Published in final edited form as:
Death Stud. 2008 ; 32(7): 597–620.

Parentally Bereaved Children's Grief: Self-system Beliefs as Mediators of the Relations between Grief and Stressors and Caregiver-child Relationship Quality

Sharlene A. Wolchik, Yue Ma, Jenn-Yun Tein, Irwin N. Sandler, and Tim S. Ayers
Arizona State University

Abstract

We investigated whether three self-system beliefs -- fear of abandonment, coping efficacy, and self-esteem -- mediated the relations between stressors and caregiver-child relationship quality and parentally bereaved youths' general grief and intrusive grief thoughts. Cross-sectional ($n=340$ youth) and longitudinal ($n=100$ youth) models were tested. In the cross-sectional model, fear of abandonment mediated the effects of stressors and relationship quality on both measures of grief and coping efficacy mediated the path from relationship quality to general grief. Fear of abandonment showed a marginal prospective mediational relation between stressors and intrusive grief thoughts. After excluding the mediators, relationship quality showed a direct prospective relation to intrusive grief thoughts.

Keywords

grief of parentally bereaved children; negative life events; self-system beliefs; fear of abandonment; self-esteem; coping efficacy

Although most youth who experience parental death return to pre-death levels of functioning by a year after the death (e.g., Worden, 1996), a sizeable percentage experiences significant depressive symptoms, social withdrawal, and academic difficulties long after the death (Cerel, Fristad, Verducci, Weller & Weller, 2006). Research focused on explaining variability in adaptation after parental death has consistently shown that negative life events (e.g., Thompson, Kaslow, Price, Williams & Kingree, 1998; Wolchik, Tein, Sandler & Ayers, 2006) and positive caregiver-child relationships after the death are significantly associated with fewer adjustment problems (Sandler, Gersten, Reynolds, Kallgren, & Ramirez, 1988; Wolchik et al., 2006). Less well researched are factors that explain variability in grief.

This paper examines the relations between two dimensions of grief, general grief and intrusive grief thoughts, and two central aspects of children's post-death environments, recent stressors and caregiver-child relationship quality. Using a model based on a motivational theory of stress, this paper examines whether the degree of satisfaction of the basic needs of positive self-worth, social relatedness and control mediates the relations between stressors and relationship quality and grief.

From a motivational perspective, major life events such as parental death influence outcomes in part through their effect on basic needs. Skinner and Wellborn (1994) argued that such events

threaten the needs of relatedness, competence, and autonomy. Similarly, Sandler (2001) proposed that stressors embedded in life transitions can threaten satisfaction of the basic needs of positive self-worth, social relatedness and control, and that protective resources can facilitate positive adaptation by promoting need satisfaction or decreasing the negative effects of stressors on need satisfaction. According to Sandler (2001), children construe themselves in relation to their social context around these needs through self-system belief sets, which are viewed as reflecting the degree of fulfillment of basic needs. Fulfillment of these needs should promote the process of redefining and reintegrating oneself into a life without the physical presence of the person who died. As this reintegration occurs, painful feelings decrease and thoughts about the deceased no longer are dominant (Shear & Shair, 2005).

The theoretical argument for the mediational role of these beliefs requires that post-death stressors and caregiver-child relationship quality influence these self-system beliefs as well as grief responses. The argument also requires articulating mechanisms by which stressors and caregiver-child relationships influence these beliefs and by which these beliefs in turn affect grief responses. Below, we provide support for each of these relations. In most cases, the support is theoretical. In some cases, empirical support is provided from the literature on bereaved adults.

Most researchers conceptualize parental death as involving a series of stressors occurring before and after the death that affects multiple arenas of children's lives. Parental death can lead to decreased economic resources, change in residence, less contact with friends and neighbors, increased responsibilities, and loss of time with the surviving parent. After the death, caregivers are often faced with stressors such as financial difficulties, relationships with new partners, and new household and work responsibilities, as well as with their own grief. Dealing with these stressors can lead caregivers to spend less time with children, be less supportive to them, and less frequently reinforce children's positive behaviors. It is also likely that these stressors limit the caregiver's ability to be consistent in monitoring and disciplining misbehavior and provide youth with esteem-enhancing interactions. Further, because of task overload, caregivers may be more impatient and negative in their interactions with their children.

Support for the expectation of a positive relation between stressors and grief is supported by Faschingbauer's (1981) finding that grief was higher when deaths led to greater life disruption in his sample of adults. In the context of the loss of such a central social tie, stressors involving social ties, such as having less contact with friends or relatives, as well as changes in the caregiver-child relationship, such as the caregiver being less emotionally available, can threaten children's sense of social relatedness. Such threats may lead to reluctance to seek support for dealing with bereavement-related emotions and stressors, which may hinder the ability to integrate the death into one's current life and lead to maintenance of high levels of grief.

The experience of stressors that are uncontrollable, such as serious money problems, and changes in the caregiver-child relationship, such as unpredictability in consequences for misbehavior, may threaten children's sense of control. In the context of parental death, the occurrence of uncontrollable stressors can reinforce beliefs that life is unpredictable and unmanageable (e.g., Raveis et al., 1999) and lead to low levels of coping efficacy, or the sense that one can handle one's problems effectively. Low levels of coping efficacy may reduce efforts to re-engage in mastery-enhancing activities, such as sports or hobbies that may have been disrupted by the death, and thus promote the maintenance of high levels of grief.

Bereavement-related stressors, such as being told to act differently than one did before the death, and changes in the caregiver-child relationship, such as getting less attention for positive

behaviors, may threaten one's self-worth. Low self-worth may maintain the intensity of grief by reducing involvement in esteem-enhancing activities, such as developing academic competencies, which may have been disrupted by the death (Worden, 1996).

Prior research has found that self-system beliefs are related to parentally bereaved children's mental health problems. Self-esteem has been shown to mediate the relation between post-death stressors and internalizing and externalizing in a cross-sectional study (Haine, Ayers, Sandler, Wolchik & Weyer, 2003). Using the current sample, Wolchik et al. (2006) tested whether the relations between stressors and caregiver-child relationship quality and internalizing and externalizing were accounted for by the self-systems beliefs of social relatedness, control and self worth. The cross-sectional model supported a mediational relation for all three self-systems beliefs with internalizing and externalizing. In a prospective longitudinal model, self-system beliefs involving social relatedness (i.e., fear of abandonment) were found to mediate the relations between stressors and both internalizing and externalizing fourteen months later.

The current study advances the research on grief in parentally bereaved youth in two ways. First, it links the research on two central aspects of children's post-parental death environments, stressors and caregiver-child relationship quality, with motivational theories of adaptation to adversities. Elucidating the processes by which post-death caregiver-child relationship quality and stressors affect adaptation has important theoretical implications and should provide guidance for designing effective interventions. Second, the current study tested both cross-sectional and longitudinal models. The cross-sectional model is useful because its larger sample allowed testing a model that included all three self-system beliefs, so the unique contribution of each could be evaluated. However, significant cross-sectional mediational effects are open to alternative interpretations concerning the direction of effects between the variables. In the longitudinal model, stressors and relationship quality are assessed prior to self-system beliefs, which in turn are assessed prior to grief. The three-wave longitudinal design, which provides temporal precedence between the proposed antecedents and mediators and outcomes and between the proposed mediators and outcomes, allows one to rule out interpreting significant paths as due to a reverse order of causation (Cole & Maxwell, 2003).

Method

Participants

Sample characteristics—The cross-sectional sample consisted of 340 youth from 207 families who had agreed to participate in an experimental evaluation of a preventive intervention for parentally bereaved children in which families were randomly assigned to a dual-component group intervention for children/adolescents and caregivers or a self-study condition. The intervention was a 14-session program (12 group and two individual sessions) with concurrent groups for caregivers, children (8–11 years old) and adolescents (12–16 years old). Five of the sessions included conjoint exercises involving both caregivers and children/adolescents. In the self-study condition, caregivers, children and adolescents each received three books relating to child, adolescent or adult grief and a syllabus to guide their reading.

All eligible youth in the family were invited to participate. The mean number of youth participating in the pretest per family was 1.64 ($SD = .82$). Mean age of the participating youth was 11.46 ($SD = 2.47$); 55% were males. Ethnicity of the youth was as follows: 67% non-Hispanic Caucasian, 16% Hispanic, 7% African American, 3% Native American, 1% Asian or Pacific Islander, and 6% Other. Cause of parental death was as follows: 68% illness and 32% violent death (i.e., accident, homicide, or suicide). Parental death had occurred an average 10.7 months prior to the pretest ($SD = 6.26$). Of the families, 65% were mother-headed

households, 20% were father-headed households, and 15% were headed by a family member other than a parent or a friend. Median family income was in the range of \$30,001 and \$35,000.

To avoid a potential confounding effect of intervention-induced changes in the study variables, the longitudinal intervention sample consisted of the youth in the self-study condition who completed the Time 1, 2 and 3 assessments. Of the 66 families and 109 youth in the self-study condition, 63 families and 106 youth participated at T2 (3% attrition rate from T1), and 60 families and 100 youth participated at T3 (8% attrition rate from T1).

Recruitment—Families were recruited by mail solicitation, presentations to a broad network of agencies that had contact with bereaved children, media presentations and articles in community newsletters. Special efforts were made to contact agencies and schools serving ethnic minorities, and barriers to participation were minimized by offering free transportation, babysitting, and dinner before the group sessions. Referrals were screened for eligibility over the phone, and eligible families were invited to participate in an in-home recruitment visit.

The following eligibility criteria were used: (a) death of a biological parent or parent figure (someone in the parenting role for at least two years prior to the death), (b) death occurred between 4 months to 30 months before the program's start, (c) one or more youth in the family was between eight and 16 years old, (d) at least one youth and one caregiver were willing to be randomly assigned to program condition, (e) caregiver and youth could complete the assessment battery in English, (f) neither caregiver nor any youth was receiving other mental health or bereavement services, (g) youth diagnosed with attention deficit disorder (ADHD) were taking medication to reduce ADHD symptoms, (h) youth were not in a special class for the mentally handicapped, and (i) family was planning to stay in the metropolitan area for the next six months.

In the pretest, the eligibility criteria were reassessed and families reporting changes that made them ineligible were excluded. Also, because of the preventive nature of the program and because it was not designed for families with current clinical disorders, families were excluded and referred for mental health treatment if the youth or caregiver expressed suicidal intent, the youth had Conduct Disorder, Oppositional Defiant Disorder, or ADHD and was not taking medication for ADHD symptoms (Diagnostic Interview Schedule for Children – Child and Parent Informant versions (National Institute of Mental Health, 1992a; DISC-P, National Institute of Mental Health, 1992b) or the caregiver had a BDI score two standard deviations above the clinical mean and was confirmed to have a current diagnosis of major depression using the Structured Clinical Interview for DSMIV (First, Spitzer, Gibbon, & Williams, 1996).

Of the 617 referred families, 377 were unable to be re-located to complete the enrollment process, declined participation in the study or became ineligible during the recruitment process. Of the 240 families completing the pretest, 22 were screened out and referred for treatment and 62 became ineligible or declined further participation; 156 families were randomly assigned to condition (90 to the intervention condition and 66 to the self-study condition).

Procedure

The cross-sectional analysis used pretest data collected before random assignment to condition. The longitudinal analyses used data collected in the pretest, posttest (3 months after pretest) and 11-month follow-up assessments for families in the self-study condition. Most interviews occurred in the families' homes (the remainder occurred at the university); caregiver and youth were interviewed individually by trained interviewers. After confidentiality was explained, caregivers signed informed consents, and youth signed assent forms. Families were paid \$40 for an interview concerning one youth and \$30 per interview for each additional youth.

Measures

Predictors

Stressors—Youth reported on the occurrence during the past month of 51 stressors from the General Life Events Schedule for Children (Sandler, Ramirez, & Reynolds, 1986) and Parent Death Events List (Sandler et al., 1992). These measures assess several different types of stressors, such as interpersonal conflicts, family discord, reminders about the death, changes in living situations, and caregiver emotional distress. Scores on both measures positively correlate with depression and conduct problems (Sandler et al., 1988; 1992).

Caregiver-child relationship quality—Youth completed measures assessing acceptance (Child Report of Parenting Behavior Inventory, CRPBI, Schaefer, 1965; 16 items, $\alpha = .92$), rejection (CRPBI, Schaefer, 1965; 16 items, $\alpha = .87$), caregiver-child dyadic routines (Wolchik et al., 2000; seven items, $\alpha = .74$), stable positive events in the family (Wolchik, Braver, & Fogas, 1991; five items), and perceptions that one's caregiver understands and has empathy for one's feelings (Ayers, Sandler, Twohey, & Haine, 1998; 10 items, $\alpha = .85$). Ratings were made for the last month.

Caregiver report of relationship quality consisted of parallel versions of four of the scales described above; acceptance ($\alpha = .91$), rejection ($\alpha = .87$), dyadic routines ($\alpha = .76$), and stable positive events. How caregivers communicated with their children around stressful family events was assessed with the 6-item Talk with Reassurance subscale of the Caregiver Expression of Emotion Questionnaire developed for this project ($\alpha = .74$). These scales have adequate psychometric properties (Ayers et al., 1998; Jensen, Boyce & Hartnett, 1983; Jones & Twohey, 1998; Schaefer, 1965). Behaviors were rated for the past month.

Caregiver and youth reports of discipline were assessed using parallel forms of the CRPBI inconsistency of discipline subscale (Schaefer, 1965; eight items, $\alpha = .86$, caregiver; $\alpha = .80$, child) and an adaptation of the Parent Perception Inventory that assesses use of positive reinforcement (Hazzard, Christensen, & Margolin, 1983; eight items, $\alpha = .92$, caregiver; $\alpha = .91$, child). Caregivers also completed an adaptation of the discipline follow-through subscale of the Oregon Discipline Scale (Oregon Social Learning Center, 1991; six items, $\alpha = .82$). These scales have been shown to have adequate psychometric properties (Hazzard et al., 1983; Program for Prevention Research, 2003; Schaefer, 1965). Ratings were made for the last month.

Twelve-minute dyadic interactions of discussions of two issues from the Parent Issues Checklist, which includes issues such as chores, curfew and fights with siblings (Prinz, Foster, Kent, & O'Leary, 1979) were videotaped. These interactions were coded for positive affective tone and two aspects of attending (i.e., back channeling and caregiver's head nods). Head nods and back channeling were composited due to their conceptual and empirical relation ($r = .58$) by averaging the standardized scores (Griffin & Decker, 1996). Ratings were the average ratings for each one minute segment of interaction. Portions of videotape were selected for calculating interrater reliabilities using a random sample of 50% of the interactions coded by each coder for a random 15% of the total time. Interrater reliability, assessed using mean *Kappa* (k) (Cohen, 1960) across an average of two or three raters per code, was $k = .77$ for positive affective tone, $k = .83$ for back channeling, and $k = .80$ for head nods.

Using Confirmatory Factor Analysis (CFA), Kwok, Haine, Sandler, Ayers, Wolchik and Tein (2005) found support for a multi-reporter, multi-method second-order factor model of relationship quality measured by the above questionnaire and behavioral observation measures of caregiver-child relationship and questionnaire measures of discipline using the pretest data from the current study. A composite of the standardized scores of the measures used as

indicators by Kwok et al. (2005) was used in the present study. The weighted alpha coefficients, weighting by the variance of each of the measures (Lord & Novick, 1968), was .97. The computation of the weighted alpha coefficients excluded the two observation variables.

Putative Mediators

Fear of abandonment—A 7-item modification of the Fear of Abandonment subscale of the Children's Problematic Beliefs Regarding Divorce (Kurdek & Berg, 1987) was used. This measure assesses worries and fears of being left alone in the future. The scale is viewed as reflecting insecurity in children's sense of the bond with their primary caregiver(s) and has been found to predict mental health problems of children after bereavement and divorce (Wolchik et al., 2002; 2006). A CFA showed that the 7-item dimension fit the data adequately ($\chi^2[20, N = 337] = 48.53$, RMSEA = .06, CFI = .94). Internal consistency reliability of the scale is .78.

Self-esteem—The 6-item global self-worth subscale of the Self Perception Profile for Children was used (Harter, 1982). The internal consistency reliability is .79.

Coping Efficacy—Beliefs about one's ability to effectively handle problems were measured using a 7-item scale ($\alpha = .72$, Sandler, Tein, Mehta, Wolchik & Ayers, 2000). Scores have been shown to negatively relate to internalizing and externalizing (Sandler et al, 2000).

Outcome Measures

Grief—Grief was assessed using the 13-item Present Feeling Subscale of Texas Revised Inventory of Grief scale (TRIG; Faschingbauer, 1981) which measures one's present experience and feelings regarding a death ($\alpha = .89$ for Time 1 and .92 for Time 3, respectively) and the 9-item Intrusive Grief Thoughts Scale (IGTS, Program for Prevention Research, 1999) which assesses the degree to which one experiences intrusive and unwanted thoughts regarding a death ($\alpha = .88$ for Time 1 and .93 for Time 3, respectively). Two items on the former scale were dropped because of high skewness and kurtosis. The TRIG was selected because it was the most commonly used measure at the time the data were collected. To address concerns that the TRIG does not include more severe symptoms of grief (e.g. Prigerson et al., 1995), the IGTS was developed as a measure of intrusive ruminative thoughts that often make it difficult to engage in activities such as sleep, play or work.

Results

Analytic approach

Because the scales measured two highly related domains of grief, a bi-factor model was used to examine the factor structure. A bi-factor model is considered particularly appropriate when dealing with highly correlated dimensions and there is interest in assessing both the common underlying dimension as well as the unique dimensions of a domain (Chen, West, & Sousa, 2006). Bi-factor models use CFA to identify a general factor that accounts for the commonality of all of the items and specific factors over and above the general factor. It was hypothesized that both the TRIG and the IGTS measure general grief, while the IGTS also captures a specific unique intrusive component of grief. Specifically, the items on both TRIG and IGTS were expected to load on the latent general grief factor and only items of IGTS were expected to load on the latent specific intrusive grief factor.

The mediational effects of stressors and/or relationship quality on grief were tested using structural equation modeling in Mplus (Muthén & Muthén, 2006). The dependency among youth nested within a family was taken into account by specifying the family unit as the cluster

variable in the Mplus program. One-tailed tests were used because a specific direction for the mediation effect was hypothesized.

In the cross-sectional model, all three potential mediators were tested simultaneously. Because of the small sample size in the longitudinal models, the potential mediators were tested separately. To control for the stability of the measures over time, the Time 1 score on the mediator was partialled out from its Time 2 score, and the Time 1 scores on the two grief measures were partialled out from their corresponding Time 3 scores.

The cross-sectional model included all youth who had Time 1 data for all variables in the model (i.e., $n = 287$). The longitudinal models included the youth in the self-study group who had data for all the variables in the model ($N = 89, 89, 88$ for the models for fear of abandonment, self-esteem, and coping efficacy, respectively). The models were also conducted with all of the available data using full information maximum likelihood estimation. The findings were consistent with those from the models that employed a listwise procedure.

Age, gender, ethnicity, time since death, and cause of death were considered as potential covariates on the basis of prior findings. In the cross-sectional model, a covariate was included in the final model if it were significantly correlated ($p < .05$) with a mediator or outcome. Because of the small sample sizes in the longitudinal models, a variable was included as a covariate in the final model if it were marginally significantly correlated with the mediator or outcome ($p < .10$) and had a marginally significant path loading when included. The significance of the mediational effect was tested using multivariate-delta method (MacKinnon,

et al., 2002)
$$z = \frac{ab}{\sqrt{a^2\sigma_b^2 + b^2\sigma_a^2}}$$
 ($Z \geq |1.645|$ for $p \leq .05$, one-tail test), where a and b are the unstandardized parameter estimates for the two paths mentioned above; σ_a^2 and σ_b^2 are the corresponding variances.

Measurement Model of Grief

The bi-factor model was tested at Time 1 and Time 3 with Mplus. The model had an adequate fit at both Time 1 ($\chi^2[160, N=289] = 263.59$, CFI = .95, RMSEA = .047) and Time 3 ($\chi^2[160, N=211] = 295.29$, CFI = .94, RMSEA = .063). Items on both TRIG and IGTS loaded on the latent general grief factor and only items on the IGTS loaded on the latent specific intrusive grief thoughts factor.

Composite scores of the two latent factors were created based on the bi-factor model solution. Because the intrusive thoughts factor taps the ruminative component of grief that is different from general grief, the two factors in the bi-factor model were constrained to be uncorrelated. However, the two factor scores generated by Mplus were not orthogonal and thus could not be directly used in the analyses. The Cholesky decomposition method (see Gentle, 1998) was used to transform the Mplus generated factor scores into two orthogonal factor scores, which were then rescaled to the original metric using the standard deviations of the Mplus generated factor scores. The transformed factor scores were used in the mediation analyses.

Cross-Sectional Model

Table 1 provides correlations of the study variables and potential covariates measured at Time 1. Figure 1 depicts the results of the cross-sectional model. As shown, age and gender were included as covariates. The model fit the data well ($\chi^2[6, N = 287] = 5.86$, CFI = 1.00, RMSEA = 0.0). Stressors had direct effects on both general grief and intrusive grief thoughts after controlling for the mediator variables. Relationship quality had no direct effect on either measure of grief. Stressors were significantly, positively related to fear of abandonment and

negatively related to self-esteem. Relationship quality was significantly, negatively related to fear of abandonment, positively related to coping efficacy and marginally, positively related to self-esteem. Fear of abandonment was significantly, positively related to general grief and intrusive grief thoughts. Coping efficacy was marginally, negatively related to general grief.

The results of the multivariate-delta method indicated that fear of abandonment mediated the effects of stressors on general grief and intrusive grief thoughts ($z = 2.71, p < .01$ and $z = 2.69, p < .01$, respectively), and the effects of relationship quality on both measures of grief ($z = -2.12, p < .01$ and $z = -2.11, p < .01$, respectively). The mediation path from relationship quality to general grief through coping efficacy was also significant ($z = -1.64, p < .05$).

Longitudinal Models

Table 2 provides correlations of the study variables and potential covariates in the subsample used in the longitudinal analyses. In each final model, age and time since parental death were included as covariates. All three longitudinal models had good fit ($\chi^2[10, N = 89] = 10.10, CFI = 1.00, RMSEA = 0.010$, fear of abandonment; $\chi^2[9, N = 89] = 9.09, CFI = 1.00, RMSEA = 0.011$, self-esteem; and $\chi^2[9, N = 88] = 12.22, CFI = 0.96, RMSEA = 0.064$, coping efficacy). According to Cohen's (1988), the stability effects of the system beliefs measures from Time 1 to Time 2 were moderate (ranged from .45 to .50). General grief had a strong stability from Time 1 to Time 3 (.61) while the stability effect from Time 1 to Time 3 intrusive grief thoughts was close to moderate (.36).

There were three main findings for the prospective mediation models. Figure 2 illustrates the longitudinal model with fear of abandonment as the mediator. As shown, after controlling for stability effects, Time 1 stressors had a significant positive effect on Time 2 fear of abandonment and Time 2 fear of abandonment had a marginal positive effect on Time 3 intrusive grief thoughts. Depending on the models, Time 1 relationship quality had a marginal or significant direct effect on Time 3 intrusive grief thoughts ($\beta = -.14, p < .10, \beta = -.18, p < .05$ and $\beta = -.18, p < .10$ for the model with fear of abandonment, coping efficacy and self-esteem, respectively). The longitudinal mediational path of Time 1 stressors to Time 3 intrusive grief thoughts through Time 2 fear of abandonment was tested using the multivariate-delta method. The mediational effect was marginal ($z = 1.37, p < .10$).

Longitudinal Model without Mediators

Because no significant mediational effects were found in the longitudinal models, a model without any Time 2 mediators was conducted to test the total effects of Time 1 stressors and relationship quality on Time 3 grief measures. Time 1 scores on the grief measures were partialled out from their corresponding Time 3 scores to control for stability over time. Age and time since death were included in the final model. The model fit adequately ($\chi^2[3, N = 90] = 3.99, CFI = 0.99, RMSEA = 0.060$). As shown in Figure 3, Time 1 relationship quality had a significant, negative relation to Time 3 intrusive grief thoughts.

Discussion

The findings of this study extend our understanding of how stressors and caregiver-child relationship quality affect two aspects of children's grief, general grief and intrusive grief thoughts. The most robust findings concerning self-system mediators of the effects of stressors and caregiver-child relationship quality on grief occurred for fear of abandonment. In the cross-sectional model, which controlled for the effects of self-esteem and coping efficacy, fear of abandonment partially mediated the effect of both stressors and relationship quality on both general grief and intrusive grief thoughts. In the longitudinal model, a marginal mediational path occurred for fear of abandonment at Time 2 and stressors at Time 1 and change in intrusive

grief thoughts across an 11 month period. The cross-sectional analysis indicated that coping efficacy partially mediated the relation between relationship quality and general grief. When the mediators were excluded from the longitudinal model, relationship quality was directly related to intrusive grief thoughts.

The current findings provide support for motivational theoretical models of children's adaptation to major life events (e.g., Sandler, 2001; Skinner & Wellborn, 1997). More specifically, the findings support the theoretical proposition that both stressors and quality of children's relationships with their caregiver affect levels of general grief and intrusive grief thoughts through a common mediating mechanism, the satisfaction of basic motivational needs.

How might coping efficacy account for the relation between caregiver-child relationship quality and general grief? Caregiver-child relationships that include high levels of responsiveness, warmth and consistency of discipline may promote children's beliefs that they will be able to deal with both uncontrollable as well as controllable stressors in their lives. Rothbaum, Weisz and Snyder (1982) describe secondary control strategies that people use to deal with events they cannot directly control. For example, children can believe that powerful others will help them control such events or may be helped by the belief that the world is predictable and makes sense. Supportive caregivers who provide consistent routines and consequences may promote both beliefs and thus contribute to children's beliefs in their efficacy in dealing with stressors. Alternatively, for stressors that are within a child's control, coping efficacy beliefs may lead to use of active coping strategies. It is also possible that caregivers who employ positive parenting strategies shield children from exposure to some stressors, which may allow children to feel a greater sense of control and greater coping efficacy. Higher efficacy may help children become re-engaged in mastery-enhancing developmental tasks that may have been disrupted by the death, which leads to reductions in the intensity of general grief.

The mediational role for fear of abandonment was supported by the significant mediational path in the cross-sectional and was marginally supported in the longitudinal model. The cross-sectional model indicated that fear of abandonment mediated the relation between stressors as well as caregiver-child relationship quality and both measures of grief, controlling for the effects of self-esteem and coping efficacy. These findings link the empirical work on the relations between stressors and caregiver-child relationship quality and post-parental death adaptation with theoretical work on need for relatedness (see Baumeister & Leary, 1995) and motivational theories of stress (Sandler, 2001; Skinner & Wellborn, 1997). Skinner and Wellborn (1997) propose that environmental conditions that involve some aspect of neglect threaten the need for relatedness. Parental death results in significant upheaval in children's social networks. Not only do these children lose one of the most central people in their social worlds, they are also likely to have less high-quality time with the surviving parent or caregiver who is struggling to manage grief, psychological distress, and individual and family death-related stressors. In addition, they may lose contact with friends and important adults if changes in neighborhoods and schools occur. Children sensitized by the loss of their relationship with the deceased may interpret stressors involving a decrease in care and attention from significant others as neglect. Worries about whether one's basic needs for care will be met may reduce the psychological energy needed to re-engage in developmental tasks, decrease efforts to seek out support for dealing with bereavement-related emotions and stressors, and decrease adaptive coping choices, all of which may reduce children's ability to integrate the death into their current lives and thereby promote the maintenance of high levels of grief.

The findings on fear of abandonment also have implications for theoretical work on loss. Attachment is a key construct in conceptual frameworks of loss (e.g., Bowlby, 1969/1982; Shaver & Tancredy, 2001). It is possible that the constructs assessed by fear of abandonment

and attachment organization measures are related. Internal working models of attachment both to the deceased and surviving parent prior to the death may affect fear of abandonment or the measure of fear of abandonment may tap an aspect of attachment organization (Wolchik et al., 2002). Future research that includes measures of attachment as well as fear of abandonment could elucidate the nature of these relations.

The longitudinal model that omitted the putative mediators provided support for the direct role of high quality caregiver-child relationships in reducing intrusive grief thoughts over time. These findings extend prior research that has demonstrated the importance of parenting to reduce mental health problems of bereaved children (Lutzke et al., 1997). Shear and Shair (2005) suggest that for bereaved adults, interactions with supportive others can gently help the bereaved individual think about future plans and promote renovation of one's working models of attachment. Such processes may reduce the level of preoccupation with the deceased.

There are several limitations of this study that need to be recognized. First, the time lags between the three assessments may not have been optimal for detecting longitudinal mediational relations. Research that uses other time intervals is needed to rule out the possibility that inappropriate time lags explain the lack of mediational paths in the prospective models. Second, one of the measures of grief was validated with adults. The other was created for this project and thus support for its psychometric properties is limited. In addition, the bi-factor approach is relatively new. Studies of the meanings of the general and unique factors and their relations with theoretically relevant variables are needed. Third, youth in the longitudinal sample received books on adjustment to parental death. It is possible that reading these books may have decreased the stability of grief over time, influenced self-system beliefs, or both. Research with samples of bereaved children who are not involved in any type of intervention would be important to assess the generalizability of the current findings.

The findings have implications for intervention design. Given the current findings, treatment and prevention programs for bereaved children should target quality of the child-caregiver relationship, exposure to stressors, fear of abandonment and coping efficacy beliefs. Several researchers have found that caregiver-child relationship and stressful events can be changed by preventive interventions for bereaved children and children who have experienced parental divorce (e.g., Sandler et al., 2003; Wolchik et al., 2000). Other researchers have found that changing these factors accounts for program effects to reduce children's mental health problems (e.g., Tein, Sandler, Ayers, & Wolchik, 2006). The current findings suggest that programs that improve caregiver-child relationships quality and decrease stressful events may reduce children's grief over time and that decreases in grief may be due to reductions in fear of abandonment or increases in coping efficacy.

Acknowledgments

Support for this research was provided by National Institute of Mental Health Grant P30 M439246-15 to establish a Preventive Intervention Research Center at Arizona State University, Grant 1R01 MH49155-05 to evaluate a preventive intervention for bereaved families, and Grant 2R01 MH49155-06 to conduct a six-year follow-up of this intervention. The authors are grateful to the families for their participation and to Ana Brown, Qing Zhou, Michelle McConaughay and Wai Chow who helped manage the data set.

References

- Ayers, TS.; Sandler, IN.; Twohey, JL.; Haine, RA. Three views of emotional expression in parentally bereaved children. San Francisco, CA: Poster presented at the American Psychological Association Annual Convention; 1998 Aug.
- Baumeister RF, Leary MR. The need to belong: Desire for interpersonal attachments as a fundamental human motivation. *Psychological Bulletin* 1995;117:497–529. [PubMed: 7777651]

- Bowlby, J. Attachment and loss: Vol. 1. Loss. New York: Basic Books; 1969/1982.
- Cerel J, Fristad MA, Verducci J, Weller RA, Weller EB. Childhood bereavement: psychopathology in the 2 Years postparental death. *Journal of the American Academy of Child and Adolescent Psychiatry* 2006;45:681-69.
- Chen FF, West SG, Sousa KH. A comparison of bifactor and second-order models of quality of life. *Multivariate Behavioral Research* 2006;41:189-225.
- Cohen J. A coefficient of agreement for nominal scales. *Educational and Psychological Measurement* 1960;20:37-46.
- Cohen. Statistical power analysis for the behavioral science. Hillsdale New Jersey: Lawrence Erlbaum Associates; 1988.
- Cole DA, Maxwell SE. Testing mediational models with longitudinal data: Questions and tips in the use of structural equation modeling. *Journal of Abnormal Psychology* 2003;112:558-577. [PubMed: 14674869]
- Faschingbauer, TR. Texas Revised Inventory of Grief Manual. Houston, Texas: Honeycomb; 1981.
- First, MB.; Spitzer, RL.; Gibbon, M.; Williams, JBW. Structured Clinical Interview for DSM-IV Axis I Disorders - Research Version - Version 2.0 (Structured Interview). New York NY: Biometrics Research Department, New York State Psychiatric Institute; 1996.
- Gentle, JE. Numerical Linear Algebra for Applications in Statistics. Berlin: Springer-Verlag; 1998.
- Griffin, WA.; Decker, AA. Family Bereavement Program parent - child interaction coding scheme (Tech # 96-02). Tempe, AZ: Prevention Research Center, Arizona State University; 1996.
- Haine RA, Ayers TS, Sandler IN, Wolchik SA, Weyer JL. Locus of control and self-esteem as stress-moderators or stress-mediators in parentally bereaved children. *Death Studies* 2003;27:619-640. [PubMed: 12962127]
- Harter S. The Perceived Competence Scale for Children. *Child Development* 1982;53:87-97.
- Hazzard A, Christensen A, Margolin G. Children's perception of parental behaviors. *Journal of Abnormal Child Psychology* 1983;11:49-60. [PubMed: 6853881]
- Jensen ES, Boyce WT, Hartnett SA. The Family Routines Inventory: Development and validation. *Social Science Medicine* 1983;17:201-211. [PubMed: 6844952]
- Jones, S.; Twohey, JL. Parents' Expression of Emotions Questionnaire: Psychometric properties. San Francisco, CA: Poster presented at the 106th Annual Convention of the American Psychological Association; 1998 Aug.
- Kennedy C, Sandler IN, Tein J, Ayers T, Millsap R, Wolchik SA. Assessment of grief in parentally-bereaved adolescents/young adults: Dimensional structure and relations to adaptive functioning and mental health problems. 2006 Manuscript submitted for publication.
- Kurdek LA, Berg B. Children's beliefs about parental divorce scale: Psychometric characteristics and concurrent validity. *Journal of Consulting and Clinical Psychology* 1987;55:712-718. [PubMed: 3454781]
- Kwok O-M, Haine RA, Sandler IN, Ayers TS, Wolchik SA, Tein J-Y. Positive parenting as mediator of the relations between parental psychological distress and mental health problems of parentally bereaved children. *Journal of Clinical Child and Adolescent Psychology* 2005;34:261-272.
- Lord, FM.; Novick, MR. Statistical Theories of Mental Test Scoring. Reading, MA: Addison-Wesley; 1968.
- Lutzke, JR.; Ayers, TS.; Sandler, IN.; Barr, A. Risks and interventions for the parentally bereaved child. In: Wolchik, SA.; Sandler, IN., editors. Handbook of children's coping: Linking theory and intervention. New York: Plenum Press; 1997. p. 215-243.
- MacKinnon DP, Lockwood CM, Hoffman JM, West SG, Sheets V. A comparison of methods to test mediated and other intervening variable effects. *Psychological Methods* 2002;7:83-104. [PubMed: 11928892]
- Múthen, LK.; Múthen, BO. Mplus user's guide: The comprehensive modeling program for applied researchers. Los Angeles: Múthen & Múthen; 1998.
- Múthen, LK.; Múthen, BO. Mplus user's guide: Statistical analysis with latent variables. Los Angeles: Múthen & Múthen; 2006.

- National Institute of Mental Health. Diagnostic Interview Schedule for Children: Child Informant - Version 2.3. Bethesda, MD: (Structured Interview); 1992a.
- National Institute of Mental Health. Diagnostic Interview Schedule for Children: Parent Informant - Version 2.3. Bethesda, MD: (Structured Interview); 1992b.
- Oregon Social Learning Center. LIFT Parent Interview. Eugene, OR: Oregon Social Learning Center; 1991. Unpublished manual
- Program for Prevention Research. Family bereavement program manual. 1999. (Available from Program from Prevention, Arizona State University, P.O. Box 876005, Tempe, AZ 85287-6005.)
- Program for Prevention Research. Tempe, AZ: Program for Prevention Research, Arizona State University; 2003. Family Bereavement Program documentation. Unpublished manual.
- Prigerson HG, Maciejewski P, Newson J, Reynolds CF, Bierhals AJ, Miller M, Fasiczka A, Doman J, Houck PR. Inventory of Complicated Grief: A scale to measure maladaptive symptoms of loss. *Psychiatry Research* 1995;59:65–79. [PubMed: 8771222]
- Prinz RJ, Foster S, Kent RN, O'Leary KD. Multivariate assessment of conflict in distressed and nondistressed mother-adolescent dyads. *Journal of Applied Behavior Analysis* 1979;12:691–700. [PubMed: 541311]
- Raveis VH, Siegel K, Karus D. Children's psychological distress following the death of a parent. *Journal of Youth and Adolescence* 1999;28:165–180.
- Rothbaum F, Weisz JR, Snyder SS. Changing the world and changing the self: A two process model of perceived control. *Journal of Personality and Social Psychology* 1982;42:5–37.
- Sandler IN. Quality and ecology of adversity as common mechanisms of risk and resilience. *American Journal of Community Psychology* 2001;29:19–61. [PubMed: 11439827]
- Sandler IN, Ayers TS, Wolchik SA, Tein J-Y, Kwok O-M, Haine RA, Twohey JL, Suter J, Lin K, Padgett-Jones S, Weyer JL, Cole E, Kriege G, Griffin WA. The Family Bereavement Program: Efficacy evaluation of a theory-based prevention program for parentally-bereaved children and adolescents. *Journal of Consulting and Clinical Psychology* 2003;71:587–600. [PubMed: 12795581]
- Sandler, IN.; Gersten, JC.; Reynolds, K.; Kallgren, CA.; Ramirez, R. Using theory and data to plan support interventions: Design of a program for bereaved children. In: Gottlieb, BH., editor. *Marshaling social support: Formats, processes, and effects*. Thousand Oaks, CA: Sage Publications, Inc; 1988. p. 53-83.
- Sandler, IN.; Rameriz, R.; Reynolds, K. Life stress for children of divorce, bereaved and asthmatic children. Washington, DC: Paper presented at the Annual Meeting of the American Psychological Association; 1986 Aug.
- Sandler IN, Tein J-Y, Mehta P, Wolchik SA, Ayers TS. Coping efficacy and psychological problems of children of divorce. *Child Development* 2000;71:1099–1118. [PubMed: 11016569]
- Sandler IN, West SG, Baca L, Pillow DR, Gersten JC, Rogosch F, Virdin LM, Beals J, Reynolds KD, Kallgren CA, Tein J-Y, Kriege G, Cole E, Ramirez R. Linking empirically based theory and evaluation: The Family Bereavement Program. *American Journal of Community Psychology* 1992;20:491–521. [PubMed: 1481786]
- Sandler IN, Wolchik SA, Braver SL, Fogas BS. Stability and quality of life events and psychological symptomatology in children of divorce [Special Issue]: Preventive Intervention Research Centers. *American Journal of Community Psychology* 1991;19:501–520. [PubMed: 1755433]
- Schaefer ES. Children's report of parental behavior: An inventory. *Child Development* 1965;36:413–424. [PubMed: 14300862]
- Shaver, PR.; Trancedy, CM. Emotion, attachment, and bereavement: A conceptual commentary. In: Stroebe, MS.; Hansson, RO.; Stroebe, W.; Schut, H., editors. *Handbook of bereavement research: Consequences, coping and care*. Washington, DC: American Psychological Association; 2001. p. 63-88.
- Shear K, Shair H. Attachment, loss, and complicated grief. *Developmental Psychobiology* 2005;47:253–267. [PubMed: 16252293]
- Skinner, EA.; Wellborn, JG. Coping during childhood and adolescence: A motivational perspective. In: Featherman, D.; Lerner, R.; Perlmutter, M., editors. *Life-span development and behavior*. Hillsdale, NJ: Erlbaum; 1994. p. 91-133.

- Skinner, EA.; Wellborn, JG. Children's coping in the academic domain. In: Wolchik, SA.; Sandler, IN., editors. Handbook of children's coping: Linking theory and intervention. New York: Plenum Press; 1997. p. 387-422.
- Tein J-Y, Sandler IN, Ayers TS, Wolchik SA. Mediation of the effects of the Family Bereavement Program on mental health problems of bereaved children and adolescents. *Prevention Science* 2006;7 (2):179-195. [PubMed: 16775760]
- Thompson MP, Kaslow NJ, Price AW, Williams K, Kingree JB. Role of secondary stressors in the parental death-child distress relation. *Journal of Abnormal Child Psychology* 1998;26:357-366. [PubMed: 9826294]
- Wolchik SA, Tein J-Y, Sandler I, Ayers TS. Stressors, quality of child--caregiver relationship, and children's mental health problems after parental death: the mediating role of self-system beliefs. *Journal of Abnormal Child Psychology* 2006;34:221-238. [PubMed: 16502140]
- Wolchik SA, Tein J-Y, Sandler IN, Doyle KW. Fear of abandonment as a mediator of the relations between divorce stressors and mother-child relationship quality and children's adjustment problems. *Journal of Abnormal Child Psychology* 2002;30:401-418. [PubMed: 12108768]
- Wolchik SA, West SG, Sandler IN, Tein J-Y, Coatsworth D, Lengua L, Weiss L, Anderson ER, Greene SM, Griffin WA, et al. An experimental evaluation of theory-based mother and mother-child programs for children of divorce. *Journal of Consulting and Clinical Psychology* 2000;68:843-856. [PubMed: 11068970]
- Worden, JW. Children and grief: When a parent dies. New York: Guilford Press; 1996.

Figure 1.

Cross-sectional mediation model ($N= 287$).

Omitted are the paths from age to fear of abandonment, from gender and age to general grief, and from gender to intrusive grief thoughts. Also omitted are the covariances between the predictors and covariates.

Figure 2.

Longitudinal mediation model with fear of abandonment as a mediator ($N = 89$).

Omitted are the paths from age to general grief and from time since parental death to intrusive grief thoughts. Also omitted are the covariances among the T1 predictors and covariates.

Figure 3.

Longitudinal model without the mediators ($N = 90$). Omitted are the paths from age to general grief and from age and time since parental death to intrusive grief thoughts. Also omitted are the covariances among the T1 predictors and covariates.

Note

In all figures for mediation analyses, standardized regression coefficients for at least marginally significant paths ($p < .10$) were reported and these paths are represented by solid lines; standardized regression coefficients for non-significant paths ($p > .10$) were not reported and these paths are represented by dotted lines.

*** $p < .001$

** $p < .01$

* $p < .05$

+ $p < .10$

Table 1
Zero-Order Correlations of the Study Variables in the Cross-Sectional Model

	1	2	3	4	5	6	7	8	9	10	11	12
1. Caregiver-child relationship quality	1.00											
2. Stressors	-.20	1.00										
3. Gender	-.01	.12	1.00									
4. Age	.04	-.16	-.04	1.00								
5. Ethnicity	.15	-.06	.03	-.08	1.00							
6. Time since parental death	-.00	.01	.08	-.11	.01	1.00						
7. Cause of parental death	.04	-.01	.04	.02	-.03	.03	1.00					
8. Coping efficacy	.31	-.17	-.06	-.01	-.01	-.05	-.03	1.00				
9. Self-esteem	.16	-.35	-.10	.01	.09	-.06	-.03	.46	1.00			
10. Fear of abandonment	-.26	.43	.17	-.29	-.11	.05	-.01	-.20	-.35	1.00		
11. General grief	-.04	.01	-.01	-.05	-.07	.05	.01	-.03	-.11	.09	1.00	
12. Intrusive grief thoughts	-.01	-.03	-.03	.08	-.16	-.04	.02	-.06	-.03	.09	-.00	1.00

Note. $p \leq .05$ when $|r| \geq .11$; $p \leq .01$ when $|r| \geq .15$; $p \leq .001$ when $|r| \geq .20$.

Table 2

Zero-Order Correlations of the Study Variables in the Longitudinal Models

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
1. T1 Caregiver-child relationship quality	1.00																
2. T1 Stressors	-.19*	1.00															
3. Gender	-.09	.03	1.00														
4. Age	-.06	-.21*	-.06	1.00													
5. Ethnicity	.16 ⁺	-.01	.02	-.11	1.00												
6. Time since parental death	.01	-.09	.10	-.10	.08	1.00											
7. Cause of parental death	.20*	-.19*	.07	.12	.04	.08	1.00										
8. T1 Coping efficacy	.35	-.11	-.00	.04	.02	-.00	.01	1.00									
9. T1 Self-esteem	.22**	-.34	-.03	.04	.03	-.04	-.03	.50	1.00								
10. T1 Fear of abandonment	-.23**	.38	.17*	-.34	-.03	-.01	-.09	-.17 ⁺	-.36	1.00							
11. T1 General grief	-.04	.09	-.01	-.14	-.11	.08	.04	-.02	-.13	.13	1.00						
12. T1 Intrusive grief thoughts	.01	-.07	-.04	.07	-.06	-.09	-.10	-.01	.04	.05	.10	1.00					
13. T2 Coping efficacy	.13	-.23*	.01	.08	-.04	.06	-.04	.50	.50	-.22*	-.11	.09	1.00				
14. T2 Self-esteem	.32	-.22*	-.05	.01	-.09	.04	.05	.41	.65	-.28**	-.07	.09	.51	1.00			
15. T2 Fear of abandonment	-.19*	.33	.17 ⁺	-.30**	.09	-.05	.02	-.38	-.44	.67	.08	-.05	-.39	-.35	1.00		
16. T3 General grief	-.14	.06	.18 ⁺	-.11	-.03	-.09	.06	-.12	-.00	-.03	-.09	-.13	-.13	.01	.04	1.00	
17. T3 Intrusive grief thoughts	.01	.03	.03	.10	-.13	-.15	-.02	-.05	-.11	.16	.01	.02	.05	-.16	.09	.04	1.00

⁺ Note. $p \leq .10$;* $p \leq .05$;** $p \leq .01$;*** $p \leq .01$; when $|r| \geq .32$, $p \leq .001$.