Health Risk Behaviors in Parentally Bereaved Youth

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Objective: To investigate whether parentally bereaved offspring are more likely to engage in health risk behaviors than nonbereaved control offspring.

Design: Controlled population-based study.

Setting: Bereaved families were recruited from coroner records and by advertisement. Control families were recruited using random-digit dialing and by advertisement.

Participants: At 9.0 months after the death, 186 offspring aged 7 to 25 years of parents who died of suicide, accident, or sudden natural death were compared with 167 nonbereaved control offspring.

Main Outcome Measures: The association of bereavement with health risk behaviors was examined. The prevalence of health risk behaviors on the Youth Risk Behavior Questionnaire were compared between bereaved and nonbereaved offspring. Risk behaviors surveyed were related to unintentional injury, violence, sexual behavior, cigarette smoking, and alcohol or other drug use.

Results: No statistically significant difference was noted in the examined health risk behaviors between bereaved and nonbereaved offspring.

Conclusions: Bereaved offspring did not engage in more health risk behaviors compared with nonbereaved offspring. Primary care physicians counseling youth should inquire about health risk behaviors in general.

Arch Pediatr Adolesc Med. 2010;164(7):621-624

I t is estimated that 4% to 7% of children younger than 18 years experience the death of a parent, with approximately 2.5 million US children in 2000 losing a parent.1 Strong evidence suggests that parentally bereaved children are at higher risk of negative sequelae such as mental health problems, including mood disorders, post-traumatic stress disorder (PTSD), and somatic complaints, as well as greater external locus of control, lower self-esteem, and more academic difficulties.2 Increased psychiatric problems have been reported up to 2 years following parental death.3 Retrospective findings show an association of family adversity (including parental loss) with multiple health risk behaviors and chronic health difficulties.4 Although the effects of parental bereavement on children’s psychological well-being have been investigated, no previous studies to date have examined susceptibility to high-risk health behaviors.

Youth engaging in health risk behaviors are of particular public health interest. The Youth Risk Behavior Surveillance System of the Centers for Disease Control and Prevention monitors the prevalence and trends in health risk behaviors among high school students nationwide. The 2007 survey reported a high prevalence of health risk behaviors, including having sexual intercourse (47.8%), ever using marijuana (38.1%), being in a physical fight (35.5%), rarely or never wearing a seatbelt (11.1%), and driving after drinking alcohol (10.5%).

The objective of this study was to investigate whether parentally bereaved offspring are more likely to engage in health risk behaviors than nonbereaved offspring. We hypothesized that bereaved offspring are more likely to report higher rates of engaging in health risk behaviors, specifically in behaviors related to unintentional injury, violence, sexual behavior, cigarette smoking, and alcohol or other drugs.

METHODS

SAMPLE

The IMPACT (Impact of Sudden Parental Death on Children and Families) study is a longitudinal investigation of the effects of parental death on families. This study examines youth bereaved by suicide, accident, or sudden natural death at 2 to 19 months (mean, 9.0 months) after the death and compares bereaved with nonbereaved youth.

The original sample consisted of 240 offspring from 152 parentally bereaved families and 185 nonbereaved offspring from 102 control families. Analysis was conducted on 186 bereaved offspring and on 167 nonbereaved offspring for whom there were full data on variables of interest (Figure). The deceased parents were aged 30 to 60 years at the time of death,
had biological offspring aged 7 to 25 years, and died within 24 hours of definite verdicts of suicide, accident, or sudden natural death. The nonbereaved control group consisted of families with 2 living biological parents and offspring residing at home and with no first-degree relatives who had died within the previous 2 years. The control families were recruited by frequency matching to the deceased parents on sex, age, and neighborhood. The deceased parents and control parents were primarily male, of white race/ethnicity, and in their mid 40s (Table 1). In this sample, 90.3% of bereaved offspring were biological children of the parents, 7.6% were adopted, and 1.7% were stepchildren, and the deceased parental figure for 1 child (0.4%) was the custodial grandparent. The median number of offspring per family was 2 (interquartile range, 1). The mean (SD) period between the time of death and baseline was 9.1 (3.7) months. No statistically significant differences for socioeconomic status were found between the bereaved and nonbereaved groups.

RECRUITMENT AND CONSENT PROCEDURES

Bereaved families were recruited through coroner’s records (46.4%) and by newspaper advertisement (33.6%). Demographically, those recruited through the coroner’s office were similar to those recruited by advertisement. The most common reasons for bereaved families’ declining to participate were refusal by next of kin (according to the coroner’s records) to provide contact with the surviving parent or refusal by the surviving parent to have his or her children interviewed about the death. Control families were frequency matched to deceased parents by sex, age, and neighborhood. Subjects were recruited using random-digit dialing and by advertisement. Further details on recruitment procedures were described previously.7 In previous reports from this study,7 we have showed that bereaved youth were more likely at 9 months and 21 months after the loss of a parent to have higher rates of depression than nonbereaved controls.

This study was approved by the University of Pittsburgh Institutional Review Board, Pittsburgh, Pennsylvania. After a complete description of the study, caregivers’ consent was obtained for their participation and that of offspring. Assent or consent from offspring was obtained as appropriate for their age. Interviews were conducted at the participant’s home or in our offices.

ASSESSMENT

The Youth Risk Behavior Questionnaire is an adaptation of the Youth Risk Behavior Survey, which inquires about health risk behaviors that the Centers for Disease Control and Prevention has identified as being priority for surveillance, including those that contribute to unintentional injury, violence, and sexual behavior. The reliability of the Youth Risk Behavior Survey has been established, with 93.1% of items on the survey meeting criteria for at least moderate reliability (k statistic, >.41).8 The health risk behaviors assessed from the Youth Risk Behavior Questionnaire were as follows: wearing a seatbelt, having sexual intercourse, being in a vehicle during the past 30 days with a driver who has been drinking alcohol, and carrying a weapon, or being in a physical fight during the past 12 months. Responses for seatbelt use were recoded as dichotomous no (never or rarely) or yes (sometimes, most of the time, or always) answers. The total scores were computed and standardized. Cigarette smoking and alcohol or other drug use are also health risk behaviors identified as priority for surveillance. Information on lifetime substance use was obtained from the Kiddie Schedule for Affective Disorders and Schizophrenia for School-age Children—Present and Lifetime Version.9 This schedule assesses lifetime and current episodes of Axis I psychiatric disorders, including cigarette smoking and alcohol or other drug use. Health risk behaviors evaluated were lifetime cigarette smoking, episodic heavy drinking of alcohol (defined as ≥2 drinks ≥4 in 1 week), and illicit substance use. Functional impairment was measured using the Global Assessment Scale10 for surviving caregivers and adult offspring and using the Children’s Global Assessment Scale11 for younger offspring. A lower score on the respective Global Assessment Scale suggests greater impairment. The Structured Clinical Interview for Diagnostic and Statistical Manual of Mental Disorders (Fourth Edition) (DSM-IV) diagnoses was administered to surviving caregivers to assess their lifetime and current psychiatric diagnoses.12

Self-reported depression, anxiety, and suicidal ideation were assessed in offspring younger than 18 years using the Mood and Feelings Questionnaire,13 the Screen for Child Anxiety Related Emotional Disorders,14 and the Suicide Ideation Questionnaire—Jr, respectively.15 Parallel measures in adult offspring were obtained using the depression and anxiety inventories by Beck et al16 and the Adult Suicidal Ideation Questionnaire.18 Intercurrent life events were assessed using the Life Events Checklist in offspring younger than 18 years19 and using the short-
ened Social Readjustment Rating Scale by Holmes and Rahe in offspring 18 years or older. Self-esteem was assessed using a subscale of the Weinberger Adjustment Inventory. Social support and coping style were evaluated using the Survey of Children’s Social Support and the Kidcope, respectively, in offspring younger than 18 years. These domains were assessed using the Multidimensional Scale of Perceived Social Support and the Ways of Coping Questionnaire in older offspring. When different measures were used for offspring who were younger than 18 years vs 18 years or older, scores from these measures were standardized.

Abuse history, including physical and sexual abuse, was obtained using a measure based on the Abuse Dimensions Inventory. The severity of DSM-IV PTSD symptoms was assessed using the Child PTSD Symptom Scale interview for children and the parallel PTSD Symptom Scale interview for adults. Socioeconomic status and household income were rated using the scale by Hollingshead. Race/ethnicity was self-reported based on the National Institutes of Health format.

STATISTICAL ANALYSIS

Responses on individual items of the Youth Risk Behavior Questionnaire were compared between bereaved and nonbereaved groups using univariate statistical analysis. Bonferroni correction was applied for multiple comparison of individual items with an α of .007 based on 7 outcomes examined. We also looked at association of bereavement with seatbelt use, stratifying for different demographic and clinical characteristics; α was set at .003, correcting for the total of 16 comparisons conducted. Odds ratios with 95% confidence intervals were calculated.

RESULTS

In comparing bereaved with nonbereaved offspring, no statistically significant differences were found for individual health risk behaviors related to unintentional injury, violence, cigarette smoking, and alcohol or other drug use (Table 2). There was a nonsignificant trend for bereaved youth to be less likely to wear a seatbelt. In examining baseline characteristics of seatbelt use, race/ethnicity was found to be significant, with nonwhite offspring wearing a seatbelt less often than white offspring (odds ratio, 2.41; 95% confidence interval, 1.07-5.41). No difference was noted in seatbelt use by type of parental death among bereaved offspring (P = .11).

Although there was no statistically significant difference between bereaved and nonbereaved offspring in seatbelt use, we examined the association of bereavement with seatbelt use, stratifying for demographic and clinical characteristics. No statistically significant differences in seatbelt use were found between bereaved and nonbereaved offspring in any of the subgroups.

COMMENT

In this study of bereaved youth, we found no association of bereavement with increased rates of health risk behaviors at 9.0 months after parental loss. However, there was a nonsignificant trend for bereaved youth to be less likely to wear a seatbelt.

Previous investigations demonstrated associations of recent trauma and early childhood adversity with subsequent health risk behaviors. Youth affected by familial suicide or suicide attempts have been reported to be more likely to engage in health risk behaviors. However, we found no difference in health risk behaviors based on type of parental death, despite previous research that found suicidally bereaved children to be more susceptible to subsequent psychiatric symptoms and behavioral problems than nonsuicidally bereaved children.

Parental psychopathologic conditions are predictive of premature parental death. Melhem et al found higher rates of personality disorders and substance abuse disorders among bereaved youths than controls in the setting of sudden parental death. Conclusions from a review by Brent and Melhem support familial transmission of intermediate phenotypes for suicidal behavior, including impulsive aggression. This may suggest an increased genetic vulnerability for psychiatric disorders and health risk behaviors in bereaved youth by suicide that may manifest on further longitudinal follow-up.

To date, this is the first large, controlled, population-based study of the effects of bereavement and one of few studies to assess health risk behaviors. The sample is representative of Allegheny County, Pennsylvania, and has similar demographic characteristics for racial/ethnic distribution. Also, the deaths among our study’s deceased parents by suicide or accident were similar to those from these causes in Allegheny County.

This study is limited in the assessment of health risk behaviors to the past 12 months rather than an assessment of these behaviors before and after the parent’s death. Therefore, it is unknown which behaviors the offspring were engaging in before the death or whether there were any changes in behaviors after the death. We recognize that this study includes only death by suicide, accident, or sudden natural death. Offspring bereaved by homicide or anticipated death (ie, cancer, AIDS-related death, etc) are excluded; therefore, our results may not be generalizable to all parentally bereaved offspring.

Follow-up studies are necessary to examine whether the effects of bereavement on health risk behaviors become more apparent with time, particularly as offspring age and are exposed to more situations involving violence and alcohol or other drugs. Age 14 years is a criti-

| Table 2. Health Risk Behaviors of Bereaved vs Nonbereaved Offspring |
|---------------------------|---------------------------|---------------------------|---------------------------|
| Variable                  | Bereaved Offspring, No. (%) | Nonbereaved Offspring, No. (%) | Odds Ratio (95% Confidence Interval) |
| Wearing a seatbelt rarely or never | 23 (12.4) | 8 (4.8) | 2.82 (1.23-6.50) |
| Occupying vehicle with a drinking driver | 23 (12.4) | 22 (13.2) | 0.94 (0.50-1.75) |
| Carrying a weapon          | 12 (6.5)  | 10 (6.0)  | 1.08 (0.46-2.58) |
| Physical fighting          | 52 (28.0) | 32 (19.2) | 1.65 (1.00-2.72) |
| Cigarette smoking          | 16 (8.6)  | 7 (4.2)   | 2.23 (0.90-5.57) |
| Episodic heavy drinking of alcohol | 9 (4.8) | 5 (3.0) | 1.70 (0.58-5.19) |
| Using illicit substance    | 6 (3.2)   | 6 (3.6)   | 0.94 (0.30-2.99) |

a Bonferroni correction was applied for multiple comparison of individual items with an α of .007 based on 7 outcomes examined.
cal period for the initiation of sexual behavior and alcohol consumption, and seatbelt use has been shown to decrease with increasing age.\textsuperscript{37,38} Intercorrelations of health risk behaviors are recognized as a target for preventive interventions.\textsuperscript{39} It is also particularly important to address the family history of psychopathologic conditions and symptoms among youth that may suggest a psychiatric disorder, both of which may increase the risk of engaging in multiple health risk behaviors. As this group is followed up longitudinally, our goal is to better understand the trends of health risk behaviors within this population.

Accepted for Publication: February 9, 2010.
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Author Contributions: Study concept and design: Melhem and Brent. Acquisition of data: Melhem and Brent. Analysis and interpretation of data: Muniz-Cohen, Melhem, and Brent. Drafting of the manuscript: Muniz-Cohen, Melhem, and Brent. Critical revision of the manuscript for important intellectual content: Melhem and Brent. Statistical analysis: Muniz-Cohen and Melhem. Obtained funding: Melhem and Brent. Administrative, technical, and material support: Brent. Study supervision: Melhem and Brent.

Financial Disclosure: None reported.

Funding/Support: This study was supported in part by IMPACT grant 5 R01 MH05368 from the National Institutes of Health (Dr Brent).

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