RESEARCH

Association between exposure to suicide and suicidality outcomes in youth

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ABSTRACT

Background: Ecological studies support the hypothesis that suicide may be "contagious" (i.e., exposure to suicide may increase the risk of suicide and related outcomes). However, this association has not been adequately assessed in prospective studies. We sought to determine the association between exposure to suicide and suicidality outcomes in Canadian youth.

Methods: We used baseline information from the Canadian National Longitudinal Survey of Children and Youth between 1998/99 and 2006/07 with follow-up assessments 2 years later. We included all respondents aged 12–17 years in cycles 3–7 with reported measures of exposure to suicide.

Results: We included 8766 youth aged 12–13 years, 7802 aged 14–15 years and 5496 aged 16–17 years. Exposure to a schoolmate's suicide was associated with ideation at baseline among respondents aged 12–13 years (odds ratio [OR] 5.06, 95% confidence interval [CI] 3.04–8.40), 14–15 years (OR 2.93, 95% CI 2.02–

4.24) and 16–17 years (OR 2.23, 95% CI 1.43–3.48). Such exposure was associated with attempts among respondents aged 12–13 years (OR 4.57, 95% CI 2.39–8.71), 14–15 years (OR 3.99, 95% CI 2.46–6.45) and 16–17 years (OR 3.22, 95% CI 1.62–6.41). Personally knowing someone who died by suicide was associated with suicidality outcomes for all age groups. We also assessed 2-year outcomes among respondents aged 12–15 years: a schoolmate's suicide predicted suicide attempts among participants aged 12–13 years (OR 3.07, 95% CI 1.05–8.96) and 14–15 years (OR 2.72, 95% CI 1.47–5.04). Among those who reported a schoolmate's suicide, personally knowing the decedent did not alter the risk of suicidality.

Interpretation: We found that exposure to suicide predicts suicide ideation and attempts. Our results support school-wide interventions over current targeted interventions, particularly over strategies that target interventions toward children closest to the decedent.

S uicidal thoughts and behaviours are prevalent[1–3] and severe[4–7] among adolescents. One hypothesized cause of suicidality is "suicide contagion" (i.e., exposure to suicide or related behaviours influences others to contemplate, attempt or die by suicide).[8] Ecological studies support this theory: suicide and suspected suicide rates increase following a highly publicized suicide.[9–11] However, such studies are prone to ecological fallacy and do not allow for detailed understanding of who may be most vulnerable.

Adolescents may be particularly susceptible to this contagion effect. More than 13% of adolescent suicides are potentially explained by clustering;[12–14] clustering may explain an even larger proportion of suicide attempts.[15,16] Many local,[17,18] national[8,19] and international[20] institutions recommend school- or community-level

postvention strategies in the aftermath of a suicide to help prevent further suicides and suicidality. These postvention strategies typically focus on a short interval following the death (e.g., months) with services targeted toward the most at-risk individuals (e.g., those with depression).[19]

In this study, we assessed the association between exposure to suicide and suicidal thoughts and attempts among youth, using both cross-sectional and prospective (2-yr follow-up) analyses in a population-based cohort of Canadian youth.

Methods

Study design

The National Longitudinal Survey of Children and Youth is a population-based nationally representative cohort study involving 16 903 Cana-

dian children that began in 1994/95 when the participants were aged 0–11 years;[21] biennial data collection continued through 2008/09. Details about the cohort, including study design and response rates (mostly above 80% for each wave), are described elsewhere.[21,22] In the current study, we included measures primarily from age-specific questionnaires given to the respondents and to the person most knowledgeable about the respondent (typically the biological mother). We focused on youth who were 12–17 years of age in the third (1998/99) through seventh (2006/07) cycles, because these cycles included suicidality measurements and allowed 2 years of follow-up. Age (not calendar year) was the primary time-scale. We stratified by 2-year age groups; this maintained independent observations and allowed for possible effect modification by age group. Our study includes 8766 observations among youth aged 12–13 years, 7802 among those aged 14–15 years and 5496 among those aged 16–17 years.

Measures

Respondents were asked whether anyone in their school had died by suicide (schoolmate's suicide) and whether they personally knew anyone who had died by suicide (personally known suicide). Respondents could answer: "yes" (past year); "yes" (> 1 yr ago); "no"; or "I don't know." We excluded the "I don't know" responses from the primary analyses.

Respondents were asked if they had seriously considered attempting suicide in the past year. If they answered yes, they were asked to report the number of suicide attempts in the past year, which we dichotomized as 0 or ≥ 1. Of note, we used a higher threshold for assessing ideation (i.e., "seriously considering") than has been used in previous studies.[1,23]

Respondents aged 12–15 years were asked items originally from the Ontario Child Health Study; at ages 10–11, these items were answered by the person most knowledgeable about the respondent.[24] The Ontario Child Health Study consists of symptom checklist scales based on the Diagnostic and Statistical Manual of Mental Disorders, third edition (DSM-III) and DSM-III-R (revised), with 1 subscale that assessed the occurrence and severity of symptoms of depression and anxiety in the past week.[24,25] The psychometric properties of the Ontario Child Health Study have been extensively documented.[24–26] We dichotomized scores around the top decile by age group, which is compatible with the prevalence of depression or anxiety in previous surveys.[27]

Respondents aged 12–15 years were asked about drug and alcohol use, including how fre-

quently they had been drunk in the past year. Because of changes in response options over survey cycles, we dichotomized this behaviour as those who reported being intoxicated at least monthly versus less than monthly. Participants were asked whether they had used marijuana, hallucinogens, glue or inhalants, prescription drugs (without a prescription) and other drugs during the past year.

Socioeconomic status was measured using a ratio of household income to the low-income cut-off score. This score takes into account an individual's income relative to the community in which they live and the size of their family.[28] We dichotomized this score to indicate whether household income was at or above the low-income cut-off (e.g., ratio ≥ 1)

Respondents completed an abbreviated version of the Social Provisions Scale, a well-validated measure of perceived social support.[29–31] We considered scores below the sample median to indicate low social support.

The person most knowledgeable about the respondent reported about stressful life events; prior research suggests that parent and child reports of severe stressful life events have substantial concordance.[32] Stressful life events included the death of a parent or family member; divorce or separation; household move; stay in a hospital; stay in a foster home; other separation from parents; illness or injury of child or family member; abuse or fear of abuse; change in household members; alcoholism or mental health disorder in the family; conflict between parents; problems at school; death of a pet; or other traumatic event. Respondents were grouped by whether any stressful life event was reported. We considered past events to be potential effect modifiers, but not confounding variables, because we could not meaningfully distinguish whether a stressful life event referenced the same event as the exposure (e.g., suicide death of family member or a peer's suicide reported as "other").

Statistical analyses

We weighted all estimates to adjust for unequal selection probabilities, cluster sampling and attrition, with bootstrapped standard errors;[21,22] weights were further calibrated because of the use of multiple survey cycles to construct age-based cohorts.

For our primary analyses, we estimated crude and adjusted odds ratios (ORs) and their 95% confidence intervals (CIs) using logistic regression. Fully adjusted models included sex, socioeconomic status, previous (i.e., reported in the previous cycle 2 years before exposure) depression or anxiety, previous monthly drinking episodes and previous drug use. Given the format of the ques-

tions (e.g., "past year" exposure), we adjusted for confounding variables from the previous cycle to avoid potentially conditioning on symptoms or behaviours occurring after exposure to suicide.

We assessed whether personally knowing a peer decedent (reported a schoolmate's suicide and reported a suicide by someone they knew personally) increased the risk of suicidality outcomes relative to a lesser-known peer decedent (reported a schoolmate's suicide only), using models fit among the subpopulation who reported a schoolmate's suicide. These analyses assumed that the decedent was the same person for both exposures. Finally, we assessed whether previous (reported at ages 12–13 yr) stressful life events, social support, depression or anxiety, or ideation and/or attempts modified the effects of suicide exposure at ages 14–15 on suicidality outcomes 2 years later (ages 16–17).

Of the eligible youth, 41.8% (12–13 yr), 50.3% (14–15 yr) and 39.5% (16–17 yr) for the schoolmate's suicide variable and 11.0% (12–13 yr), 10.4% (14–15 yr) and 7.0% (16–17 yr) for the personally known suicide variable of each age group responded "I don't know." Because of these notable proportions, we performed sensitivity analyses in which we classified such responses as nonendorsement instead of missing, assuming many of those who responded "I don't know" were actually unexposed or unaffected.

Results

Exposure to suicide

The prevalence of exposure to a schoolmate's suicide and personally knowing someone who died by suicide increased with age (Table 1). By ages 16–17 years, 24.1% of respondents reported a schoolmate's suicide, and 20.1% reported personally knowing someone who died by suicide. These are conservative estimates because some individuals who responded "I don't know" may have been exposed.

Cross-sectional analysis

In our cross-sectional analysis, exposure to a schoolmate's suicide was associated with suicidality (Table 2). Among respondents aged 12–13 years, 15.3% of those exposed in the past year reported ideation, compared with 3.4% of those unexposed; a similar difference was seen in attempts (7.5% v. 1.7%). Among respondents aged 14–15 years, exposure to a schoolmate's suicide was associated with increased risk of ideation (14.2% v. 5.3%) and attempts (8.6% v. 2.3%). A similar pattern was seen among those aged 16–17 years for ideation (15.1% v. 7.4%) and attempts (8.1% v. 2.7%). Respondents who

reported that exposure occurred over a year ago also had higher risks compared with those who were not exposed. Fully adjusted ORs for these

Table 1: Weighted characteristics of the respondents, by age

Characteristic	Age, yr, % ± SE		
	12–13	14–15	16–17
No. of participants, unweighted	8766	7802	5496
Female	49.8 ± 0.4	49.7 ± 0.4	51.0 ± 0.4
Male	50.2 ± 0.4	50.3 ± 0.4	49.0 ± 0.4
Current survey cycle			
Socioeconomic status			
Below low-income cut-off	13.4 ± 0.6	12.0 ± 0.7	11.0 ± 0.7
At or above low-income cut-off	86.6 ± 0.6	88.0 ± 0.7	89.0 ± 0.7
Suicide by a schoolmate			
In the past year	3.6 ± 0.3	9.4 ± 0.6	9.3 ± 0.6
More than a year ago	3.6 ± 0.3	9.7 ± 0.5	14.8 ± 0.8
No suicides	51.0 ± 0.8	30.6 ± 0.8	36.4 ± 1.0
Don't know	41.8 ± 0.8	50.3 ± 0.9	39.5 ± 1.0
Suicide by someone they knew personally			
In the past year	3.7 ± 0.3	5.6 ± 0.4	6.9 ± 0.5
More than a year ago	6.0 ± 0.4	8.2 ± 0.5	13.2 ± 0.7
No suicides	79.3 ± 0.7	75.8 ± 0.7	72.9 ± 1.0
Don't know	11.0 ± 0.5	10.4 ± 0.5	7.0 ± 0.5
Suicide ideation			
Yes	5.8 ± 0.4	9.7 ± 0.5	9.8 ± 0.6
No	94.2 ± 0.4	90.3 ± 0.5	90.2 ± 0.6
Suicide attempt			
Yes	2.9 ± 0.3	4.7 ± 0.3	4.5 ± 0.4
No	97.1 ± 0.3	95.3 ± 0.3	95.5 ± 0.4
Previous survey cycle			
Stressful life event†			
≥ 1 event	34.8 ± 0.8	35.8 ± 0.9	32.8 ± 1.0
0 events	65.2 ± 0.8	64.2 ± 0.9	67.2 ± 1.0
Drinking to intoxication,‡			
≥ 1 time/mo	NA	0.6 ± 0.2	9.1 ± 0.7
< 1 time/mo	NA	99.4 ± 0.2	90.9 ± 0.7
Drug use†			
Yes	NA	5.2 ± 0.4	22.5 ± 0.9
No	NA	94.8 ± 0.4	77.5 ± 0.9
Suicide attempt‡§			
Yes	NA	2.9 ± 0.3	4.7 ± 0.4
No	NA	97.1 ± 0.3	95.3 ± 0.4

Note: NA = not applicable, SE = standard error.
*Unless otherwise indicated.
†Stressful life events reported in the previous survey cycle 2 years earlier (e.g., ages 10–11 yr for those aged 12–13 yr at baseline).
‡Reported at previous assessment 2 yr earlier (e.g., ages 12–13 yr for those aged 14–15 yr at baseline). These measures were not assessed prior to age 12; thus, no data are available for those aged 12–13 yr at baseline.
§Previous suicide attempts were only assessed in the subset of respondents with baseline information from cycles 4–7 (not 3–7) because of availability of the assessment.

associations ranged in magnitude from 1.83 to 6.46, and sensitivity analyses slightly attenuated the results (Appendix 1, available at www.cmaj.ca /lookup/suppl/doi:10.1503/cmaj.121377/-/DC1).

Personally knowing someone who died of suicide was associated with suicidality in our cross-sectional analysis (Table 3). Among respondents aged 12–13 years, 13.7% of those exposed in the past year reported ideation compared with 4.6% of those who were not exposed; 5.6% and 2.3% of these respondents reported attempts, respectively. This pattern was consistent among respondents aged 14–15 years for ideation (18.4% v. 7.6%) and attempts (12.5% v. 3.6%), and among respondents aged 16–17 years for ideation (14.0% v. 8.1%) and attempts (8.4%

v. 3.2%). Respondents who reported exposure that occurred over a year ago also had higher risks than those who were not exposed. The fully adjusted ORs ranged from 1.75 to 4.02, and the sensitivity analyses produced slightly attenuated results (Appendix 2, available at www.cmaj.ca /lookup/suppl/doi:10.1503/cmaj.121377/-/DC1).

Prospective analysis

Associations between exposure to suicide and suicidality outcomes 2 years later are presented in Table 4. Among participants aged 12–13 years, a schoolmate's suicide was associated with suicide attempts 2 years later (OR 3.07, 95% CI 1.05– 8.96). Among those aged 14–15 years, exposure to a schoolmate's suicide was associated with

Table 2: Cross-sectional association between suicide of a schoolmate and suicidality outcomes in youth

Group; outcome; suicide exposure	OR (95% CI)		
	Unadjusted	Partially adjusted*	Fully adjusted*
Ages 12–13 yr			
Ideation			
Exposure in past yr	5.06 (3.04–8.40)	5.09 (3.03–8.57)	6.46 (3.56–11.72)
Exposure > 1 yr ago	4.57 (2.87–7.29)	4.58 (2.87–7.32)	4.08 (2.43–6.86)
No exposure	Ref	Ref	Ref
Attempt			
Exposure in past yr	4.57 (2.39–8.71)	4.68 (2.37–9.24)	5.93 (2.67–13.20)
Exposure > 1 yr ago	5.80 (3.07–10.97)	5.65 (2.98–10.70)	5.05 (2.50–10.19)
No exposure	Ref	Ref	Ref
Ages 14–15 yr			
Ideation			
Exposure in past yr	2.93 (2.02–4.24)	2.78 (1.91–4.04)	2.85 (1.85–4.41)
Exposure > 1 yr ago	2.89 (2.01–4.15)	2.66 (1.84–3.84)	2.35 (1.55–3.54)
No exposure	Ref	Ref	Ref
Attempt			
Exposure in past yr	3.99 (2.46–6.45)	3.62 (2.21–5.94)	3.41 (1.93–6.04)
Exposure > 1 yr ago	3.88 (2.40–6.27)	3.38 (2.07–5.52)	2.98 (1.70–5.22)
No exposure	Ref	Ref	Ref
Ages 16–17 yr			
Ideation			
Exposure in past yr	2.23 (1.43–3.48)	2.21 (1.40–3.47)	1.83 (1.04–3.21)
Exposure > 1 yr ago	1.86 (1.18–2.93)	1.79 (1.13–2.84)	1.97 (1.14–3.41)
No exposure	Ref	Ref	Ref
Attempt			
Exposure in past yr	3.22 (1.62–6.41)	3.13 (1.53–6.43)	3.26 (1.35–7.89)
Exposure > 1 yr ago	2.33 (1.17–4.61)	2.18 (1.08–4.40)	2.04 (0.84–4.96)
No exposure	Ref	Ref	Ref

Note: CI = confidence interval, OR = odds ratio, ref = reference.
*Partially adjusted models account for sex and socioeconomic status. For ages 14–15 yr and 16–17 yr, the fully adjusted models account for sex, socioeconomic status, previous depression or anxiety, previous monthly drinking episodes and previous drug use (as reported in the previous survey cycle). For ages 12–13 yr, the fully adjusted models account for sex, socioeconomic status and previous depression or anxiety.

both ideation (OR 1.65, 95% CI 1.06–2.55) and attempts (OR 2.72, 95% CI 1.47–5.04); personally knowing someone who died by suicide was also associated with attempts (OR 2.13, 95% CI 1.10–4.13). In the fully adjusted models, schoolmate's suicide remained predictive of suicidality among those aged 14–15 years, although the ORs were attenuated in the sensitivity analyses (Appendix 3, available at www.cmaj.ca/lookup/suppl/doi:10.1503/cmaj.121377/-/DC1).

Proximity to a schoolmate's suicide
Among those who reported a schoolmate's suicide, personally knowing the decedent was not significantly associated with suicidality out-

comes in 8 of the 10 models assessed (i.e., across the 3 age groups and 2 suicidality outcomes, cross-sectionally and prospectively; all $p > 0.05$). Results for 1 model were suppressed because of data confidentiality restrictions; the only significant association was among participants aged 16–17 years. Those who reported a schoolmate's suicide and personally knowing someone who died of suicide had marginally greater risk of baseline suicide attempts than those who reported a schoolmate's suicide alone ($p = 0.046$).

Potential effect modification
The effects of suicide exposure on suicidality outcomes were not modified by previous social

Table 3: Cross-sectional association between suicide by someone personally known by the respondent and suicidality outcomes in youth

Group; outcome; suicide exposure	OR (95% CI)		
	Unadjusted	Partially adjusted*	Fully adjusted*
Ages 12–13 yr			
Ideation			
Exposure in past yr	3.28 (1.98–5.43)	3.35 (2.00–5.62)	4.02 (2.22–7.27)
Exposure > 1 yr ago	1.87 (1.26–2.76)	1.91 (1.29–2.83)	1.75 (1.10–2.79)
No exposure	Ref	Ref	Ref
Attempt			
Exposure in past yr	2.57 (1.31–5.04)	2.53 (1.26–5.07)	3.20 (1.48–6.90)
Exposure > 1 yr ago	2.77 (1.66–4.62)	2.80 (1.68–4.68)	2.74 (1.48–5.08)
No exposure	Ref	Ref	Ref
Ages 14–15 yr			
Ideation			
Exposure in past yr	2.74 (1.86–4.04)	2.56 (1.73–3.77)	2.84 (1.79–4.49)
Exposure > 1 yr ago	2.42 (1.77–3.30)	2.21 (1.61–3.03)	2.28 (1.57–3.31)
No exposure	Ref	Ref	Ref
Attempt			
Exposure in past yr	3.82 (2.43–6.01)	3.47 (2.19–5.50)	3.59 (2.06–6.26)
Exposure > 1 yr ago	2.51 (1.69–3.73)	2.23 (1.48–3.37)	2.07 (1.27–3.39)
No exposure	Ref	Ref	Ref
Ages 16–17 yr			
Ideation			
Exposure in past yr	1.86 (1.20–2.88)	1.86 (1.20–2.90)	1.85 (1.12–3.05)
Exposure > 1 yr ago	2.11 (1.51–2.96)	1.92 (1.36–2.70)	1.80 (1.18–2.76)
No exposure	Ref	Ref	Ref
Attempt			
Exposure in past yr	2.80 (1.57–4.97)	2.83 (1.57–5.11)	3.14 (1.53–6.44)
Exposure > 1 yr ago	2.68 (1.69–4.24)	2.30 (1.41–3.74)	2.25 (1.19–4.25)
No exposure	Ref	Ref	Ref

Note: CI = confidence interval, OR = odds ratio, ref = reference.
*Partially adjusted models account for sex and socioeconomic status. For ages 14–15 yr and 16–17 yr, the fully adjusted models account for sex, socioeconomic status, previous depression or anxiety, previous monthly drinking episodes and previous drug use (as reported in the previous survey cycle). For ages 12–13 yr, the fully adjusted models account for sex, socioeconomic status and previous depression or anxiety.

support, depression or anxiety, ideation, or attempts (all $p > 0.05$). There was a significant interaction between a previous stressful life event and schoolmate's suicide in predicting ideation ($p = 0.02$) and attempts 2 years later ($p = 0.03$); exposure was predictive of outcomes for those with previous stressful life events, but there was no association among participants with no previous stressful life event. A similar, but not significant, trend was seen for previous stressful life events modifying the association between personally knowing someone who died by suicide and ideation ($p = 0.08$) and attempts ($p = 0.1$).

Interpretation

We found that exposure to suicide predicts suicidality. This was true for all age groups, although exposure to suicide increased the risk most dramatically in the youngest age group, when baseline suicidality was relatively low. Both types of suicide exposures assessed (schoolmate's suicide and personally knowing someone who died by suicide) predicted suicidality, although the death of a schoolmate by suicide generally had a stronger effect. Exposure was consistently associated with attempts (the more serious of the outcomes considered), and to a lesser degree ideation; some of these associations were still significant 2 years later.

Exposure to suicide was not uncommon: in the oldest age group (16–17 yr), 9% of respondents reported that a schoolmate had died by suicide in the past year; an additional 15% reported that a schoolmate had died by suicide more than a year earlier. These prevalences are supported by national death statistics: assuming an average school size of 1000 students, an expected 9% of older adolescents would be exposed each year, and more than 25% of these adolescents would have been exposed at some point in their youth.[33] Given that such exposure is not rare, and appears to be strongly related to suicidality outcomes, further understanding of this association has the potential to help in the prevention of a substantial proportion of adolescent suicidal behaviours.

Current postvention strategies target the "ensuing months" following a suicide,[19] despite limited longitudinal studies empirically validating this risk window. One such study suggested that exposure to suicide had no long-term impact on suicide attempts 3 years later; however, this study compared friends of the decedent to community controls and may have been underpowered.[34] Our prospective analyses suggest that suicide exposure still has some measurable effects 2 or more years later.

Broadly, suicide death of a schoolmate was a stronger predictor of suicidality outcomes than

Table 4: Prospective association between exposure to suicide and suicidality outcomes 2 years later

Group; outcome; suicide exposure	OR (95% CI)		
	Unadjusted	Partially adjusted*	Fully adjusted*
Exposed to suicide of a schoolmate			
Ages 12–13 yr			
Ideation	1.61 (0.71–3.67)	1.77 (0.78–4.04)	0.93 (0.32–2.72)
Attempt	3.07 (1.05–8.96)	3.52 (1.20–10.33)	1.46 (0.28–7.56)
Ages 14–15 yr			
Ideation	1.65 (1.06–2.55)	1.65 (1.06–2.55)	1.82 (1.13–2.94)
Attempt	2.72 (1.47–5.04)	2.62 (1.41–4.86)	2.68 (1.34–5.34)
Exposed to suicide of someone personally known by the respondent			
Ages 12–13 yr			
Ideation	1.30 (0.65–2.60)	1.39 (0.69–2.78)	1.41 (0.67–2.97)
Attempt	1.55 (0.63–3.81)	1.67 (0.66–4.18)	1.85 (0.64–5.35)
Ages 14–15 yr			
Ideation	1.56 (0.97–2.49)	1.50 (0.95–2.38)	1.46 (0.86–2.48)
Attempt	2.13 (1.10–4.13)	1.98 (1.03–3.81)	1.83 (0.82–4.09)

Note: CI = confidence interval, OR = odds ratio.
*Partially adjusted models account for sex and socioeconomic status. For ages 14–15 yr and 16–17 yr, the fully adjusted models account for sex, socioeconomic status, previous depression or anxiety, previous monthly drinking episodes and previous drug use (as reported in the previous survey cycle). For ages 12–13 yr, fully adjusted models account for sex, socioeconomic status and previous depression or anxiety.

suicide by someone personally known, perhaps because the death of a peer resonates with youth more than the death of a close adult. This finding is particularly relevant for addressing homophily (i.e., confounding due to relationships based on shared risk factors). Unmeasured or residual confounding is likely present when exposure involved knowing the decedent, because friendships may be formed around shared suicidality risk factors, and shared genetic risk factors for suicide may explain increased risk of suicidality when the decedent and respondent were biologically related.[35,36] However, such confounders are unlikely to influence correlations between a schoolmate's suicide and suicidality, because the exposure assessment could be interpreted as attendance at the same school as the decedent and not necessarily as friendship or other forms of proximity with overlapping risk factors.

Among those who reported a schoolmate's suicide, personally knowing the decedent did not predict suicidality outcomes. Thus, perhaps any exposure to a peer's suicide is relevant, regardless of the proximity to the decedent. Although some research has suggested that close friends are more strongly affected by a suicide death,[37] our results align with Brent and colleagues' findings: the closest friends of a suicide victim do not have an increased risk of suicidality compared with acquaintances.[38] Thus, it may be best for postvention strategies to include all students rather than target close friends. Our results similarly dissuade targeting "high-risk" groups; of exception, youth who have experienced a stressful life event may be more affected by suicide exposure, a result supported by a previous study assessing the risk of posttraumatic stress disorder in witnesses of suicide.[39]

Strengths and limitations

Our study has several strengths. First, we used a large, nationally representative prospective cohort to examine the association between exposure to suicide and suicidality outcomes. Second, we included 2 important types of suicide exposure (schoolmate's suicide and personally knowing someone who died by suicide) along with several relevant covariates.

Nonetheless, the limitations warrant consideration. Unmeasured confounding is a concern; however, given the strong associations observed between exposure and outcome among participants aged 12–13 years, among whom most risk factors would be rare, such confounding is unlikely to alter the conclusions. The exposure variables were assessed via 2 self-reported questions, and we cannot more specifically determine the relationship between the respondent and the deceased. The

degree of proximity may warrant further research, in particular because among those who reported a schoolmate's suicide, personally knowing the decedent was not predictive of suicidality outcomes; moreover, potential confounding variables may differ depending on the type of relationship. No information was provided on postvention programs or media exposure following a suicide death in the school or community. Thus, we cannot assess whether these may have mediated any of the effects, and we can only surmise that there is an average overall association irrespective of how a suicide event was handled in these schools or communities.

Conclusion

Suicidality is of utmost public health concern, both as a predictor of suicide and because of its own burden on individuals[4–7] and society.[5–7] Thus, it is critical to identify risk factors and implement evidence-based prevention and intervention suicide policies. We found that exposure to suicide may be a strong predictor of suicidality. Our findings support school- or community-wide interventions over strategies targeting those who personally knew the decedent, suggests that allocating resources following an event may be especially important during earlier adolescence, and implies that schools and communities should be aware of an increased risk for at least 2 years following a suicide event.

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