

## Psychiatric Morbidity, Violent Crime, and Suicide Among Children and Adolescents Exposed to Parental Death

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**Objective:** This retrospective cohort study examined the risk for suicide, psychiatric hospitalization, and violent criminal convictions among offspring of parents who died from suicide, accidents, and other causes. **Method:** Population-based data from multiple Swedish national registers were linked from 1969 to 2004. Participants were 44,397 offspring of suicide decedents, 41,467 offspring of accident decedents, 417,365 offspring of parents who died by other causes, and 3,807,867 offspring of alive parents. We estimated risk by mode of parental death (suicide, accident, other) and offspring age at parental death (childhood, adolescence, young adulthood). **Results:** Offspring of suicide decedents were at greater risk for suicide than offspring of alive parents (incidence rate ratio [IRR] = 1.9; 95% confidence interval [CI] = 1.4 to 2.5), whereas offspring of accident decedents and other parental death were not at increased risk ( $p < .001$ ). The risk for offspring suicide differed by the developmental period during which parental suicide occurred. Child and adolescent offspring of suicide decedents were at threefold greater risk for suicide (IRR = 3.0; 95% CI = 1.7 to 5.3; IRR = 3.1, 95% CI = 2.1 to 4.6, respectively). Young adults were not at increased risk for suicide (IRR = 1.3; 95% CI = 0.9 to 1.9). Offspring of suicide decedents had an especially high risk of hospitalization for suicide attempt, depressive, psychotic, and personality disorders. Child survivors of parental suicide were at particularly high risk for hospitalization for drug disorders and psychosis. All offspring who experienced parental death, regardless of mode or age, were at increased risk for violent criminal convictions. **Conclusions:** Mode of parental death and offspring age at parental death are associated with offspring long-term risk for suicide and hospitalization for specific psychiatric disorders. *J. Am. Acad. Child Adolesc. Psychiatry*, 2010;49(5): 514–523. **Key Words:** suicide, epidemiology, family, mental disorders, impulsive behavior

Each year 7,000 to 12,000 children in the United States lose a parent to suicide.<sup>1</sup> Few, if any, life events are more stressful for a young person than parental death.<sup>2</sup> Offspring of suicide decedents, especially children and adolescents, may be particularly vulnerable to psychiatric morbidity, suicidal behavior, and psychosocial problems.<sup>3–8</sup> However, prior studies have limitations such as small sample sizes, use of referred samples, lack of or inappropriate control groups, and short follow-up periods. Thus, we lack information about the long-term

psychiatric and psychosocial outcomes of offspring of suicide decedents and other causes of parental death.

Cerel et al.<sup>1</sup> recommended “larger studies of child survivors with particular attention to developmental differences.” Brent et al.<sup>9</sup> found that youth who lost a parent, especially through suicide, were more vulnerable to depression and alcohol and drug abuse than nonbereaved controls up to 21 months after parental death. There were, however, no differences between offspring of suicide and accident decedents. It is unknown whether longer-term differences (longer than 21 months) in risk for depression, or other adverse outcomes, exist between offspring by mode of parental death and by offspring age at the time of parental death.



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**TABLE 1** Characteristics of Alive and Deceased Parents of Offspring Aged 25 Years or Younger

Characteristic	Alive Parents <sup>a</sup> (N = 1,899,355)		Suicide Decedents (N = 23,512)		Accident Decedents (N = 22,969)		Other Deaths <sup>b</sup> (N = 247,798)	
	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD
Parent age at death (y)	—	—	44	10.0	47	11.7	54	10.7
	n	%	n	%	n	%	N	%
Sex								
Male	914,391	48	16,956	72	17,556	76	174,315	70
Female	984,964	52	6,556	28	5,413	24	73,483	30
Country of birth								
Sweden	1,572,927	83	20,542	88	19,841	87	226,995	92
Other Scandinavian	101,901	5	1,793	8	1,763	8	10,727	4
Other (non-Scandinavian)	422,747	12	1,128	5	1,329	6	9,717	4
Psychiatric hospitalization <sup>c</sup>	122,503	6	10,679	45	4,869	21	21,365	9
Any criminal conviction <sup>d</sup>	432,388	23	7,727	33	6,940	30	28,423	12

Note: Data are restricted to offspring who were less than 26 years of age at the time of parental death.

<sup>a</sup>Alive parents included both matched and unmatched alive parents. Alive parents born in 1939 or earlier and their offspring were excluded (mean parental age 47 years).

<sup>b</sup>Other death is defined as any specified cause other than suicide, undetermined, or accident.

<sup>c</sup>Parental hospitalization for any of the offspring outcomes listed in the method section from 1973 to 2004.

<sup>d</sup>Criminal conviction included any crime from 1973 to 2004.

Family, twin, and adoption studies report a four- to six-fold increased suicide risk among relatives of suicide decedents.<sup>10-13</sup> Although the intergenerational transmission of psychiatric disorders increases the risk for suicide, suicidal behavior runs in families independently of psychiatric diagnoses.<sup>14-17</sup> One possible familial component of suicide risk is impulsive aggression.<sup>18</sup> Brent et al.<sup>19</sup> found that offspring of suicide attempters scored higher on measures of impulsive aggression. Trait aggression/impulsivity is one of the most promising intermediate phenotypes for genetic studies of suicidal behavior.<sup>20</sup> However, prior epidemiological studies have not estimated the risk for both impulsive aggression and psychiatric outcomes among offspring of suicide decedents.

This study aimed to estimate the association between parental death (from suicide, accident, or another cause) and offspring risk for suicide, hospitalization for a suicide attempt and major psychiatric disorders, and violent criminal convictions using a Swedish national total population cohort with data from 1969 to 2004. Offspring were also studied by developmental period (childhood, adolescence, young adult) at the time of parental death. We hypothesized that: (1) offspring who experienced parental death

would be at greater risk for adverse outcomes than offspring whose parents were alive; (2) risk would be greater in offspring of suicide decedents than those whose parents died from other causes; (3) children (less than 13 years of age) at the time of parental suicide would be at greatest risk for adverse outcomes; and (4) violent criminal convictions, a manifestation of impulsive aggression, would be more common among offspring of suicide decedents than among offspring whose parents died from other causes.

## METHOD

### Data Sources

A retrospective cohort study was conducted after linking data from multiple Swedish national registers using the personal identification number assigned to all individuals at birth or upon being granted permanent residency. The Multi-Generation Register (held by Statistics Sweden), which indicated parent-child relations for all persons born in Sweden or who received permanent citizenship since 1932 (currently encompassing 13 million persons), was used to identify parent-offspring pairs. The Cause of Death Register (held by the National Board of Health and Welfare) included information on 99% of all deaths in Sweden, with cause of death classified according to the International Classification of Diseases (ICD) revisions

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