

Psychosocial Risk Factors of Child and Adolescent Completed Suicide

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Background: Few psychosocial risk factors for completed suicide in children and adolescents have been studied systematically. The present study was designed to examine the environmental, social, and familial characteristics of a large representative sample of child and adolescent suicides.

Methods: A case-control, psychological autopsy of 120 of 170 consecutive suicides younger than 20 years and 147 community age-, sex-, and ethnically matched control participants in the greater New York, NY, area.

Results: There was a significant independent impact of the psychosocial factors on increasing suicide risk among children and adolescents, beyond that risk attributable

to psychiatric illness. The most notable risks were derived from school problems, a family history of suicidal behavior, poor parent-child communication, and stressful life events. Sex, ethnicity, and age modified the relationships of a few of the psychosocial factors.

Conclusions: Socioenvironmental circumstances add significantly to a teenager's risk of suicide. The overall effect size on increasing suicide risk of the psychosocial factors is comparable with that for diagnostic factors, highlighting the importance of considering socioenvironmental factors when assessing suicide risk.

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MOST psychological autopsy studies of children and adolescents have limited their inquiry to psychiatric risk factors. These studies have determined that a majority of those who completed suicide had significant psychiatric problems, including previous suicidal threats and behavior, affective disorder, substance abuse, and conduct disorder.¹⁻⁷ Despite the notion that the social environment also impacts on suicidal behavior,⁸ there is a relative scarcity of empirical information about the environmental, social, and familial characteristics of adolescent suicide victims. A continuing debate exists over the relative importance of socioenvironmental to psychiatric diagnostic factors in explaining suicidal behavior.⁸

The psychosocial factor that has received the most attention in the psychological autopsy literature is stressful life events. This research generally supports the association of life stressors, such as interpersonal losses and legal or disciplinary problems, with suicide.⁹⁻¹² The nature of the stressor has been reported to be related to the underlying psychiatric disorder of the suicide victim,^{9,11-13} yet specific stressors,

such as legal and disciplinary problems, are still associated with an increased risk of suicide, even after adjusting for psychiatric disorders.⁹ Several postmortem studies, relying on record reviews rather than on psychological autopsy interviews,¹⁴⁻¹⁸ have also identified recent stressors in the majority of youth suicides. Only 1² of the studies examining stressful life events has included a nonsuicidal comparison group. Without such a comparison group, the specificity of the findings to suicide cannot be determined.

Three psychological autopsy studies with community comparison samples have reported on other environmental, social, and familial risk factors.^{2,7,19,20} Two of the studies have been quite small.^{7,20} The third, by Brent et al,^{2,19} compared 67 adolescent suicide victims in western Pennsylvania with 67 demographically matched community control participants. Significant familial risks included a family history of depression, substance abuse, and parent-

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SUBJECTS AND METHODS

A detailed description of the methods of this study has been provided by Shaffer et al.¹ With the exception of social and familial variables that are unique to this article, only a brief description of the sample and methods is given. Several reports describe the robustness of the psychological autopsy method.^{1,21,22} The project was approved by the New York State Psychiatric Institute/Columbia University Institutional Review Board, New York.

SAMPLE

Psychological autopsies were conducted on 120 of a consecutive series of 170 suicides completed by persons younger than 20 years within a 2-year period in New York City and 28 surrounding counties in New York State, New Jersey, and Connecticut. The study area represented rural, suburban, and urban areas, with diverse ethnic and socioeconomic characteristics. The percentages of victims who lived in urban, suburban, and rural communities at the time of their death were 28.5%, 57.6%, and 13.9%, respectively. A random comparison sample, stratified on the age, ethnic, and sex distribution of the completed suicide cases, was identified from the study region (N=147 participants from a potential pool of 196 eligible community children and adolescents), using a random-digit dialing procedure. The rural or urban status of the control informants' communities was not significantly different from that of the victims. Participants in both groups did not differ from non-participants on demographic variables.¹

INFORMANTS

Information on completed suicides was obtained from a parent or another adult member of the household in which the victim was living at the time of death, either a sibling or a friend, and between 1 and 3 schoolteachers. Information on community control participants was obtained from the adolescents themselves, a parent or caregiver, and up to 3 schoolteachers. The length of each assessment ranged from 4 to 8 hours. The community control informants were paid \$50. The informants were interviewed by 1 of 11 masters- or doctoral-level psychologists or certified social workers. The interval between suicide and assessment ranged from 28 to 976 days (median, 159 days). Fifty-four percent of the sample was assessed within 6 months and 81% within 1 year of the suicide.

ASSESSMENT MEASURES

Demographic Variables

The interview with the informants assessed the household and family constellation during the 3 months before the death (or assessment for the control participants), parental education, occupation, and marital status, and the school or work status of the suicides and control participants.

The 1980 census was used to determine age, sex, and ethnic distributions of the general population aged 19 years and younger in our study area.²³ The Public Use Microdata Sample from the 1980 census provided education and occupation estimates for the reference population of households with children aged 10 through 19 years. The socioeconomic status (SES) for each census household and for each participant family was derived by means of Hollingshead's Four-Factor Index.²⁴

Parent-Child Relationships

Six questions addressed the relationship between the subject and his or her parents during the 3 months before death (or assessment). These measured the frequency with which each parent (1) got irritable, (2) nagged, (3) quarreled, or (4) had conversations with him or her; (5) the extent to which the youth confided in the parent; and (6) the parent's satisfaction with the quality of conversations with the adolescent. Identical factor structures emerged in principal-components factor analyses conducted separately for the mothers' and fathers' relationship items. The first scale, "negative interaction," consisted of the frequency of irritability, nagging, and arguments ($\alpha = .70$ and $.72$ for mothers' and fathers' relationships, respectively). The second scale, "poor communication," included frequency of conversations, confiding, and sharing, and satisfaction with conversations ($\alpha = .46$ and $.60$ for mothers' and fathers' relationships, respectively). The scale scores were dichotomized by means of what we considered to be clinically relevant cut-points. Only relationships with the biological parents were used in the present article. A self-report took precedence when available (85% for mothers and 43% for fathers).

Severe Physical Punishment

Three items assessed the type, frequency, and consequences of punishment the youth received during his or her lifetime. A rating of severe physical punishment was based on frequent (at least once a month) punishment resulting in injuries in the 3 months before death (or assessment); or

child discord. None of the psychological autopsy studies addressed age-, sex-, or ethnicity-specific features.

This report describes the socioenvironmental characteristics, determined by psychological autopsy, of 120 children and adolescents who committed suicide between June 1984 and May 1986 in New York, NY, and its surrounding area. An earlier report described the psychopathological characteristics of the suicide victims.¹ We aimed to identify psychosocial factors that significantly increase the risk of youth suicide and to determine whether these factors yield an incremental suicide risk, beyond that contributed by psychiatric illness. Sex-, ethnicity-, and age-specific effects were examined.

RESULTS

DEMOGRAPHIC CHARACTERISTICS

The demographic characteristics of the suicide victim and community control participants and the general population (1980 census) younger than 20 years in the study areas are presented in **Table 1**. The suicide victims were older ($\chi^2_2=144.6$, $P<.001$), more likely to be boys ($\chi^2=38.6$, $P<.001$), and less likely to be African American ($z=2.59$, $P<.01$) than the general youth population. Among the suicides, the male-female ratio increased with age, rising from 2.1 to 4.0 in those younger

a lifetime history of physical punishment resulting in visible skin lesions 5 or more times or fractures or other internal injuries or punishment resulting in other consequences that led to medical evaluation.

Parental Psychopathologic Characteristics and Family History of Suicidal Behavior

For each parent, a lifetime history (before the suicide) of mood symptoms (depression and dysthymia), psychotic symptoms, alcohol or substance abuse problems, psychiatric treatment, and trouble with the police (other than minor traffic violations or warnings) was ascertained. The symptoms had to meet the duration criterion as specified in *DSM-III* and have resulted in some dysfunction to be scored positive. Only assessments about the *biological* parents were used in the present article. A self-report took precedence when available (78% for mothers and 43% for fathers). Several questions assessed a history of completed or attempted suicide in the first-degree relatives. A positive family history largely reflects suicide attempts, since completed suicides in the families were rare (approximately 1% in each group).

Stressful Life Events

The Coddington Life Event Schedule for Children and Adolescents^{25,26} assessed the occurrence of life events during the 3 months before the suicide (or assessment). Composite measures of negative events were derived from 23 of the 50 items, considered undesirable by independent ratings of 3 judges (M.S.G., D.S., and P.F.), and information from direct interview about undesirable events during the month of the death (or assessment). Based on previous psychological autopsy studies,⁹ 2 a priori scales were developed to represent legal or disciplinary crises and interpersonal loss. Disciplinary crises included suspension from school, other trouble at school, responsibility for an automobile accident, appearance in juvenile court or other trouble with police, and trouble at work. Interpersonal loss included the death of a relative or friend, disruption of a relationship, and a recent separation. These 2 domains were dichotomized on the basis of the presence of any event within each domain. The few redundant events in the Coddington questionnaire and interview were combined by means of an "either-or" rule.

School or Work Problems

Several questions assessed a history of difficulties in school, including having ever failed a grade, having been suspended

within 3 months of death (or assessment), or having dropped out of high school. Work status within 3 months of death (or assessment) was ascertained.

Child and Adolescent Psychiatric Diagnoses

Details about the method of diagnostic assessments were presented by Shaffer et al.¹ Briefly, the symptom-based interview was derived in part from the Schedule for Affective Disorders and Schizophrenia,²⁷ the Schedule for Affective Disorders and Schizophrenia for Children,²⁸ and the Present State Examination,²⁹ supplemented by questions for diagnostic criteria listed in *DSM-III*. The presence of symptoms during the 3 months before death (or assessment) was ascertained. Lifetime assessments were made for some low-frequency events (eg, arrests) and for previous manifestations of suicide-related behavior.

Diagnoses were assigned by computer algorithms, derived from *DSM-III* criteria, by means of a comparable informant base (parents or caretakers only) for suicides and control participants. Superordinate diagnostic categories of mood, disruptive, substance and alcohol, anxiety, and miscellaneous disorders were created because the prevalence of many individual diagnoses was low. The best-estimate clinical diagnoses, incorporating nonblind information from all available informants, were not used in the present analyses because case-control comparisons are not clearly interpretable without a comparable informant base and blinded assessment. Sensitivities for the superordinate diagnoses with the use of best-estimate clinical diagnoses were given in an earlier report.¹

DATA ANALYSIS

A series of maximum-likelihood logistic regression analyses³⁰ were performed with the use of each of the psychosocial measures to predict completed suicides. The matching variables of age, sex, and ethnicity were included as covariates in the analyses because the cases and controls were frequency matched rather than individually matched.³¹ Socioeconomic status was included as an additional covariate because the community controls had a significantly higher SES than the completed suicides. The analyses tested for interactions with gender, ethnicity, age, and SES. Whether significant ($\alpha < .05$) associations between the psychosocial factors and suicide could be accounted for by their associations with mood, disruptive, and substance and alcohol disorder was examined next. The analyses also examined interactions between diagnostic categories and psychosocial risk factors.

than 15 years to those between 15 and 19 years of age, whereas there were equal proportions of boys and girls at every age among the general population.

The community control participants had a significantly higher SES than the census Public Use Microdata Sample ($\chi^2_4=38.64$, $P<.001$). Therefore, the SES characteristics of the suicide victims and census sample were compared. Only African-American suicide completers, not those who were white or Hispanic, had a significantly higher SES than their general-population counterparts ($\chi^2=11.6$, $P<.05$). Specifically, there was an overrepresentation of the middle class (SES III) and an underrepresentation of

the poorest strata (SES IV) among the African-American suicides.

PSYCHOSOCIAL RISKS

Familial Factors

Living Situation. Suicide victims were significantly more likely to come from a nonintact family of origin (48.3%) than were community control participants (33.3%) (odds ratio [OR], 1.9; 95% confidence interval [CI], 1.1-3.3; **Table 2**). Approximately 61% of the victims, in contrast to 76% of community control participants, lived in

Table 1. Demographic Characteristics of Suicides, Community Controls, and General Population Aged 19 Years and Younger

	No. (%)		General Population, %*
	Suicide Victims (n=120)	Community Controls (n=147)	
Age, y			
5-9	1 (0.8)	0 (0)	28.5
10-14	18 (15.0)	23 (15.6)	34.0
15-19	101 (84.2)	124 (84.4)	37.5
Sex			
Female	25 (20.8)	31 (21.1)	49.2
Male	95 (79.2)	116 (78.9)	50.8
Ethnicity			
White	84 (70.0)	111 (75.5)	62.2
African American	13 (10.8)	16 (10.9)	20.3†
Hispanic	18 (15.0)	15 (10.2)	14.6
Other	5 (4.2)	5 (3.4)	2.9
Socioeconomic status‡			
I			
White	14 (16.7)§	27 (24.3)	17.2
African American	1 (7.7)	0 (0)	4.6
Hispanic	0 (0)	1 (6.7)	2.9
II			
White	28 (33.3)	57 (51.4)	32.5
African American	4 (30.8)	6 (37.5)	18.0
Hispanic	3 (16.7)	1 (6.7)	11.1
III			
White	26 (31.0)	17 (15.3)	26.3
African American	7 (53.8)	4 (25.0)	23.9
Hispanic	2 (11.1)	2 (13.3)	16.3
IV			
White	13 (15.5)	10 (9.0)	17.2
African American	1 (7.7)	5 (31.3)	26.8
Hispanic	3 (16.7)	6 (40.0)	28.3
V			
White	3 (3.6)	0 (0)	6.8
African American	0 (0)	1 (6.3)	26.7
Hispanic	10 (55.6)	5 (33.3)	41.4

*See text for description of sources of information.

†African Americans were significantly underrepresented in the suicide group compared with the general population ($z=2.59, P<.01$).

‡I is the most affluent class, IV the most impoverished.

§The percentage of the ethnic group (within suicides or community controls) who fall in the particular socioeconomic status category. Thus, the percentages are calculated from the division of the cell N by the within-ethnicity/case group N, eg, 14/84=16.7% of white suicides were in socioeconomic status class I.

2-caregiver households (not necessarily the family of origin). Approximately 28% of suicide victims and 20% of control participants were living with a single parent. Of the victims who were not living with any parent (nearly 12%, in contrast to 3% of the control participants), most were living either with another relative (36%) or with a girlfriend or boyfriend or a spouse (36%).

Parent-Child Relationships. Suicide victims had significantly less frequent and less satisfying communication with their mothers (OR, 4.3 [$P<.01$]; 95% CI, 1.6-11.6) and fathers (OR, 4.0 [$P<.001$]; 95% CI, 1.8-9.0). There was no evidence of more negative interactions between victims and their parents, nor a greater history of severe physical punishment.

Table 2. Psychosocial Risks of Suicide, ORs, and CIs*

	No. (%)		Adjusted OR (95% CI)†
	Suicide Victims (n=120)	Community Controls (n=147)	
Parents' marital status			
Nonintact family of origin	58 (48.3)	49 (33.3)	1.9 (1.1-3.3)‡
Parent-child relationships§			
Poor communication with mother	15 (16.1)	10 (7.5)	4.3 (1.6-11.6)
Poor communication with father	24 (31.2)	15 (12.8)	4.0 (1.8-9.0)
Negative interaction with mother	10 (10.8)	15 (11.5)	0.7 (0.3-1.8)
Negative interaction with father	3 (4.7)	7 (6.3)	0.5 (0.1-2.9)
Severe physical punishment	3 (2.9)	5 (3.6)	1.3 (0.3-6.1)
Parental psychopathology			
Mother			
Mood disorder symptoms	34 (36.6)	30 (21.9)	2.0 (1.1-3.7)‡
Alcohol/substance problems	5 (5.4)	7 (5.1)	1.0 (0.3-3.4)
Trouble with police	2 (2.2)	2 (1.5)	2.6 (0.2-30.9)
Any psychiatric treatment	34 (36.6)	39 (28.5)	1.4 (0.8-2.6)
Father			
Mood disorder symptoms	22 (25.3)	25 (20.5)	1.2 (0.6-2.5)
Alcohol/substance problems	14 (16.1)	16 (13.1)	1.2 (0.5-2.7)
Trouble with police	16 (18.4)	8 (6.6)	4.0 (1.5-10.9)
Any psychiatric treatment	18 (20.7)	19 (15.6)	1.5 (0.7-3.3)
Family history of suicidal behavior	20 (17.4)	7 (4.8)	4.6 (1.8-11.7)
Stressful life events§			
Disciplinary crises	52 (47.7)	22 (15.5)	5.1 (2.7-9.5)
Loss	59 (53.6)	58 (39.7)	1.9 (1.1-3.3)‡
School/work problems			
Failed a grade	25 (25.3)	10 (8.6)	3.3 (1.4-7.7)
Suspended from school	16 (16.3)	3 (2.6)	6.1 (1.6-23.4)
Dropped out of school#	22 (18.3)	4 (2.7)	5.1 (1.2-20.7)
Neither working nor in school#	20 (16.8)	1 (0.7)	44.1 (4.5-432.0) **
No college#	37 (94.8)	18 (79.6)	7.8 (2.2-27.3)

*OR indicates odds ratio; CI, confidence interval. Numbers of subjects vary for particular variables because of missing data. The pattern of missing data was random. There were no differences in diagnoses, demographic variables, and the other psychosocial factors between those with and those without available data for each specific risk variable, for either cases or controls.

†Controlling for socioeconomic status, sex, ethnicity, and age.

‡ $P<.05$.

§The dichotomously scored factors are presented; the results remained unchanged for their continuously scored counterparts.

|| $P<.01$.

|||| $P<.001$.

#The analyses are restricted to those who were at risk by nature of their being past high school. The magnitude of the results remained essentially unchanged for total sample.

**The large CI results from small sample sizes. The lower bound of the 95% CI should be used as the conservative estimate of the effect size.

Parental Psychopathologic Characteristics and Family History of Suicidal Behavior. Suicide victims were significantly more likely than control participants to have had a mother with a history of mood disorder symptoms (OR, 2.0 [$P<.05$]; 95% CI, 1.0-3.7), a father

with a history of trouble with the police (OR, 4.0 [$P < .01$]; 95% CI, 1.5-10.9), and a family history of suicidal behavior (OR, 4.6 [$P < .001$]; 95% CI, 1.8-11.7).

Nonfamilial Factors

Stressful Life Events. Suicide victims had experienced significantly more negative stressful life events (mean \pm SD, 4.2 ± 3.0) than community control participants had (1.5 ± 1.8) ($t = 8.5$, $P < .001$). Nearly half of the victims had experienced a recent disciplinary crisis (OR, 5.1 [$P < .001$]; 95% CI, 2.7-9.5) or interpersonal loss (OR, 1.9 [$P < .05$]; 95% CI, 1.1-3.3). The most prevalent disciplinary crisis was suspension from school (Table 2) and appearance in juvenile court (16.1% and 2.6% of suicide victims and control participants, respectively). The majority of the losses represented a breakup with a girlfriend or boyfriend (36% and 16% of suicide victims and control participants, respectively) and a recent separation of the parents (6.2% and 0.9% of suicide victims and control participants, respectively).

School and Work Problems. Difficulties in school, neither working nor being in school, and not going to college posed significant suicide risks. The high percentage of suicide victims (17%) in contrast to control participants (0.7%) who were neither working nor in school at the time of their death (or assessment) was not explained by a disproportionate number of victims residing in residential homes or psychiatric hospitals (only 6% of those victims neither working nor in school).

GENDER INTERACTIONS

Experiencing an interpersonal loss increased the risk of suicide for boys only (OR, 2.6 [$P < .001$]; 95% CI, 1.4-4.8); otherwise, the impact of the psychosocial factors was similar for boys and girls.

ETHNIC INTERACTIONS

Disciplinary crises and failing a grade were the only psychosocial factors that interacted with ethnicity. White and African-American, but not Hispanic, youths were significantly more likely to commit suicide if they had experienced a recent disciplinary crisis (OR, 5.8 [$P < .00$]; 95% CI, 2.8-11.8 for whites; OR, 30.9 [$P < .01$]; 95% CI, 2.8-347.2 for African Americans). Given the extremely large 95% CI for African Americans (because of the small sample size), the lower bound of the CI should be considered the conservative estimate of the effect size. Failing a grade was a risk factor only for white youths (OR, 8.4 [$P < .001$]; 95% CI, 2.6-27.4).

AGE INTERACTIONS

Age modified the impact of only 1 psychosocial factor. Poor communication with the father significantly increased the risk of suicide only for those individuals older than 16 years.

INDEPENDENCE OF CONCURRENT PSYCHOPATHOLOGIC CHARACTERISTICS

The associations between each psychosocial factor and suicide after adjusting for psychiatric disorders in the youths are presented in **Table 3**. Interactions between psychosocial factors and diagnostic categories were also tested in the analyses. Poor communication with the father (for youngsters older than 16 years), the father's history of trouble with the police, a family history of suicidal behavior, disciplinary crises (for whites and African Americans), recent losses (for boys), and school or work problems significantly increased the risk of suicide above the risk contributed by the youth's psychopathology, without exhibiting any significant interactions with psychopathology.

INCREMENTAL EFFECTS ON SUICIDE RISKS

The presence of the significant psychosocial factors has an impact on suicide risk comparable with that of a psychiatric disorder (**Table 4**). The pattern of incremental effects of psychopathology and psychosocial factors is consistent with additive rather than synergistic effects.

COMMENT

Before discussing the novel findings in this study, we will review results consistent with those of earlier psychological autopsy studies. These consistencies emerged despite the use of different methods of ascertainment (eg, parent-only information and nonstandard measures of family history of suicidal behavior and parental psychopathology).

A family history of suicidal behavior greatly increased the risk of completed suicide, as reported in earlier studies.^{3,7,17,19,32} This may reflect a genetic factor, rather than a general index of family chaos and psychopathology, since a family history increased suicide risk after controlling for poor parent-child relationships and parental psychopathology (OR, 5.1; 95% CI, 1.8-15.6), similar to the finding by Brent.³³ Our study cannot address whether familial aggregation results from imitation, but other studies³⁴ do not support this hypothesis. Previous studies have also found high rates of parental psychopathology to be associated with adolescent suicide,¹⁹ consistent with our univariate analyses; however, once we adjusted for the presence of the youth's psychiatric illness, only paternal trouble with police maintained its significant association with youth suicide. Our examination of psychiatric symptoms rather than diagnoses may account for the inconsistency with earlier studies.

Consistent with other reports, interpersonal losses^{2,9,11,13} and disciplinary crises^{2,9,11-13,17} increased suicide risk, and the nature of the stressor was related to the underlying psychiatric disorder.^{9,11-13} We found a tendency for interpersonal losses to be more common among suicide victims with substance abuse disorders (63% vs 48%, $P = .11$) and disruptive disorders (66% vs 42%, $P = .01$); disciplinary crises were more common in victims with disruptive disorders (56% vs 40%, $P = .10$).

Table 3. Psychosocial Risks of Suicide: ORs and CIs, Association Controlling for Psychiatric Disorders in Youth and Demographic Variables*

	OR (95% CI)		
	Controlling for Disruptive Disorder†	Controlling for Substance Disorder‡	Controlling for Mood Disorder‡
Nonintact family of origin	1.7 (1.0-3.1)	1.6 (0.9-2.9)	1.9 (1.0-3.6)‡
Parent-child relationships			
Poor communication with mother	4.1 (1.4-11.8)§	3.1 (1.0-9.7)‡	2.2 (0.7-7.4)
Poor communication with father			
Age ≤16 y	NS	NS	NS
Age >16 y	7.2 (2.4-21.8)	6.4 (2.1-19.5)	6.7 (2.2-21.0)
Parental psychopathology			
Mother's mood disorder symptoms	1.6 (0.9-3.0)	1.5 (0.8-2.8)	1.1 (0.6-2.3)
Father's trouble with police	4.2 (1.5-11.5)§	3.6 (1.3-10.1)§	4.2 (1.4-12.1)§
Family history of suicidal behavior	4.4 (1.6-11.6)§	4.7 (1.8-12.7)§	5.1 (1.8-14.5)§
Stressful life events			
Disciplinary crises			
White	5.3 (2.5-11.1)	5.3 (2.5-11.3)	6.0 (2.6-13.6)
African American	30.3 (2.5-360.3)§	28.5 (2.5-328.6)§	31.4 (2.3-425.6)§
Hispanic	NS	NS	NS
Loss			
Girls	NS	NS	NS
Boys	2.3 (1.3-4.4)§	2.2 (1.1-4.1)§	3.4 (1.7-6.8)
School/work problems			
Failed a grade			
White	7.5 (2.3-24.9)	8.5 (2.5-28.6)	7.2 (1.9-26.8)§
African American	NS	NS	NS
Hispanic	NS	NS	NS
Suspended from school	5.4 (1.4-21.1)§	5.3 (1.3-20.7)§	7.0 (1.7-28.5)§
Dropped out of school	5.5 (1.6-18.5)§	5.5 (1.6-18.8)§	6.1 (1.8-21.4)§
Neither working nor in school	22.6 (2.8-183.5)§	24.2 (3.0-197.6)§	15.3 (1.7-135.6)§
No college	7.0 (1.7-28.3)§	11.5 (2.3-59.1)§	9.2 (2.0-43.6)§

*OR indicates odds ratio; CI, confidence interval; NS, not significant.

†Uses parent/caregiver-only information. Relationships are somewhat attenuated, but the significance remains when best-estimate diagnoses are employed.

‡P < .05.

§P < .01.

||P < .001.

¶The large CIs result from small sample sizes. The lower bound of the 95% CI should be considered the conservative estimate of the effect size.

NOVEL ASSOCIATIONS

A "failure to communicate" with fathers has not been reported in the psychological autopsy literature but is consistent with the report that fathers' poor relationships with youngsters are more strongly related than those of mothers to suicidal ideation and attempts.³⁵ It is unlikely that the association of poor father-child communication with suicide reflects merely a silent depressed child or father, since its significance remained after adjusting for the youngster's psychopathology or father's psychiatric symptoms (OR, 7.4; 95% CI, 2.2-24.2 for those older than 16 years).

Youngsters who appear to be "drifting," affiliated with neither a school nor a work institution, were at substantial risk for completing suicide. Shaffer et al¹ noted that many suicides among children younger than 15 years took place after a period of absence from school and that a similar phenomenon had been reported for children who had attempted suicide,³⁶ suggesting that social isolation associated with absence from school may facilitate suicidal behavior.

African-American suicide victims were from families with a higher SES than that of the general popula-

tion of African-American youths. Historically, while suicide has been more of a problem among whites, there has been a dramatic rise in the rate among African Americans since 1987.³⁷ Greater educational and employment opportunities for African Americans may have led to closer identification with the majority white culture, with the unfortunate loss of some traditional protective values among African Americans.³⁸ The association of SES and suicide within African-American youths is unlikely to have resulted from participation bias, since the SES of the non-participant African Americans, approximated by the proportion of the population within their residential zip code who received public assistance,²³ was not significantly different from a comparable macrolevel SES measure derived for participants.

We identified a sex-specific risk not heretofore reported. An interpersonal loss, such as recent romantic breakup, greatly increased the risk of suicide only for boys. "Breaking up" may leave a boy with little social support, since intimacy for boys may tend to be restricted to a single relationship with the opposite sex, whereas teenage girls may establish intimate and confiding relationships with same-sex and opposite-sex peers.³⁹ Furthermore, it is our clinical impression that the male suicide victims were more

Table 4. Incremental Effects of Psychosocial Factors and Diagnoses on Suicide Risk

Psychosocial Factors*	Psychiatric Diagnosis	Disruptive Disorder		Substance Disorder		Mood Disorder		Any Disruptive, Substance, or Mood Disorder	
		No.	Proportion of Suicides	No.	Proportion of Suicides	No.	Proportion of Suicides	No.	Proportion of Suicides
Absent	Absent	56	0.07	56	0.09	53	0.06	52	0.06
Absent	Present	1	1.00	1	0.00	4	0.50	5	0.40
Present	Absent	144	0.47	161	0.46	143	0.39	111	0.35
Present	Present	42	0.62	25	0.80	43	0.88	75	0.73

*Any of the significant psychosocial factors given in Table 3: poor communication with father, father's trouble with police, family history of suicide, disciplinary crises, loss, failed a grade, dropped out of school, neither working nor in school, no college. Suspended from school is not included as a unique psychosocial factor because it was a component item in the measure of disciplinary crises.

likely to develop excessively dependent relationships with members of the opposite sex, making them more vulnerable to overwhelming distress when the relationship was disrupted.

The lack of affiliation with school or work, the loss of a relationship, the inability to confide and share with a father, and being a minority in an upwardly mobile home may have a common aftermath of isolating the youth. This is consistent with the large body of literature on the role of isolation and alienation in suicide.^{8,40-43}

ISSUE OF OVERCONTROL

While significant differences in the frequencies of parental psychopathology, parental separation or divorce, and poor mother-child communication existed between the suicide victims and control participants, their impact was no longer significant after controlling for the youths' psychopathology. However, the mother's mood disorder symptoms (or divorce or poor communication) may contribute to the youth's mood disorder, which in turn increases suicide risk. Adolescents whose mothers had mood disorder symptoms were nearly 4 times more likely to have a mood disorder themselves (OR, 3.6; 95% CI, 1.7-7.5). Similarly, having a father who had been in trouble with the police significantly increased the likelihood of a substance disorder in the youth (OR, 4.3; 95% CI, 1.3-13.6). Adjusting for the youth's disorder (a more proximal cause of suicide than the parent's disorder) may remove the link between the parent's disorder and the youth's suicide, resulting in "overcontrol" in the analysis. Therefore, the unadjusted risk estimates (in Table 2) should not be disregarded, since they indicate the factors that may contribute more distally to the suicide and may be excellent ways to identify youths at risk.

LIMITATIONS

Since there is no psychiatric control group, the specificity of the psychosocial factors for suicide risk cannot be determined. By controlling for the youth's psychiatric disorder in the analyses, however, we have accounted for a major source of variation between a psychiatric and community control group and have provided estimates for the unique contribution of the psychosocial factors to suicide, independent of the risks imposed by psychiatric disorder.

We relied on parental-caregiver information to keep the information base comparable for victims and control participants. However, it is generally recognized that there is only modest consistency of reports between adolescents and their parents.^{44,45} Although we have obtained only a partial psychosocial history of the youths, the information is recognizable by the parents and could be used for suicide prevention efforts. Furthermore, the relationships remained largely unchanged whether best-estimate diagnoses or parent-only diagnoses were used. Given this consistency, we feel confident that the results are valid.

There was a substantial proportion of missing data in our assessment of father-child (27%) and mother-child (15%) relationships. The primary reason for missing these data (and other psychosocial variables; Table 2) was that several questions that assessed psychosocial domains were added later in the study or changed during the course of the study so that the final set of constructs was not available for the full sample. No systematic bias was evident in the available psychosocial data, since there were no diagnostic, demographic, or psychosocial differences between those with and those without the assessments.

Our reliance on mothers' reports of father-child relationships could reflect the mothers' perception of paternal nonavailability, rather than a real problem between father and child. However, when we limited the examination of poor paternal communication to the subsample with fathers' self-reports, its significance remained. The low reliability of the mother-child communication measure may have contributed to its lack of significance.

The limitation of retrospective attribution of significance and denial or forgetting by parents is inherent to all psychological autopsy studies.^{21,22} We found no evidence that the time lag between the suicide and the informant interview was correlated with total number of negative events, loss, disciplinary crises, or the youths' severity of psychopathology. Denial does not appear to explain the lack of an association of suicide with severe physical punishment. Of the 5 community-control parents who reported using severe physical punishment, none of their children reported this type of punishment. Additionally, there were no cases in which parents failed to report severe physical punishment reported by the child.

While the absence of underreporting by control parents was reassuring, there is no certainty that the parents of a child who has committed suicide would respond in a similar way.

IMPLICATIONS

The present findings increase our understanding of suicidal behavior as a multidetermined act. The effect size of the psychosocial factors is of a magnitude comparable with that previously reported for psychiatric disorders.¹⁻³ It is apparent that the psychosocial characteristics of teenagers, as well as their diagnostic profiles, are a necessary component of a suicide risk assessment. The impact of psychosocial factors on suicide is not merely an epiphenomenon of psychiatric illness.

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