

# Children Facing Parental Cancer Versus Parental Death: The Buffering Effects of Positive Parenting and Emotional Expression

Kathryn H. Howell<sup>1</sup> · Ellen P. Barrett-Becker<sup>2</sup> · Amanda N. Burnside<sup>3</sup> · Rachel Wamser-Nanney<sup>4</sup> · Christopher M. Layne<sup>5</sup> · Julie B. Kaplow<sup>6</sup>

Published online: 21 April 2015  
© Springer Science+Business Media New York 2015

**Abstract** The serious illness or death of a caregiver are two of the most distressing events that can befall a child, and are often temporally linked. Although both adversities may impact children's mental health, studies have not yet attempted to disentangle the effects of parental illness versus those of parental death with regard to children's psychological functioning. Further, there has been little empirical investigation of potential factors that may diminish risk for psychopathology following either of these adversities. The current study evaluated levels of anxiety, depression, and posttraumatic stress symptoms (PTSS) in youth age 7–13 grappling with either parental cancer (N = 31) or parental death (N = 32) and examined potential predictors of these mental health outcomes across both groups of children. Youth contending with parental cancer exhibited lower levels of PTSS than children who had experienced the death of a parent, but both groups exhibited similar levels of anxiety and depression.

Expressive coping was associated with lower levels of PTSS, anxiety, and depression across both groups. An interaction effect revealed that for the bereaved group only, positive parental reinforcement and supportive caregiver communication were inversely associated with PTSS. These findings provide a foundation for future work designed to identify factors associated with distinct mental health outcomes among children facing parental cancer and/or parental death.

**Keywords** Parent–child communication · Childhood bereavement · Coping · Parental illness · Parental death · Attachment

## Introduction

It is the misfortune of many children to face a barrage of hardships early in life. Two of the most stressful events that can befall a child are the serious illness, or death, of a caregiver. With respect to parental cancer, breast cancer is among the most common types of cancer experienced, with an estimated 235,000 new cases in the United States in 2014 (American Cancer Society 2014). Approximately 35 % of women diagnosed with breast cancer each year are under the age of 55 and are likely to have at least one child living at home (Howlader et al. 2013). With regard to parental death, roughly 2.5 million American children experience the death of a parent before the age of 18 (US Bureau of the Census 2001). The worldwide lifetime prevalence of children bereaved by the death of one or both parents was a staggering 151 million in 2011 (UNICEF 2013). These statistics suggest that understanding the extremely stressful and potentially traumatic experiences linked to parental cancer or death, as well as the

✉ Kathryn H. Howell  
khhwell1@memphis.edu

<sup>1</sup> Department of Psychology, University of Memphis, 356 Psychology Building, Memphis, TN 38152, USA  
<sup>2</sup> Counseling and Psychological Services (CAPS), Wayne State University, Detroit, MI, USA  
<sup>3</sup> Department of Psychology, Loyola University, Chicago, IL, USA  
<sup>4</sup> Children's Advocacy Services of Greater St. Louis, University of Missouri, St. Louis, MO, USA  
<sup>5</sup> UCLA/Duke University National Center for Child Traumatic Stress, Los Angeles, CA, USA  
<sup>6</sup> Department of Psychiatry and Behavioral Health Sciences, University of Texas Health Science Center, Houston, TX, USA

consequent needs of youth contending with these adversities, is a significant public health issue. Although both children facing parental cancer and children facing parental death must grapple with significant family upheaval, these two groups have not been systematically compared to assess their potentially distinct (or shared) psychological profiles. Such research could begin to disentangle the impact of parental serious illness (which often precedes parental death) from the impact of the death itself.

Attachment theory can provide a guiding framework for comparing these two groups. This theory postulates that parent–child attachment constitutes a biological need for love and caregiving that is hardwired and essential for survival (Bowlby 1982). Attachment theory proposes that threats to, or permanent breaks in, the attachment system serve as distressing and potentially traumatic events for children. Serious parental illness can be viewed as a threat to the attachment system, whereas the death of a parent is characterized as a permanent physical separation from the attachment figure.

Attachment theory suggests that although both types of events are challenging to children, permanent physical separation from the attachment figure constitutes a more difficult adversity to overcome because bereaved children have lost their “secure base” and must fortify other existing attachment relationships in response to that loss (Bowlby 1980). Shear and Shair (2005) propose that the death of an attachment figure produces a cascade of secondary losses, including loss of the assumptive world, loss of essential caregiving behaviors, loss of proximity and comfort from the attachment figure, and loss of biobehavioral regulation furnished by the attachment figure. It is thus logical to propose that, compared to challenges produced by parental cancer, the death of a parent likely yields more disruptions—including secondary loss-related adversities—in the lives of bereaved youth.

Nevertheless, children contending with a parent’s cancer illness must also grapple with significant attachment-related challenges. These challenges may especially arise from the dawning realization, upon witnessing their caregiver in the throes of a life-threatening illness, that their parent is vulnerable and may die. It is thus possible that the chronic anticipation and accompanying anxiety over the loss of a parent may strain children’s attachment system and increase their risk for impaired psychological functioning. The few extant studies of youth bereaved by the anticipated death of a parent shed valuable light on a variety of stressful features associated with a parent’s serious illness. Saldinger et al. (1999) found that children aged 6–16 who anticipated the death of their parent showed worse outcomes on measures of internalizing and externalizing problems compared to youth bereaved by the sudden death of a parent. More recently, Kaplow et al.

(2014b) found that children aged 7–12 who lost a caregiver due to a prolonged illness (e.g., cancer) exhibited higher levels of both maladaptive grief and posttraumatic stress symptoms (PTSS) than children who lost a caregiver due to a sudden natural death (e.g., heart attack). Such findings suggest that a parent’s illness may stifle the parent–child attachment system as children contend with separations from their ill parent during extended hospital visits or parental unavailability during periods of physical illness.

The psychological functioning of youth facing parental cancer or parental death has received some recent research attention. Evidence regarding the effects of parental breast cancer on youth functioning is, to date, relatively inconclusive. Some studies report that, compared to children with healthy parents, children of women with breast cancer experience higher rates of stress and internalizing symptoms, with symptoms more prevalent among girls (Brown et al. 2007; Osborn 2007). In contrast, other studies found no significant differences in mood, behavior, social functioning, or adjustment problems between children facing maternal breast cancer versus non-cancer control participants. Some studies found that children of women with breast cancer exhibited better adjustment compared to non-cancer groups (Howes et al. 2008; Osborn 2007). These inconsistent results may be attributable to differences in design characteristics, including assessment methods (i.e., child vs. parent report of child functioning), sample heterogeneity, child age and gender, or small sample size (Birenbaum et al. 1999; Krattenmacher et al. 2013).

Despite the significant number of children contending with the death of a loved one, little is known about the psychological functioning of bereaved youth given that the field of childhood grief largely remains in its infancy (Kaplow et al. 2012, 2014c). Recent studies suggest that bereaved children are at increased risk for psychological difficulties including maladaptive grief, posttraumatic stress, anxiety, and depressed mood (Kaplow et al. 2010, 2012; Layne et al. 2001; Melhem et al. 2007). Nevertheless, although parental death places some children at elevated risk for maladaptive outcomes, bereavement per se does not appear to significantly increase risk for clinical-level psychiatric problems (Kaplow et al. 2010); an estimated 10 % experience clinically significant psychopathology (Dowdney 2000).

A growing body of research suggests that attachment-related parent–child factors may be particularly promising predictors of children’s psychological functioning when faced with adverse events. These factors describe positive features of the parent–child relationship that may directly affect child psychopathology during the course of parental illness or in the wake of parental death. They include how children express emotions to their caregivers (i.e., expressive coping), how children and parents communicate with

each other about parental loss or the parent's cancer diagnosis, and children's perceptions of "positive parenting" behaviors (i.e., parent's reinforcement of children's positive behavior).

Studies of youth facing adversity report that cognitive suppression and avoidance are linked to problems in multiple domains of functioning, including PTSD and depression (e.g., Kaplow et al. 2005, 2014a). In contrast, expressive coping strategies, which are characterized by children's provision of clear and accurate representations of their emotional states to others, are linked to positive outcomes. A study of coping in youth facing parental cancer found that emotion-focused coping (e.g., acceptance, cognitive restructuring) was associated with better functioning, whereas coping strategies such as avoidance and distraction were linked to worse psychological outcomes (Krattenmacher et al. 2013). Similarly, a study of bereaved children found that avoidant coping was linked to higher levels of anxiety, posttraumatic stress, depression, maladaptive grief, and dysregulated HPA-axis functioning (Kaplow et al. 2013).

Communication and positive parenting are additional beneficial factors that may play a central role in promoting healthy parent-child attachment following adversity. Unfortunately, for many bereaved families, avoiding parent-child discussions regarding a death is common, often because surviving parents are unsure how to discuss the topic or doubt children's ability to understand the consequences of such experiences (Kaplow et al. 2012). The surviving caregiver's role in facilitating the child's grieving appears to be critical in promoting adaptive post-loss adjustment (Kaplow et al. 2012, 2014d; Shapiro et al. 2014). Attentive and sensitive parenting practices during parent-child communication are also linked to less psychopathology following the death (Saldinger et al. 2004; Shapiro et al. 2014). Bereaved children who perceive that their family environment encourages open sharing and expression of thoughts and feelings about the deceased caregiver are more likely to adjust positively to the death (Raveis et al. 1999; Saldinger et al. 2004).

Studies of parents with a cancer diagnosis and their children have also identified links between communication regarding the parent's diagnosis and better psychosocial adjustment in the child (e.g., Shands et al. 2000). Ill parents who openly communicate about their illness and continue to provide stable and consistent parenting practices are more likely to have children who display healthy adjustment (Thastum et al. 2008). Few studies, however, have examined the quality or type of parental communication or parenting practices, such as positive reinforcement. Further, some youth outcomes were measured using broad-spectrum tests of general psychological functioning rather than specific symptom profiles (e.g., depression, anxiety, posttraumatic stress).

Notwithstanding the capacity of both parental cancer and parental death to generate life-altering consequences for

youth and families, no published studies have directly compared these two at-risk groups—either with respect to exploring specific mental health outcomes or candidate attachment-based factors that may contribute to the capacity of children and families to adjust following adversity. The extant literature suggests that the attachment-based factors of emotionally expressive coping and positive parent-child interactions (e.g., open communication, positive reinforcement) may provide benefit by reducing the risk for children's psychopathology in the wake of their parent's death or cancer diagnosis. To our knowledge, no previous study has systematically examined and compared the psychiatric profiles—as well as constellations of candidate positive attachment-based factors—in demographically similar samples of youth facing either a parent's cancer diagnosis or parental death.

Accordingly, our first study aim was to explore potential between-group differences in children facing parental cancer versus children recently bereaved by the death of a parent, in relation to their levels of reported mental health problems (depression, anxiety, and posttraumatic stress). Of particular interest was whether bereaved children experience more symptoms of depression, anxiety, and posttraumatic stress (PTSS) given the permanent physical separation from the attachment figure as a result of the death, compared to youth facing parental cancer in which the attachment relationship may be weakened (Exploratory Question 1). Our second study aim was to examine the potential predictive effects of children's emotional expression and positive parent-child behaviors (e.g., positive reinforcement, supportive parent-child communication) on children's mental health. We thus explored associations between each of these attachment-based predictors and measures of depression, anxiety, and PTSS across both parentally bereaved children and parentally diagnosed children (Exploratory Question 2). Last, we assessed whether the predictive effects of emotional expression and positive parent-child behaviors on child mental health outcomes interact with group membership (parental cancer or parental death). Of particular interest was whether these factors exert a differentially more potent predictive effect for bereaved children, given their potentially greater risk for psychopathology (and by extension, greater likelihood of benefitting from the attachment-based factors) (Exploratory Question 3).

## Method

### Participants

This study involves secondary data analysis from two sources: (1) a longitudinal study, termed the Coping In

Response to Childhood Loss Experiences (CIRCLE) Project, which assesses psychological and behavioral effects of parental death on children, and (2) a cross-sectional study, termed the Facing Maternal Illness in Latency Years (FAMILY) Study, which examines the psychological and behavioral impact of parental cancer on children.

#### *Parental Death Sub-sample*

Bereaved children were recruited from bereavement support organizations in Southeast Michigan. During study recruitment, 56 families were approached and, of those, 41 agreed to participate. Inclusion criteria were: (1) the child experienced the death of a caregiver within the last 6 months; (2) he/she was between the ages of 3 and 12 at the time of the caregiver's death; (3) the child and surviving caregiver spoke English; and (4) the child did not have cognitive deficits severe enough to interfere with comprehension of assessment measures. The current study was limited to children aged 7 and older due to their capacity to complete the self-report measures used in the study. Given this age restriction, participants in the present study included 32 recently bereaved children (50 % female) aged 7–13 ( $M = 9.56$ ,  $SD = 2.02$ ) and their 32 surviving caregivers aged 28–64 ( $M = 42.03$ ,  $SD = 8.04$ ). Racial/ethnic composition was 71.9 % Caucasian, 12.5 % African American, 6.3 % Asian, and 9.4 % other. Of surviving caregivers, 78.1 % were female and 88.9 % were a biological caregiver of the bereaved child. Average elapsed time since the deceased caregiver's death was 108 days ( $SD = 55.42$ ).

#### *Parental Cancer Sub-sample*

Children facing maternal cancer were recruited from cancer support organizations and hospitals in Southeast Michigan. All 47 families approached during recruitment agreed to participate. Inclusion criteria were: (1) the child had a mother diagnosed with breast cancer within the last 6 months; (2) the child was between the ages of 3 and 12 at the time of diagnosis; (3) the child and mother spoke English; and (4) the child did not have cognitive deficits severe enough to interfere with comprehension of study measures. The average elapsed time since diagnosis was 116 days ( $SD = 45.39$ ). Caregiver's stage of cancer ranged from 0 to 4 (9.7 % Stage 0, 32.3 % Stage 1, 16.1 % Stage 2, 32.3 % Stage 3, 6.5 % Stage 4). The sample was limited to children aged 7 and older due to their capacity to complete the self-report measures. Participants included 31 children (54.8 % female) aged 7–13 with a mean age of 10.0 ( $SD = 1.97$ ). Caregiver's age ranged between 34 and 59 ( $M = 44.13$ ,  $SD = 6.05$ ). Race/ethnicity was 77.4 % Caucasian, 9.7 % African American, 3.2 % Asian, and

9.7 % other. Nearly all caregivers (96.8 %) were the child's biological mother.

#### **Procedures**

Procedures for the CIRCLE Project and the FAMILY Study were essentially identical. All caregivers and children completed a battery of self-report standardized questionnaires during separate interviews conducted by master's-level clinicians. Caregivers provided informed consent and children gave verbal assent. Interviewers read aloud all questions from the standardized assessment measures and recorded responses to each item. The PI (J.K.), a licensed clinical child psychologist, trained and supervised all study interviewers. To ensure fidelity, the PI held formal trainings on measure administration, reviewed videotapes of interviews, and provided direct feedback in regular meetings with study interviewers. All participants received monetary compensation.

#### **Measures**

We gathered demographic information and family history (e.g., age, ethnicity) during semi-structured interviews with the primary caregiver (the surviving parent in the CIRCLE Project or the parent recently diagnosed with cancer in the FAMILY Study).

We administered the Adverse Life Events section of the Infant Toddler Social and Emotional Assessment (ITSEA; Briggs-Gowan and Carter 1998) to assess the incidence of various stressful events throughout the child's life. This 14-item checklist was administered only to caregivers. Items included events considered stressful to children including witnessing violence and being in an accident. Endorsed items (rated as yes = 1, no = 0) are summed to create a total stress score.

We used the 13-item Short Mood and Feelings Questionnaire (SMFQ; Angold et al. 1995) to assess child depressive symptoms. Frequency of depressive symptoms (e.g., "I felt miserable or unhappy") experienced during the last 2 weeks is rated on a 3-point scale with options of 0 (not true), 1 (sometimes true), and 2 (true). Responses are summed to create a total score ( $\alpha = .86$  across both study samples).

We administered the Multidimensional Anxiety Scale for Children (MASC; March et al. 1997), a 39-item self-report measure, to evaluate children's symptoms of anxiety. Each item (e.g., "I feel tense or uptight") is rated on a 4-point scale ranging from 0 (never true about me) to 3 (often true about me). A Total Anxiety score is created by summing items that assess Harm Avoidance, Physical Symptoms, Separation Anxiety and Panic, and Social

Anxiety ( $\alpha = .91$  for the Total Anxiety score across both study samples). The total score is then converted to a standardized T score.

We used the 35-item UCLA PTSD Reaction Index (Elhai et al. 2013; Steinberg et al. 2004) to assess child PTSS in the context of learning either (1) that a parent had cancer, or (2) that a parent had died. Symptoms (e.g., “I have upsetting thoughts, pictures, or sounds of what happened come into my mind when I do not want them to”) are rated on a 5-point scale ranging from 0 (never happens) to 4 (happens most of the time). Items are summed to create a total frequency score ( $\alpha = .90$  across both study samples).

We used the Active Inhibition Scale (AI; Ayers et al. 1998) to assess children’s coping responses. This 11-item self-report measure taps into avoidant coping patterns employed in the context of potentially challenging emotions, including anger and sadness (e.g., “when you’ve been upset, you’ve acted like nothing was wrong”). Responses are recorded on a 5-point scale ranging from 0 (never) to 4 (a lot), with higher scores indicating more inhibited expression of emotion. For this study, all items were reverse scored and summed to create a total score, with higher scores reflecting more frequent use of expressive (non-avoidant) coping strategies ( $\alpha = .89$  across both study samples).

We administered the Parent Perception Inventory (PPI; Hazzard et al. 1983), an 18-item self-report measure, to evaluate children’s perceptions of parental behaviors (behaviors of the surviving parent in the CIRCLE Project or the parent recently diagnosed with cancer in the FAMILY Study). Consistent with prior studies (e.g., Sandler et al. 2003), we administered 8 items associated with positive reinforcement. Each item (e.g., “How often has your caregiver complimented you?”) is designed to reflect the child’s view of parenting practices. Items are rated on a 5-point scale ranging from 0 (never) to 4 (a lot) and summed to create a total score; higher scores reflect more frequent caregiver positive reinforcement ( $\alpha = .84$  across both study samples).

We used the Sharing Emotions Inventory (Ayers et al. 1998) to examine children’s perception of their caregiver’s ability to engage in supportive parent–child communication (the surviving parent in the CIRCLE Project or the parent diagnosed with cancer in the FAMILY Study). The measure has been used with bereaved youth in previous studies (Sandler et al. 2003) and includes 10 items (“it really makes things better when you talk to your caregiver about your problems”). Responses range from 0 (never) to 4 (a lot). Items are summed to create a total score ( $\alpha = .75$  across both study samples); higher scores indicate more positive perceptions of the parent’s communication style.

## Data Analytic Plan

All analyses were completed using SPSS 22.0. After examining potentially influential covariates using Chi square analysis and independent samples *t* tests, we used analysis of covariance (ANCOVA) to evaluate statistically significant differences between the parental cancer versus parental death groups on measures of depression, anxiety, and posttraumatic stress. We then ran nine linear regressions (three regression models for each of the three mental health outcome variables) following the procedure described by Holmbeck (2002). Three effects were tested in each regression: two direct effects: group membership and one of the attachment-based factors (emotion expression or positive parental reinforcement or supportive communication); and one interaction (group membership  $\times$  attachment-based factor). The moderating effect of group membership was tested using this interaction term. All predictors were centered to reduce multicollinearity, and dichotomous variables were dummy coded using a 0 versus 1 scheme for ease of interpretation. To examine the nature of the moderation, significant interactions were probed using the simple slopes method (Holmbeck 2002).

## Results

Table 1 depicts descriptive statistics for each group (parental cancer and parental death) and Table 2 includes correlations between continuous study variables. We conducted independent-samples *t* tests and Chi square analyses to evaluate potential differences in demographic variables between groups. We found no significant between-group differences ( $p > 0.05$ ) between bereaved children and children whose caregiver was diagnosed with cancer on any demographic variable (ethnicity, gender, age) or prior trauma history, as measured by the Adverse Life Events section of the ITSEA. We found no significant between-group differences on any demographic variables (ethnicity, gender, age) or mental health outcomes among caregivers. The parental cancer group included only female caregivers, and the parental death group included both male and female surviving caregivers; the number of male surviving caregivers ( $n = 6$ ) was small and did not contribute to any significant between-group differences. Both time elapsed since the death and time since receiving the cancer diagnosis did not differ significantly between the groups.

We also examined relations between demographic variables and child mental health outcome variables. We found no significant differences based on caregiver age, gender, or ethnicity, child gender or ethnicity, caregiver mental health, child’s prior trauma history, or time elapsed

**Table 1** Descriptive statistics for demographic variables separated by parental death or parental cancer groups

Demographic variables	Parental death		Parental cancer	
	N	%	N	%
Child gender	32	50.0 (% female)	31	54.8 (% female)
Child race				
Caucasian	23	71.9	24	77.4
African American	4	12.5	3	9.7
Asian	2	6.3	1	3.2
Hispanic	0	0	0	0
Other	3	9.4	3	9.7
	Mean	Standard deviation	Mean	Standard deviation
Child age	9.56	2.02	10.00	1.97
Surviving caregiver age	42.03	8.04	44.13	6.05
Days since death or diagnosis	108.14	55.42	115.70	45.39

**Table 2** Correlations between continuous study variables

	1	2	3	4	5	6
1. Anxiety	1.00					
2. Depression	0.67**	1.00				
3. Posttraumatic stress	0.52**	0.48**	1.00			
4. AI	-0.58**	-0.59**	-0.59**	1.00		
5. PPI	-0.32*	-0.23 <sup>+</sup>	-0.26 <sup>+</sup>	0.29*	1.00	
6. SEI	-0.11*	-0.15	-0.04	0.07	0.57**	1.00

AI, child emotional expression; PPI, positive parental reinforcement; SEI, supportive caregiving

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .01$

since the death or cancer diagnosis. We found a significant inverse correlation between all three child mental health measures and child age. Given this finding, we controlled for child age in subsequent analyses.

**Exploratory Question 1: Between-Group Differences in Levels of Psychiatric Symptoms**

We used ANCOVAs to examine whether recently bereaved children showed different psychiatric profiles than children whose parent was recently diagnosed with cancer, controlling for child age. We found no significant between-group differences with regard to children’s depressive symptoms (parental death:  $M = 5.90, SD = 5.28$ ; parental cancer:  $M = 4.53, SD = 4.71$ ) or anxiety symptoms (parental death:  $M = 52.69, SD = 13.30$ ; parental cancer:  $M = 51.67, SD = 9.41$ ). In contrast, we found a significant effect for group membership (parental cancer or parental death) on PTSS after controlling for child age,  $F(1, 53) = 9.10, p = .004$ . Follow-up pairwise comparisons revealed that bereaved children had significantly higher PTSS levels ( $M = 23.83, SD = 16.22$ ) compared to children whose parent was diagnosed with breast cancer ( $M = 12.15, SD = 11.15$ ), controlling for child age. Child age was significantly related to children’s PTSS across

both groups,  $F(1, 53) = 4.15, p = .047$ . Despite substantial variability, mean scores on all mental health outcomes fell below their respective clinical thresholds in both groups. Thus, with regard to exploratory question 1, we found that recently bereaved children exhibited higher levels of PTSS, but levels of depression and anxiety were not statistically different between the two groups.

**Exploratory Questions 2 and 3: Predictive Effects of Attachment-Based Factors on Children’s Mental Health and the Moderating Effect of Group Membership**

In a series of nine regression models, we examined the direct predictive effects of group membership and the theorized attachment-based factors (emotional expression, positive parental reinforcement, and supportive parent–child communication) on symptoms of depression, anxiety, and PTSS; as well as the moderating effect of group membership (parental cancer or parental death). We included child age as a covariate in each regression and corresponding post hoc probe. We removed non-significant interactions from the full models and then re-fit models to estimate effects (see Table 3). Given the number of

**Table 3** Linear regression models predicting mental health outcomes from main effects and interactions of child emotional expression, positive parental reinforcement, supportive caregiving, and group membership

	Predictors					
	AI B (SE)	Group B (SE)	PPI B (SE)	Group B (SE)	PPI × group B (SE)	SEI × group B (SE)
<b>Anxiety</b>						
Regression 1	-0.62** (0.12)	2.65 (2.49)				
Regression 2		-0.46 (0.24)	0.13 (2.87)		<sup>a</sup>	
Regression 3						-0.27 (0.26)
<b>Depression</b>						
Regression 1	-0.26** (0.05)	0.16 (1.09)				
Regression 2		-0.10 (0.11)	-0.90 (1.26)		<sup>a</sup>	
Regression 3						-0.15 (0.11)
<b>Posttraumatic stress symptoms</b>						
Regression 1	-0.68** (0.16)	-8.25* (3.26)				
Regression 2		-0.84* (0.35)	-10.97** (3.46)		1.53* (0.58)	
Regression 3						-0.75 <sup>+</sup> (0.41)
						1.56* (0.64)

N ranged from 56 to 61 children. All regression models controlled for child age. Non-significant interactions were tested but not included in final models

AI, child emotional expression; PPI, positive parental reinforcement; SEI, supportive caregiving; Group, group membership (parental bereavement or parental cancer diagnosis); ×, interaction of independent predictors

<sup>+</sup>  $p < .10$ ; \*  $p < .05$ ; \*\*  $p < .001$

<sup>a</sup> Notes each interaction term that was dropped from the final equation. AI × group interaction is not displayed as it was not significant in any model and was dropped from the equations. All reported B values are unstandardized

regressions, we used the Holm–Bonferroni adjustment for multiple comparisons (Abdi 2010; Holm 1979).

### *Depressive Symptoms*

The first model evaluated the main effects of group membership and the coping strategy of emotional expression, in addition to the interaction between group membership and emotional expression, on depressive symptoms. The interaction was non-significant in the full model; after removing the interaction term, the final model showed a significant direct predictive effect for emotional expression ( $B = -.26$ ,  $p < .001$ ), but not group membership. This finding indicates that, for children across both groups, higher levels of emotional expression were associated with lower levels of depression. A second regression model examined the direct effects of group membership and positive parental reinforcement, as well as their interaction, in relation to depression. We found no significant direct or interactive effects. We found no significant effects in our third regression model testing the direct predictive effects of group membership, supportive communication, and their interaction on depressive symptoms. Taken together, these results suggest that with respect to exploratory questions two and three, only emotional expression exerted a direct effect on symptoms of depression. Furthermore, group membership did not moderate the relationship between emotional expression and youths' depressive symptoms.

### *Anxiety Symptoms*

We conducted an identical series of analyses to evaluate the study variables' associations with symptoms of anxiety. The first model assessed the direct predictive effects of group membership (parental cancer or parental death) and emotional expression, as well as their interaction, on anxiety symptoms. The interaction was not significant in the full model; the regression was rerun with direct effects only. We found a significant direct predictive effect for emotional expression ( $B = -.62$ ,  $p < .001$ ), but not group membership. These findings illustrate that for both samples of children, greater emotional expression was associated with lower levels of anxiety. We conducted a second regression to examine the predictive effects of group membership and positive parental reinforcement, as well as their interaction, on anxiety. We found no significant direct or interactive effects. A third regression model testing the direct predictive effects of group membership, supportive communication, and their interaction on anxiety symptoms also yielded no significant effects. With regard to exploratory questions two and three, consistent with the depression findings, only emotional expression directly predicted anxiety symptoms and group membership did not moderate any effects.

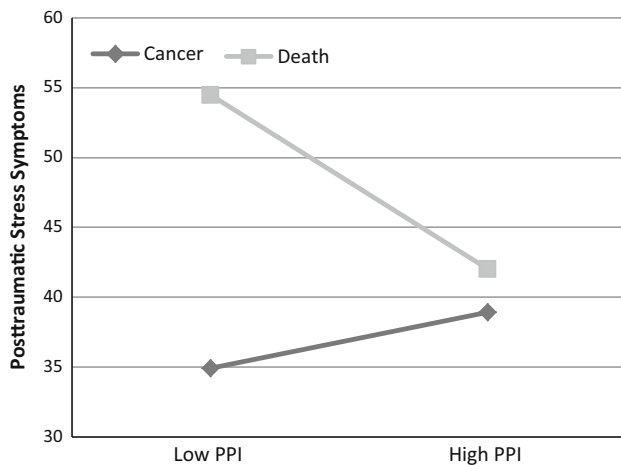
### *Posttraumatic Stress Symptoms*

We conducted the same series of analyses to examine the study variables' effects on symptoms of posttraumatic stress. The first model evaluated the direct predictive effects of group membership, emotional expression, and their interaction. The interaction did not reach significance in the full model; it was dropped and the regression rerun testing only direct effects. The predictive effect for emotional expression was significant ( $B = -.68$ ,  $p = .002$ ), indicating that expressive coping was inversely associated with PTSS for both groups. Consistent with findings from exploratory question one, group membership was also significantly associated with PTSS, such that death of a parent was uniquely related to PTSS above and beyond the direct predictive effect of emotional expression ( $B = -8.25$ ,  $p = .014$ ).

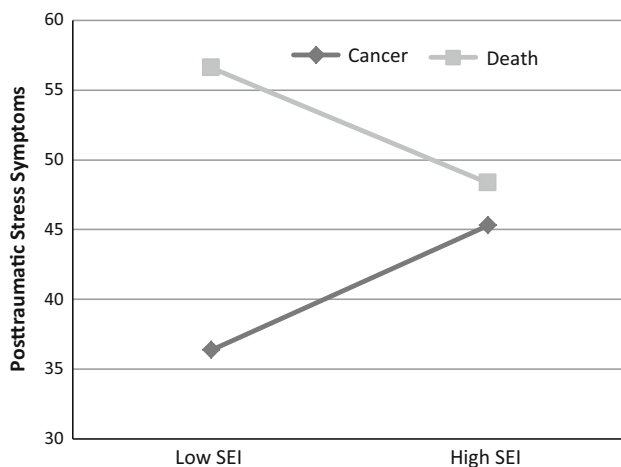
A second regression model examined the predictive effects of group membership, positive parental reinforcement, and their interaction on PTSS. The direct effect for positive parental reinforcement was significant ( $B = -.84$ ,  $p = .020$ ), as was the direct effect for group membership ( $B = -10.97$ ,  $p = .009$ ). The positive parental reinforcement by group membership interaction also reached significance ( $B = 1.53$ ,  $p = .020$ ), which indicates that group membership moderated the relationship between positive parental reinforcement and PTSS. This interaction was then probed following Holmbeck's (2002) simple slope procedures. Analyses revealed that parental reinforcement was inversely associated with PTSS for bereaved children ( $B = -.99$ ,  $p = .014$ ), but not for children coping with parental cancer ( $B = .32$ ,  $p = .498$ ) (see Fig. 1).

A third regression model tested the direct effects of group membership, supportive caregiver communication, and their interaction on PTSS. The predictive effect of supportive communication approached significance ( $B = -.75$ ,  $p = .072$ ), whereas the main effect for group membership ( $B = -10.96$ ,  $p = .009$ ) and the interaction between supportive communication and group membership reached significance ( $B = 1.56$ ,  $p = .036$ ). This suggests that group membership also moderates the relationship between supportive communication and PTSS. Post hoc probes of this interaction revealed a pattern of results for supportive communication similar to the positive parental reinforcement model. Specifically, supportive communication was (marginally) inversely associated with PTSS in bereaved children ( $B = -.74$ ,  $p = .085$ ), but not in children facing parental cancer ( $B = .81$ ,  $p = .115$ ) (see Fig. 2). As related to exploratory questions two and three, we found that expressive coping was a significant predictor for both groups of children, as it was associated with lower levels of PTSS, anxiety, and depression for recently bereaved children and children who had a parent diagnosed with cancer. For only the bereaved children, higher levels of positive parental





**Fig. 1** The simple slopes for interactions between parental positive reinforcement and caregiver group membership predicting posttraumatic stress levels



**Fig. 2** The simple slopes for interactions between supportive caregiving and caregiver group membership predicting posttraumatic stress levels

reinforcement and supportive caregiver communication were associated with lower levels of PTSS, providing evidence for differential relations across the two groups.

## Discussion

The serious illness or death of a caregiver are two major attachment-related hardships encountered by millions of children and adolescents worldwide. To date, exploring the potentially differential impact of threats to the attachment system (secondary to parental cancer diagnosis) versus permanent physical separation from the attachment figure (secondary to parental death) has received little empirical attention. Although exploratory, our results shed light on the particular challenges these two child populations

undergo that can begin to inform efforts to construct and refine clinically useful theory, assessment tools, and intervention—especially for hospice and palliative care workers who seek to provide continuity of care that addresses the needs of both populations. Further, given that these two types of adversities commonly co-occur (i.e., parents are often diagnosed with serious and potentially terminal illness prior to their death), our findings may serve as the foundation for larger longitudinal studies that permit more rigorous investigation of factors that may differentially impact youth at different points along a parent's illness trajectory.

With regard to psychological profiles, one primary difference emerged between the parental cancer and parental death groups in the form of significantly higher PTSS levels in the parental death group than in the parental cancer group. In contrast, the two groups did not significantly differ in their respective levels of depression and anxiety symptoms. Of particular note, mean levels of PTSS, depression, and anxiety in both groups did not exceed the clinical threshold, suggesting that, on average, members of both groups appeared to be generally manifesting stress-resistant trajectories (Layne et al. 2009).

Our finding of sub-clinical elevations on all outcome measures (PTSS, depression, and anxiety) in both groups may be attributable to at least three factors. First, the low-risk demographic profiles of the samples (in that most families were financially secure and had few prior traumatic events) may have contributed to their reduced symptom manifestations. Second, most families were recruited from a large cancer and bereavement support community, which may have buffered the stress associated with both types of life adversities. And third, the young age of our sample (mean = 10 years old) may also have mitigated against the development of mental health difficulties given that the base rate of psychiatric diagnoses tends to increase as children move into adolescence (Merikangas et al. 2010).

Although the group mean fell within the subclinical range, the finding of significantly higher PTSS scores in the Parental Death group merits further exploration. Several factors may account for why parentally bereaved children exhibited higher levels of PTSS. First, the stage of cancer for caregivers in this sample spanned a wide range, and given the overall small sample size, only a small number of caregivers represented each of the five cancer stages. If stage of cancer were more homogeneously severe (i.e., if caregivers were diagnosed with advanced stage cancer), caregivers would likely have undergone more intrusive treatments, in turn increasing the risk that their children would be exposed to traumatogenic images (invasive medical procedures, physical deterioration of the parent, etc.) and consequently show higher levels of PTSS. Second, children may understand and experience the meaning

of a parent's death—in contrast to a parent's cancer illness—in different ways. The concept of cancer may be ambiguous or unclear to children (compared to adolescents), for whom learning of a parent's cancer diagnosis, although distressing, may not be traumatic as defined by the DSM-5 (Pynoos et al. 2009). Additionally, children facing early stage parental cancer may not grasp the implications of a more serious cancer diagnosis, including such potential consequences as permanent separation from the parent, disrupted family routines, protracted treatments, and persisting uncertainty regarding prognosis. Indeed, during the period initially following an early stage cancer diagnosis, children are often exposed to messages of hope and recovery, which may function as a protective factor in relation to their psychological functioning.

In contrast, parentally bereaved children must not only contend with the permanent physical absence of their loved one and loss of one of their main attachment figures, but may also have been exposed to traumatogenic images and situations associated with the end of the parent's life, thereby increasing the likelihood of developing PTSS (Kaplow et al. 2014b). According to attachment theory, the permanent physical separation from an attachment figure poses significant challenges and may be potentially traumatic for children (Bowlby 1980). Last, for parentally bereaved children, people, places, or situations that may have once been perceived as comforting or neutral prior to the death (e.g., the caregiver's bed, photos of the caregiver) could become painful and serve as potent trauma or loss reminders (Layne et al. 2006).

The second and third exploratory questions of this study involved a systematic exploration for candidate predictors of depression, anxiety, and PTSS, as well as for the potentially moderating role of group membership. We found a direct predictive effect for expressive coping, in that (regardless of group status) emotional expression was inversely associated with all psychological outcomes. This finding is consistent with prior research linking avoidant coping with difficulties in multiple domains of functioning (Kaplow et al. 2005), as well as evidence that acceptance and expression of emotions is associated with decreased negative affect in depressed and/or anxious individuals (Campbell-Sills et al. 2006). However, with few exceptions (e.g., Compas et al. 1996; Kaplow et al. 2013), almost no studies to date have examined avoidance—or conversely, expressive coping—in youth contending with parental cancer or parental death.

With regard to parental cancer and parental death group membership, we identified both direct predictive effects and moderating effects (evidenced by significant interactions) in observed relations between attachment-based factors and PTSS. The direct effects indicated that membership in the bereaved group was associated with

significantly higher PTSS. Interactive effects revealed that for bereaved children only (not children coping with parental cancer), both positive parental reinforcement and supportive communication were inversely associated with PTSS. These findings suggest that, in the wake of parental death, positive reinforcement and supportive communication with the surviving caregiver are potent protective markers of children's positive adjustment, possibly by facilitating a sense of routine and consistency and strengthening children's relationship with the surviving caregiver. Consistent with an attachment-based model of bereavement (e.g., Shear and Shair 2005), these findings point to the promise of strengthening aspects of the attachment relationship between the child and surviving caregiver as a candidate mechanism for facilitating positive coping in the wake of significant loss (Kaplow et al. 2014d). Our results are also consistent with conclusions of other studies that both consistent routine and positive parent–child relations may promote caregivers' ability to co-facilitate their children's grief (Kaplow et al. 2012, 2014d) and reduce PTSS (Cohen et al. 2006). Parents' supportive communication may also provide their children with empathy and social support regarding the death and model appropriate emotional expression, both of which may promote adaptive coping and decrease the likelihood of PTSS (Trickey et al. 2012).

### Clinical Implications

These study findings carry promise for informing work with children facing parental cancer and/or parental death. First, most child participants exhibited adaptive functioning across multiple mental health domains, underscoring the importance of refraining from pathologizing children exposed to parental death or parental illness on the basis of the inherent stressfulness of these experiences. Second, findings highlight the potential utility of appropriate screening tools and psychoeducational materials that clinicians could provide to families, particularly those that help to support and build attachment relationships in the face of adversity. Such materials might assess children's adaptive coping strategies, the parent–child relationship, and potentially offer strategies to enhance children's emotional expression, parent–child communication, and strengthen bonds between caregivers and their children. Support groups for caregivers may involve the discussion of parenting challenges, communication strategies, and ways to employ positive reinforcement techniques. Given that bereaved youth may be at greater risk for posttraumatic stress and/or maladaptive grief reactions (see Kaplow et al. 2012), psychoeducational materials for bereaved families may also include information about these specific signs and symptoms that would indicate a need for intervention.

## Study Limitations

Study limitations included: (1) Small sample sizes in the two groups, and a lack of a non-affected (i.e., children who are not facing parental cancer or death) comparison group, which limited statistical power and the ability to use advanced statistical procedures that could detect more subtle or nuanced effects and between-group differences. The small sample size further prohibited the examination of some potential covariates, such as the stage of cancer. The lack of a non-exposed control group prevented rigorous evaluation of the roles played by theorized beneficial factors, including the roles of promotive factors (which exert direct beneficial effects regardless of the presence or absence of a focal risk factor), protective factors (which manifest beneficial effects only in the presence of the focal risk factor), or combined promotive/protective factors (Layne et al. 2009, 2014). (2) The sample lacked variability in ethnicity, income, and education, and included mostly younger children who may have been at lower risk for mental health difficulties. Further, given that most participants were “help-seeking” in that they were recruited from cancer or bereavement support organizations, it is possible that findings do not generalize to the larger population of individuals unaffiliated with such service organizations. (3) Our cross-sectional study design precludes causal inference and lacks a longitudinal perspective, limiting exploration of questions concerning whether psychological distress in both groups worsen or improve over time, as well as whether theorized beneficial factors change over time as children develop. (4) Our assessment battery lacked measures of such mental health outcomes as externalizing behaviors and more specific indicators of grief-related psychopathology. Notably, recent work suggests that maladaptive grief reactions are meaningfully distinct from symptoms of posttraumatic stress and may include separation distress, identity distress, and circumstance-related distress reactions (Kaplow et al. 2014a; Layne et al. 2013). (5) We did not have access to a measure that directly assessed expressive coping strategies. And (6) the study utilized children’s self-reports of their symptoms and did not include symptom ratings completed by other important life figures, including their caregivers. Nevertheless, our study results can be used to construct basic conceptual models of candidate factors that show promise for influencing child adjustment. Such models can then be empirically tested and refined over time (Layne et al. 2014).

## Future Research Directions

Future studies should include a larger, more demographically diverse sample, such as children across a wider age range, parents of both genders, and caregivers at different stages of illness who can be followed over time.

Covariates such as demographic variables and stage of illness also merit closer examination in these larger samples. Second, studies are needed that assess a broader spectrum of potential outcomes, including a more diverse array of psychological outcomes (e.g., grief reactions; externalizing symptoms), functioning (e.g., peer relations, school performance), and developmental progress or limits (e.g., milestones, risky behavior). Third, longitudinal studies can shed light on developmentally-linked differences in child-caregiver relationship features as children transition into adolescence and as parents continue to grapple with their cancer illness. For example, studies that follow youth across a parent’s illness trajectory can elucidate specific mechanisms that may be active at different points in time (at diagnosis, during treatment, during remission, etc.). These studies would also permit examination of children who had a parent recover following cancer as compared to children whose parent died following an illness. Last, longitudinal study designs that contrast the adjustment trajectories of youth facing parental cancer versus death can identify critical periods of symptom fluctuation over the course of development and during life transitions (Kaplow and Layne 2014). For example, bereaved children may exhibit increased symptoms of depression with the realization that their attachment figure will be absent for important life milestones. Similarly, children who have a parent diagnosed with cancer may display increased anxiety as the parent progresses through invasive treatments. Such studies will be especially beneficial for the many providers who strive to meet the diverse needs of children and their families who are grappling with some of life’s most challenging adversities.

**Acknowledgments** The authors wish to thank Michelle Belke, Alena Grieser, Heather Hammerstrom, Harriett Jones, Georgia Stamatopoulos, and Amanda Tarantowski for their assistance with conducting interviews. We also thank Britney Wardecker and Emilie Lerner for their assistance with project coordination. We greatly appreciate the help of Damia December, Valerie Elsesser, Joanna Gross, Kara Koppinger, Mirele Mann, Meredith Merlanti, Michael Shain, Jerri Bamberger, Monica Arkin, Maggie O’Reilly Treter, Megan Ramthun, Madison Kraus, and Hannah Wolfson for their assistance with data management and data entry. Finally, we wish to acknowledge the Gilda’s Club of Grand Rapids staff for their administrative support, and all participating children, parents, and guardians. This research was supported in part by Grants NIMH K08 MH76078, Michigan Institute for Clinical and Health Research Grant, Todd Ouida Clinical Scholars Award, the Rachel Upjohn Clinical Scholars Award, the Laurence Polatsch Memorial Fund, and the Lynn Wilson Memorial Fund given to Dr. Kaplow.

**Conflict of interest** Authors do not have any conflicts of interest to disclose.

**Ethical standard** All procedures performed in this study involving human participants were in accordance with the ethical standards of the institutional research committee review board and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

**Informed consent** Informed consent/assent was obtained from all individual participants included in the study.

## References

- Abdi, H. (2010). Holm's sequential Bonferroni procedure. In D. Salkind (Ed.), *Encyclopedia of research design* (pp. 1–8). Thousand Oaks, CA: Sage.
- American Cancer Society. (2014). *Cancer facts and figures*. Atlanta, GA: American Cancer Society.
- Angold, A., Costello, E., & Messer, S. (1995). Development of a short questionnaire for use in epidemiological studies of depression in children and adolescents. *International Journal of Methods in Psychiatric Research*, 5, 237–249.
- Ayers, T. S., Sandler, I. N., Twohey, J. L., & Haine, R. A. (1998). *Three views of emotional expression in parentally bereaved children*. In Poster presented at the annual convention of the American Psychological Association, San Francisco.
- Birenbaum, L., Yancey, D., Phillips, D., Chand, N., & Huster, G. (1999). School-age children's and adolescents' adjustment when a parent has cancer. *Oncology Nursing Forum*, 26(10), 1639–1645.
- Bowlby, J. (1980). *Attachment and loss: Vol. III. Loss*. New York: Basic Books.
- Bowlby, J. (1982). *Attachment and loss: Vol. I. Attachment*. New York: Basic Books. (First published in 1969).
- Briggs-Gowan, M., & Carter, A. (1998). Preliminary acceptability and psychometrics of the infant-toddler social and emotional assessment (ITSEA): A new adult-report questionnaire. *Infant Mental Health Journal*, 19, 422–445.
- Brown, R., Fuemmeler, B., Anderson, D., Jamieson, S., Simonian, S., Hall, R., & Brescia, F. (2007). Adjustment of children and their mothers with breast cancer. *Journal of Pediatric Psychology*, 32(3), 297–308.
- Campbell-Sills, L., Cohan, S. L., & Stein, M. B. (2006). Relationship of resilience to personality, coping, and psychiatric symptoms in young adults. *Behaviour Research and Therapy*, 44(4), 585–599.
- Cohen, J. A., Mannarino, A. P., & Deblinger, E. (2006). *Treating trauma and traumatic grief in children and adolescents*. New York: Guilford Press.
- Compas, B. E., Worsham, N. L., Ey, S., & Howell, D. C. (1996). When mom or dad has cancer: II. Coping, cognitive appraisals, and psychological distress in children of cancer patients. *Health Psychology*, 15(3), 167–175.
- Dowdney, L. (2000). Childhood bereavement following parental death. *Journal of Child Psychology and Psychiatry*, 41, 819–830.
- Elhai, J., Layne, C., Steinberg, A., Brymer, M., Briggs, E., et al. (2013). Psychometric properties of the UCLA PTSD Reaction Index: Investigating actor structure findings in a national clinic-referred youth sample. *Journal of Traumatic Stress*, 26, 10–18.
- Hazzard, A., Christensen, A., & Margolin, G. (1983). Children's perceptions of parental behaviors. *Journal of Abnormal Child Psychology*, 11(1), 49–59.
- Holm, S. (1979). A simple sequential rejective method procedure. *Scandinavian Journal of Statistics*, 6, 65–70.
- Holmbeck, G. (2002). Post-hoc probing of significant moderational and mediational effects in studies of pediatric populations. *Journal of Pediatric Psychology*, 27(1), 87–96.
- Howes, M., Hoke, L., Winterbottom, M., & Delafield, D. (2008). Psychosocial effects of breast cancer on the patient's children. *Journal of Psychosocial Oncology*, 12(4), 1–21.
- Howlader, N., Noone, A. M., Krapcho, M., Garshell, J., Miller, D., Altekruse, S. F., et al. (Eds.). (2013). SEER cancer statistics review, 1975–2011, National Cancer Institute. Bethesda MD. Retrieved from [http://seer.cancer.gov/csr/1975\\_2011/](http://seer.cancer.gov/csr/1975_2011/).
- Kaplow, J. B., Dodge, K. A., Amaya-Jackson, L., & Saxe, G. N. (2005). Pathways to PTSD, part II: Sexually abused children. *American Journal of Psychiatry*, 162(7), 1305–1310.
- Kaplow, J. B., Gipson, P., Horwitz, A., Burch, B., & King, C. (2014a). Emotional suppression mediates the relation between adverse life events and adolescent suicide: Implications for prevention. *Prevention Science*, 15, 177–185.
- Kaplow, J. B., Howell, K. H., & Layne, C. M. (2014b). Do circumstances of the death matter? Identifying socioenvironmental risks for grief-related psychopathology in bereaved youth. *Journal of Traumatic Stress*, 27(1), 42–49.
- Kaplow, J. B., & Layne, C. M. (2014). Sudden loss and psychiatric disorders across the life course: Toward a developmental lifespan theory of bereavement-related risk and resilience. *American Journal of Psychiatry*, 171, 807–810.
- Kaplow, J. B., Layne, C. M., & Pynoos, R. S. (2014c). Persistent Complex Bereavement Disorder as a call to action: Using a proposed DSM-5 diagnosis to advance the field of childhood grief. *Traumatic Stress Points*. [http://sherwood-istss.informz.net/sherwood-istss/archives/archive\\_3773102.html](http://sherwood-istss.informz.net/sherwood-istss/archives/archive_3773102.html).
- Kaplow, J. B., Layne, C. M., & Pynoos, R. S. (2014d). Parental grief facilitation: How parents can help their bereaved children during the holidays. *Traumatic Stress Points*. <http://sherwoodistss.informz.net/admin31/content/template.asp?sid=40989&brandid=4463&uid=10190245&mi=4449102&&ptid=0&ps=40989>.
- Kaplow, J. B., Layne, C. M., Pynoos, R. S., Cohen, J., & Lieberman, A. (2012). DSM-V diagnostic criteria for bereavement-related disorders in children and adolescents: Developmental considerations. *Psychiatry*, 75(3), 242–265.
- Kaplow, J. B., Saunders, J., Angold, A., & Costello, E. (2010). Psychiatric symptoms in bereaved versus non-bereaved youth and young adults: A longitudinal, epidemiological study. *Journal of the American Academy of Child and Adolescent Psychiatry*, 49, 1145–1154.
- Kaplow, J. B., Shapiro, D. N., Wardecker, B. M., Howell, K. H., Abelson, J. L., Worthman, C. M., & Prossin, A. R. (2013). Psychological and environmental correlates of HPA axis functioning in parentally bereaved children: Preliminary findings. *Journal of Traumatic Stress*, 26(2), 233–240.
- Krattenmacher, T., Kühne, F., Führer, D., Beierlein, V., Brähler, E., Resch, F., et al. (2013). Coping skills and mental health status in adolescents when a parent has cancer: A multicenter and multi-perspective study. *Journal of Psychosomatic Research*, 74, 252–259.
- Layne, C. M., Beck, C. J., Rimmasch, H., Southwick, J. S., Moreno, M. A., & Hobfoll, S. E. (2009). Promoting “resilient” posttraumatic adjustment in childhood and beyond: “Unpacking” life events, adjustment trajectories, resources, and interventions. In D. Brom, R. Pat-Horenczyk, & J. Ford (Eds.), *Treating traumatized children: Risk, resilience, and recovery* (pp. 13–47). New York: Routledge.
- Layne, C. M., Kaplow, J. B., & Pynoos, R. S. (2013). *Persistent Complex Bereavement Disorder (PCBD) checklist—Youth version 1.0*. Psychological test and administration manual. University of California, Los Angeles.
- Layne, C. M., Pynoos, R. S., Saltzman, W. R., Arslanagić, B., Black, M., Savjak, N., et al. (2001). Trauma/grief-focused group psychotherapy: School-based postwar intervention with traumatized Bosnian adolescents. *Group Dynamics: Theory, Research, and Practice*, 5(4), 277–290.
- Layne, C. M., Steinberg, J. R., & Steinberg, A. M. (2014). Causal reasoning skills training for mental health practitioners: Promoting sound clinical judgment in evidence-based practice. *Training*

- and Education in Professional Psychology. doi:10.1037/tep0000037.
- Layne, C. M., Warren, J. S., Saltzman, W. R., Fulton, J., Steinberg, A. M., & Pynoos, R. S. (2006). Contextual influences on post-traumatic adjustment: Retraumatization and the roles of distressing reminders, secondary adversities, and revictimization. In L. A. Schein, H. I. Spitz, G. M. Burlingame, & P. R. Muskin (Eds.), *Psychological effects of catastrophic disasters: Group approaches to treatment* (pp. 235–286). New York, NY: Haworth Press.
- March, J., Parker, J., Sullivan, K., Stallings, P., & Conners, C. (1997). The Multidimensional Anxiety Scale for Children (MASC): Factor structure, reliability, and validity. *Journal of the American Academy of Child and Adolescent Psychiatry*, 36(4), 554–565.
- Melhem, N., Moritz, G., Walker, M., Shear, M., & Brent, D. (2007). Phenomenology and correlates of complicated grief in children and adolescents. *The Journal of the American Academy of Child and Adolescent Psychiatry*, 46(4), 493–499.
- Merikangas, K. R., He, J. P., Burstein, M., Swanson, S. A., Avenevoli, S., Cui, L., et al. (2010). Lifetime prevalence of mental disorders in US adolescents: Results from the National Comorbidity Survey Replication–Adolescent Supplement (NCS-A). *Journal of the American Academy of Child and Adolescent Psychiatry*, 49(10), 980–989.
- Osborn, T. (2007). The psychosocial impact of parental cancer on children and adolescents: A systematic review. *Psycho-Oncology*, 16(2), 101–126.
- Premack, D. (1959). Toward empirical behavior laws: I. Positive reinforcement. *Psychological Review*, 66(4), 219.
- Pynoos, R. S., Steinberg, A. M., Layne, C. M., Briggs, E. C., & Ostrowski, S. A. (2009). DSM-V PTSD diagnostic criteria for children and adolescents: A developmental perspective and recommendations. *Journal of Traumatic Stress*, 22(5), 391–398.
- Raveis, V., Siegel, K., & Karus, D. (1999). Children's psychological distress following the death of a parent. *Journal of Youth and Adolescence*, 28(2), 165–180.
- Saldinger, A., Cain, A., Kalter, N., & Lohnes, K. (1999). Anticipating parental death in families with young children. *American Journal of Orthopsychiatry*, 69(1), 39–48.
- Saldinger, A., Porterfield, K., & Cain, A. (2004). Meeting the needs of parentally bereaved children: A framework for child-centered parenting. *Psychiatry: Interpersonal and Biological Processes*, 67(4), 331–352.
- Sandler, I., Ayers, T., Wolchik, S., Tein, J., Kwok, H., et al. (2003). The family bereavement program: Efficacy evaluation of a theory-based prevention program for parentally bereaved children and adolescents. *Journal of Consulting and Clinical Psychology*, 71(3), 587–600.
- Shands, M. E., Lewis, F. M., & Zahlis, E. H. (2000). Mother and child interactions about the mother's breast cancer: An interview study. *Oncology Nursing Forum*, 27(1), 77–85.
- Shapiro, D., Howell, K., & Kaplow, J. (2014). Associations among mother-child communication quality, childhood maladaptive grief, and depressive symptoms. *Death Studies*, 38(3), 172–178.
- Shear, K., & Shair, H. (2005). Attachment, loss, and complicated grief. *Developmental Psychobiology*, 47, 253–267.
- Steinberg, A., Brymer, M., Decker, K., & Pynoos, R. (2004). The University of California at Los Angeles post-traumatic stress disorder reaction index. *Current Psychiatry Reports*, 6, 96–100.
- Thastum, M., Johansen, M., Gubba, L., Olesen, L., & Romer, G. (2008). Coping, social relations, and communication: A qualitative exploratory study of children of parents with cancer. *Clinical Child Psychology and Psychiatry*, 13, 123.
- Trickey, D., Siddaway, A. P., Meiser-Stedman, R., Serpell, L., & Field, A. P. (2012). A meta-analysis of risk factors for post-traumatic stress disorder in children and adolescents. *Clinical Psychology Review*, 32, 122–138.
- UNICEF. (2013). *Statistics by area/HIV/AIDS: Orphan estimates*. Retrieved from [http://www.childinfo.org/hiv\\_aids\\_orphanestimates.php](http://www.childinfo.org/hiv_aids_orphanestimates.php).
- US Bureau of the Census. (2001). *One-parent family groups with own children under 18, by marital status, race and Hispanic origin of the reference person*. Washington, DC: US Bureau of the Census.