quality of life. *Klinische Pädiatrie*, 219(3), 152–157. <http://doi.org/10.1055/s->

2007-973846

- Çavuşoğlu, H. (2001). Depression in children with cancer. *Journal of Pediatric Nursing, 16*(5), 380–385. <http://doi.org/10.1053/jpdn.2001.0000>
- Chesler, M. A., & Parry, C. (2001). Gender roles and/or styles in crisis: An integrative analysis of the experiences of fathers of children with cancer. *Qualitative Health Research, 11*(3), 363–384. <http://doi.org/10.1177/104973230101100307>
- Christensen, A., & Heavey, C. L. (1990). Gender and social structure in the demand/withdraw pattern of marital conflict. *Journal of Personality and Social Psychology, 59*(1), 73–81.
- Clarke, J. N. (2006). Mother's home healthcare: Emotion work when a child has cancer. *Cancer Nursing, 29*(1), 58–65. <http://doi.org/10.1097/00002820-200601000-00010>
- Clarke, N. E., McCarthy, M. C., Downie, P., Ashley, D. M., & Anderson, V. A. (2009). Gender differences in the psychosocial experience of parents of children with cancer: A review of the literature. *Psycho-Oncology, 18*, 907–915. <http://doi.org/10.1002/pon>
- Cohen, M. S. (1999). Families coping with childhood chronic illness: A research review. *Families, Systems & Health, 17*(2), 149–164.
- Cohen, P., Cohen, J., Aiken, L., & West, S. G. (1999). The Problem of Units and the Circumstance for POMP. *Multivariate Behavioral Research, 34*(3), 315–346. <http://doi.org/10.1207/S15327906MBR3403>
- Compas, B. E., Beckjord, E., Agocha, B., Sherman, M. L., Langrock, A., Grossman, C. I., ... Luecken, L. (2006). Measurement of coping and stress responses in women with breast cancer. *Psycho-Oncology, 15*, 1038–1054. <http://doi.org/10.1002/pon.999>
- Compas, B. E., Bemis, H., Gerhardt, C. A., Dunn, M. J., Rodriguez, E. M., Desjardins, L., ... Vannatta, K. (2015). Mothers and fathers coping with their children's cancer: Individual

- and interpersonal processes. *Health Psychology, 34*(1), 1–11.
- Compas, B. E., Desjardins, L., Vannatta, K., Young-saleme, T., Rodriguez, E. M., Dunn, M., ... Gerhardt, C. a. (2014). Children and adolescents coping with cancer: Self- and parent reports of coping and anxiety/depression. *Health Psychology, 33*(8), 853–861.  
<http://doi.org/10.1037/hea0000083>
- Compas, B. E., Jaser, S. S., Dunn, M. J., & Rodriguez, E. M. (2012). Coping with chronic illness in childhood and adolescence. *Annual Review of Clinical Psychology, 27*(8), 455–480.  
<http://doi.org/10.1146/annurev-clinpsy-032511-143108.Coping>
- Connor-Smith, J. K., Compas, B. E., Wadsworth, M. E., Thomsen, A. H., & Saltzman, H. (2000). Responses to stress in adolescence: Measurement of coping and involuntary stress responses. *Journal of Consulting and Clinical Psychology, 68*(6), 976–992.  
<http://doi.org/10.1037//0022-006X.68.6.976>
- Creswell, P. D., Wisk, L. E., Litzelman, K., Allchin, A., & Witt, W. P. (2014). Parental depressive symptoms and childhood cancer: The importance of financial difficulties. *Supportive Care in Cancer, 22*(2), 503–511. <http://doi.org/10.1007/s00520-013-2003-4.Parental>
- Cummings, E. M., Davis, P. T., & Simpson, K. S. (1994). Marital conflict, gender, and children's appraisals and coping efficacy as mediators of child adjustment. *Journal of Family Psychology, 8*(2), 141–149.
- Dahlquist, L. M., Czyzewski, Danita, I., Copeland, K. G., Jones, C. L., Taub, E., & Vaughan, J. K. (1993). Parents of children newly diagnosed with cancer: Anxiety, coping, and marital distress. *Journal of Pediatric Psychology, 18*(3), 365–376.
- Dahlquist, L. M., Czyzewski, D. I., & Jones, C. L. (1996). Parents of children with cancer: A

- longitudinal study of emotional distress, coping style, and marital adjustment two and twenty months after diagnosis. *Journal of Pediatric Psychology*, 21(4), 541–54.
- Eccleston, C., Palermo, T. M., Fisher, E., & Law, E. (2015). Psychological interventions for parents of children and adolescents with chronic illness. *The Cochrane Library*, (4).  
<http://doi.org/10.1002/14651858.CD009660.pub2>
- Enders, C. K., & Tofighi, D. (2007). Centering predictor variables in cross-sectional multilevel models: A new look at an old issue. *Psychological Methods*, 12(2), 121–138.  
<http://doi.org/10.1037/1082-989X.12.2.121>
- Felton, B. J., & Revenson, T. A. (1984). Coping with chronic illness: A study of illness controllability and the influence of coping strategies on psychological adjustment. *Journal of Consulting and Clinical Psychology*, 52(3), 343–53.
- Fletcher, P. C., & Clarke, J. (2003). When your child has cancer. *Journal of Psychosocial Oncology*, 21(3), 81–99.
- Foley, B., Barakat, L. P., Herman-Liu, A., Radcliffe, J., & Molloy, P. (2000). The impact of childhood hypothalamic/chiasmatic brain tumors on child adjustment and family functioning. *Children's Health Care*, 29(3), 209–222.  
[http://doi.org/10.1207/S15326888CHC2903\\_5](http://doi.org/10.1207/S15326888CHC2903_5)
- Folkman, S. (1984). Personal control and stress and coping processes: A theoretical analysis. *Journal of Personality and Social Psychology*, 46(4), 839–852.
- Folkman, S., & Lazarus, R. S. (1980). An analysis of coping in a middle-age community sample. *Journal of Health and Social Behavior*, 21(3), 219–239.
- Forman, E. M., Herbert, J. D., Moitra, E., Yeomans, P. D., & Geller, P. a. (2007). A randomized controlled effectiveness trial of acceptance and commitment therapy and cognitive therapy

for anxiety and depression. *Behavior Modification*, 31(6), 772–799.

<http://doi.org/10.1177/0145445507302202>

Friedman, D., Holmbeck, G. N., Jandasek, B., Zukerman, J., & Abad, M. (2004). Parent functioning in families of preadolescents with spina bifida: Longitudinal implications for child adjustment. *Journal of Family Psychology*, 18(4), 609–19.

<http://doi.org/10.1037/0893-3200.18.4.609>

Fritz, M., & MacKinnon, D. (2010). Required sample size to detect the mediated effect.

*Psychological Science*, 18(3), 233–239. <http://doi.org/10.1111/j.1467->

9280.2007.01882.x.Required

Gage-Bouchard, E. a, Devine, K. a, & Heckler, C. E. (2013). The relationship between socio-demographic characteristics, family environment, and caregiver coping in families of children with cancer. *Journal of Clinical Psychology in Medical Settings*, Advance online publication. <http://doi.org/10.1007/s10880-013-9362-3>

Gill, J., & King, G. (2004). What to do when your Hessian is not invertible: Alternatives to model respecification in nonlinear estimation. *Sociological Methods & Research*, 33(1), 54–87. <http://doi.org/10.1177/0049124103262681>

Goldbeck, L. (2001). Parental coping with the diagnosis of childhood cancer: Gender effects, dissimilarity within couples, and quality of life. *Psycho-Oncology*, 10, 325–335.

<http://doi.org/10.1002/pon.530>

Goodman, S. H., Rouse, M. H., Connell, A. M., Broth, M. R., Hall, C. M., & Heyward, D. (2011). Maternal depression and child psychopathology: A meta-analytic review. *Clinical Child and Family Psychology Review*, 14(1), 1–27. <http://doi.org/10.1007/s10567-010-0080-1>

- Grant, S., Carlsen, K., Bidstrup, P. E., Bastian, G. S., Lund, L. W., Dalton, S. O., & Johansen, C. (2012). Parental separation and pediatric cancer: A Danish cohort study. *Pediatrics, 129*(5), e1187–e1191. <http://doi.org/10.1542/peds.2011-2657>
- Grootenhuis, M. A., & Last, B. F. (1997). Adjustment and coping by parents of children with cancer: A review of the literature. *Supportive Care in Cancer, 5*(6), 466–84.
- Grootenhuis, M. A., Last, B. F., De Graaf-Nijerk, J. H., & Van Der Wel, M. (1996). Secondary control strategies used by parents of children with cancer. *Psycho-Oncology, 5*, 91–102.
- Hadlandsmyth, K., White, K. S., Nesin, A. E., & Greco, L. a. (2013). Proposing an Acceptance and Commitment Therapy intervention to promote improved diabetes management in adolescents: A treatment conceptualization. *International Journal of Behavioral Consultation and Therapy, 7*(4), 12–15.
- Hashim, B. L., Vadnais, M., & Miller, A. L. (2013). Improving adherence in adolescent chronic kidney disease: A dialectical behavior therapy (DBT) feasibility trial. *Clinical Practice in Pediatric Psychology, 1*(4), 369–379.  
<http://doi.org/http://dx.doi.org.proxy.cc.uic.edu/10.1037/cpp0000024>
- Hayes, S. (2004). Acceptance and commitment therapy, relational frame theory, and the third wave of behavioral and cognitive therapies. *Behavior Therapy, 35*(4), 639–665.  
[http://doi.org/10.1016/S0005-7894\(04\)80013-3](http://doi.org/10.1016/S0005-7894(04)80013-3)
- Hobbie, W. L., Stuber, M., Meeske, K., Wissler, K., Rourke, M. T., Ruccione, K., ... Kazak, a E. (2000). Symptoms of posttraumatic stress in young adult survivors of childhood cancer. *Journal of Clinical Oncology, 18*(24), 4060–4066.
- Hoekstra-Weebers, J. E. H. M., Jaspers, J. P. C., Kamps, W. A., & Klip, E. C. (1998a). Gender differences in psychological adaptation and coping in parents of pediatric cancer patients.

*Psycho-Oncology*, 7, 26–36.

- Hoekstra-Weebers, J. E. H. M., Jaspers, J. P. C., Kamps, W. A., & Klip, E. C. (1998b). Marital dissatisfaction, psychological distress, and the coping of parents of pediatric cancer patients. *Journal of Marriage and the Family*, 60(4), 1012–1021.
- Howlader, N., Noone, A. M., Krapcho, M., Garshell, J., Neyman, N., Altekruse, S. F., ... Cronin, K. A. (2013). *SEER Cancer Statistics Review*. Bethesda, MD.
- Hullmann, S. E., Fedele, D. a., Molzon, E. S., Mayes, S., & Mullins, L. L. (2014). Posttraumatic growth and hope in parents of children with cancer. *Journal of Psychosocial Oncology*, 32(6), 696–707. <http://doi.org/10.1080/07347332.2014.955241>
- Jaser, S. S., Linsky, R., & Grey, M. (2014). Coping and psychological distress in mothers of adolescents with type 1 diabetes. *Maternal and Child Health Journal*, 18(1), 101–108. <http://doi.org/10.1007/s10995-013-1239-4>
- Jurbergs, N., Long, A., Ticona, L., & Phipps, S. (2009). Symptoms of posttraumatic stress in parents of children with cancer: Are they elevated relative to parents of healthy children? *Journal of Pediatric Psychology*, 34(1), 4–13. <http://doi.org/10.1093/jpepsy/jsm119>
- Katz, L. F., & Gottman, J. M. (1993). Patterns of marital conflict predict children's internalizing and externalizing behaviors. *Developmental Psychology*, 29(6), 940–950. <http://doi.org/10.1037//0012-1649.29.6.940>
- Katz, L. F., Leary, A., Breiger, D., & Friedman, D. (2011). Pediatric cancer and the quality of children's dyadic peer interactions. *Journal of Pediatric Psychology*, 36(2), 237–47. <http://doi.org/10.1093/jpepsy/jsq050>
- Kazak, A. E., Alderfer, M. a, Streisand, R., Simms, S., Rourke, M. T., Barakat, L. P., ... Cnaan, A. (2004). Treatment of posttraumatic stress symptoms in adolescent survivors of childhood

- cancer and their families: A randomized clinical trial. *Journal of Family Psychology*, 18(3), 493–504. <http://doi.org/10.1037/0893-3200.18.3.493>
- Kazak, A. E., Alderfer, M., Rourke, M. T., Simms, S., Streisand, R., & Grossman, J. R. (2004). Posttraumatic stress disorder (PTSD) and posttraumatic stress symptoms (PTSS) in families of adolescent childhood cancer survivors. *Journal of Pediatric Psychology*, 29(3), 211–9.
- Kazak, A. E., Barakat, L. P., Meeske, K., Christakis, D., Meadows, A. T., Casey, R., ... Stuber, M. L. (1997). Posttraumatic stress, family functioning, and social support in survivors of childhood leukemia and their mothers and fathers. *Journal of Consulting and Clinical Psychology*, 65(1), 120–9.
- Kazak, A. E., Boeving, C. A., Alderfer, M. a, Hwang, W.-T., & Reilly, A. (2005). Posttraumatic stress symptoms during treatment in parents of children with cancer. *Journal of Clinical Oncology*, 23(30), 7405–10. <http://doi.org/10.1200/JCO.2005.09.110>
- Kazak, A. E., Kassam-Adams, N., Schneider, S., Zelikovsky, N., Alderfer, M. A., & Rourke, M. (2006). An integrative model of pediatric medical traumatic stress. *Journal of Pediatric Psychology*, 31(4), 343–55. <http://doi.org/10.1093/jpepsy/jsj054>
- Kazak, A. E., Rourke, M. T., & Navsaria, N. (2009). Families and Other Systems in Pediatric Psychology. In M. C. Roberts & R. G. Steele (Eds.), *Handbook of Pediatric Psychology* (Fourth Edi, pp. 656–671). New York, NY: Guilford Press.
- Kazak, A. E., Simms, S., Alderfer, M. a., Rourke, M. T., Crump, T., McClure, K., ... Reilly, A. (2005). Feasibility and preliminary outcomes from a pilot study of a brief psychological intervention for families of children newly diagnosed with cancer. *Journal of Pediatric Psychology*, 30(8), 644–655. <http://doi.org/10.1093/jpepsy/jsi051>
- Kazak, A. E., Simms, S., Barakat, L., Hobbie, W., Foley, B., Golomb, V., & Best, M. (1999).

- Surviving cancer competently intervention program (SCCIP): A cognitive-behavioral and family therapy intervention for adolescent survivors of childhood cancer and their families. *Family Process*, 38(2), 175–191. <http://doi.org/10.1111/j.1545-5300.1999.00176.x>
- Kenny, D. A., & Cook, W. L. (1999). Partner effects in relationship research: Conceptual issues, analytic difficulties, and illustrations. *Personal Relationships*, 6, 433–448.
- Kliewer, W., Fearnow, M. D., & Miller, P. A. (1996). Coping socialization in middle childhood: Tests of maternal and paternal influences. *Child Development*, 67(5), 2239–2357.
- Langrock, A. M., Compas, B. E., Keller, G., Merchant, M. J., & Copeland, M. E. (2002). Coping with the stress of parental depression: Parents' reports of children's coping, emotional, and behavioral problems. *Journal of Clinical Child and Adolescent Psychology*, 31(3), 312–324.
- Lansky, Shirley, B., Cairns, N. U., Hassanein, R., Wehr, J., & Lowman, J. T. (1978). Childhood cancer: Parental discord and divorce. *Pediatrics*, 62, 184–188.
- Larson, L. S., Wittrock, D. A., & Sandgren, A. K. (1994). When a child is diagnosed with cancer: I. Sex differences in parental adjustment. *Journal of Psychosocial Oncology*, 12(1-2), 123–142.
- Lavee, Y., & Mey-Dan, M. (2003). Patterns of change in marital relationships among parents of children with cancer. *Health & Social Work*, 28(4), 255–263.
- Lavigne, J. V., & Faier-Routman, J. (1993). Correlates of psychological adjustment to pediatric physical disorders: A meta-analytic review and comparison with existing models. *Developmental and Behavioral Pediatrics*, 12(2), 117–123.
- Linehan, M. M., Armstrong, H. E., Suarez, A., Allmon, D., & Heard, H. L. (1991). Cognitive-behavioral treatment of chronically parasuicidal borderline patients. *Archives of General Psychiatry*, 48(12), 1060–1064.

Linehan, M. M., Korslund, K. E., Harned, M. S., Gallop, R. J., Lungu, A., Neacsiu, A. D., ...

Murray-Gregory, A. M. (2015). Dialectical Behavior Therapy for high suicide risk in individuals with borderline personality disorder. *JAMA Psychiatry, 98*(195), 1–8.

<http://doi.org/10.1001/jamapsychiatry.2014.3039>

Maurice-Stam, H., Oort, F. J., Last, B. F., & Grootenhuis, M. A. (2008). Emotional functioning of parents of children with cancer: The first five years of continuous remission after the end of treatment. *Psycho-Oncology, 17*, 448–459. <http://doi.org/10.1002/pon>

McCarthy, M. C., Ashley, D. M., Lee, K. J., & Anderson, V. A. (2012). Predictors of acute and posttraumatic stress symptoms in parents following their child's cancer diagnosis. *Journal of Traumatic Stress, 25*, 558–566. <http://doi.org/10.1002/jts>.

Morling, B., & Evered, S. (2006). Secondary control reviewed and defined. *Psychological Bulletin, 132*(2), 269–96. <http://doi.org/10.1037/0033-2909.132.2.269>

Myers, R. M., Balsamo, L., Lu, X., Devidas, M., Hunger, S. P., Carroll, W. L., ... Kadan-Lottick, N. S. (2014). A prospective study of anxiety, depression, and behavioral changes in the first year after a diagnosis of childhood acute lymphoblastic leukemia: A report from the Children's Oncology Group. *Cancer, 120*(9), 1417–1425. <http://doi.org/10.1002/cncr.28578>

Norberg, A. L., & Boman, K. K. (2008). Parent distress in childhood cancer: A comparative evaluation of posttraumatic stress symptoms, depression and anxiety. *Acta Oncologica, 47*(2), 267–274. <http://doi.org/10.1080/02841860701558773>

Norberg, A. L., Lindblad, F., & Boman, K. K. (2005). Coping strategies in parents of children with cancer. *Social Science & Medicine, 60*(5), 965–75.

<http://doi.org/10.1016/j.socscimed.2004.06.030>

Okado, Y., Long, A. M., & Phipps, S. (2014). Association between parent and child distress and

- the moderating effects of life events in families with and without a history of pediatric cancer. *Journal of Pediatric Psychology*, *39*(9), 1049–1060.  
<http://doi.org/10.1093/jpepsy/jsu058>
- Osowiecki, D. M., & Compas, B. E. (1998). Psychological adjustment to cancer: Control beliefs and coping in adult cancer patients. *Cognitive Therapy and Research*, *22*(5), 483–499.
- 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*(3), 407–15. <http://doi.org/10.1037/0893-3200.21.3.407>
- Patenaude, A. F., & Kupst, M. J. (2000). Psychosocial functioning in pediatric cancer. *Journal of Pediatric Psychology*, *30*(1), 9–27.
- 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*(6), 390–407. <http://doi.org/10.1002/pon.761>
- Phipps, S., Long, A., Hudson, M., & Rai, S. N. (2005). Symptoms of post-traumatic stress in children with cancer and their parents: Effects of informant and time from diagnosis. *Pediatric Blood & Cancer*, *45*(7), 952–959. <http://doi.org/10.1002/pbc.20373>
- Phipps, S., Long, A., Willard, V. W., Okado, Y., Hudson, M., Huang, Q., ... Noll, R. (2015). Parents of children with cancer: At-risk or resilient? *Journal of Pediatric Psychology*, 1–10. <http://doi.org/10.1093/jpepsy/jsv047>
- Pinquart, M., & Shen, Y. (2011). Depressive symptoms in children and adolescents with chronic physical illness: An updated meta-analysis. *Journal of Pediatric Psychology*, *36*(4), 375–384. <http://doi.org/http://dx.doi.org/10.1093/jpepsy/jsq104>

- Recklitis, C. J., Diller, L. R., Li, X., Najita, J., Robison, L. L., & Zeltzer, L. (2010). Suicide ideation in adult survivors of childhood cancer: A report from the Childhood Cancer Survivor Study. *Journal of Clinical Oncology*, *28*(4), 655–61. <http://doi.org/10.1200/JCO.2009.22.8635>
- Robinson, K. E., Gerhardt, C. A., Vannatta, K., & Noll, R. B. (2007). Parent and family factors associated with child adjustment to pediatric cancer. *Journal of Pediatric Psychology*, *32*(4), 400–410. <http://doi.org/10.1093/jpepsy/jsl038>
- Rodenburg, R., Marie Meijer, A., Deković, M., & Aldenkamp, A. P. (2006). Family predictors of psychopathology in children with epilepsy. *Epilepsia*, *47*(3), 601–14. <http://doi.org/10.1111/j.1528-1167.2006.00475.x>
- Rodriguez, E. M., Dunn, M. J., Zuckerman, T., Vannatta, K., Gerhardt, C. A., & Compas, B. E. (2012). Cancer-related sources of stress for children with cancer and their parents. *Journal of Pediatric Psychology*, *37*(2), 185–197. <http://doi.org/10.1093/jpepsy/jsr054>
- Rothbaum, F., Weisz, J. R., & Snyder, S. S. (1982). Changing the world and changing the self: A two-process model of perceived control. *Journal of Personality and Social Psychology*, *42*(1), 5–37. <http://doi.org/10.1037//0022-3514.42.1.5>
- Rudolph, K. D., Dennig, M. D., & Weisz, J. R. (1995). Determinants and consequences of children's coping in the medical setting: Conceptualization, review, and critique. *Psychological Bulletin*, *118*(3), 328–357. <http://doi.org/10.1037//0033-2909.118.3.328>
- Sahler, O. J. Z., Dolgin, M. J., Phipps, S., Fairclough, D. L., Askins, M. a., Katz, E. R., ... Butler, R. W. (2013). Specificity of problem-solving skills training in mothers of children newly diagnosed with cancer: Results of a multisite randomized clinical trial. *Journal of Clinical Oncology*, *31*(10), 1329–1335. <http://doi.org/10.1200/JCO.2011.39.1870>

- Sahler, O. J. Z., Fairclough, D. L., Phipps, S., Mulhern, R. K., Dolgin, M. J., Noll, R. B., ...  
 Butler, R. W. (2005). Using problem-solving skills training to reduce negative affectivity in mothers of children with newly diagnosed cancer: Report of a multisite randomized trial. *Journal of Consulting and Clinical Psychology, 73*(2), 272–283.  
<http://doi.org/10.1037/0022-006X.73.2.272>
- Sahler, O. J. Z., Varni, J. W., Fairclough, D. L., Butler, R. W., Noll, R. B., Dolgin, M. J., ...  
 Mulhern, R. K. (2002). Problem-solving skills training for mothers of children with newly diagnosed cancer: A randomized trial. *Development and Behavioral Pediatrics, 23*(2), 77–86. <http://doi.org/http://dx.doi.org/10.1097/00004703-200204000-00003>
- Sawyer, M., Antoniou, G., Toogood, I., & Rice, M. (1997). Childhood cancer: A two-year prospective study of the psychological adjustment of children and parents. *Journal of the American Academy of Child and Adolescent Psychiatry, 36*(12), 1736–1743.
- Schultz, K. A. P., Ness, K. K., Whitton, J., Recklitis, C., Zebrack, B., Robison, L. L., ...  
 Mertens, A. C. (2007). Behavioral and social outcomes in adolescent survivors of childhood cancer: A report from the childhood cancer survivor study. *Journal of Clinical Oncology, 25*(24), 3649–56. <http://doi.org/10.1200/JCO.2006.09.2486>
- Skinner, E. A., Edge, K., Altman, J., & Sherwood, H. (2003). Searching for the structure of coping: A review and critique of category systems for classifying ways of coping. *Psychological Bulletin, 129*(2), 216–269. <http://doi.org/10.1037/0033-2909.129.2.216>
- Sloper, P. (2000). Predictors of distress in parents of children with cancer: A prospective study. *Journal of Pediatric Psychology, 25*(2), 79–91.
- Spanier, G. B. (1976). Measuring dyadic adjustment: New scales for assessing the quality of marriage and similar dyads. *Journal of Marriage and the Family, 38*(1), 15–28.

- Stein, K. D., Syrjala, K. L., & Andrykowski, M. A. (2008). Physical and psychological long-term and late effects of cancer. *Cancer, 112*(11 Suppl), 2577–92.  
<http://doi.org/10.1002/cncr.23448>
- Stein, R. E. K., & Jessop, D. J. (1982). A noncategorical approach to chronic childhood illness. *Public Health Reports, 97*(4), 354–362.
- Stoppelbein, L., Greening, L., & Wells, H. (2013). Parental coping and posttraumatic stress symptoms among pediatric cancer populations: Tests of competing models. *Psychology of Women Quarterly, 37*(4), 687–697. <http://doi.org/10.1016/j.psq.2013.07.005>
- Sulkers, E., Tissing, W. J. E., Brinksma, A., Roodbol, P. F., Kamps, W. a., Stewart, R. E., ... Fleer, J. (2014). Providing care to a child with cancer: A longitudinal study on the course, predictors, and impact of caregiving stress during the first year after diagnosis. *Psychology of Women Quarterly, 38*(4), 507–516. <http://doi.org/10.1016/j.psq.2014.07.005>
- Syse, A., Loge, J. H., & Lyngstad, T. H. (2010). Does childhood cancer affect parental divorce rates? A population-based study. *Journal of Clinical Oncology, 28*(5), 872–877.  
<http://doi.org/10.1200/JCO.2009.24.0556>
- Thompson, S. C., Nanni, C., & Levine, A. (1994). Primary versus secondary and central versus consequence-related control in HIV positive men. *Journal of Personality and Social Psychology, 67*(3), 540–547.
- Tofighi, D., & MacKinnon, D. P. (2011). RMediation: An R package for mediation analysis confidence intervals. *Behavior Research Methods, 43*(3), 692–700.  
<http://doi.org/doi:10.3758/s13428-011-0076-x>
- Trask, P. C., Paterson, A. G., Trask, C. L., Bares, C. B., Birt, J., & Maan, C. (2003). Parent and adolescent adjustment to pediatric cancer: Associations with coping, social support, and

family function. *Journal of Pediatric Oncology Nursing*, 20(1), 36–47.

<http://doi.org/10.1053/jpon.2003.5>

Varni, S. E., Miller, C. T., McCuin, T., & Solomon, S. (2012). Disengagement and engagement coping with HIV/AIDS stigma and psychological well-being of people with HIV/AIDS.

*Journal of Social and Clinical Psychology*, 31(2), 123–150.

<http://doi.org/10.1521/jscp.2012.31.2.123>

Walker, J. G., Manion, I. G., Cloutier, P. F., & Johnson, S. M. (1992). Measuring marital distress in couples with chronically ill children: The Dyadic Adjustment Scale. *Journal of Pediatric Psychology*, 17(3), 345–357.

Wallander, J. L., Varni, J. W., Babani, L., Banis, H. T., & Wilcox, K. T. (1989). Family resources as resistance factors for psychological maladjustment in chronically ill and handicapped children. *Journal of Pediatric Psychology*, 14(2), 157–173.

Weisz, J. R., McCabe, M. a, & Dennig, M. D. (1994). Primary and secondary control among children undergoing medical procedures: Adjustment as a function of coping style. *Journal of Consulting and Clinical Psychology*, 62(2), 324–32.

Wijnberg-Williams, B. J., Kamps, W. A., Klip, E. C., & Hoekstra-Weebers, J. E. H. M. (2006a). Psychological adjustment of parents of pediatric cancer patients revisited: Five years later.

*Psycho-Oncology*, 15(1), 1–8. <http://doi.org/10.1002/pon.927>

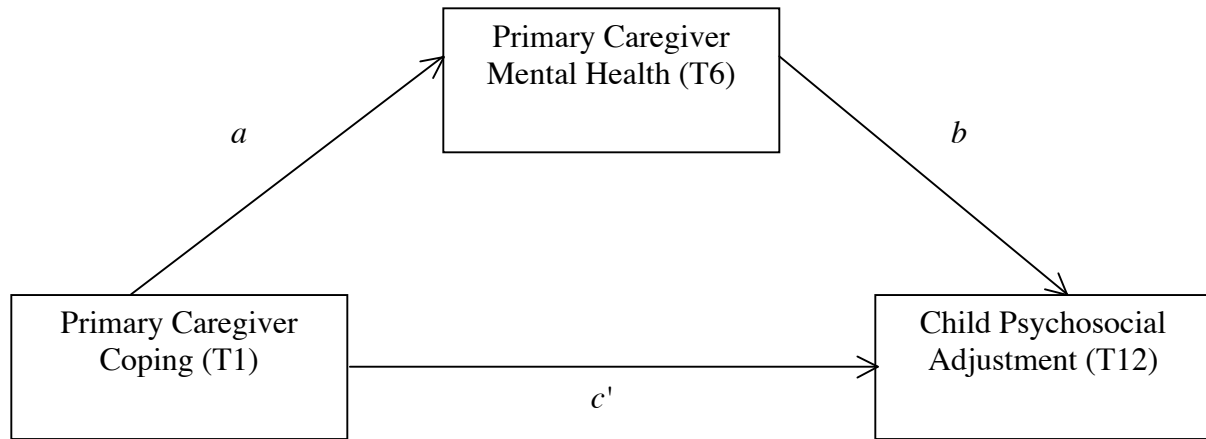
Wijnberg-Williams, B. J., Kamps, W. a., Klip, E. C., & Hoekstra-Weebers, J. E. H. M. (2006b).

Psychological distress and the impact of social support on fathers and mothers of pediatric cancer patients: Long-term prospective results. *Journal of Pediatric Psychology*, 31(8),

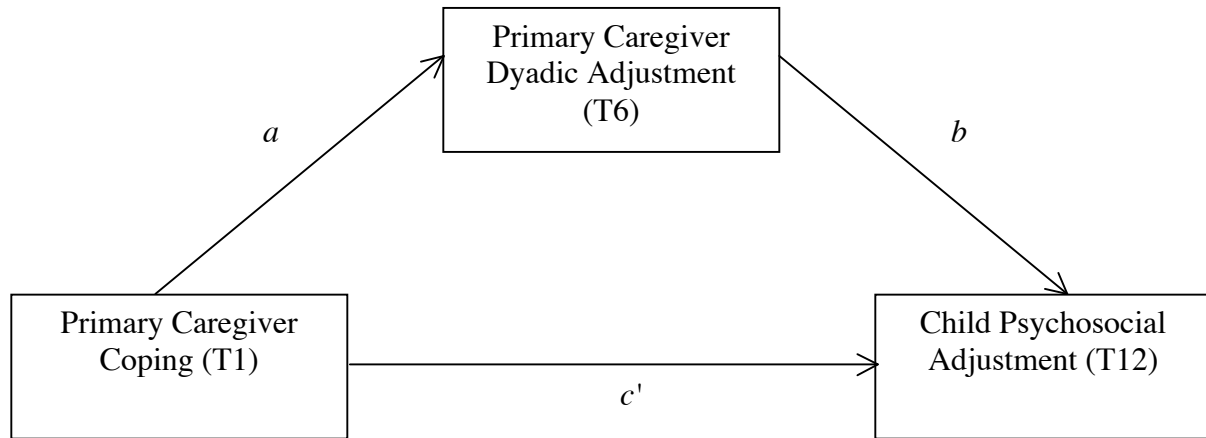
785–792. <http://doi.org/10.1093/jpepsy/jsj087>

Wijnberg-Williams, B. J., Wiel, H. B. M. Van De, Kamps, W., & Hoekstra-Weebers, J. E. H. M.

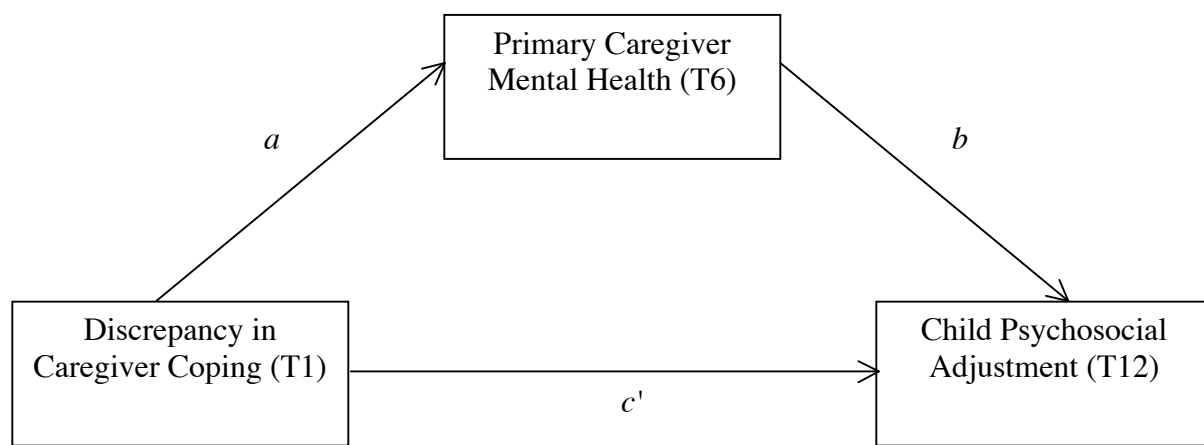
- (2015). Effects of communication styles on marital satisfaction and distress of parents of pediatric cancer patients: A prospective longitudinal study. *Psycho-Oncology*, 24, 106–112. <http://doi.org/10.1002/pon.3617> Effects
- Willard, V. W., Conklin, H. M., Wu, S., & Merchant, T. E. (2015). Prospective longitudinal evaluation of emotional and behavioral functioning in pediatric patients with low-grade glioma treated with conformal radiation therapy. *Journal of Neuro-Oncology*, 122(1), 161–168. <http://doi.org/10.1007/s11060-014-1696-7>
- Wong, M. G., & Heriot, S. a. (2008). Parents of children with cystic fibrosis: How they hope, cope and despair. *Child: Care, Health & Development*, 34(3), 344–54. <http://doi.org/10.1111/j.1365-2214.2007.00804.x>
- Yeh, C.-H. (2002). Gender differences of parental distress in children with cancer. *Journal of Advanced Nursing*, 38(6), 598–606.
- Zebrack, B. J., Gurney, J. G., Oeffinger, K., Whitton, J., Packer, R. J., Mertens, A., ... Zeltzer, L. K. (2002). Psychological outcomes in long-term survivors of childhood brain cancer: A report from the childhood cancer survivor study. *Journal of Clinical Oncology*, 22(6), 999–1006. <http://doi.org/10.1200/JCO.2004.06.148>
- Zeltzer, L. K., Recklitis, C., Buchbinder, D., Zebrack, B., Casillas, J., Tsao, J. C. I., ... Krull, K. (2009). Psychological status in childhood cancer survivors: A report from the childhood cancer survivor study. *Journal of Clinical Oncology*, 27(14), 2396–2404. <http://doi.org/10.1200/JCO.2008.21.1433>
- Zimet, D. M., & Jacob, T. (2002). Influences of marital conflict on child adjustment: Review of theory and research. *Clinical Child and Family Psychology Review*, 4(4), 319–335.



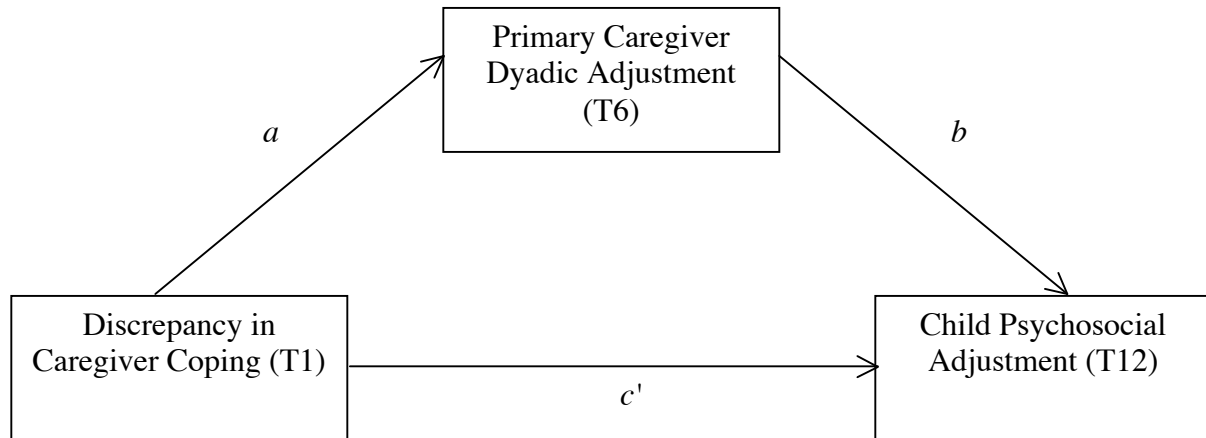
*Figure 1.* Conceptual model for Aim 1.



*Figure 2.* Conceptual model for Aim 2.



*Figure 3.* Conceptual model for Aim 3.



*Figure 4.* Conceptual model for Aim 4.

Table 1. Indirect Effects Models

<b>1a. Indirect Effects Models Under Aim 1</b>			
<i>Hypothesis</i>	<i>Independent Variable</i>	<i>Mediator</i>	<i>Dependent Variable</i>
1a.	RSQ PCEC	Caregivers' Psychopathology	Child Internalizing
	RSQ PCEC	Caregivers' Psychopathology	Child Externalizing
	RSQ PCEC	Caregivers' Psychopathology	Child PTSS
1b.	RSQ SCEC	Caregivers' Psychopathology	Child Internalizing
	RSQ SCEC	Caregivers' Psychopathology	Child Externalizing
	RSQ SCEC	Caregivers' Psychopathology	Child PTSS
1c.	RSQ DC	Caregivers' Psychopathology	Child Internalizing
	RSQ DC	Caregivers' Psychopathology	Child Externalizing
	RSQ DC	Caregivers' Psychopathology	Child PTSS
<b>1b. Indirect Effects Models Under Aim 2</b>			
<i>Hypothesis</i>	<i>Independent Variable</i>	<i>Mediator</i>	<i>Dependent Variable</i>
2a.	RSQ PCEC	Caregivers' Marital Adjustment	Child Internalizing
	RSQ PCEC	Caregivers' Marital Adjustment	Child Externalizing
	RSQ PCEC	Caregivers' Marital Adjustment	Child PTSS
2b.	RSQ SCEC	Caregivers' Marital Adjustment	Child Internalizing
	RSQ SCEC	Caregivers' Marital Adjustment	Child Externalizing
	RSQ SCEC	Caregivers' Marital Adjustment	Child PTSS
2c.	RSQ DC	Caregivers' Marital Adjustment	Child Internalizing
	RSQ DC	Caregivers' Marital Adjustment	Child Externalizing
	RSQ DC	Caregivers' Marital Adjustment	Child PTSS
<b>1c. Indirect Effects Models Under Aim 3</b>			
<i>Hypothesis</i>	<i>Independent Variable</i>	<i>Mediator</i>	<i>Dependent Variable</i>
3a.	RSQ PCEC-D	Caregivers' Psychopathology	Child Internalizing
	RSQ PCEC-D	Caregivers' Psychopathology	Child Externalizing
	RSQ PCEC-D	Caregivers' Psychopathology	Child PTSS
3b.	RSQ SCEC-D	Caregivers' Psychopathology	Child Internalizing
	RSQ SCEC-D	Caregivers' Psychopathology	Child Externalizing
	RSQ SCEC-D	Caregivers' Psychopathology	Child PTSS
<b>1d. Indirect Effects Models Under Aim 4</b>			
<i>Hypothesis</i>	<i>Independent Variable</i>	<i>Mediator</i>	<i>Dependent Variable</i>
4a.	RSQ PCEC-D	Caregivers' Marital Adjustment	Child Internalizing
	RSQ PCEC-D	Caregivers' Marital Adjustment	Child Externalizing
	RSQ PCEC-D	Caregivers' Marital Adjustment	Child PTSS
4b.	RSQ SCEC-D	Caregivers' Marital Adjustment	Child Internalizing
	RSQ SCEC-D	Caregivers' Marital Adjustment	Child Externalizing
	RSQ SCEC-D	Caregivers' Marital Adjustment	Child PTSS

Table 2. Descriptive Statistics for Key Study Variables.

	Mean	SD	Min	Max	Skew	Kurtosis
<i>Time 1</i>						
PCEC	0.21	0.06	0.09	0.49	1.74	5.07
SCEC	0.19	0.04	0.11	0.29	0.30	-0.14
DC	0.13	0.03	0.08	0.20	0.25	-0.43
PCEC-D	0.05	0.04	0.00	0.19	1.45	1.98
SCEC-D	0.04	0.02	0.00	0.10	0.78	0.10
Psychopathology	40.62	16.03	3.27	79.11	0.04	-0.60
Marital Adjustment	121.44	22.12	47.00	163.00	-0.88	1.53
Internalizing	56.38	7.91	50.00	87.00	1.24	0.81
Externalizing	49.15	11.32	32.00	95.00	0.92	1.37
PTSS	12.99	8.92	0.00	41.00	1.05	0.75
<i>Time 6</i>						
PCEC	0.19	0.05	0.10	0.40	1.04	2.28
SCEC	0.20	0.05	0.13	0.41	1.72	4.10
DC	0.13	0.03	0.07	0.18	0.09	-0.43
PCEC-D	0.07	0.01	0.00	0.32	2.10	6.13
SCEC-D	0.04	0.05	0.00	0.25	3.05	10.49
Psychopathology	33.15	16.34	1.90	79.51	0.48	-0.20
Marital Adjustment	119.30	26.07	45.00	164.00	-0.65	0.23
Internalizing	54.90	7.42	50.00	87.00	2.16	5.11
Externalizing	47.44	11.93	28.00	79.00	0.65	-0.11
PTSS	12.16	9.14	0.00	47.00	1.09	1.45
<i>Time 12</i>						
PCEC	0.20	0.05	0.10	0.39	0.94	1.60
SCEC	0.20	0.04	0.12	0.32	0.39	0.03
DC	0.13	0.03	0.08	0.23	0.97	1.60
PCEC-D	0.04	0.04	0.00	0.21	2.28	7.18
SCEC-D	0.04	0.03	0.00	0.13	1.29	1.38
Psychopathology	29.17	15.44	4.98	77.15	0.81	0.77
Marital Adjustment	124.30	23.51	66.00	166.00	-0.52	0.17
Internalizing	53.56	6.40	50.00	78.00	2.25	4.64
Externalizing	44.64	10.95	28.00	85.00	1.11	1.73
PTSS	10.14	8.30	0.00	37.00	1.30	1.61