Published in final edited form as:

J Am Acad Child Adolesc Psychiatry. 2010 November ; 49(11): 1145–1154. doi:10.1016/j.jaac.2010.08.004.

Psychiatric Symptoms in Bereaved versus Non-Bereaved Youth and Young Adults: A Longitudinal Epidemiological Study

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Abstract

Objective—To examine potential differences in psychiatric symptoms between parent-bereaved youth (N=172), youth who experienced the death of another relative (N=815), and non-bereaved youth (N=235), aged 11 to 21, above and beyond antecedent environmental and individual risk factors.

Method—Socio-demographics, family composition, and family functioning were assessed one interview wave prior to the death. Child psychiatric symptoms were assessed during the wave in which the death was reported and one wave before and after the death. A year was selected randomly for the non-bereaved group.

Results—The early loss of a parent was associated with poverty, previous substance abuse problems, and greater functional impairment before the loss. Both bereaved groups of children were more likely than non-bereaved children to show symptoms of separation anxiety and depression during the wave of the death, controlling for socio-demographic factors and prior psychiatric symptoms. One wave following the loss, bereaved children were more likely than non-bereaved children to exhibit symptoms of conduct disorder and substance abuse and to show greater functional impairment.

Conclusions—The impact of parental death on children must be considered in the context of pre-existing risk factors. Even after controlling for antecedent risk factors, both parent-bereaved children as well as those who lost other relatives were at increased risk for psychological and behavioral health problems.

Keywords

Bereavement; Children; Psychiatric Symptoms; Longitudinal; Epidemiological

The loss of a close relative or friend, one of the most distressing situations that a child may encounter, is unfortunately, not an uncommon occurrence. An estimated 4% of children in

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Disclosure: Drs. Kaplow, Saunders, Angold, and Costello report no biomedical financial interests or potential conflicts of interest.

Western countries experience the death of a parent.¹ Approximately 16 million children across the world were newly orphaned in 2003, and this number will have increased to over 25 million worldwide in 2010.² Because most international studies have focused on parental death, these statistics do not account for the many youth who are faced with other significant losses such as close relatives or friends.

Some studies have found that bereaved children display clinically significant symptoms of psychological distress following the loss, including depression,^{3, 4} anxiety,⁵ and withdrawal.^{6, 7} Other studies, however, have not found a significant relation between child bereavement and psychiatric problems.^{8, 9} In a thorough review of child bereavement studies, Dowdney¹⁰ concluded that when clinically referred children are excluded, only a small minority of bereaved children experience psychiatric problems. Others have concluded that childhood bereavement alone is unlikely to lead to future psychopathology.^{11, 12}

One possible explanation for these contradictory findings is that most studies have, by design, considered the death in isolation from events that lead up to the death itself. While parental loss can certainly occur at random, the untimely death of a parent may be more likely to occur in the context of other risk factors such as illness and poverty, which may also impinge on children's psychological functioning. Melhem et al.¹³ found that parental psychopathology increased the likelihood of early death, and also predicted children's psychological problems following the loss. Retrospective reporting, used in this study to obtain information regarding pre-loss functioning of the deceased parent, has been associated with retrieval biases, particularly among bereaved or depressed individuals whose negative cognitive biases may lead to inaccurate reporting.¹⁴ Other methodological issues that may contribute to conflicting findings in the child bereavement literature include reliance on clinical samples, limited age range, varying methods of assessment, and variable comparison groups.¹⁰

The current study utilizes a longitudinal, epidemiological sample of children, ranging in age from 9 to 21. For simplicity, we refer to the youth in our study as "children"; only 20% of observations occurred in the 19-21 age range. This study offers an opportunity to examine *pre-existing* individual and environmental risk factors that may influence post-loss psychological functioning in those children who become bereaved. The main goals were to examine potential differences in the presence of psychiatric symptoms between parentally bereaved children, children who experienced the death of another relative, and non-bereaved children; specifically, whether the death of a parent or other relative predicts post-loss psychiatric functioning above and beyond antecedent risk factors.

Method

Participants

This study utilized data from a sub-sample of children drawn from the Great Smoky Mountains Study (GSMS), a longitudinal epidemiological study of psychiatric disorders in youth (see Costello et al.,¹⁵ for details regarding study design). The initial sampling frame consisted of a random sample of 4,390 children from 11 counties in western North Carolina who were 9, 11, and 13 years old in 1993. Children with behavior problems and American Indian youth were oversampled. The response rate of those invited to participate was 80% (N = 1420), and between 76% and 95% of the sample have been re-interviewed at each wave. For analytic purposes, all participants were given a weight inversely proportional to their probability of selection so that the results presented would be representative of the population from which the sample was drawn. Written informed consent/assent was obtained from parents and children.

Out of the 1420 participants interviewed for the GSMS, 172 reported losing a parent or parental figure; 115 lost a biological parent, 41 a foster/adoptive parent, and 16 an “other parental figure”. Known causes of death included physical illness ($n = 108$), accidental death ($n = 43$), and suicide ($n = 14$). A further 815 lost a relative other than a parent during the course of the study (687 lost a grandparent and 130 lost an aunt or an uncle). Those who reported sibling, close friend, or other extended family member deaths were not included due to the small number of individuals falling into each of these categories. Those who lost both a parent and another relative were included in the parental-loss group. There were no differences between those who lost grandparents versus aunts/uncles in terms of socio-demographics or psychiatric symptoms. Most lost a relative due to physical illness ($n = 774$), 33 due to an accident, 5 due to suicide, and 3 were unknown. The non-bereaved comparison group consisted of 235 children who did not report any deaths during the course of the study. The remaining participants ($n = 198$) were excluded because they either lost a sibling, a close friend, or another extended family member, or they had missing data at two consecutive time points.

Measures

Parents and children were interviewed using the Child and Adolescent Psychiatric Assessment (CAPA), a highly structured assessment¹⁶ that elicits information regarding symptoms contributing to a wide range of symptom scales and DSM-IV diagnoses.¹⁷ The CAPA utilizes required questions and probes, much like a respondent-based interview. However, the interviewer is responsible for ensuring that participants understand the questions and have the symptom at a clinical level of severity. Symptoms are coded using an extensive glossary. Thus, the CAPA is clinically calibrated and has a low Type I error rate. Two-week test-retest reliability of diagnoses based on the CAPA in children 10-18 years of age is comparable to that of other highly structured interviews (kappa values range from .56 to 1.0).¹⁶ To minimize recall bias, the time frame of the CAPA for determining the presence of most psychiatric symptoms is the 3 months immediately preceding the interview. Interviewers were required to meet an inter-rater reliability criterion of $ICC \geq .85$ during training.

Three interview waves per subject were used in the current study: the wave in which the death was first reported (a random wave was selected for each member of the comparison group), and the wave before and after this report. Socio-demographics, family composition, family functioning, and life stress variables were assessed at the wave before the death. Measures of child psychiatric functioning were assessed at all three waves.

Socio-demographics, Family Composition, and Family Functioning—Information regarding age, race (White, Black, and American Indian), gender, and income were gathered from the CAPA. Income was dichotomized as being above (1) or below (0) the federal poverty line (family all-source income adjusted for family size). The family composition variable, assessed prior to the parent’s death, included children who were not living with either parent, living with a stepparent, living with a single parent, and living with both parents. At age 19 and over, the interviewer recorded whether the participant was still living in the birth family home; 34 had moved out of the home by the interview wave in which the death was reported.

The parent CAPA reviews psychiatric problems of the index child’s primary caretakers including history of treatment for psychiatric or substance abuse problems or criminal behavior. Kappa statistics for individual items are all .60 or better. The parent mental health variable was dichotomized such that 0 = no history of mental health treatment and 1 = history of mental health treatment in any primary caretaker. For the following measures, parent and child reports were combined in an either-or fashion such that if either the parent or child reported an event or symptom, it was considered present.

Life Events—The events included in the CAPA Life Events Scale were designed to fall into two categories: “high magnitude” events (e.g., experienced sexual abuse; Kilpatrick, Resnick, & Freedy, unpublished data, 1991), specified as likely to cause “fear, helplessness or horror”¹⁷, and a group of “lower magnitude” events (e.g., job loss), selected from previous research.¹⁸ Of the 25 events included in the scale, the high magnitude event of the death of a loved one was the primary focus of the current study. The child and parent were asked whether anyone close to the child had died in the past year, and, if so, what relationship that person had to the child and the circumstances of the death. In addition, we created an overall stressful life events scale (22 items; e.g., being in a serious accident) assessing pre-death life stressors that the child may have experienced.

Most children reported few symptoms and did not meet criteria for psychiatric diagnoses. Because the data were heavily skewed, DSM-IV symptom counts were dichotomized such that 0 = no symptoms reported and 1 = at least one symptom reported. Symptoms included those contributing to the diagnoses of Generalized Anxiety Disorder, Separation Anxiety Disorder, Conduct Disorder, Depression (defined as any symptoms of Major Depressive Disorder, Dysthymia, or Depression NOS), Posttraumatic Stress Disorder, and Substance Abuse.

Level of Functioning—The Children’s Global Assessment Scale (C-GAS¹⁹), an interviewer-report measure, was used to assess the child’s global functioning, encompassing the domains of the home, community, school, and social networks. The interviewer rates the child on a scale from 0 to 100, from the need for constant attendance (0-10) to perfect functioning (90-100). Test-retest reliability (ICC = .83) and interrater reliability (ICC = .84) is good. Scores less than 61 reflect severe impairment; scores between 61 and 70 reflect moderate impairment.

Attrition Analyses

The average time between the first two waves of data collection (wave prior to first report of death and wave death first reported) was 1.97 years (SD=1.64) and 1.53 years (SD = 1.45) between the final two data collection periods (wave death first reported and one wave following). Of the 1,222 children comprising the full sample, 522 (42.7%) subjects had complete data from all three waves of interest. The missing data appears to be a function of age – the children who were older at the wave of the death were more likely to have pre-death data but less likely to have post-death data. There were no differences between children with complete data and those with incomplete data with regard to other socio-demographics or symptom endorsement. As data was not missing at random, we did not impute any data and instead ran separate analyses on the different time periods. Therefore, the sample sizes for each set of analyses differed slightly, depending on how many subjects had pre- and post-bereavement wave data [i.e., analyses utilizing pre-bereavement wave data (N = 1222); analyses utilizing wave of bereavement (N = 1222); analyses utilizing post-bereavement wave data (N = 1017)].

Data Analytic Plan

Chi-square tests and ANOVA, weighted to account for the study’s sampling design, were used to test for differences among the 3 groups on socio-demographics, family composition, parent mental health, pre-death stressful life events and pre-death psychiatric variables. Weighted hierarchical regression models, both multiple and logistic, were run to estimate the associations between bereavement status (parent-bereaved, other-bereaved, and non-bereaved) and child psychiatric outcomes during the wave in which the death was first reported and one wave following the loss, controlling for socio-demographics and the child’s prior psychiatric functioning (during the prior interview wave). Using hierarchical regression, one can see how most variance in the dependent variable(s) (i.e., each of the specific psychiatric outcomes) can

be explained by a set of new independent variables (i.e., bereavement group), over and above that explained by an earlier set (i.e., socio-demographics and previous symptomatology).

For each of the hierarchical regressions, the first step examined the relation between socio-demographic variables and new psychiatric symptom endorsement within the previous three months. The second step added the presence of one or more symptoms from the previous wave, thereby examining the association between previous symptoms and new psychiatric symptoms while controlling for socio-demographic variables. The final step (Step 3) in the hierarchical regression examined the independent contribution of bereavement group on psychiatric symptom endorsement. If Step 3 (or the χ^2 change) is significant, we can conclude that bereavement group membership is associated with psychiatric symptom endorsement above and beyond socio-demographics and prior psychological functioning. Sandwich type variance corrections were applied to adjust for the parameter and variance effects induced by the sampling stratification and the within-subjects correlations produced by the longitudinal design.²⁰

Results

Comparison of Pre-Loss Characteristics

The non-bereaved group had a greater number of males [$\chi^2(2)=16.42$, $p<.001$], more White, and fewer American Indian children [$\chi^2(4)=11.61$, $p=.02$] than the other two groups (see Table 1). The parent-bereaved group was older than the other two groups [$F(2,1240)=39.81$, $p<.001$] and experienced greater poverty prior to the loss [$\chi^2(2)=13.90$, $p=.001$]. There were no significant differences among the groups with regard to family composition, parent mental health problems, or previous stressful life events.

Table 1 also shows the percentages of individuals within each group endorsing various psychiatric symptoms *before* the first report of the death. A greater proportion of parent-bereaved youth had pre-existing substance abuse problems than the other groups [$\chi^2(2)=18.52$, $p<.001$]. The parent-bereaved group exhibited worse global functioning scores than the other-bereaved group, and the other-bereaved group exhibited worse scores than the non-bereaved group [$F(2, 717) = 7.09$, $p<.001$]. The other-bereaved group was more likely to exhibit symptoms of separation anxiety prior to the loss compared to the parent-bereaved and non-bereaved groups [$\chi^2(2)=17.6$, $p<.001$].

Psychiatric Symptoms and Functioning during Wave of Death

Table 2 shows the percentages of individuals within each of the groups endorsing various psychiatric symptoms during the wave in which the death was first reported. These bivariate analyses show a greater proportion of those in both of the bereaved groups with generalized anxiety [$\chi^2(2)=23.72$, $p<.001$], separation anxiety [$\chi^2(2)=11.40$, $p=.003$], depression [$\chi^2(2)=11.51$, $p=.003$] and PTSD symptoms [$\chi^2(2)=8.89$, $p=.012$] than the non-bereaved group. The parent-bereaved group was more likely to have substance abuse problems [$\chi^2(2)=7.25$, $p=.03$] and exhibit worse global functioning scores [$F(3,1209)=18.64$, $p<.001$] than the other two groups.

Hierarchical Regression Models at Wave of Death

In order to assess the unique associations between bereavement, psychiatric symptoms, and functioning above and beyond socio-demographics and previous symptoms, seven 3-step hierarchical regression models were estimated. In all of the regressions (with the exception of depression and PTSD) the first two steps were significant, meaning that socio-demographics (Step 1) and previous psychiatric symptoms (Step 2) were related to the psychiatric outcome.

Significant differences between bereavement groups (Step 3) emerged in two of the models (see Table 3).

After adjusting for socio-demographics and the presence of separation anxiety symptoms at the prior wave, the odds of exhibiting any symptoms of separation anxiety in the parent-bereaved group was 14.7 times that in the non-bereaved group [$b=2.69$ (1.21), $OR=14.73$, $p=.026$], and the odds of exhibiting symptoms of separation anxiety in the other-bereaved group was 28.4 times that in the non-bereaved group [$b=3.35$ (1.15), $OR=28.42$, $p=.004$]. The other-bereaved group was 1.9 times more likely to exhibit symptoms of depression than the parent-bereaved and non-bereaved groups [$b=.62$ (.29), $OR=1.86$, $p=.034$].

Psychiatric Symptoms and Functioning at Wave Following Death

Table 4 shows the percentages of individuals within each of the groups endorsing various psychiatric symptoms one wave following the death. Bivariate analyses show a greater proportion of those in the bereaved groups with generalized anxiety [$\chi^2(2)=14.05$, $p=.001$] and separation anxiety [$\chi^2(2)=6.63$, $p=.036$] symptoms than the non-bereaved group. A greater proportion of those in the parent-bereaved group showed symptoms of conduct disorder [$\chi^2(2)=10.78$, $p=.005$] and had worse global functioning scores [$F(2, 979)=5.78$, $p=.003$] than the other two groups. The other-bereaved group was more likely to exhibit symptoms of PTSD [$\chi^2(2)=7.96$, $p=.02$] than the other two groups.

Hierarchical Regression Models at Wave Following Death

Table 5 shows the results of hierarchical regression models estimating the effects of bereavement on symptoms during the interview wave following the death, controlling for socio-demographics and previous symptoms. The relations between socio-demographics and psychiatric symptom endorsement (Step 1) remained consistent with the prior wave, as did the relations between prior symptom endorsement and symptom endorsement during the wave of interest (Step 2). Turning to Step 3, the odds of exhibiting any symptoms of conduct disorder in the parent-bereaved group was 4.2 times that in the non-bereaved group [$b=1.43$ (.58), $OR=4.18$, $p=.014$]. The parent-bereaved group was at marginally higher risk of developing symptoms of substance abuse compared to non-bereaved youth [$b=2.24$ (1.36), $OR=9.41$, $p=.099$], and the odds of exhibiting symptoms of substance abuse in the other-bereaved group was 4.4 times that in the non-bereaved group [$b=1.48$ (.76), $OR=4.41$, $p=.050$]. The loss of a parent was associated with a future decline in global functioning of .36 points ($b=-.36$, $p=.002$). The loss of another relative was associated with a future decline in global functioning of .27 points ($b=-.27$, $p<.001$).

Discussion

This study suggests that the loss of a loved one in childhood is associated with certain psychiatric symptoms following the loss, above and beyond socio-demographic variables and previous psychiatric symptoms. Although the parent-bereaved group appeared to be at highest risk for mental/behavioral health problems prior to the loss (e.g., substance abuse, poor global functioning) the other-bereaved group also demonstrated psychiatric difficulties at all three time points. These findings speak to the need for future studies of bereaved children to include those who have lost relatives other than parents.

Separation Anxiety

Both of the bereaved groups were more likely to demonstrate symptoms of separation anxiety at the wave of the death compared to non-bereaved youth, even after controlling for socio-demographics and previous symptoms of separation anxiety. These findings are consistent with other studies of bereaved children that have found an increase in anxieties concerning

separation and the safety of family members following the loss.²¹ Separation anxiety may have been more prevalent in the other-bereaved group prior to the loss due to a greater percentage of individuals in that group experiencing a relative's death following extended illness and possible anticipated death. The fact that no significant group differences in separation anxiety symptoms were found during the wave after the death suggests that this may be a more proximal response to loss and is likely to dissipate over time.

Posttraumatic Stress Disorder

In contrast to a recent study by Melhem et al.,¹³ bereaved children in the current sample did not differ from non-bereaved children with regard to PTSD symptoms. One difference between the current study and that of Melhem et al. is that the majority of our sample experienced loss from illness, and few children exhibited any symptoms of PTSD, whereas their sample included only sudden deaths and had a higher prevalence of PTSD. It is possible that the circumstances of the death played a role in these discrepant findings (but see ²²). It is also possible that significant differences in the current sample would have emerged if children were interviewed closer to the time of the death or followed for a longer period of time.

Depression

The parent-bereaved group was no more likely to display depressive symptoms compared to the non-bereaved group at the wave of the death, but a greater proportion of those in the other-bereaved group displayed depressive symptoms than the other two groups. Although counterintuitive, this finding is consistent with another study that identified elevated depressive symptoms in children after the death of a grandparent,¹ as well as a study in which youth who lost a sibling experienced quicker resolution of depression than did youth who lost a friend.²³ It is possible that the parent-bereaved children received more social support given the objectively distressing nature of losing a parent, whereas children who experienced the loss of another relative did not receive as much support and therefore displayed greater depressive symptoms. It is also possible that if another relative died (e.g., grandparent), the parent may have become depressed, which may have affected the child's functioning.

Conduct Disorder

Parentally-bereaved children were more likely to exhibit symptoms of conduct disorder one wave following the loss after controlling for socio-demographics and previous symptoms of conduct disorder. Of the few studies that have examined conduct problems in bereaved children, findings have been equivocal.^{12,7} Secondary stressors following the death appear to mediate/moderate the relation between parental death and conduct problems,¹² which may help to explain these contradictory findings. For example, parental discipline tends to suffer following the death of the other parent,²⁴ and is associated with new onset behavioral problems in bereaved children.²⁵ Similarly, increased positive parenting has long-lasting preventive effects on bereaved children's mental health,²⁶ suggesting that parenting may indeed be a critical factor to consider in the context of children's post-bereavement behavior.

Substance Abuse

A greater proportion of bereaved youth than non-bereaved youth exhibited substance abuse problems one wave following the loss, controlling for socio-demographics and previous symptoms of substance abuse. This is consistent with a recent study of bereaved youth showing an increased risk for substance abuse 21 months after a parent's death²⁷ and retrospective studies of adults showing higher rates of childhood bereavement among drug users than non-users.²⁸ It has been theorized that disruptive life events (e.g., bereavement) may lead to substance abuse through individuals' poor coping skills and vulnerability to depression.²⁹

Global Functioning

This study agreed with that of Melhem et al.¹³ in finding decreased global functioning in both bereaved groups following the death compared to the non-bereaved group. The parent-bereaved group showed decreased global functioning compared to non-bereaved youth even before the loss, suggesting that youth in this group were already compromised in their ability to function successfully in various domains. Although there were no group differences with regard to parental mental health, the parent-bereaved group experienced greater poverty levels, which may be indicative of other social stressors that could have adversely impacted the child's functioning (e.g., parental illness, lack of social support, etc.).

Strengths of the current study include its prospective, longitudinal design, the use of a non-referred community sample of bereaved children, the inclusion of other-bereaved children and non-bereaved children as comparison groups, and the incorporation of risk factors assessed prior to the death. Limitations include the sample size of parentally bereaved children, which precluded examination of potentially important moderating variables such as gender, race, who died, type of death, or time since death. However, recent studies have found that these variables may not be as critical as clinical lore would suggest in predicting future psychiatric symptoms.¹³

Second, because few children endorsed multiple symptoms of a particular disorder, our outcome measures were dichotomized. Clinical studies of referred cases tend to use continuous measures of symptoms or actual diagnoses. However, there is sufficient evidence that our data are still clinically meaningful given that children experience functional impairment even when the number of symptoms is "subclinical".³⁰ Third, the nature of the children's relationships with other relatives is likely to be more heterogeneous than the children's relationships with their parents. For example, some children may have regular contact with a grandparent, whereas others may have more infrequent contact. This variation is likely to moderate the effects of experiencing the death of another relative on children's psychiatric symptoms; however, we were unable to report on this because the data set does not include frequency of contact and/or the closeness of the relationship.

Fourth, because the average length of time between interview waves was 1.5 years, we may have missed children's more immediate responses to the death of a loved one. Bridge et al.³¹ showed that bereaved adolescents who had lost a friend to suicide had an increased risk for developing new onset MDD within one month of the death. On the other hand, the fact that significant differences between bereaved and non-bereaved groups still emerged in the current study speaks to the impact of bereavement on youth and also suggests that bereavement may have more of a lasting (or possibly delayed) impact than previously thought. Fifth, it is possible that the primary respondent for the parentally bereaved children may have changed over the course of the study. A bereaved parent may exhibit more symptoms of depression and therefore provide a biased report of the child's functioning in a negative direction. Although no differences were found between bereaved and non-bereaved children with regard to parent mental health, this measure was brief and may not have reliably assessed whether a parent had indeed experienced mental health problems.

Finally, just as antecedent individual and environmental risk factors appear to play a role in bereaved children's future psychiatric functioning, recent studies have found that the post-death family environment is an important predictor of children's mental health problems.^{25, 32} Future studies that assess post-death family risk and protective variables, such as parental warmth and parent-child communication, are needed to provide a fuller picture of the course of symptoms in bereaved children.

This study has important implications for intervention efforts aimed at bereaved children. First, mental health professionals should be cognizant of the fact that parentally bereaved children are likely to have experienced other risk factors (e.g., poverty, substance abuse) before the death and may need psychosocial treatments for these problems and, second, that children who experience the loss of other relatives may also be at risk for psychiatric symptoms. Third, the increase in separation anxiety symptoms prior to the death speaks to the need for preventive interventions when a family death is impending. Finally, the expression of symptoms in the current study appears to be “sub-clinical” and may indeed be considered “normative” within the first year or two following the death. Other large-scale, longitudinal childhood bereavement studies are needed in order to further clarify whether these psychiatric symptoms are common in the initial years following the death of a loved one.

Acknowledgments

This research was supported in part by NIMH grants K08MH76078-01 to the first author and R01 MH63970 and R01 DA022308 to the third and fourth authors.

We gratefully acknowledge the assistance of Gordon Keeler of Duke University in preparation of this manuscript.

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Table 1

Percentages of socio-demographics, family composition, and pre-death psychiatric symptoms between parent-bereaved, other-bereaved, and non-bereaved groups

	Parent N=172	Other Relative N=815	Non-bereaved N=235
Gender *	41.4 ^a	50.3 ^a	60.9 ^b
Male	58.6 ^a	49.7 ^a	39.1 ^b
Female			
Race *	84.2 ^a	88.8 ^a	93.5 ^b
White	10.5	7.0	5.2
Black	5.3 ^a	4.2 ^a	1.3 ^b
American Indian			
Age *	M = 16.48 (3.97) ^a	M = 13.56 (3.84) ^b	M = 13.72 (3.32) ^b
Poverty *	41.5 ^a	21.7 ^b	23.0 ^b
Household Composition	0.0	.3	.5
No Parent	19.0	11.9	12.0
Step Parent	32.2	27.3	22.7
Single Parent			
Parent Mental Health	48.9	47.0	47.0
Previous Life Stress	M = .56 (.90)	M = .39 (.75)	M = .41 (.70)
Generalized Anxiety	28.9	25.6	27.3
Separation Anxiety *	4.5 ^a	14.1 ^b	8.0 ^a
Conduct Disorder	25.6	20.0	22.2
Depression	47.1	39.0	38.0
PTSD	0.0	1.3	.5
Substance Abuse *	14.0 ^a	4.1 ^b	4.2 ^b
Global Functioning *	M = 86.16 ^a	M = 87.62 ^b	M = 89.67 ^c

Note: Superscript letters indicate significant differences between groups; same letters in the same row represent non-significant differences. PTSD = posttraumatic stress disorder.

* significant findings ($p < .05$)

Table 2

Percentage of psychiatric symptoms and mean global functioning in parent-bereaved, other bereaved, and non-bereaved youth at wave death first reported

Psychiatric Symptoms	Parent N= 152	Other Relative N=784	Non-bereaved N=307
Generalized Anxiety *	33.6 ^a	30.6 ^a	16.9 ^b
Separation Anxiety *	14.3 ^a	14.8 ^a	6.6 ^a
Conduct Disorder	21.1	22.8	22.8
Depression *	36.2 ^a	37.5 ^a	26.7 ^b
PTSD *	3.3 ^a	1.4 ^a	0.0 ^b
Substance Abuse *	12.5 ^a	6.5 ^b	6.5 ^b
Global Functioning *	M = 83.57 ^a	M = 87.78 ^b	M = 89.15 ^c

Note: Superscript letters indicate significant differences between groups; same letters in the same row represent non-significant differences. PTSD = posttraumatic stress disorder.

* significant findings ($p < .05$)

Table 3

Hierarchical regression model predicting new-onset symptom endorsement and functioning at wave death first reported

	Step 1 Socio-demographics $\chi^2(5)$	Step 2 Previous symptoms χ^2 change (1)	Step 3 Bereavement Status χ^2 change (2)
Generalized Anxiety	27.063*	21.49*	1.12
Separation Anxiety	24.89*	21.55*	13.03* Parent OR=14.73 Other Relative OR=28.42
Conduct Disorder	12.47*	27.39*	5.94
Depressive	9.88	9.24*	12.66* Other Relative OR=1.86
PTSD	3.67	0.0	.43
Substance Abuse	18.55*	5.79*	.50
Global Functioning	$F(5,392)$ 15.10*	$F(1,391)$ 60.64*	$F(2,389)$ 1.86

Note: PTSD = posttraumatic stress disorder; OR = odds ratio.

*
p < .05

Table 4

Percentage of psychiatric symptoms and mean global functioning in parent-bereaved, other bereaved, and non-bereaved youth one wave after death first reported

Psychiatric Symptoms	Parent N=107	Other Relative N=668	Non-bereaved N=242
Generalized Anxiety *	26.2 ^a	28.3 ^a	16.1 ^b
Separation Anxiety *	7.2 ^a	9.2 ^a	3.3 ^b
Conduct Disorder *	29.0 ^a	19.9 ^b	14.0 ^b
Depression	39.3	42.2	37.9
PTSD *	.9 ^a	3.4 ^b	.4 ^a
Substance Abuse	9.4	6.1	4.9
Global Functioning *	M = 84.59 ^a	M = 87.93 ^a	M = 88.02 ^b

Note: Superscript letters indicate significant differences between groups; same letters in the same row represent non-significant differences. PTSD = posttraumatic stress disorder.

* significant findings (p < .05)

Table 5

Hierarchical regression model predicting new-onset symptom endorsement and functioning one wave after death first reported

	Step 1 Socio-demographics χ^2 (5)	Step 2 Previous Symptoms χ^2 change (1)	Step 3 Bereavement Status χ^2 change (2)
Generalized Anxiety	22.81 [*]	37.15 [*]	3.00
Separation Anxiety	27.78 [*]	4.91 [*]	5.41
Conduct Disorder	39.09 [*]	107.14 [*]	16.53 [*] Parent OR=4.18
Depression	4.45	6.63 [*]	2.57
PTSD	2.72	0.05	3.51
Substance Abuse	20.56 [*]	8.84 [*]	6.88 [*] Parent OR=9.41 [†] Other Relative OR=4.41
Global Functioning	<u>F(5,790)</u> 10.61 [*]	<u>F(1,789)</u> 167.25 [*]	<u>F(2,787)</u> 8.53 [*] Parent b= -.36 Other Relative b= -.27

Note: PTSD = posttraumatic stress disorder; OR = odds ratio.

^{*} p < .05

[†] p < .10