Published in final edited form as:

Omega (Westport). 2008 ; 58(2): 107–128. doi:10.2190/OM.58.2.b.

Six-Year Longitudinal Predictors of Posttraumatic Growth in Parentally Bereaved Adolescents and Young Adults

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

Abstract

Using the Posttraumatic Growth Inventory, we examined posttraumatic growth in a sample of 50 adolescents and young adults who had experienced parental death in childhood or adolescence. Prospective longitudinal relations over a six year period were examined between measures of demographics, youth's intrusive grief-related thoughts, appraisals, intrapersonal coping processes, interpersonal coping processes, mental health problems and social adaptation outcomes, and the growth subscales (i.e., New Possibilities, Relating to Others, Personal Strengths, Spiritual Changes and Appreciation of Life). Controlling for youth age, time since death, and cause of death, the set of intrapersonal coping processes explained a medium amount of variance in New Possibilities and Personal Strength subscales. A medium amount of variance in New Possibilities, Personal Strength, and Relating to Others was explained by the set of interpersonal coping processes.

Keywords

posttraumatic growth; parentally bereaved youth; growth; perceived benefits

Attention to the positive consequences of experiencing a negative major life event has increased over the past few years. Most of this work has focused on the construct of posttraumatic growth, a term coined by Tedeschi and Calhoun (1996) to refer to the positive changes that occur as a result of coping with the aftermath of traumatic life events. In Tedeschi and Calhoun's (1996; 2004) model, growth is multidimensional and includes changes in the domains of self-perception, interpersonal relationships, and philosophy of life. A recent meta-analysis of the growing body of research that has examined a wide range of traumatic events including cancer, rape, bereavement, and natural disasters showed that posttraumatic growth was related to greater intrusive and avoidant thoughts about the stressor, higher levels of positive affect and lower levels of depression (Helgeson, Reynolds & Tomich, 2006). In addition, growth was significantly positively related to objective severity of the stressor, subjective perceptions of stress associated with the event, optimism, religiosity, and the coping strategies of positive reappraisal, acceptance and denial. Women reported greater growth than men, younger participants reported more growth than older participants and ethnic minority participants reported more growth than their majority culture counterparts.

To date, nearly all the work on the correlates of posttraumatic growth has been conducted with adults; there are only four published studies that included children or adolescents. Examining positive outcomes following death of a family member or friend, Oltjenbruns (1991) found that over half of their sample of late adolescents reported experiencing deeper appreciation of

life, greater caring for loved ones, strengthened emotional bonds with others, and emotional strength as a result of their grief experience. In a cross-sectional study of high school students, Milam, Ritt-Olson and Unger (2004) found that religiosity was positively associated with growth whereas substance use was negatively associated with growth. Also, older students reported more growth than younger students. In a sample of youth ages six to 15 who had experienced Hurricane Floyd, a positive cross-sectional relation between efficacy beliefs and posttraumatic growth occurred (Cryder, Kilmer, Tedeschi and Calhoun, 2006). Using a prospective longitudinal design that controlled for baseline emotional distress, Ickovics et al. (2006) found that posttraumatic growth was associated with reductions in emotional distress 12 and 18 months later in their sample of urban female adolescents. Also, adolescents in this sample who had experienced physical threat, the death of a loved one, or pregnancy and motherhood reported more growth than those who identified interpersonal problems as their most traumatic event.

Using a prospective longitudinal design, the current study examined posttraumatic growth in a sample of adolescents and young adults who had experienced parental death in childhood or adolescence. Bereaved youths are a particularly appropriate group in which to examine posttraumatic growth given the findings that death is one of the most stressful major life events experienced by youth (e.g., Yamamoto, 1979), and that life-changing events (e.g., death of a loved one, chronic illness, motherhood) result in greater posttraumatic growth than less impactful events (e.g., Ickovics et al., 2006, Park, Cohen & Murch, 1996; Tedeschi & Calhoun, 1996). Because of the multitude of changes that occur after parental death, this stressor and its sequelae are highly likely to shake the foundations of youths' fundamental assumptions. Life changes of "seismic" proportions (Calhoun & Tedeschi, 1998) are likely to force youth to reconsider the basic assumptions of who they are, what can be expected from people around them, what kind of world they live in, and what the future may hold (Tedeschi & Calhoun, 2004). The resulting struggles may facilitate cognitive processing that alters schemas and leads to changes in perspectives on others, one's self, and one's way of living (Tedeschi & Calhoun, 1995; 1996).

Based on the larger literature with adults and the limited research with youth, six types of correlates of growth were examined: demographic (Milam et al., 2004; Park, Cohen & Murch, 1996; Polantinsky & Esprey, 2000; Tedeschi & Calhoun, 1996), event-related rumination (e.g., Calhoun, Cann, Tedeschi & McMillan, 2000; Proffitt, Cann, Calhoun & Tedeschi, 2007), threat appraisals (e.g., Park et al., 1996; Wild & Paivio, 2003), intrapersonal coping processes (Cryder et al., 2006; Park et al., 1996; Wild & Paivio, 2003), interpersonal coping processes (Cadell, Regeher & Hemsworth, 2003; Park et al., 1996), and mental health and social adaptation outcomes (e.g., see Hegelson et al., 2006; Ickovics et al., 2006; Milam et al., 2004; Wild & Paivio, 2003). This study advances the research on posttraumatic growth in youth in two ways. First, identification of the correlates of growth in parentally bereaved youth has important theoretical implications and should provide guidance for designing interventions that may promote growth following bereavement. Second, all but one of the few studies with youth have been cross-sectional and thus, their findings are open to alternative interpretations concerning the direction of effects between the variables. The use of a longitudinal design in the current study allows stronger inferences concerning factors that may influence the occurrence of posttraumatic growth in bereaved adolescents and young adults.

Method

Participants

Sample characteristics—The sample consisted of a sub-sample of 50 adolescents and young adults who participated in a six-year follow-up of a randomized trial of the Family Bereavement Program (FBP), a preventive intervention for parentally bereaved youth and their

caregivers. The sample in the intervention study consisted of 244 children and adolescents in 156 families and their caregivers. Families were randomly assigned to a self-study condition or dual-component group program that consisted of 12 concurrently run group sessions for caregivers and youth and two individual sessions for caregivers. All eligible youth in the family were invited to participate. The mean number of youth participating in the randomized trial per family was 1.64 ($SD = .82$). Families in the self-study condition received books about grief and syllabi to guide their reading.

Recruitment—The families in the FBP trial were recruited by mail solicitation, presentations to agencies that had contact with bereaved youth (e.g., schools, churches, hospices), media presentations and community newsletter articles. Special efforts to contact agencies serving ethnic minorities were employed. Referrals were screened for eligibility over the phone, and eligible families were invited to participate in an in-home recruitment visit.

The eligibility criteria were as follows: (a) death of a biological parent or someone who had been in the parenting role for at least two years prior to the death, (b) death occurred no sooner than 4 months and no longer than 30 months prior to the start of the program, (c) at least one 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 the group or self-study program, (e) caregiver and participating youth could complete the assessments in English, (f) neither caregiver nor any youth was currently receiving mental health or bereavement services, (g) youth diagnosed with attention deficit disorder (ADHD) were taking medication for inattention or hyperactivity, (h) youth was not in a special class for the mentally handicapped, and (i) family was planning to remain in the metropolitan area for the next six months.

During the pretest, the eligibility criteria were reassessed and families reporting changes that made them ineligible (e.g., began treatment) were excluded. Also, because the program was not designed for families with current clinical disorders, families were excluded and referred for mental health treatment if either the youth or caregiver expressed suicidal intent, the caregiver had a Beck Depression Inventory (Beck & Steer, 1984) score two standard deviations or more above the clinical mean and was confirmed to have a current diagnosis of major depression using the Structured Clinical Interview for DSM-IV (First, Spitzer, Gibbon, & Williams, 1996) or the youth had one or more of the following diagnoses: Conduct Disorder, Oppositional Defiant Disorder, or ADHD and was not taking medication for ADHD symptoms, as assessed using the Diagnostic Interview Schedule for Children – Child and Parent Informant versions (DISC-C, National Institute of Mental Health, 1992a; DISC-P, National Institute of Mental Health, 1992b).

Of the 617 referred families, 377 could not 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).

The families selected for the current analyses agreed to participate in a conflict resolution task that was videotaped. In the 50 families who agreed and had more than one child, a second child was randomly selected to participate in the conflict resolution task. These children completed several additional questionnaires which included an assessment of posttraumatic growth while their caregiver completed the conflict resolution task with the first child. Of these 50 families, 37 were mother-headed households and 13 were father-headed households. Mean age of the youth at pretest was 10.68 ($SD = 2.22$, ranging from age 8 to 16); 23 (46%) were males. Ethnicity of the youth was as follows: 68% non-Hispanic Caucasian, 14% Hispanic, 8% African American, 4% Native American, and 6% Other. Cause of parental death was as follows:

37% illness and 63% violent death (i.e., accident, homicide, or suicide). Parental death occurred an average of 9.0 months prior to pretest ($SD = 5.1$). Median family income was in the range of \$30,001 to \$35,000. X% of these families were randomly assigned to the intervention condition.

Procedure

Families were assessed on four occasions (pretest, which occurred prior to random assignment; posttest; 11 months after the posttest and 6 years after the posttest). All study procedures and assessments were approved by the Institutional Review Board at the university where the study was conducted. The analyses presented here used data from the pretest (T1) and 6-year follow-up (T4). Most interviews occurred in the families' homes (a small percentage of interviews 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 (under 18 years old) or consent forms (18 years or older). At pretest, families were paid \$40 for an interview concerning one youth and \$30 per interview for each additional youth. Because of the much longer assessment used in the 6-year follow-up, participants were paid \$175. In families where more than one youth participated, caregivers were compensated an extra \$100 to report on each additional youth.

Measures

All the predictor variables, including the demographic variables, were assessed at T1. Posttraumatic growth was assessed at T4 only.

Predictors

Demographics—Youth age, gender, and ethnicity; months between the death and the family's entrance into the study; and cause of death were reported by the caregiver.

Event-related Rumination—Youth completed the 9-item Intrusive Grief Thoughts Scale (IGTS; Program for Prevention Research, 1999). This measure assesses the degree to which one experiences intrusive, negative thoughts regarding a death which interfere with normal functioning (e.g., "How often did you think about how unfair it is that your parent died, even when you didn't want to?"). Alpha was .85. Intrusive grief thoughts have been found to correlate with children's mental health problems and with lower academic competence (Kennedy et al., 2007).

Threat Appraisals—Youth completed the 16-item Threat Appraisal Scale (TAS; Program for Prevention Research, 1999; "You thought that someone you care about didn't want to see you."). At pretest, youth rated threat appraisals for the two most stressful events that occurred in the past month on the Negative Life Events Scale, which contains items from two questionnaires that measure events that are upsetting and have negative consequences for children: the Parental Death Event List (Li, Lutzke, Sandler, & Ayers, 1995) and the General Life Events Schedule for Children (Sandler, Ramirez, & Reynolds, 1986). Stressfulness ratings were based on ratings of a group of researchers and graduate students who were knowledgeable about children's responses to stressful situations. Threat ratings were averaged to obtain a score for each stressful event; the two scores were then averaged to obtain a total threat score. Threat appraisals scores have been shown to be positively related to bereaved youth's mental health problems (Soper, Wolchik, Sandler, Tein & Lustig; in press; Tein, Sandler, Ayers, & Wolchik, 2006). Alpha coefficients were .93 and .94 for the scores for the two events, respectively.

Intrapersonal Coping Processes: Youth completed 36 items from the Children's Coping Strategies Checklist – Revised (Ayers, Sandler, West, & Roosa, 1996; Program for Prevention

Research, 1999) that assessed active and, avoidant coping. Active coping reflected the dimensions of positive cognitive restructuring (positivity, optimism, control) and problem focused strategies (cognitive decision making, direct problem solving, and seeking understanding). Avoidant coping included repression, avoidant actions, and wishful thinking. Higher active coping scores have been shown to relate to lower depression, lower conduct disorder, and higher self esteem; higher avoidant coping strategies have been demonstrated to relate to lower self-esteem (Ayers, et al., 1996). Alphas for active coping and avoidant coping were .92 and .74, respectively. Coping efficacy, conceptualized as reflecting children's perception that they can control the outcomes of stressful events, was assessed with a 7-item scale (Sandler, Tein, Mehta, Wolchik & Ayers, 2000; e.g., "In the future, how good do you think that you will be in handling your problems?"). Coping efficacy scores are negatively related to internalizing and externalizing problems (Sandler et al., 2000). Alpha was .64.

Interpersonal Coping Processes: Four, 4-item subscales from the Children's Coping Strategies Checklist – Revised (Ayers et al., 1996; Program for Prevention Research, 1999) were assessed youth's attempts to seek support from their parent or guardian, adults other than their parent or guardian, their peers, and their siblings. Scores on support seeking from parent/guardian have been found to be negatively related to depression and externalizing problems; support seeking from peers was positively related to depression and externalizing problems (Ayers, Newton & Sandler, 2002). Alphas for parent/guardian, other adult, peer, and sibling support scores were .82, .81, .87 and .86, respectively.

Mental health and social adaptation outcomes

Internalizing Problems: Caregiver report of internalizing problems was assessed using the 31-item internalizing subscale of the Child Behavior Checklist (CBCL; Achenbach, 1991). Adequate reliability and validity for this subscale have been reported (Achenbach, 1991a). In this sample, alpha was .92. Youth report of depression was assessed on the 21-item Child Depression Inventory (CDI; Kovacs, 1981). The CDI has been shown to have high internal consistency, test-retest reliability, and validity (Saylor, Finch, & Spirito, 1984). Alpha was .87. Youth report of anxiety was assessed using the 28-item Revised Children's Manifest Anxiety Scale (RCMAS; Reynolds and Richmond, 1978). Convergent and discriminant validity has been supported by positive correlations with other trait measures of anxiety (Reynolds & Paget, 1981). Alpha was .90. Scores on the CDI and RCMAS were standardized and averaged to form a youth report of internalizing problems. The internalizing problems variable was the standardized average of caregiver report of internalizing problems and youth report of internalizing problems.

Externalizing Problems: Caregiver report of externalizing problems was measured with the 33-item externalizing subscale of the CBCL (Achenbach & Edelbrock, 1983). Extensive research has documented the reliability and validity of this subscale (Achenbach, 1991a). In this sample, alpha was .88. Youth completed the 30-item externalizing subscale of the Youth Self-Report (YSR; Achenbach, 1991). The YSR has been shown to discriminate clinically referred and non-referred adolescents (Achenbach, 1991b). Alpha was .90. The externalizing problems variable was the standardized average of caregiver report of externalizing problems and child report of externalizing problems

Self-esteem: The 6-item global self-worth subscale of the Self Perception Profile for Children was used (Harter, 1982; e.g. "You are happy being the way you are."). Harter (1982) has reported adequate reliability and validity data. The alpha coefficient was .81.

Outcome variables

Posttraumatic Growth—The 21-item Posttraumatic Growth Inventory (Tedeschi & Calhoun, 1996), administered only at T4, includes five factors: New Possibilities (e.g., “I developed new interests.”), Relating to Others (e.g., “I accept needing others.”), Personal Strength (e.g., “I discovered that I’m stronger than I thought I was.”), Spiritual Growth (e.g., “I have a stronger religious faith.”), and Appreciation of Life (e.g., “I better appreciate each day.”). Tedeschi and Calhoun (1996) reported alphas ranging from .67 to .85 for the subscales. Higher total scores have been shown to relate to optimism and extraversion (Tedeschi & Calhoun, 1996). Test-retest reliability is acceptable for the subscale scores (Tedeschi & Calhoun, 1996). In the current sample, Cronbach alphas were .86, .83, .93, .84, and .69 for the New Possibilities, Personal Strength, Relating to Others, Spiritual Growth, and Appreciation of Life subscales, respectively.

Results

The Box-M procedure was used to examine the equivalence of the variance-covariance matrix of the predictor variables (i.e., demographic, event-related rumination, threat appraisals, intrapersonal coping processes, interpersonal coping processes, mental health and social adaptation outcomes) with posttraumatic growth measures between youth in the intervention and self-study conditions. Because the sample size was small, we examined one set of correlates (e.g., intrapersonal coping processes) and one growth variable at a time. The results indicated that the relations of these correlates and the growth subscales were invariant across intervention and control groups. Thus, youth in both the intervention and self-study conditions were included in the analyses.

The demographic variables of youth age, gender and ethnicity, time since death, cause of death (i.e., illness vs. violent [including suicide, homicide, accident]), and intervention condition were examined as predictors and potential covariates of growth on the basis of prior findings (e.g., Brent, Speece, Lin, Dong & Yang, 1996; Hogan, & Greenfield, 1991; Kennedy et al., 2007; Raveis, Seigel & Karus, 1999; Rothbaum-Borus, Stein & Lin, 2001). Table 1 shows the zero-order correlations between these variables and the growth subscale scores, as well as the overall R^2 or proportion of variance accounted for by these variables. Given the small sample, findings at the $p < .10$ level of significance are noted. As shown, older youth had higher Appreciation of Life scores, youth who experienced parental death more recently had higher scores on Relating to Others and Appreciation of Life, and youth whose parents died in violent situations had higher scores on New Possibilities. Demographic variables and the intervention condition accounted for a significant amount of the variance in Appreciation of Life (24%). Because youth age, time since death, and cause of death were correlated significantly or marginally with one or more outcome, they were partialled out from the correlations between the other predictor variables and the growth variables and were included as covariates in the regression analyses.

Table 2 shows the inter-correlations between the T1 predictors, excluding the demographic variables. Intrusive grief thoughts were significantly or marginally, negatively correlated with threat appraisals, active coping, avoidant coping, support seeking from parents or guardians, internalizing problems and externalizing problems. Intrusive grief thoughts were positively correlated with self-esteem. Threat appraisals were significantly, negatively correlated with coping efficacy and self-esteem and significantly, positively correlated with support seeking from peers, externalizing problems and internalizing problems. Active coping was significantly, positively correlated to coping efficacy, support seeking from parents or guardians, and support seeking from other adults. Avoidant coping was significantly, positively correlated with support seeking from parents or guardians, and marginally, positively correlated with support seeking from other adults. Coping efficacy was significantly,

negatively correlated with internalizing problems and significantly, positively correlated with self-esteem. Support seeking from parent/guardian was significantly, positively related to support seeking from other adults and marginally, positively correlated with support seeking from peers. Support seeking from peers was marginally, positively correlated with internalizing problem and externalizing problems. Support seeking from siblings was positively, significantly correlated with threat appraisals, internalizing problems and self-esteem, and negatively, significantly correlated with intrusive grief thoughts. Internalizing and externalizing problems were significantly positively related to each other and were negatively related to self-esteem.

Table 3 shows the inter-correlation between the T4 growth variables. The growth variables were highly, positively correlated with each other. The strongest correlation was between New Possibilities and Personal Strength ($r=.82$).

Table 4 shows partial correlations between the individual predictors and growth variables. Controlling for age, time since death, and cause of death, the predictors of threat appraisals, active coping, avoidant coping, coping efficacy and support seeking from one's parent or guardian significantly, positively predicted New Possibilities six years later. Active coping, avoidant coping, and support seeking from one's parent or guardian significantly, positively predicted Personal Strength six years later. Support seeking from parent or guardian also significantly predicted Relating to Others and was marginally related to Appreciation of Life six years later. Threat appraisals were significantly, positively correlated with Appreciation of Life six year later. Coping efficacy marginally predicted Personal Strength. Support seeking from other adults was marginally, positively related to Relating to Others six years later. Internalizing problems significantly, positively predicted New Possibilities six years later. Intrusive grief thoughts, externalizing problems, and self-esteem did not significantly predict any growth subscale. None of the predictors correlated significantly with Spiritual Change.

Table 4 also presents R^2 change values for separate regressions for each of the five sets of predictors (event-related rumination, threat appraisals, intrapersonal coping processes, interpersonal coping processes, and mental health and social adaptation outcomes). The R^2 change values represent the proportion of variance accounted for by that group of variables, over and above the contribution of youth age, time since death, and cause of death. Threat appraisals accounted for a significant proportion of the variance (over and above the demographic variables) in Appreciation of Life (9%). The intrapersonal coping processes accounted for a medium (Cohen, 1988) proportion of variance (over and above the demographic variables) in the New Possibilities and Personal Strength (24%, 24%, respectively). The interpersonal coping variables accounted for a medium (Cohen, 1988) proportion of variance (over and above the demographic variables) in the Relating to Others, New Possibilities, and Personal Strength scores (24%, 19%, and 19%, respectively). The interpersonal coping variables also accounted for a marginally significant proportion of the variance in the Appreciation of Life scores (12%). The mental health and social adaptation outcomes accounted for a significant proportion of variance (over and above the demographic variables) in the New Possibilities (14%) and a marginally significant proportion of the variance in Spiritual Change scores (16%). Consistent with partial correlation findings, event-related rumination did not account for a significant proportion of variance (over and above the demographic variables) in any of the growth outcomes.

Discussion

This is the first study to examine predictors of posttraumatic growth in youth who had experienced parental death. Of the domains of predictors examined, growth was most consistently predicted by the interpersonal coping processes. Controlling for youth age, time

since death, and cause of death, this set of variables explained a medium amount of variance in Relating to Others, New Possibilities and Personal Strength six years later. A significant strength of the current study is its use of a prospective longitudinal design with a six-year interval between the assessment of predictor and outcome variables. As noted by Hegleson et al. (2006) in their meta-analytic review of research on posttraumatic growth in adults, the paucity of longitudinal studies has precluded inference about factors that promote growth after traumatic events. The temporal precedence between the predictors and outcomes in the current study strengthens inferences about the causal direction of the obtained relations.

Each of the appraisal and intrapersonal coping variables examined, threat appraisals, active coping, avoidant coping, and coping efficacy, showed prospective significant positive relations with New Possibilities. All of these variables except threat appraisals significantly or marginally significantly predicted Personal Strength and threat appraisals significantly predicted Appreciation of Life. The demonstration of prospective, longitudinal relations between the appraisal and intrapersonal coping processes and growth represents a significant advance in this area of research. Also, these findings extend the existing literature on posttraumatic growth by demonstrating consistency in the relations between appraisals and intrapersonal coping processes across developmental periods. For example, Hegelson et al.'s (2006) meta-analysis of cross-sectional research with adults found a positive association between subjective perceptions of stress associated with the traumatic event and growth. From a theoretical perspective, "seismic" stressors such as parental death shatter assumptions and provide greater possibility for growth (Tedeschi & Calhoun, 1996). The finding that avoidant coping was positively associated with growth is consistent with Hegelson et al.'s (2006) finding that growth was positively related to the coping strategy of denial. Avoidant coping may be a marker of the cognitive processing (Hegelson et al., 2006) needed for growth to occur. Alternatively, higher use of avoidant coping in the initial period of recovery may provide a respite for bereaved youth so that during periods when they actively engage the significance of the death, they are able to perceive some positive personal changes that followed the death. The positive relation between active coping and growth is similar to Hegelson et al.'s (2006) finding that growth was related to positive reappraisal. The finding of a positive relation between coping efficacy and growth extends Cryder et al.'s (2006) cross-sectional research with children who had experienced a hurricane by demonstrating this relation when efficacy was assessed six years prior to growth. Higher levels of coping efficacy and active coping may make it easier for youth to engage the changes that occur after the death, which may promote active constructive cognitive processing, in turn leading to growth. In particular, a sense of mastery and capacity to effectively manage problems may make it easier for youth to take advantage of new opportunities that occur in the aftermath of the death, which is reflected in seeing more New Possibilities. Interestingly, none of the appraisal and intrapersonal coping processes predicted Relating to Others or Spiritual Change. Although the sample size may have precluded the detection of small effects, this pattern of findings suggests that some level of match between intrapersonal or interpersonal resources and the domain of growth may be needed.

The links between the interpersonal coping variables and growth were dependent on the type of relationship. Support seeking from one's parent or guardian was significantly related to Relating to Others, New Possibilities, Personal Strength and marginally related to Appreciation of Life. Support seeking from other adults was marginally related to Relating to Others. It is notable however that neither support seeking from peers nor siblings was significantly related to any dimension of growth. In the only other study of children, Cryder et al. (2006) assessed support from multiple types of supporters and found a nonsignificant relation between support and growth. The current findings highlight the importance of assessing social support in terms of type of provider rather than aggregating across different types of supporters (Ayers et al., 2002). The positive relations between support seeking from parents or guardians and growth

is consistent with findings that have shown negative relations between parental warmth and bereaved children's mental health problems (Sandler et al., 1992; Sandler, Kwok, Ayers, and Wolchik, 2001; West et al., 1991) and between children's reports that their parent/guardian understands their feelings and mental health problems (Ayers et al., 2000).

Although the mechanisms through which seeking support from the surviving parent or guardian were not addressed in this study, it is interesting to speculate about plausible pathways. As discussed by Joseph and Linley (2005), accommodating traumatic information is challenging and requires a supportive context that facilitates satisfaction of basic psychological needs for autonomy, competence and relatedness so that individuals can engage the significance of the trauma rather than cling to pretrauma schema. When youth seek support from parents and guardians, they may disclose painful feelings and receive validation of these feelings, get help with "meaning making" of the death and its aftermath, experience acceptance of their concerns about the death, and obtain suggestions for constructing new posttrauma schemas (Calhoun & Tedeschi, 1998; Cryder et al. 2006; Joseph & Linley, 2005; Neimeyer, 2001; Tedeschi & Calhoun, 2004). Such interactions may facilitate cognitive processing of emotional material and provide perspectives that can be integrated into the schema change, which may enhance the constructive rumination process that is hypothesized to lead to growth (Tedeschi & Calhoun, 2004). Alternatively, parents or guardians from whom youth seek support may promote growth through modeling their own strength and growth following the trauma or by facilitating a "family meaning making" about the death that includes themes of personal strength, positive relationships, appreciation of life or new possibilities (Nadeau, 1998).

Intrusive grief thoughts were not significantly associated with any dimension of growth. This finding is in contrast to most theories of posttraumatic growth and to the research findings with adults. From a conceptual perspective, automatic intrusive rumination is viewed as a necessary response to the shattering of schemas that sets the stage for later more constructive information processing (Calhoun, Cann, Tedeschi & McMillan, 2000; Greenberg, 1995; Joseph & Linley, 2005). Similarly, high levels of automatic ruminations early in the wake of the trauma are seen as promoting more deliberative rumination which leads to growth (Calhoun & Tedeschi, 1998). Our null findings may be due to the nature of the items included in the scale or the timing of our assessment. Our measure of rumination assessed intrusive, negative thoughts about the death which interfered with normal functioning. Perhaps a positive relation between rumination and growth would have occurred if more adaptive ruminative activity, such as thinking about ways to make sense of the death, had been assessed. Alternatively, a positive relation might have been observed if we assessed intrusive grief thoughts soon after the death rather than an average of nine months later. It is also possible that the relation between ruminative activity and growth differs across developmental level. It may be that intrusive thoughts are not a pathway that leads to posttraumatic growth in youth. Rather, adaptive coping efforts, including seeking support from the surviving parent or guardian, may be needed to promote constructive information processing that alters schemas and leads to growth.

Of the mental health and social adaptation variables, only internalizing problems were positively correlated with a dimension of growth (i.e., New Possibilities). In the limited work on youths' growth that has included mental health variables, Milam et al. (2004) found a nonsignificant relation between depression and growth using a cross-sectional model. Additionally, Ickovics et al. (2006) found that growth was associated with subsequent reductions in youths' emotional distress. Hegelson et al.'s (2006) meta-analysis of cross-sectional research with adults found that growth was related to less depression and more positive well-being. Additional work with youth is needed to clarify the nature of the relations between growth and mental health outcomes.

There was only one significant relation between the demographic variables of age, gender, ethnicity, time since death and cause of death and growth: time since death was negatively related to Appreciation of Life. Three marginal relations occurred: time since death was negatively associated to Relating to Others, age was positively related to Appreciation of Life, and youth whose parents died from illness reported less growth on New Possibilities than youth whose parents died from violent causes. In the few other studies to examine the relation between demographic variables and growth in samples of youth, Milman et al. (2004) found that age was positively associated with growth in their sample of high schoolers whereas Cryder et al. (2006) found no age effects in their sample of 6 to 15 year olds. Similar to our findings, the three studies that included adolescents and examined the relation between growth and gender found a nonsignificant relation (Ickovics et al., 2006; Milman et al., 2004; Oltjenbruns, 1991). Similar to our finding, the two studies that included adolescents and examined ethnicity found a nonsignificant relation between ethnicity and growth (Milham et al., 2004; Oltjenbruns, 1991). A recent meta-analysis of the research on adults found that females and minorities reported more growth than males and non-minorities, respectively (Hegelson et al., 2006). Although it is possible that the null findings in the current study and in the few other studies with youth are due to small samples, it is also possible that the processes responsible for the ethnic and gender effects (e.g., gender differences in coping strategies) stabilize during adulthood. Longitudinal research that follows samples across developmental periods is needed to address this hypothesis. The finding that time since the death was nonsignificantly associated with four of the five dimensions of growth is consistent with work with adults (e.g., Tedschi & Calhoun, 1996) and youth (Milman et al., 2004). In the context of the significant effects for appraisals and intrapersonal and intrapersonal coping processes, this finding highlights the concept that resources within the survivors and in their social environments are more important in understanding growth than the mere passage of time. Interestingly, participation in a preventive intervention that focused on improving the affective quality of the caregiver-child relationship and enhancing adaptive coping was not associated with greater growth. It may be necessary for interventions to specifically address growth for change to occur. Alternatively, the sample size might have been too small to detect intervention-related increases in growth.

There are limitations of this study that need to be recognized. First, because the sample was relatively small there was not sufficient power to detect small effects. Also, the small sample size precluded the study of moderator effects. Recent work by Hegelson et al. (2006) that showed the links between growth and psychological well-being were stronger in samples with larger percentage of minority participants (Hegelson et al., 2006) underscores the importance of attention to the impact of culture on response to traumatic events. Second, the growth variables were assessed at only one time point, so that it was not possible to control for baseline effects.

Implications for Research, Policy and Practice. Using a prospective longitudinal design, this study indicated that appraisal, intrapersonal coping processes and interpersonal coping processes (support seeking from parents and guardians in particular) as assessed an average of nine months after parental death predicted growth six years later in four domains (i.e., Relating to Other, New Possibilities, Personal Strength, Appreciation of Life). Given that this is only the second study to use a prospective design to examine posttraumatic growth in youth, the need to replicate these findings is obvious. Other potentially fruitful directions for future research are the identification of variables that predict Spiritual Change in youth who have experienced parental death and the identification of factors that promote specific domains of growth among youth who have experienced other major life stressors. Also, understanding how growth and the intraindividual variables and social environmental factors that affect it change over development is an important direction for future research. In the context of the growing literature on posttraumatic growth, the current findings highlight the importance of theoretical models of response to traumatic events that include positive as well as negative

outcomes (see Zoellner & Maercker, 2006). Further, the findings of research on posttraumatic growth in youth underscore the importance of mental health professionals embracing the possibility of growth and creating therapeutic environments in which youth can share meaningful, positive changes that occur in the aftermath of the trauma (see Tedeschi & Calhoun [2004] for a discussion of clinical approaches).

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, Yu Ma and Wai Chow who helped manage the dataset.

References

- Achenbach, TM. Manual for the Child Behavior Checklist/4–18 and 1991 Profile. Burlington, VT: University of Vermont Department of Psychiatry; 1991a.
- Achenbach, TM. Manual for the Youth Self-Report and 1991 Profile. Burlington, VT: University of Vermont, Department of Psychology; 1991b.
- Ayers TS, Sandler IN, West SG, Roosa MW. A dispositional and situational assessment of children's coping: Testing alternative models of coping. *Journal of Personality* 1996;64:923–958. [PubMed: 8956518]
- Ayers, TS.; Sandler, IN.; Wolchik, SA.; Haine, RA. Emotional expression and mental health problems of bereaved children. Montreal, Canada. Poster presented at the Eighth Annual Meeting of the Society for Prevention Research; 2000.
- Ayers, TS.; Newton, C.; Sandler, IN. Improving the Measurement of Support Seeking Coping: Provider Matters. Seattle, WA. Poster presented at the 10th Annual Meeting of the Society for Prevention Research; 2002.
- Beck AT, Steer RA. Internal consistencies of the original and revised Beck Depression Inventory. *Journal of Clinical Psychology* 1984;40:1365–1367. [PubMed: 6511949]
- Cadell S, Regehr C, Hemsworth D. Factors contributing to posttraumatic growth: A proposed structural equation model. *American Journal of Orthopsychiatry* 2003;73:279–287. [PubMed: 12921208]
- Calhoun, LG.; Tedeschi, RG. Posttraumatic growth: Future directions. In: Tedeschi, RG.; Park, CL.; Calhoun, LG., editors. *Posttraumatic Growth: Positive changes in the aftermath of crisis*. Mahwah, NJ: Lawrence Erlbaum Associates; 1998. p. 215–238.
- Calhoun LG, Cann A, Tedeschi RG, McMillian J. A correlational test of the relationship between posttraumatic growth, religion and cognitive processing. *Journal of Traumatic Stress* 2000;13:521–527. [PubMed: 10948491]
- Cohen. *Statistical power analysis for the behavioral science*. Hillsdale, New Jersey: Lawrence Erlbaum Associates; 1988.
- Cryder CH, Kilmer RP, Tedschi RG, Calhoun LG. An exploratory study of posttraumatic growth in children following a natural disaster. *American Journal of Orthopsychiatry* 2006;76:65–69. [PubMed: 16569128]
- First, MB.; Spitzer, RL.; Gibbon, M.; Williams, JBW. New York, NY: Biometrics Research Department, New York State Psychiatric Institute; 1996. *Structured Clinical Interview for DSM-IV Axis I Disorders - Research Version - Version 2.0 (Structured Interview)*.
- Greenberg MA. Cognitive processing of traumas: The role of intrusive thoughts and reappraisals. *Journal of Applied Social Psychology* 1995;25:1262–1296.
- Harter S. The Perceived Competence Scale for Children. *Child Development* 1982;53:87–97.
- Helgeson VS, Reynolds KA, Tomich PL. A meta-analytic review of benefit finding and growth. *Journal of Consulting and Clinical Psychology* 2006;74:797–816. [PubMed: 17032085]
- Hogan NS, Greenfield DB. Adolescent sibling bereavement symptomatology in a large community sample. *Journal of Adolescent Research* 1991;6(1):97–112.

- Ickovics JR, Meade CS, Kershaw TS, Milan S, Lewis JB, Ethier KA. Urban teens: Trauma, posttraumatic growth, and emotional distress among female adolescents. *Journal of Consulting and Clinical Psychology* 2006;74:841–850. [PubMed: 17032088]
- Joseph S, Linley PA. Positive adjustment to threatening events: An organismic valuing theory of growth through adversity. *Review of General Psychology* 2005;9:262–280.
- 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. Manuscript submitted for publication; 2007.
- Kovacs M. Rating scales to assess depression in school aged children. *Acta Paedopsychiatry* 1981;46:305–315.
- Milam JE, Ritt-Olson A, Unger JB. Posttraumatic growth among adolescents. *Journal of Adolescent Research* 2004;19:192–204.
- Nadeau, JW. Families making sense of death. Thousand Oaks, CA: Sage Publications; 1998.
- 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.
- Neimeyer, RA. Meaning reconstructive & the experience of loss. Washington DC: American Psychological Association; 2001.
- Oltjenbruns KA. Positive outcomes of adolescent experience with grief. *Journal of Adolescent Research* 1991;6:43–53.
- Park CL, Cohen LH, Murch RL. Assessment and prediction of stress-related growth. *Journal of Personality* 1996;64:71–105. [PubMed: 8656319]
- Polatinsky S, Esprey Y. An assessment of gender differences in the perception of benefit resulting from the loss of a child. *Journal of Traumatic Stress* 2000;13:709–718. [PubMed: 11109241]
- Proffitt D, Cann A, Calhoun L, Tedeschi R. Judeo-Christian clergy and personal crisis: Religion, posttraumatic growth and well being. *Journal of Religion and Health* 2007;46:219–231.
- 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.)
- 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.
- Reynolds CR, Richmond BO. What I Think and Feel: A Revised Measure of Children's Manifest Anxiety. *Journal of Abnormal Child Psychology* 1978;6:271–280. [PubMed: 670592]
- Rotheram-Borus MJ, Stein JA, Lin Y-Y. Impact of parent death and an intervention on the adjustment of adolescents whose parents have HIV/AIDS. *Journal of Consulting and Clinical Psychology* 2001;69:763–773. [PubMed: 11680553]
- Sandler, IN.; Kwok, O-M.; Ayers, TS.; Wolchik, SA.; Lin, K. Parenting and mental health of parentally-bereaved children and adolescents; Paper presented at the Conference of the Association of Death Education and Counseling; Portland, Oregon. 2002 Apr.
- Sandler, IN.; Rameriz, R.; Reynolds, K. Life stress for children of divorce, bereaved and asthmatic children; Paper presented at the Annual Meeting of the American Psychological Association; Washington, DC: 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]
- Tedeschi, RG.; Calhoun, LG. Trauma & transformation: Growing in the aftermath of suffering. Thousand Oaks, CA: Sage Publications, Inc; 1995.
- Tedeschi RG, Calhoun LG. The Posttraumatic Growth Inventory: Measuring the positive legacy of trauma. *Journal of Traumatic Stress* 1996;9:455–471. [PubMed: 8827649]

- Tedeschi, RG.; Calhoun, LG. A clinical approach to posttraumatic growth. In: Linley, PA.; Joseph, S., editors. Positive psychology in practice. Hoboken, NJ: John Wiley & Sons; 2004. p. 405-419.
- Tedeschi RG, Calhoun LG. Posttraumatic growth: Conceptual foundations and empirical evidence. *Psychological Inquiry* 2004;15:1–18.
- Tein J-Y, Sandler IN, Ayers T, Wolchik SA. Mediation of the effects of the family bereavement program on mental health problems of bereaved children and adolescents. *Prevention Science* 2006;7:179–195. [PubMed: 16775760]
- West SG, Sandler IN, Pillow DR, Baca L, Gersten JC. The use of structural equation modeling in generative research: Toward the design of a preventive intervention for bereaved children. *American Journal of Community Psychology* 1991;19:459–480. [PubMed: 1755431]
- Wild ND, Paivio SC. Psychological adjustment, coping, and emotion regulation as predictors of posttraumatic growth. *Journal of Aggression, Maltreatment & Trauma* 2003;8:97–122.
- Yamamoto K. Children's ratings of the stressfulness of experiences. *Developmental Psychology* 1979;15:581–582.
- Zoellner T, Maercker A. Posttraumatic growth in clinical psychology – A critical review and introduction of a two component model. *Clinical Psychology Review* 2006;26:626–653. [PubMed: 16515831]

Table 1
Zero-order correlations between PTGI outcomes and demographic variables

	Relating to Others	New Possibilities	Personal Strength	Spiritual Change	Appreciation of Life
Child Age	0.22	0.22	0.21	0.07	0.25*
Child Gender	0.13	-0.05	0.12	0.12	0.01
Ethnicity ^b	0.08	0.03	0.03	-0.14	0.20
Time Since Death ^a	-0.24*	-0.22	-0.09	-0.03	-0.32**
Cause of Death ^{a,c}	0.15	0.27*	0.12	0.11	0.22
Experimental Condition ^d	0.00	0.09	0.11	0.14	-0.01
Total R ²	0.16	0.16	0.09	0.06	0.24*

Note. N=50, except where noted.

^a N=49

^b Caucasian versus all others

^c Illness versus Violent (including accident, homicide and suicide) (0=illness; 1=violent death)

^d Family Bereavement Program versus self-study control

* p<.10.

** p<.05

	[*] p<.10.
^b Caucasian versus all others	
^a N=49	
	[*] p<.10.
	^{**} p<.05
^a N=49	
^c Illness versus Violent (including accident, homicide and suicide) (0=illness; 1=violent death)	
	[*] p<.10.
^d Family Bereavement Program versus self-study control	
	[*] p<.10.

Table 2

Correlations between predictors at pretest

	1	2	3	4	5	6	7	8	9	10	11	12
1. Intrusive Grief Thoughts ^a	1.00	−0.51***	−0.29**	−0.26*	0.17	−0.24*	−0.08	−0.18	−0.25*	−0.67***	−0.29**	0.37***
2. Threat Appraisals		1.00	−0.06	0.06	−0.31**	0.33**	0.17	0.44***	0.29**	0.72***	0.42***	−0.33**
3. Active Coping			1.00	0.55***	0.52***	0.42***	0.38**	0.11	0.20	−0.02	−0.03	0.17
4. Avoidant Coping				1.00	0.17	0.36**	0.28*	0.05	0.16	0.14	0.07	−0.03
5. Coping Efficacy					1.00	0.20	0.27*	−0.09	−0.11	−0.39***	−0.18	0.42***
6. Support seeking (Coping Parent/Guardian)						1.00	0.30**	0.28*	0.23	0.23	0.06	−0.18
7. Support seeking (Coping Other adults)							1.00	0.22	0.07	0.03	−0.00	0.21
8. Support seeking (Coping Peers)								1.00	1.00	0.27*	0.25*	−0.14
9. Support seeking (Coping Siblings)										0.32**	0.19	−0.28*
10. Internalizing										1.00	0.43***	−0.51***
11. Externalizing											1.00	−0.30**
12. Self Esteem												1.00

Note: N=50 except where noted.

*p<.05

**p<.01

***p<.001

a. Omega (Cronbach's alpha) = .74

^aN=49

p<.01.
**
p<.05
*
p<.10
*
p<.10
*
p<.10

p<.01.
**
p<.05

p<.01.
**
p<.05
**
p<.05

p<.01.
**
p<.05

p<.01.

p<.01.
**
p<.05

p<.01.

p<.01.
**
p<.01.
**
p<.05
*
p<.10
*
p<.10

p<.01.

p<.01.
**
p<.05
*
p<.10
*
p<.10
*
p<.10

p<.05
*
p<.10

p<.01.

p<.01.
**
p<.05

Table 3
Correlations between Posttraumatic Grief Inventory outcomes at six-year follow-up (N=50)

	Relating to Others	New Possibilities	Personal Strength	Spiritual Change	Appreciation of Life
Relating to Others					
New Possibilities					
Personal Strength					
Spiritual Change					
Appreciation of Life					

p<.01.

p<.01.

p<.01.

p<.01.

p<.01.

p<.01.

p<.01.

p<.01.

p<.01.

p<.01.

p<.01.

Table 4
Partial correlations between PTGI outcomes and predictors at pretest and R-squared change for groups of predictors over and above demographics (N=48)

	Relating to Others	New Possibilities	Personal Strength	Spiritual Change	Appreciation of Life
Event-related Rumination					
Intrusive Grief Thoughts	-0.05	-0.22	-0.09	-0.19	-0.15
<i>R² change</i>	0.01	0.04	0.01	0.04	0.02
Appraisals					
Threat Appraisals	0.22	0.29**	0.20	0.14	0.34**
<i>R² change</i>	0.04	0.07*	0.03	0.02	0.09**
Intrapersonal Coping Processes					
Active Coping	0.17	0.48***	0.44***	0.10	0.14
Avoidant Coping	0.21	0.43***	0.44***	0.14	0.08
Coping Efficacy	0.18	0.31**	0.26*	0.06	0.22
<i>R² change</i>	0.06	0.24***	0.24***	0.02	0.05
Interpersonal Coping Processes					
Support Seeking-Parent/guardian	0.49***	0.45***	0.42***	0.25	0.25*
Support Seeking-Other adults	0.27*	0.21	0.17	0.16	-0.12
Support Seeking-Peers	0.16	0.16	0.06	-0.05	0.13
Support Seeking-Siblings	0.22	0.18	0.04	0.03	0.18
<i>R² change</i>	0.24***	0.19**	0.19**	0.10	0.12*
Mental Health/Social Adaptation					

	Relating to Others	New Possibilities	Personal Strength	Spiritual Change	Appreciation of Life
Internalizing behaviors	0.10	0.30**	0.12	0.17	0.17
Externalizing behaviors	-0.14	-0.02	-0.14	0.23	-0.01
Self Esteem	0.03	0.07	0.15	0.05	0.07
<i>R² change</i>	0.05	0.14**	0.10	0.16*	0.05

Note. Age, time since death, and cause of death have been partialled.

*
p<.10
**
p<.05

p<.01.