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Comparing Cognitive, Relational and Stress Mechanisms Underlying Gender Differences in Recovery from Bereavement-related Internalizing Problems

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Abstract

Four putative mediators underlying gender differences in youths' recovery from bereavement-related internalizing problems were examined in a sample (N = 109; age range of 8 to 16 years at the initial assessment) of parentally-bereaved youth: intrusive thoughts about grief, post-death stressors, negative appraisals of post-death stressors and fear of abandonment. A three-wave parallel process longitudinal growth model design was employed. Changes in internalizing problems and mediators were measured as a function of months since the death. Girls showed stability in depression symptoms and a slight rise in anxiety symptoms; boys' trajectories of symptoms of anxiety and depression declined. Girls' higher initial levels of post-death stressors, threat appraisals and fear of abandonment mediated their higher level of internalizing problems 14 months later. Girls' higher initial fear of abandonment also mediated additional growth in anxiety relative to boys.

There is considerable evidence that parental death is associated with increased risk for developing depression and other internalizing problems during childhood and adulthood (Kranzler, Shaffer, Wasserman, & Davies, 1990). Well-designed, community-based studies using comparable non-bereaved comparison groups have found that bereaved children are more likely than non-bereaved children to experience elevated levels of depressive symptoms (Worden & Silverman, 1996), even as toddlers (McLeod, 1991). Further, internalizing problems related to parental bereavement persist up to several years after the death (Reinherz, Giaconia, Carmola Hauf, Wasserman, & Silverman, 1999).

Several studies have shown higher rates and more persistent stability of internalizing problems for bereaved girls than boys (Reinherz et al., 1999; Schmiede, Khoo, Sandler, Ayers, & Wolchik, 2006; Worden & Silverman, 1996). Worden and Silverman (1996) found that girls' higher levels of internalizing problems emerged two years following parental death. Moreover, in the current sample of bereaved youth, Schmiede et al. (2006) found that girls showed a stable trajectory of internalizing problems, while boys showed a decline over 45 months following the death. This pattern of findings suggests that bereaved girls are less likely to recover from bereavement-related internalizing problems compared to boys. This differential persistence in bereaved girls' internalizing problems may increase their vulnerability for the development of adult internalizing disorders. Consistent with this notion, longitudinal research (McLeod, 1991; Reinherz et al., 1999) shows that women who experienced parental death as children or youth (up to age 16) are more likely than men to

experience major depression in young adulthood (for exception see Kendler, Sheth, Gardner, & Prescott, 2002).

Moving beyond risk analyses to the study of mechanisms underlying gender differences in bereaved children's internalizing problems advances knowledge in two significant ways. First, findings for bereaved children may have implications for response to other losses so that understanding processes that mediate gender differences in internalizing problems following bereavement may have broader implications for our theoretical understanding of gender differences in the development of internalizing problems. Second, if the mechanisms are potentially modifiable they may be targeted in theoretically-guided preventive interventions to reduce the heightened risk for developing internalizing problems in bereaved girls (Rutter & Maughan, 1997; Sandler, Wolchik, Davis, Haine, & Ayers, 2003).

The primary aim of this study is to compare and contrast three alternative theoretical models to explain gender differences in trajectories of internalizing problems following parental death. These include: differential ruminative responses to loss, differential exposure to and negative appraisals of post-death stressors, and differential response to interpersonal loss. These model comparisons were chosen based on review of the research on gender differences in bereavement and our current developmental understanding of gender differences in risk for internalizing problems.

Gender Differences in Ruminative Responses to Stress

There is considerable evidence that women show a more severe and persistent ruminative response to significant stressors and losses than men (Nolen Hoeksema & Girgus, 1994; Nolen Hoeksema & Morrow, 1991). Recent research shows that girls are more likely to exhibit a ruminative response to their negative affect than boys which is characterized by persistent, negative intrusive thoughts focusing on their negative affect (Abela, Brozina, & Haigh, 2002; Grant et al., 2004). Focusing passively on negative affect ("I don't want to get out of bed") and negative consequences of those symptoms ("I will never feel better") rather than on active problem solving or distraction leads to greater stability in child and adolescent depression (Abela, Brozina, & Haigh, 2002; Broderick & Korteland, 2004) and has been linked prospectively with anxiety (Calmes & Roberts, 2007).

Research on grief also provides support for the role of a ruminative response to grief in the persistence of internalizing problems for bereaved women. For example, Meuser and Marwit (1999) found that widows who showed high levels of emotion-focused coping surrounding their losses, characterized by ruminative worry, self-blame and regret about the death, experienced higher levels of grief four years after the death than those who did not use emotion-focused coping. For the current study, we considered potential links between gender, intrusive grief thoughts and internalizing problems. Similar to other research on grief (Prigerson & Jacobs, 2001) intrusive grief thoughts was measured broadly and captured both the frequency of negative, intrusive thoughts about the death, as well as the degree that intrusive grief thoughts interfered with daily activities. We hypothesized that bereaved girls would experience more intrusive grief thoughts than boys, and in turn, intrusive grief thoughts would be linked with the stability of internalizing problems in bereaved girls.

Gender Differences in Exposure to Stressors and Negative Appraisals of Stressors

Evidence from several studies indicates that bereaved girls may be exposed to more stressful events following the death, particularly family-related stressors. Two longitudinal studies

provide support for the relation between stress exposure and mental health problems in parentally bereaved girls. Tein, Sandler, Ayers and Wolchik (2006) found that exposure to stressful life events predicted mental health problems in a sample of parentally bereaved girls and that the effects of a preventive intervention to reduce exposure to stressful events partially accounted for program effects to reduce girls' mental health problems 11 months after the program. In their retrospective longitudinal study, BiFulco, Brown and Harris (1987) reported that the family stressors experienced by bereaved girls after parental death were part of a causal chain leading to increased feelings of hopelessness and low self-esteem in childhood and increased vulnerability to depression in adulthood. However, neither of these studies assessed gender differences in the occurrence of stressful events nor whether gender differences in the occurrence of stressful events accounted for gender differences in the development of internalizing problems.

Borrowing from the developmental literature to build our understanding of gender differences in response to parental loss, we elected to consider interpersonal stressors as a mediator of gender differences in internalizing problems. Although not considered explicitly in the bereavement literature, developmental researchers have linked girls' higher exposure to interpersonal stressors with female liability for internalizing problems (Hankin, Mermelstein & Roesch, 2007; Jose & Ratcliffe, 2004; Rudolph, 2002). Additionally, research of at-risk youth highlights the potential influence of gender differences in exposure to one type of interpersonal stress - familial stressors - in explaining girls' increased risk for internalizing problems, although this hypothesis has not been tested in bereavement studies (Crawford, Cohen, Midlarsky & Brook, 2001). For example, Sandler and colleagues (2003) suggested that girls are more likely than boys to experience increased caregiving responsibilities after parental loss, and that this burden may account for bereaved girls having higher levels of mental health problems than boys. A similar explanation was suggested by Grant and Compas (1995) in their study of gender differences in children's adaptation to parental chronic illness. We hypothesized that bereaved girls would experience more stressful events, particularly interpersonal events, than boys and that increased exposure to stressors would be linked with girls' higher internalizing problems. Towards this end, we also examined gender differences in exposure to specific types of stressors (i.e. changes in child's environment, responsibilities and family and peer stressors) to determine whether differences in exposure to interpersonal types of events may be specifically linked to gender differences in internalizing problems.

An alternative model within the stress and coping framework centers on how stressors are appraised (Lazarus & Folkman, 1984). Recent developmental studies suggest that pre-adolescent and adolescent girls show greater cognitive vulnerability in their appraisal of the causes and consequences of stressful events than boys, particularly for stressful interpersonal events (Abela & Hankin, 2008; Hankin & Abramson, 2001). Cognitive vulnerability is defined by a tendency to make negative inferences about the causes and consequences of an event (i.e., global and stable attributions), and negative inferences about the implications of the event for oneself (Abela & Hankin, 2008). Cognitive vulnerability has been linked prospectively with depressive symptoms in youth (e.g., Morris, Ciesla & Garber, 2008), and negative event appraisals have been linked with youth anxiety in cross-sectional and longitudinal studies research (Sheets, Sandler & West, 1996; Smari, Petursdottir, & Porsteinsdottir, 2001; Wolchik, Tein, Sandler, & Ayers, 2006). Studying bereaved youth, Lin and colleagues (2004) found that negative appraisal of the consequences of stressful events was a significant factor discriminating youth who had clinical levels of mental health problems from those who did not. In the current study, we tested whether appraisals of the negative consequences of stressful events accounted for gender differences in trajectories of internalizing problems.

Gender Differences in Security of Social Attachment

A third potential mediator of gender differences in internalizing problems after parental death involves threats to self-system beliefs concerning the security of one's relationship with the surviving caregiver. This hypothesis is consistent with findings from studies with non-bereaved samples that adolescent girls' increased sensitivity to interpersonal threats and their susceptibility to abandonment fears are related to their higher risk for depression and anxiety relative to boys (Hammen et al., 1995; Rudolph & Flynn, 2007). It is also consistent with motivational theories of stress, which posit that stressful events threaten basic needs, such as the need for secure social ties with a caring social network, which in turn lead to increased mental health problems (Sandler, 2001; Skinner & Wellborn, 1994). Children's level of fulfillment of the need for a secure social tie with caring adults can be assessed as their belief that there will always be someone there to take care of them. Higher levels of concern about whether one would continue to be cared for (i.e., fear of abandonment) was found to predict greater mental health problems in prospective analyses of children following parental divorce (Wolchik, Tein, Sandler & Doyle, 2002) and parental death using the current sample (Wolchik, Tein, Sandler, & Ayers, 2006). However, fear of abandonment has not been studied as a mediator of gender differences in the development of internalizing problems over time.

Goals of the Current Study

The current study examines the prospective impact of putative mediators of gender differences in the trajectory of internalizing problems in a sample of bereaved youth using the control group of an experimental trial of a prevention program, the Family Bereavement Program. To our knowledge, this is the first study to examine mediating influences on gender differences in youths' mental health problems in a bereaved sample. We examined four potential mediators of gender differences in the stability of internalizing problems after parental death: intrusive thoughts about grief post-death stressors, stressful events, negative appraisals about stressful events, and fear of abandonment. Our models also accounted for potential age effects on mediators and internalizing problem outcomes. We expected that youth who were older (i.e., more likely to be adolescent rather than middle childhood) at the time of bereavement would have higher levels of depressive symptoms and slower rates of recovery following the death. In addition, we hypothesized that younger youth would be more likely to report fears of abandonment, negative appraisals of stressful events, and higher levels of anxiety symptoms compared to older youth.

We hypothesized that youths' experience of intrusive grief, bereavement-related stressors and threats to security would contribute to prospective levels and adverse change in depression and anxiety up to two to three years following the death. We examined the influence of proposed mediators as measured at the time most proximal to the death (between 3 and 30 months in our sample) to capture the impact of psychological processes as close to the time of death as possible on subsequent internalizing problems. We further chose *growth rate* and *follow-up 14-month status* as outcomes because we wanted to trace the impact of mediational processes on recovery from internalizing problems that were bereavement-related. In a prior study using the same sample, we found that gender differences in recovery on internalizing symptoms over multiple years (1.5 to 3.5 years) varied across gender (Schmiege et al., 2006). In sum, three longitudinal mediation paths were compared and contrasted in this study. Mediation models examined (a) prospective mediation of gender differences in 14-month outcomes of internalizing problems, (b) prospective mediation of gender differences in the rate of change in internalizing problems and (c) whether gender differences in the rate of change of internalizing problems were mediated by concurrent change in the slope of the mediator.

Method

Participants

The sample consisted of 109 youth from 66 families who participated in the self-study condition (i.e., control condition) of an experimental evaluation of a prevention program (Sandler et al., 2003). Parental death had occurred an average 9.5 months prior to the Time 1 interview ($SD = 6.26$). Cause of death was as follows: 67% illness, 21% accident, and 12% homicide or suicide. Surviving participant caregivers in these families were as follows; 52% were mothers, 37% were fathers and 11% were another relative or friend. All caregivers were living with child/adolescent participants during the study period. Mean age of the participating youth at the first interview was 11.3 ($SD = 2.22$) with a range of 8 to 16 years; 57 (52%) were boys. More than half of the youth (70%) had begun, or were in the midst of the adolescent transition during the study period (i.e. 11.5 years or older). Female youth participants did not significantly differ from boys in age, nor the likelihood of experiencing the loss of a mother. Mean number of youth participating in the study per family was 1.64 ($SD = .82$). Ethnicity of the youth was as follows: 71% non-Hispanic Caucasian, 10% Hispanic, 7% African American, 7% Native American, and 5% Other. Median yearly family income was in the range of \$30,001 and \$35,000.

Procedures

Participants were recruited to participate in a program for parentally-bereaved youth using a variety of methods including mail solicitation to professionals working with youth (e.g., school nurses), presentations to agencies that had contact with bereaved children, media presentations and articles in community newsletters. Special efforts were used to contact agencies and schools serving ethnic minority families. The eligibility criteria for participating in the study were as follows: (a) death of a biological parent or parent figure, defined as someone in the parenting role for at least two years prior to the death, (b) parental death occurred between four and 30 months prior to the beginning of the program, (c) at least one youth in the family was between eight and 16 years of age, (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 assessment battery in English, (f) neither caregiver nor any youth was currently receiving other mental health or bereavement services, (g) youth was not in a special class for the mentally handicapped, did not have a serious disruptive behavior disorder, with the exception of youth with attention deficit disorder (ADHD) who were taking medication to reduce symptoms of inattention or hyperactivity and (h) family was not planning to move out of the area in the next six months. All youth who met the eligibility criteria were invited to participate. The resulting sample of deceased parents was demographically representative of their residing county's population of deceased persons between the ages of 28 and 58, in terms of gender, ethnicity and cause of death (Lin, Sandler, Ayers, Wolchik & Leucken, 2004). Additional details on recruitment methods and retention of participants are presented by Sandler et al. (2003).

Data for this study were derived from three assessments (waves). The first wave (T1; pre-test) was completed prior to random assignment to experimental condition and the second (T2) and third (T3) waves occurred three and 14 months after the pre-test, respectively. Most participants were interviewed in their homes; a small percentage of interviews occurred at the university. Caregivers and youth were interviewed individually by trained interviewers. The study protocol was approved by the Institutional Review Board of its university of origin and all 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.

All participants included in the current analyses were in the self-study control condition of the randomized experimental trial of a prevention program for bereaved youth. The self-study program consisted of providing all members of the family (caregivers, children, and adolescents) three books at 1-month intervals during the intervention period (between pre-test and wave 2). Books were accompanied by a syllabus that briefly outlined the topics addressed in the program and where these topics were covered in the books.

Measures: Mediators

Intrusive Grief Thoughts—Intrusive thoughts regarding the parent's death were assessed with 9 items developed for the evaluation study (Bereavement Program, 1999). Items (i.e., "How often did you find yourself thinking how unfair it is that your parent died, even though you didn't want to think about it?") were scored on a 5-point scale and reverse coded so that higher responses reflected more intrusive thoughts. Confirmatory factor analysis affirmed the validity of the factor structure and reliability of the Intrusive Grief Thoughts Scale in the current sample ($\chi^2(24, N = 109) = 61.73, p < .001$; CFI = .95; RMSEA = .07). All standardized factor loadings were significant and above .50. Cronbach's alpha was .88 at wave 1, .91 at wave 2 and .93 at wave 3. Measurement invariance of this scale across gender was also affirmed in preliminary confirmatory factor analyses with the full sample; thus establishing the cross-gender measurement validity of this scale. A multi-group model with loadings, intercepts and residuals constrained to be equal across genders showed an exemplary fit ($\chi^2(63, N = 244) = 75.57, p > .05$; CFI = .98; RMSEA = .04).

Stressors—At every wave, youth were asked whether they had experienced 51 negative life events in the prior month. Events were derived from the General Life Events Schedule for Children (GLESC) (Sandler, Ramirez & Reynolds, 1986) and Parent Death Events List (PDEL) (Sandler et al, 1992). Degree of stressfulness of life events was rated by expert judges. The 51 items were classified into 11 event types by expert raters. Item categories, number of items in each category and sample items are provided in the Appendix. Internal consistency is not appropriate for life event measures (Sandler & Guenther, 1985). However, two-week test-retest reliability was established for the GLESC ($r = .88$) in a prior study (Sandler et al., 1992). Further, both life event measures correlate positively with depression and conduct problems in the current sample (Sandler et al., 1992).

Negative Appraisals—At every wave, two types of negative appraisals of two stressful events were measured: threat appraisals and depressive appraisals. Negative appraisals were measured using the Threat Scale, a revised measure of negative appraisals of self and other created for a study of divorce (Sheets, Sandler, & West, 1996). Youth rated how much they experienced these thoughts for the two most stressful events they had experienced in the prior month. Stressfulness was based on an idiographic rating, determined by mean stressfulness ratings of expert raters. Threat appraisals of each stressor were measured by 12 items related to evaluation of negative meaning of the event in three domains: rejection (e.g. "You thought that someone you care about didn't want to see you."), negative self-appraisal (e.g. "You thought that you were not as good as other kids") and negative other appraisal (e.g. "You thought that someone you like was angry at you."). All ratings were made on a four-point scale from 1 (*Didn't think this*) to 4 (*Thought this a lot*). For each stressor, an average appraisal rating for each domain of threat appraisals was computed and summed across stressors. Domain scores were then summed. Measurement validity was tested in a study of divorced children, in which the alpha reliability across negative appraisal domains was good (ranging from .78 to .85) and domain scores were correlated with measures of psychological symptoms (Sheets, Sandler & West, 1996). Alpha in the current sample was excellent (.90 at wave 1, .91 at wave 2 and .85 at wave 3). A series of nested model tests did not show a significant difference in the factor loadings, intercepts or item residuals across

gender. The final multi-group model with loadings, intercepts and residuals constrained to be equal across genders showed acceptable fit to the data ($\chi^2(6, N = 244) = 12.11, p > .05$; CFI = .97; RMSEA = .09).

Depressive appraisals were assessed with four items that tapped global (i.e. “You thought that a lot of things were going badly for you.”) and stable negative inferences (i.e. “You thought that things like this would always keep happening.”) about the event. This scale was created for this study. For each stressor, an average depressive appraisal rating was obtained and then depressive appraisals were summed across stressors. Preliminary confirmatory factor analysis in the full study sample affirmed the validity of factor structure of the Depressive Appraisals Scale ($\chi^2(1, N = 240) = 1.62, p > .05$; CFI = 1.00; RMSEA = .03). All standardized factor loadings were significant and above .40. Reliability was acceptable across all waves (alpha = .79 at wave 1, .78 at wave 2 and .80 at wave 3). Measurement equivalence of the depressive appraisals scale was also affirmed across gender. A series of nested model tests did not show a significant difference in the factor loadings, intercepts or item residuals across gender. The final multi-group model with loadings, intercepts and residuals constrained to be equal across genders showed good fit to the data ($\chi^2(13, N = 240) = 13.88, p > .05$; CFI = 1.00; RMSEA = .04).

Fear of Abandonment—The 7-item Fear of Abandonment scale was modified for this study from the Fear of Abandonment subscale of the Children’s Problematic Beliefs Regarding Divorce (Kurdek & Berg, 1987). The items reflect worries and fears of being left alone in the future (e.g., “You sometimes wonder who you would live with if your parent/guardian left you”). The original Fear of Abandonment scale showed acceptable reliability (alpha = .70) and was significantly correlated with measures of psychological functioning in prior research (Kurdek & Berg, 1987). Preliminary confirmatory factor analysis in the full study sample affirmed the factor structure of the Fear of Abandonment scale ($\chi^2(11, N = 244) = 14.09, p > .05$; CFI = .99; RMSEA = .02). All standardized factor loadings were significant and above .40. The alpha reliability in this sample was good (.77 at wave 1, .81 at wave 2, .90 at wave 3). Measurement invariance of this scale across gender was also affirmed in preliminary confirmatory factor analyses. A multi-group model with loadings, intercepts and residuals constrained to be equal across genders showed an exemplary fit ($\chi^2(42, N = 244) = 58.61, p > .05$; CFI = .96; RMSEA = .05).

Measures: Outcomes

Internalizing Problems—Because a prior study using this sample established that gender was related to change in youth but not parents’ reports of internalizing problems, only self-reports of internalizing problems were used (Schmiege et al., 2006). Separate measures of depressive symptoms and anxiety symptoms were used in growth models, rather than a composite of internalizing problems to ensure accurate longitudinal measurement of both constructs (Singer & Willett, 2003). Notably, although anxiety and depression symptoms were significantly correlated, the rate of change in these constructs differed, indicating somewhat different developmental paths. Youth completed the 27-item Children’s Depression Inventory using the standard time frame of two weeks (CDI, e.g. “I am sad all the time,” $\alpha = .87$, Kovacs, 1992) and the 28-item Revised Children’s Manifest Anxiety Scale using the time frame of the past month (RCMAS, items, e.g., “You were afraid of a lot of things,” Reynolds & Richmond, 1978). Both measures have been reported to have strong psychometric properties in past research (Kovacs, 1981, 1992; Reynolds & Paget, 1981). Prior research has also established the measurement invariance of the CDI across gender (Carle, Millsap & Cole, 2008) and the RCMAS across gender (Pina, Little, Knight, & Silverman, 2009). In addition, Lambert and colleagues (2004) found longitudinal

measurement invariance on items from the CDI and RCMAS using an adolescent sample. Coefficient alpha reliability was satisfactory in this sample ($\alpha = .87$ CDI; $\alpha = .90$ RCMAS).

Data Analyses

Latent growth curve modeling in a structural equation framework (Singer & Willett, 2003) was used to describe the change in both anxiety symptoms/depression symptoms and the potential mediators across the three waves. All models were estimated using MPLUS software (Muthén & Muthén, 2006). Both initial level of problems (i.e., the initial status) and rate of change in problems (i.e. the slope factor) were modeled as random effects for the outcomes and mediators. For selected mediation models, the final level of anxiety symptoms/depression symptoms (i.e. the final status) was estimated as well as the slope factor. Growth modeling results produced estimates of both the mean and the variance of the random latent factors (i.e., initial status, final status and slope factors).

Because the longitudinal growth curves in this study were designed to measure trajectories of recovery from bereavement-related anxiety symptoms and depression symptoms, longitudinal change on the mediators and the outcomes was measured as a function of the time that had elapsed since the death. Specifically, individually-varying time scores which were used to measure the shape of change were coded in terms of (a) number of months since the death, ranging from 3 to 29 months and (b) number of months elapsed between measurement waves 1 (pre-test) and 2 (3 months) and between measurement waves 2 and 3 (11 months). The wave 1 time score was coded as the number of months since the death and time since death served as a reference point for the calculation of time scores for waves 2 and 3. To illustrate, for an individual whose parent died three months prior to the pre-test, the pre-test item score would be 3, the wave two time score would be 6, which accounts for time since death (3 months) and time since last interview (3 months), and the wave 3 time would be 17, which accounts for time since death (3 months), time elapsed between waves 1 and 2 (3 months) and between waves 2 and 3 (i.e. 11 months). When estimating the level of problems at the final wave (i.e. final status), time scores were centered at Time 3.

Parallel process growth models were used to examine the simultaneous change in mediators and internalizing symptoms (Henry & Slater, 2008). Each model included separate status and slope factors for measurement of trajectories of a selected mediator and an outcome in a single model. Sample size prohibited examining multiple mediators in a single model.

We compared three potential mediating processes underlying gender differences in the stability of internalizing symptoms (see Figures 1a–1c). First, we tested prospective mediation of gender differences in the final status of internalizing problems (i.e., wave 3 level). For this model, the initial status of each mediator was regressed on a dummy coded variable indicating youths' gender (path *a*), the internalizing final status factor was regressed on the initial status factor of the corresponding mediator (path *b*). In addition, the final status of internalizing problems was regressed on youths' gender (path *c*; see Figure 1a). Next, we examined mediation of gender differences in change of internalizing symptoms by regressing the slope factor of internalizing problems on the initial status factor of each mediator (see Figure 1b, path *b*). Finally, we tested concurrent slope mediation by testing whether gender differences in the slope of each mediator was associated with gender differences in concurrent slope change of internalizing problems (see Figure 1c). Every model included non-zero covariances of within process latent factors and of same factors across processes that were not part of the mediation path (e.g., the covariance of the initial status of each mediator and the initial status of each internalizing problems outcome in models 1b and 1c).

Results of the mediation models provided estimates of (a) the direct effect of gender on the mediator, (b) the direct effect of the mediator on the internalizing problems outcome and (c) the direct effect of gender on internalizing problems. The product of coefficients method was used to obtain mediation effects by multiplying direct effect a and b (MacKinnon, Lockwood, Hoffman, West & Sheets, 2002). Using Sobel's method, the significance of a mediation effect was evaluated by calculating the ratio of the mediation effect by its standard error ($ab/SEab$). Because the distribution of the product of coefficients is typically non-normal and asymmetrically skewed, we estimated asymmetric confidence limits of the mediation effect using upper and lower critical values for the distribution of the product of two random normal variables. Using this method, if 0 was not in the 95% interval of the upper and lower confidence limits, we concluded that the mediation effect was statistically significant. We also measured the size of the mediation effect using the ratio of the absolute value of the mediation effect ($|ab|$) to the absolute value of the total effect of gender ($|ab| + |c|$), as recommended by Mackinnon and colleagues (MacKinnon, Warsi & Dwyer, 1995). The tenability of mediation models was compared based on the significance of direct and indirect effects. When significance tests supported the tenability of more than one model, the relative size of the Akaike and Bayesian information criteria (AIC and BIC) statistics were compared. AIC and BIC differences of at least -2 indicate superior model fit (Burnham & Anderson, 1998; Raftery, 1995).

Robust full information maximum likelihood (MLR) estimation was used for all analyses. Use of robust estimation facilitates the most accurate estimation of standard errors in the presence of non-normally distributed data (Yuan & Bentler, 1998). Full information maximum likelihood estimation provides unbiased parameter estimates in the presence of missing data under missing at random conditions (Schafer & Graham, 2002). To account for interdependency in the data resulting from use of sibling participants, standard errors were corrected using the complex procedure described by Muthén and Muthén (2006).

Results

Descriptive statistics and zero-order correlations of potential mediator and outcome variables are provided in Table 1. At the baseline interview, 10% of the sample (12% of girls and 9% of boys) were experiencing clinically significant depression symptoms (CDI cutoff of 20; Kovacs, 1981). A minority of the sample (3%; 4% of girls and 2% of boys) were experiencing clinically significant anxiety symptoms (RCMAS cutoff of 2 SD above the mean; Reynolds & Richmond, 1978).

Given that modeling constraints of parallel process designs prohibited our use of multiple mediators in a single model, we also examined the potential for multicollinearity among predictors to ensure that our mediators were sufficiently distinct constructs and therefore contribute unique variance in the growth models. Based on regression results, multicollinearity diagnostics did not indicate that the proposed mediators were multicollinear. VIF values were well within acceptable limits and ranged from 1.29 to 1.75. Further, the condition indices corresponding to variables that accounted for greater than .50 of the variance were well within acceptable limits (5.63 and 10.12).

Gender Differences in Trajectories of Internalizing Problems and Putative Mediators

Preliminary unconditional growth models showed that the level of depression symptoms differed significantly from 0 at wave 1 (M intercept = 9.93, $p < .001$; $S^2 = 43.31$, $p < .05$) and declined marginally over the three waves (M slope = $-.09$, $p < .10$; $S^2 = .07$, $p > .05$). In addition, the initial level of anxiety symptoms was greater than 0 (M intercept = 9.39, $p < .001$), varied significantly ($S^2 = 53.21$, $p < .001$) and did not change significantly over the

waves (M slope = $-.02$, ns). The slope of anxiety symptoms varied marginally ($S^2 = .12$, $p < .10$).

Figures 2a and 2b depict gender differences in trajectories of depression and anxiety symptoms. Final gender difference models were conditioned on non-zero age effects. Initial level of depression symptoms did not differ significantly between genders, but girls showed greater growth in depression symptoms ($b = .15$, $p < .05$) relative to boys who showed a significant decline (*intercept of latent slope* = $-.17$, $p < .01$). Girls also showed a higher level of depression symptoms at the final wave ($b = 2.48$, $p < .05$; $M = 10.05$, $p < .05$) than boys ($M = 7.49$, $p < .001$). However, counter to hypothesis, age did not affect level ($b = -.11$, $p > .10$) and rate of change ($b = -.01$, $p > .05$) in depression symptoms.

Similarly, girls showed a higher rise in anxiety symptoms ($b = .21$, $p < .001$) relative to, boys whose anxiety symptom level declined significantly (*intercept of slope* = $-.13$, $p < .001$), and varied marginally ($S^2 = .12$, $p < .10$). Anxiety symptom level at initial status did not differ significantly across gender, but girls' final status of anxiety symptoms ($M = 16.04$) was significantly higher ($b = 3.59$, $p < .01$) than males ($M = 12.69$, $p < .001$). Finally, younger children reported marginally lower levels of anxiety symptoms at initial status ($b = -.45$, $p < .10$) and at final status ($b = -.46$, $p < .10$).

Gender differences in both the initial status and slope of each mediator were examined using growth trajectory models conditioned on non-zero age effects. Latent factor means and significant regression estimates are provided in Table 2. As shown, older youth reported lower levels of fear of abandonment, threat appraisals and intrusive grief thoughts at initial status.

Mediation paths of gender differences were only examined for those mediator latent factors which showed a significant gender difference, as shown in Table 2. Girls reported higher initial levels of fear of abandonment, total stressors, and depressive appraisals. However, boys and girls did not differ on slope growth on any of these mediators. Therefore, concurrent mediation of the slope of depression symptoms/anxiety symptoms was *not* tested for these mediators. The slope of threat appraisals differed by gender, with girls reporting a slower decline than boys, but boys and girls did not differ on the initial status of threat appraisals. Therefore, only the concurrent mediation on slopes model was examined for threat appraisals. Genders did not differ on the initial status or slope of intrusive grief thoughts. Therefore, the mediation of the gender difference in the stability of depression symptoms/anxiety symptoms through intrusive grief thoughts was not examined.

Mediation of Gender Effects on Internalizing Problems

The next set of analyses examined the mediation of gender effects on depression symptoms and anxiety symptoms using a series of parallel process models. Table 3 provides summary of the final mediation models including direct and mediation effects and proportion of the total effect represented by mediation effects. As noted above, only model types that showed significant direct effects of the mediator on the outcome are included. Age was tested as a covariate in all analyses, and trimmed from final models when non-significant.

Fear of Abandonment and Gender Differences in Internalizing Problems

Girls' higher initial status of fear of abandonment mediated their higher final status of depression symptoms (mediation effect = 2.53 , $p < .05$) and anxiety symptoms (mediation effect = 2.60 , $p < .05$) compared to males. In addition, initial status of fear of abandonment mediated girls' higher slope of anxiety symptoms (mediation effect = $.05$, $p < .05$). The fits of the prospective mediation of anxiety symptoms final status and the prospective mediation

of anxiety symptoms slope models were compared using AIC and sample-size adjusted BIC criteria. AIC and BIC criteria suggested that both mediation models fit the data equally well.

Stressors and Gender Differences in Internalizing Problems

Comparison of prospective mediation of final status and prospective mediation of slope models showed that girls' higher initial status of total stressors was indirectly related to their higher level of depressive symptoms at the final wave (mediation effect = 1.69, $p < .05$). Consistent with results on change in depression symptoms, girls' higher final status of anxiety symptoms was mediated by their higher initial status of total stressors (mediation effect = 1.93, $p < .05$). In follow-up analyses, gender differences in endorsement of stressor types at wave one was examined. Results showed that of 11 stressor types, girls showed significantly higher levels of four stressor types corresponding to interpersonal events. These included: conflict between family members ($b = .48$, $p < .05$), troubles related to peer relationships ($b = .24$, $p < .05$), separation from parents ($b = .07$, $p < .10$), and loss of peer or adult support ($b = .27$, $p < .05$).

Next, a measure of interpersonal stressors was derived from these four negative interpersonal life events. Analysis of the mean inter-item correlation of the selected interpersonal events items was larger ($r = .31$) than the overall inter-item r of the longer stressors measure ($r = .17$); thus supporting the use of the selected item pool as a measure of interpersonal stressors. The composite of interpersonal stressors was computed and used in mediation analyses. Mediation analyses showed that initial status of interpersonal stressors mediated gender differences in final status of depression symptoms (mediation effect = 3.24, $p < .05$) and final status of anxiety symptoms (mediation effect = 3.61, $p < .05$).

Negative Appraisals and Gender Differences in Internalizing Problems

Girls' higher initial status of depressive appraisals mediated their higher final status of both depression symptoms (mediation effect = 1.69, $p < .05$) and anxiety symptoms (mediation effect = 3.46, $p < .05$) compared to males. Initial status of depressive appraisals did not mediate gender differences in the slope of either depression or anxiety symptoms. Girls' slower decline in threat appraisals than boys mediated their higher slope of depression symptoms (mediation effect = .15, $p < .05$) and anxiety symptoms (mediation effect = .11, $p < .05$). Given that the relation between the slope of threat appraisals and internalizing problems is not a prospective, but rather a simultaneous relation, we examined a cross-lagged path analysis of these time-to-time effects in a follow-up model (see Table 4 and Figure 3). The prospective effects of gender differences in threat appraisals on internalizing symptoms, as well as gender differences of depression and anxiety symptoms on threat appraisals were examined simultaneously. In addition, the auto-regressive effects of prior symptoms and appraisals on stability of symptoms and appraisals were accounted for in the models. Both cross-lagged path analyses were conditioned on age and time since death at each wave. The resulting cross-lagged effects represented short-term prospective links in threat appraisals and internalizing symptoms and did not measure latent slope change, nor gender effects on latent change.

As shown in Figure 3, with all cross-lagged effects accounted for in the model, the mediation path from gender through wave 1 internalizing symptoms and wave 2 threat appraisals remained significant. Specifically, girls showed a marginally higher level of depression symptoms at wave 1 compared to boys, which was related to their greater propensity to view stressors as threatening at wave 2 (marginal mediation effect = .06, $p < .10$). Similarly, girls' significantly higher level of threat appraisals at wave 2 was mediated by their significantly higher level of anxiety symptoms at wave 1 (mediation effect = .05, $p < .05$).

Discussion

This is the first study to test psychological processes that mediate gender differences in depression symptoms and anxiety symptoms subsequent to the death of one's parent. Four mediating processes that encompass environmental, cognitive, and interpersonal mechanisms were found to underlie gender differences in anxiety and depression symptoms: exposure to post-death stressors, in particular interpersonal stressors; depressive appraisals of post-death stressors; threat appraisals of post-death stressors; and fear of abandonment. Interpretation of these findings will focus on the role of interpersonal stressors and psychological processes related to girls' interpersonal vulnerability, and cognitive appraisals of stressors in increasing their vulnerability to depression symptoms and anxiety symptoms (Cyranowski, Frank, Young, & Shear, 2000; Hankin & Abramson, 2001).

The pattern of mediation findings suggest that interpersonal vulnerability plays a critical role in explaining gender differences in bereavement-related trajectories of symptoms of both depression and anxiety. First, girls reported higher exposure to interpersonal loss (i.e., separation from parents and loss of peer or adult support) and conflict (i.e., conflict between family members and troubles with peers). These interpersonal stressors were related to girls' higher level of depression and anxiety symptoms 14 months later. Second, girls reported greater fears of abandonment, which were related to their higher likelihood of greater level of depression symptoms and anxiety symptoms 14 months later, as well as greater growth in anxiety symptoms. These findings both complement and extend prior developmental research linking gender differences in exposure and sensitivity to interpersonal stressors and girls' greater likelihood of depression symptoms in adolescence. Although the general finding that exposure and sensitivity to interpersonal stressors mediate girls' higher level of internalizing problems is well established (Ge, Conger, & Elder, 2001; Rudolph & Flynn, 2007), this study is unique showing a prospective link between parentally-bereaved girls' interpersonal vulnerability and their increased level and stability of symptoms of anxiety and depression.

Our findings are consistent with current developmental theories of gender differences in depression symptoms. Most notably, Cyranowski and colleagues (2000) suggest that girls' intensified affiliative orientation during adolescence underlies their increased risk for depression symptoms compared to boys. Their stress-diathesis model posits that girls' increased focus on interpersonal affiliation raises their risk for threats to attachment security, elevated anxiety symptoms, and reduced coping efficacy relative to boys. Taken together, these interacting risks create a depressogenic diathesis that, in interaction with stressful events, produces increased rates of depression symptoms in adolescent girls. Based on this theoretical model, we propose that the loss of a parent during childhood or adolescence presents an extraordinary threat to security of attachment. Bereaved girls' greater propensity to fears of abandonment may reflect their higher emotional sensitivity to loss of an attachment figure, which is likely to potentiate increased sensitivity to threats of interpersonal loss in other social attachments as well as increased likelihood of internalizing morbidity.

Analyses also revealed that gender differences in cognitive vulnerability, as measured by negative appraisals of post-death stressors, were related to girls' increased level and stability of internalizing problems over time. Specifically, girls were more likely to show global and stable (i.e., depressive) appraisals of stressors at the first interview than boys which was related to higher levels of symptoms of both anxiety and depression 14 months later. This pattern of results is consistent with findings of studies of gender differences in depression symptoms in normative populations (Hankin & Abramson, 2001).

While there was also evidence that the slope of girls' threat appraisals was related to the slope of depression and anxiety symptoms, it should be noted that the concurrent slope mediation models cannot establish the most likely causal direction. Follow-up cross-lagged analyses, in fact, suggested that youths' higher level of depression and anxiety symptoms in the bereavement context led to higher levels of subsequent threat appraisals, though no significant time-lagged relations were found of earlier threat appraisals on later anxiety or depression symptoms. Further longitudinal follow-up with this sample will permit us to better discern the causal direction of mediation relations and to examine reciprocal effects longitudinally.

It may also be the case that there are complex interacting relations between the hypothesized mediators. For example, it may be that youths' exposure to interpersonal stress and cognitive vulnerability show interactive or reciprocal links (Hankin & Abramson, 2001). Future research examining links between bereaved youths' fears of abandonment, exposure to post-death stressors and appraisals of interpersonal post-death stressors would aid in identifying more specific causal paths in gender differences in bereavement-related symptoms of depression and anxiety.

It is noteworthy that the hypothesized mediator that is most specifically related to the grief process- intrusive grief thoughts- was not related to gender differences in trajectories of depression and anxiety symptoms. This result suggests that girls' adaptation to the post-death context, rather than grief per se, is most salient in explaining bereaved girls' stability of internalizing symptoms. However, it may be that other aspects of the grief experience that were not addressed in this study play a role in gender differences in internalizing symptoms of parentally-bereaved children (Melhem et al., 2004).

The non significant gender difference in intrusive grief thoughts also highlights the need to further explore the mediation impact of ruminative coping on gender differences in internalizing symptoms in the post-death context. Whether the broader construct of rumination is an independent or over-lapping construct of intrusive grief thoughts remains to be tested. In addition, future research considering the mediation influence of rumination on sadness in this study's model would clarify whether the tendency to ruminate on negative/depressive affect and thoughts better explains gender differences in bereavement-related internalizing symptoms than intrusive grief thoughts (Wupperman & Neumann, 2006).

A few limitations of the study should be noted. First, the restricted sample size of children in this sample precluded examining age moderation of the hypothesized mediation effects. We expect that future research employing a broader age range would further understanding of how the putative mediators may influence accelerated gender differences in internalizing symptoms during the adolescent period. Also, although the youth in the current study ranged from 8 to 16 years old, most were adolescents. Future research with larger samples that include about equal numbers of children and adolescents is needed to assess whether the obtained mediation effects apply to both children and adolescents. Second, the sample size prevented examining multiple mediators in a single model. Future studies with larger samples are needed to examine the unique contribution of these mediators. Third, the lack of a non-bereaved comparison group or another at-risk group precludes conclusions that the gender differences in mediation processes as described are unique to bereavement. Fourth, our measures of depression and anxiety symptoms were limited to self-reports covering a relatively short-term perspective (2 weeks; one month) and only three measurement waves were used. Future research using multiple reporters and a time varying approach with several data points would allow a more comprehensive perspective on symptoms and allow the testing of curvilinear gender effects. Finally, youths' recovery curves of depression symptoms and anxiety symptoms may have been influenced by their families' participation

in the self-study control group or involvement in other mental health interventions during the follow-up period that was not accounted for in this study.

Implications for Research, Policy, and Practice

Future research will ideally consider the simultaneous influence of neuroendocrine, psychosocial and contextual antecedents of gender differences in depression symptoms with bereaved samples. Current research highlights the influence of gonadal hormonal and neurobiological changes during adolescence on the emergence of girls' increased affiliative behavior (Cyranski et al., 2000) and differential increase in negative affect during adolescence (Brooks-Gunn & Warren, 1989). Examining the moderating influence of pubertal neuroendocrine changes on gender differences in bereavement-related internalizing symptoms would bring us closer to understanding the interplay of contextual, biological and psychosocial factors underlying these gender differences.

Another important missing piece of the puzzle is the role of parenting in attenuating gender differences in mediation of internalizing symptoms. The protective influence of supportive parenting on coping and fear of abandonment mediators of internalizing problems was established in our sample, but whether parenting influences gender differences in these mediators has not been tested (Wolchik et al., 2006). Although beyond the scope of the current study, future research considering parent moderation of the mediation of gender differences in bereavement-internalizing symptoms will inform potential protective effects on gender differences in internalizing symptoms.

The findings of this study have implications for interventions for bereaved girls. Programs that lead to reductions in fear of abandonment, exposure to interpersonal stressors, as well as threat appraisals and depressive appraisals could decrease girls' level of depression symptoms and anxiety symptoms after parental death. Such changes could be accomplished through intervention components that address these processes by working directly with bereaved youth (Clarke et al., 2001) as well as components that address these mediators by working with caregivers (e.g., Tein et al., 2006). Consistent with this hypothesis, a recent evaluation of the Family Bereavement Program showed that program-induced reductions in bereaved girls' internalizing problems were mediated by multiple processes including improved parenting and reductions in exposure to stressful events (Tein et al., 2006).

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Figure 1.

Figure 1(a). Prospective mediation of gender differences in final status of internalizing problems. Non-zero covariances between within-process latent factors and between same factors across processes were also included in this model, although not shown in the figures.

Figure 1(b). Prospective mediation of gender differences in the slope of internalized problems. Non-zero covariances between within-process latent factors were also included in this model.

Figure 1(c). Concurrent mediation of gender differences in the slope of internalizing problems. Non-zero covariances between within-process latent factors were also included in this model.

Figure 2.

Figure 2(a). Gender differences in rate of recovery from depressive symptoms after death of a parent.

Figure 2(b). Gender differences in rate of recovery from anxiety problems after death of a parent.

Figure 3.
Direct effects of cross-lagged model linking gender, threat appraisals and internalizing symptoms, Waves 1–3.

Table 1

Zero Order Correlations and Means of Study Variables, Time 1, N=109

	1	2	3	4	5	6	7	8	9	10	11	M (SD)
1. Age	1.00											11.32 (2.22)
2. Gender	.00	1.00										
3. Time since parental death	-.07	.25**	1.00									9.50 (6.26)
4. Intrusive Grief Thoughts	-.33***	.08	-.11	1.00								3.96 (.87)
5. Total Stressors	-.03	.15	-.03	.42***	1.00							10.39 (5.69)
6. Interpersonal Stressors	-.13	.24*	.10	.30**	.79***	1.00						2.73 (2.45)
7. Depressive Appraisals	-.06	.20*	-.02	.36***	.37***	.34***	1.00					3.83 (1.53)
8. Threat Appraisals	-.20*	.14	-.02	.29***	.39***	.40***	.63***	1.00				8.91 (3.11)
9. Fear of Abandonment	-.25**	.22*	-.01	.41***	.32**	.25**	.40***	.28**	1.00			2.07 (.70)
10. Depressive Symptoms (CDI Score)	-.07	.15	-.06	.44***	.47***	.54***	.55***	.40***	.38***	1.00		9.61 (6.99)
11. Anxiety Problems (RCMAS Score)	-.16	.21*	.02	.57***	.54***	.43***	.40***	.38***	.42***	.57***	1.00	9.54 (6.86)

* $p < .05$,** $p < .01$,*** $p < .001$

Note. Correlations of all longitudinal variables (Time 2 and Time 3) are available from the authors.

Table 2

Initial Status, Slope and Gender and Age Differences of Mediators, N = 109

Mediator	Latent Factors		Gender Effects		Age Effects	
	Initial Status	Slope	Initial Status	Slope	Initial Status	Slope
	<i>M</i>	<i>M</i>	<i>b</i>	<i>b</i>	<i>b</i>	<i>b</i>
Intrusive Grief Thoughts	5.84 ***	-.02 ***	.14	-.00	-.15 ***	-.00
Total Stressors	9.50 ***	-.15 ***	1.73 *	.03	.12	-.02
Interpersonal Stressors	1.92 ***	-.03 *	1.21 ***	.03	-.01	-.01
Depressive Appraisals	3.55 ***	-.03 **	.64 **	.02	-.00	-.01
Threat Appraisals	4.36 ***	-.02 **	-.19	.02 **	-.11 **	.00
Fear of Abandonment	2.76 ***	.01 ***	.31 **	.00	-.07 ***	.00

* $p < .05$,

** $p < .01$,

*** $p < .001$

Table 3
Final Mediation Models of Gender Differences in Final Status and Trajectories of Internalizing Problems, N = 109

Outcome Variable	Mediator Variable	Model Type	Direct Effect ^a	Direct Effect ^b	Direct Effect ^c	Mediation Effect	LCL	UCL
Final Status of CDI	Initial Status of Total Stressors	Mediation of Final Status	1.76 [*]	.96 ^{***}	.76	1.69 [*]	.14491	3.44372
Final Status of RCMAS	Initial Status of Total Stressors	Mediation of Final Status	.76 [*]	2.54 ^{**}	1.36	1.93 [*]	.15973	4.54301
Final Status of CDI Score	Initial Status of Interpersonal Stressors	Mediation of Final Status	1.24 ^{***}	2.61 ^{**}	-.73	3.24 [*]	.71822	6.60234
Final Status of RCMAS	Initial Status of Interpersonal Stressors	Mediation of Final Status	1.22 ^{***}	2.96 ^{***}	.12	3.61 [*]	1.24746	6.73511
Final Status of CDI	Initial Status of Depressive Appraisals	Mediation of Final Status	.56 ^{***}	3.02 [*]	.09	1.69 [*]	.22456	3.8153
Final Status of RCMAS	Initial Status of Depressive Appraisals	Mediation of Final Status	.61 ^{**}	5.67 [*]	-.19	3.46 [*]	.08231	8.41110
Slope of CDI	Slope of Threat Appraisals	Concurrent Mediation of Slope	.06 [*]	2.79 [*]	-.01	.15 [*]	.01852	.38996
Slope of RCMAS	Slope of Threat Appraisals	Concurrent Mediation of Slope	.05 [*]	2.18 ^{***}	.08	.11 [*]	.00586	.24118
Final Status of CDI	Initial Status of Fear of Abandonment	Mediation of Final Status	.30 ^{**}	8.42 ^{***}	.06	2.53 [*]	.70011	4.44745
Final Status of RCMAS	Initial Status of Fear of Abandonment	Mediation of Final Status	.31 ^{**}	8.40 ^{***}	.77	2.60 [*]	.82791	4.53021
Slope of RCMAS	Initial Status of Fear of Abandonment	Prospective Mediation of Slope	.29 ^{**}	.18 ^{**}	.12 [*]	.05 [*]	.10869	3.0024

^a *Note.* indicates relation between gender and mediator.

^b indicates relation between mediator and outcome.

^c indicates relation between gender and the outcome variable. LCL is the lower confidence limit. UCL is the upper confidence limit.

* $p < .05$,

** $p < .01$,

*** $p < .001$

Table 4
Mediation Models of Gender Differences in Internalizing Problems and Threat Appraisals: Cross-lagged Path Model

Outcome	Mediator	Direct effect ^a	Direct effect ^b	Direct effect ^c	Mediation effect	Confidence Interval	
			<i>B (SE)</i>				
						LCL	UCL
Wave 2 Depressive Symptoms	Wave 1 Threat Appraisals	.16 (.11)	.03 (.07)	.03 (.07)	.01	-.0166	.0313
Wave 3 Depressive Symptoms	Wave 2 Threat Appraisals	-.03 (.09)	.13 (.12)	.21 (.09) [*]	-.00	-.0197	.0329
Wave 2 Threat Appraisals	Wave 1 Depressive Symptoms	.18 (.10) [#]	.31 (.10) ^{**}	-.03 (.09)	.06 [#]	-.0024	.1368
Wave 3 Threat Appraisals	Wave 2 Depressive Symptoms	.03 (.07)	.29 (.11) ^{**}	.15 (.09)	.01	-.0027	.1016
Wave 2 Anxiety Symptoms	Wave 1 Threat Appraisals	.16 (.11)	.13 (.10)	.09 (.07)	.02	-.0109	.0731
Wave 3 Anxiety Symptoms	Wave 2 Threat Appraisals	-.03 (.09)	.16 (.10)	.25 (.08) ^{**}	-.01	-.0028	.1081
Wave 2 Threat Appraisals	Wave 1 Anxiety Symptoms	.22 (.10) [*]	.24 (.08) ^{**}	-.03 (.09)	.05 [*]	.0054	.1204
Wave 3 Threat Appraisals	Wave 2 Anxiety Symptoms	.09 (.08)	.26 (.11) [*]	.13 (.10)	.02	-.0148	.0767

^a Note. indicates relation between gender and mediator.

^b indicates relation between mediator and outcome.

^c indicates relation between gender and the outcome variable. LCL is the lower 95% confidence limit. UCL is the upper 95% confidence limit.

[#] $p < .10$,

* $p < .05$,

** $p < .01$,

*** $p < .001$

Appendix

Typing of Negative Life Events

Type of events	Number of events	Sample item
Changes in Child's Environment	6	"Your family moved to a new home."
Conflict between Family Members	7	"You heard your parent/guardian arguing with others."
Conflict with Parent or Other Adult	2	"You had a serious disagreement or verbal fight with your parent/guardian."
Death Reminders	2	"Your parent/guardian answered your questions about your mom/dad who died."
Expectations for Child's Behavior	2	"Your relative or family friends told you to be more responsible."
Others Troubles	5	"Your brother or sister had serious trouble with the law, school, drugs, etc."
Parental Distress	6	"Your parent/guardian told you he/she was very lonely."
Parent Troubles	6	"Your parent/guardian could not find a job."
Youth's Loss of Adult or Peer Support	6	"Someone you care about no longer wanted to spend time with you or talk to you."
Youth Separation from Parent	3	"You moved to a different house than your parent/guardian lives in."
Youth Troubles Related to Peer Relations	6	"Your friends criticized you for hanging out with other groups."