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Associations Between Peer Victimization and Suicidal Ideation and Suicide Attempt During Adolescence: Results From a Prospective Population-Based Birth Cohort

RH = Peer Victimization and Suicidality

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Clinical guidance is available at the end of this article.

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ABSTRACT

Objective: To test whether adolescents who are victimized by peers are at heightened risk for suicidal ideation and suicide attempt, using both cross-sectional and prospective investigations.

Method: Participants are from the Quebec Longitudinal Study of Child Development, a general population sample of children born in Quebec in 1997/98 and followed up until 15 years of age. Information about victimization and serious suicidal ideation and suicide attempt in the past year was obtained at ages 13 and 15 years from self-reports ($N=1,168$).

Results: Victims reported concurrently higher rates of suicidal ideation at age 13 (11.6 to 14.7%) and suicide attempt at age 15 (5.4 to 6.8%) compared to those who had not been victimized (2.7 to 4.1% for suicidal ideation and 1.6 to 1.9% for suicide attempt). Being victimized by peers at 13 years predicted suicidal ideation (odds ratio [OR]=2.27; 95% CI, 1.25 to 4.12) and suicide attempt (OR=3.05, 1.36 to 6.82) 2 years later, even after adjusting for baseline suicidality and mental health problems and a series of confounders (socioeconomic status, intelligence, family's functioning and structure, hostile-reactive parenting, maternal lifetime suicidal ideation/suicide attempt). Those who were victimized at both 13 and 15 years had the highest risk of suicidal ideation (OR=5.41, 2.53 to 11.53) and suicide attempt (OR=5.85, 2.12 to 16.18) at 15 years.

Conclusion: Victimization is associated with an increased risk of suicidal ideation and suicide attempt over and above concurrent suicidality and prior mental health problems. The longer the history of victimization, the greater the risk is.

Key words: suicidal ideation; suicide attempt; adolescence; peer victimization; bullying

INTRODUCTION

Suicide is among the top causes of mortality worldwide, especially in adolescents and young adults.¹⁻³ According to recent US epidemiological data, 12.1% of adolescents (13 to 18 years) “seriously thought about killing themselves” and 4.1% “tried to kill themselves” in their lifetimes.⁴ In Canada in 2008/09, 7.4% of adolescents aged 14-15 years “seriously considered attempting suicide” and 3.3% “attempted suicide” in the past year.⁵ Adolescents who have attempted suicide are at high risk of mortality and of psychological and social adjustment problems in adulthood,⁶⁻⁸ indicating that efforts need to be directed toward preventing onset of suicide behaviors in adolescence.

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4 Over the last few years, considerable attention has been given to the possible link between peer
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6 victimization and suicidal ideation and/or suicide attempt. Victimization by peers is highly prevalent in adolescence,
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8 with rates ranging from 11% to 40% across 25 countries,⁹ and it has been associated with concurrent suicidal
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10 ideation and suicide attempt.¹⁰⁻¹² But surprisingly few prospective studies have tested whether peer victimization
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12 increases the risk that adolescents will later develop suicidal ideation or attempt suicide.¹³⁻¹⁷ In fact, most
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14 prospective studies have generally focused on self-harm,¹⁷⁻¹⁹ but adolescents who self-harm do not necessarily want
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16 to take their own lives. Previous prospective studies pertaining to suicidal ideation are inconsistent: a few studies
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18 indicate that peer victimization predicts suicidal ideation,^{13, 15-17} but at least one study did not find such an
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20 association.¹⁴ For example, in a large sample of Norwegian adolescents, peer victimization at 14 years was not
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22 predictive of suicidal ideation 1 year later after baseline suicidality was controlled for.¹⁴ Meanwhile, in the Avon
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24 Longitudinal Study of Parents and Children (ALSPAC) cohort, peer victimization assessed between 4 and 10 years
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26 across different informants was prospectively associated with suicidal ideation in preadolescents after adjusting for
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28 confounders.¹⁷ Importantly, few cross-sectional¹⁰ and only one prospective survey in early adulthood²⁰ have looked
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30 at the association between peer victimization and suicide attempt.
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33 Understanding the predictive role of peer victimization in suicidal ideation and attempt in a general
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35 population of adolescents could provide important information about suicide risk factors and suicide prevention
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37 strategies. The purpose of the present study was to investigate among a representative cohort of individuals born in
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39 1997/98 in the Canadian province of Quebec whether adolescents who are victimized by peers are at heightened risk
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41 for later suicidal ideation and suicide attempt. We expected peer victimization to co-occur with and to predict
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43 suicidal ideation and suicide attempt. As victims may exhibit pre-existing risk for suicide and mental health
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45 problems, we tested whether victimization increased the risk for suicidal ideation and suicide attempt above and
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47 beyond baseline suicidality, mental health problems, and other potential sources of influence.
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49 **METHOD**

50 **Sample**

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52 The Quebec Longitudinal Study of Child Development (QLSCD) is a representative cohort of 2,120 youths
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54 born in the Canadian Province of Quebec in 1997/98. Data was collected annually or biannually from 1998 through
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56 2013.
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4 In the present study, we included 1,168 participants for whom measures of peer victimization and
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6 suicidality were collected at both 13 and 15 years of age, for 55% of the original cohort. To adjust for attrition, we
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8 conducted analyses with and without inverse probability weights, representing participants' probabilities of being
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10 included in the study sample ($N=1,168$) conditional on variables related to attrition: (1) males (46% vs 57%,
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12 $X^2=25.68, p<.001$) and participants with (2) non-Caucasian ethnicity (4.8% vs 13.8%, $X^2=52.36, p<.001$), (3) high
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14 maternal depressive symptoms (1.48 vs 1.34, $T(1968.69)=2.43, p=.015$) and (4) low socioeconomic status (.11 vs -
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16 .15, $T(2093)=-5.98, p<.001$) were under-represented in the study sample. The results with and without weights did
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18 not differ; the latter are presented here. Additionally, we tested whether restriction of analyses to a sample of
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20 participants with assessments of both victimization and suicidality outcomes at ages 13 and 15 affected our results.
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22 Therefore, we repeated our analyses on a larger sample of participants with assessment of suicidality outcomes at 15
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24 years only (imputed $n=1,446$, representing 69% of the surviving cohort); patterns of results remained unchanged.

25 26 **Ethics consideration**

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28 Ethical approval was given by the Quebec Institute of Statistics and the St-Justine Hospital Research
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30 Centre. Informed written consent was obtained from all participating parents at each assessment and from
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32 adolescents at the 15-year assessment. Adolescents were assured confidentiality, which is essential to ensure
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34 reliability of self-reports.²¹ All adolescents and their parents were provided with a list of resources in case of needing
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36 help. If they rated highly on the suicidal behavior scale, a pop-up appeared on screen to encourage them to seek
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38 help.
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40 41 **Measures**

42 43 **Past year suicidal ideation and suicide attempt**

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45 Suicidal ideation was assessed with one question administered to participants at 13 and 15 years: "in the
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47 past twelve months, did you ever seriously think of attempting suicide"; answering "don't know"/ or refusal was
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49 coded as 0. If they answered affirmatively, they were asked: "in the past twelve months, how many times did you
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51 attempt suicide," dichotomized as 0 versus ≥ 1 .

52 53 **Peer victimization**

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55 Peer victimization was assessed at 13 and 15 years using seven items (four of which are based on the Self-
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57 report Victimization Scale²²). They were selected on the basis of their reflecting various physical, verbal, direct, and
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59 indirect instances of victimization, including the new forms of cyber victimization, through answering questions
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4 such as: how many times it happened (since the beginning of this school year) that another student in school had: (1)
5 called you names/said mean things; (2) didn't let you play in his/her group; (3) pushed/hit/kicked you; (4) said bad
6 things behind your back; (5) teased you in a mean way; (6) made you pay/give something so they would leave you
7 alone; (7) insulted/threatened/intimidated you on the Internet and cell phone. Items were administered in the second
8 half of the school year (February to June) and were rated on a 4-point scale (never=0; rarely=1; often=2; very often
9 =3; don't know/refusal coded 0). This peer victimization scale is analogous to that used successfully in previous
10 work²³ and has shown good internal consistency (Cronbach alphas were .81 at age 13 and .82 at age 15). Because
11 of the skewed distribution, victimization was treated categorically. Participants were identified as being victimized
12 by peers if they answered "often" or "very often" to at least one of the 7 questions in accordance of the conventional
13 definition.

24 **Prior Mental Health Problems**

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26 Oppositional/defiance and inattention/hyperactivity symptoms were rated by school teachers when
27 participants were 6, 7, 8, 10, and 12 years of age. Questions were derived from the Canadian National Longitudinal
28 Study of Children and Youth,²⁴ which incorporates items from the Child Behavior Checklist,²⁵ the Ontario Child
29 Health Study Scales,²⁶ and the Preschool Behavior Questionnaire.²⁷ Oppositional/defiance was assessed with four
30 items (e.g., defiant/refused to comply; punishment didn't change behavior), and inattention/hyperactivity was
31 assessed with nine items (e.g., could not sit still; was unable to concentrate) rated on a 3-point scale (0=never or not
32 true; 1=sometimes or somewhat true; 2=often or very true). Cronbach α ranged from .81 to .84 for
33 opposition/defiance and from .89 to .91 for hyperactivity/inattention. Scores were averaged across ages. Scales
34 demonstrated adequate sensitivity and external validity in this cohort.²⁸ Depression was self-reported at 12 years
35 using 10 items from the Children Depression Inventory (CDI),^{29, 30} assessing symptoms of the past 2 weeks on a 3-
36 point scale. The CDI has shown good reliability and discriminative validity consistent with clinical assessment of
37 depression;³¹ Cronbach α was .81. For analysis purposes, we generated three variables tapping into mental health
38 problems, where a score of ≥ 90 th percentile of symptoms was identified as an elevated symptom level.

53 **Other Confounding Influences**

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55 Potential confounders at different ages were identified a priori from the literature.³ Covariates were
56 measured at 13 and 15 years unless otherwise indicated. At 2½ years, mothers completed the Parental Depression
57 Questionnaire.³² Mothers who reported they had been depressed for most of the time for two weeks or more in their
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lifetimes were asked whether they ever thought of or attempted suicide. At 10 years, participants' verbal intelligence was estimated using the Peabody Picture Vocabulary Test, standardized for age in months at administration.^{33, 34}

Other environmental factors included family socioeconomic status (SES; aggregate of annual gross income, parental education level, and occupational prestige), based on the scheme of Willms and Shields³⁵; family structure (biological parents/blended/single); family functioning, assessed with 8 items (i.e. communication, problem resolution, and control of disruptive behaviours); and hostile-reactive parenting, assessed with 4 items (i.e. corporal punishment, raising voice). All questionnaires are available online (<http://www.jesuisjeserai.stat.gouv.qc.ca>).

Statistical Analyses

In cross-sectional analyses, we used logistic regressions to test whether suicidal ideation and suicide attempt were associated with frequent victimization.

Using logistic regressions in longitudinal analyses, we tested whether victimization at 13 years was associated with suicidal ideation and suicide attempt 2 years later. The associations were adjusted for suicidality at baseline (suicidal ideation or suicide attempt at age 13 years), for three mental health problems by age 12 years (depression, oppositional/defiance and inattention/hyperactivity problems), and for six additional confounders (i.e., socioeconomic status, intelligence, family's functioning and structure, hostile-reactive parenting, and maternal suicidality history).

The temporality of longitudinal association was further examined in sensitivity analyses of incident cases of suicidal ideation and suicide attempt. Logistic regressions were conducted, in which participants who reported suicidal ideation and suicide attempt at baseline were excluded from the analyses. The results were similar to those presented here, but analyses were based on small number of incident cases. Finally, we examined whether the prospective association between victimization and later suicidality varied as a function of the chronicity of the victimization experience in adolescence (i.e. being victimized at both 13 and 15 years; being victimized at 13 or 15 years versus never being victimized) using logistic regression.

To minimize further data loss, missing information on covariates was imputed using multiple imputations by chained equations³⁶ method, and analyses were run across the 10 imputed data set.

RESULTS

The overall prevalence of suicidal ideation slightly increased from 4.5% at age 13 to 5.9% at age 15. The prevalence of suicidal ideation was higher and increased for females (5.3-8.6%) compared to males (3.7-3.0%)

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4 (Table 1). The prevalence of suicide attempt increased between 13 and 15 years for females (2.7 to 4.5%) and
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6 decreased for males (2.1 to 0.9%) (Table 1). The prevalence of peer victimization was 16.7% for females and
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8 25.8% for males at age 13 and 17.5% for females and 17.2% for males at age 15 years; 8.2% ($n=95$) of the sample
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10 reported being victimized at both ages. Although the prevalence of suicidality and victimization differed by sex, the
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12 associations between victimization and suicidality did not differ by sex. Hence we present results for both sexes
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14 combined, with adjustment for sex (see Table 2's footnote). Associations were examined with and without
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16 adjustment for confounders and prior mental health problems.
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19 Cross-sectional analyses indicate that victimization was associated with suicidal ideation and suicide
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21 attempt at both 13 and 15 years (Table 2). The associations were attenuated but remained significant after adjusting
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23 for confounders and prior mental health problems. Being frequently victimized was concurrently associated with
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25 suicidal ideation at 13 years (Odds ratio [OR]=3.40; 95% CI=1.82-6.37) and 15 years (OR=3.74; 95% CI=2.19-
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27 6.38), as well as with suicide attempt at 13 years (OR=2.28; 95% CI=0.97-5.38) and 15 years (OR=3.16; 95%
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29 CI=1.19-6.69), in a fully adjusted model (i.e. adjusted for mental health and confounders).
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32 Longitudinal models showed that the experience of frequent victimization at 13 years predicted both
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34 subsequent suicidal ideation and suicide attempt 2 years later (Table 3), even after taking into account suicidality at
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36 baseline. Associations were attenuated after adjustment for confounders and prior mental health problems:
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38 victimization at 13 years increased the risk of suicidal ideation at 15 years by 2.27 times (CI=1.25-4.12) and attempt
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40 by 3.05 times (CI=1.36-6.82).
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43 Finally, as shown in Table 4, we found that only youths who experienced chronic victimization had an
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45 increased risk of suicidal ideation at age 15 (OR=5.41; 95% CI=2.53-11.53) and suicide attempt (OR=5.85; 95%
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47 CI=2.12-16.18), in models adjusting for prior suicidality, mental health problems and other confounders.
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49 **DISCUSSION**

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51 During adolescence, the peer group becomes increasingly important. Thus, being victimized by peers (i.e.
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53 being frequently teased/called names or excluded from social groups and activities) can represent a major source of
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55 stress, with potentially damaging consequences.^{37, 38} In this population-based sample, such victimization experiences
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57 were common, with 17 – 21% of 13 –15-year-old adolescents reporting being often or very often victimized by their
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59 peers. Such victimized adolescents concurrently reported a higher likelihood of past 12-month suicidal ideation and
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61 suicide attempt. Furthermore, adolescents who were frequently victimized by their peers at age 13 were more likely
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4 to develop suicidal ideation and make a suicide attempt two years later. More importantly, adolescents who reported
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6 having been frequently victimized both at 13 and 15 years had the highest risk of suicidal ideation and suicide
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8 attempt at 15 years.
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10 This is the first study to show a predictive association between victimization and suicidal ideation and
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12 suicide attempt in mid adolescence while taking into account a variety of factors, including previous suicidality,
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14 mental health problems (by age 12 years) such as depression, opposition/defiance and inattention/hyperactivity
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16 problems, as well as family adversity. According to prior studies, peer victimization often occurs within the context
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18 of other risk factors, such as mental health problems and familial adversity,³⁹ which may contributed to suicidality.³
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20 Thus, our study was able to distinguish the role of peer victimization from these co-occurring factors to more clearly
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22 establish its contributions as a distinct predictor of suicidality. The rates of suicidal ideation and suicide attempt
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24 typically increased in late adolescence,⁴⁰ thus our study suggested that victimization represents a risk factor for the
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26 relatively early emergence of suicidality.
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28 Our findings are in line with those of many other cross-sectional and the few longitudinal studies on
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30 bullying/suicidality association.^{10, 11, 15-17} However, in a prior Norwegian study,¹⁴ the predictive association from
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32 peer victimization in adolescence to suicidal ideation (unconfounded by depressive symptoms) one year later
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34 became non-significant after taking into account suicidal ideation at baseline. Reasons for these discrepant findings
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36 could relate to differences in measurement of suicidal ideation and length of follow-up. Specifically, suicidal
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38 ideation included more passive and indirect thoughts (e.g., Life is not worth living; My family would be better off
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40 without me) than those used in the present study (e.g., ever seriously think of attempting suicide).
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42 Several possible explanations exist for the observed association between peer victimization and suicidality.
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44 First, one etiological pathway may involve mental health, especially depression. In one study on self-harm, being
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46 victimized in childhood was associated directly with an increased risk of self-harm in late adolescence, but also
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48 indirectly via subsequent depression.¹⁸ In the present study, we showed that being victimized by peers in
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50 adolescence could lead to suicidality while accounting for prior levels of depression. However, we could not test the
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52 possibility that depression mediated the association of peer victimization with suicidality. Still, not all victimized
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54 adolescents will exhibit higher rates of suicidal ideation and suicide attempt. Hence, it has been suggested that peer
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56 victimization may trigger mental health problems or suicidality in interaction with genetic vulnerability to
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58 psychopathology. For instance, a recent study found that peer victimization increased the risk of depression in girls
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4 who carried two copies of the short allele at the promoter region of the serotonin transporter gene, but not in those
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6 without two copies.⁴¹ Second, the experience of peer victimization may lead to biological alteration with lasting
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8 effects on psychopathology and suicidality: (1) victimized children have shown dysregulation of the hypothalamic-
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10 pituitary-adrenal axis,⁴² and such dysregulations have been involved in the development of psychopathology⁴³ and
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12 suicidality⁴⁴; (2) victimized children were also shown to have elevated C reactive protein at mid-life, a marker for
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14 neuro-inflammation in their bloodstream,⁴⁵ and inflammation markers have been associated with increased risk of
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16 developing depression.⁴⁶
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19 This representative birth cohort provided a unique opportunity to examine the temporal relation between
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21 victimization by peers and the relatively early onset of suicidal ideation and suicide attempt in a contemporary
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23 sample of Canadian adolescents. Indeed, the study's main strengths are its prospective design, with suicidality
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25 measured at two time points during adolescence to identify incident cases, self-reported and teacher-reported
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27 assessments of prior mental health problems, and inclusion of various familial adversity factors and intelligence.
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29 Another strength includes repeated assessments of peer victimization based on 7 items covering a variety of
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31 behaviors from verbal (such as teasing/calling names) to cyberbullying. Moreover, unlike previous studies, we
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33 focused on serious suicidal ideation and suicide attempt, which are of clinical significance.⁴³ Nevertheless, the
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35 present findings should be interpreted in light of their limitations. There were some missing data, with 56% of the
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37 original sample with assessment of bullying and suicidality at both 13 and 15 years. To avoid further loss of data,
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39 missing data were imputed using multiple imputation following current guidelines.⁴⁷ Sensitivity analysis using the
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41 larger sample of those with information at 15 years (n=1,446, representing 69% of the original sample) and using
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43 sample weights to adjust for attrition suggests that results reported here are robust. Second, as in most studies of
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45 victimization and suicide, the present study relied on self-reports. A potential limitation of self-reported
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47 victimization is that it reflects a perception potentially biased by the self-system and mental health status.^{23, 48} The
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49 use of self-report for both victimization and suicide may also have induced shared method variance and inflated
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51 effect sizes. However, in this population-based survey, no clinical interviews have been conducted, and adolescents
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53 were the only informants, as after childhood, parents are generally less aware of their offspring's personal
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55 experiences, especially suicidal ideation^{24, 49} and peer victimization.⁵⁰ Furthermore, we were not able to examine the
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57 separate influence of cyberbullying on suicidality due to the small numbers of cyberbullied adolescents. A recent
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59 meta-analysis suggested that cyberbullying is more strongly related to suicidal ideation than traditional bullying.¹¹
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4 There was no death due to suicide in our study. Thus, the relation of peer victimization and suicidal ideation and
5 non-fatal suicide attempt may differ for completed suicide. One observational study based on coroner records
6 reported that only 6% of suicides in youths could be attributed to peer victimization,⁵¹ whereas two prospective
7 studies reported increased rates of suicide mortality in adulthood among those who had been victimized by peers in
8 early childhood.^{20, 52} In addition, unmeasured confounders might explain associations such as perpetration of
9 bullying,⁵³ but in this study, victimizing others was not associated with subsequent suicidality. Another limitation is
10 low statistical power, particularly for investigating sex differences in associations, due to the small number of males
11 reporting suicidal ideation and/or suicide attempt. Also, it is important to underline that the present findings
12 document the directionality of associations, but they do not prove causality. Finally, as the follow-up was only two
13 years, we do not know whether the consequences of victimization on suicidality persist as participants enter
14 adulthood.

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27 The association between being victimized by peers and suicidal ideation and suicide attempt in
28 adolescence, distinct from prior suicidality, mental health problems, and family adversity, has implications for
29 practice. Universal prevention of peer victimization is paramount to reduce the rate of suicidal ideation and suicide
30 attempt in adolescence. A recent systematic review of 44 anti-bullying programs found, on average, that school-
31 based programs are effective in reducing victimization by 17-20%.⁵⁴ Future studies are urgently needed to test
32 whether reducing the occurrence of bullying translates into a reduction of suicidal ideation and suicide attempt.
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CLINICAL GUIDANCE:

-Being victimized is a common experience for many adolescents.

-The odds of developing suicidal ideation and attempting suicide at 15 years among youth who were chronically victimized, i.e. lasting at least 2 school years, are 5 to 6 times the odds of those who were never victimized, independently from previous suicidality and mental health problems.

-Evidenced-based prevention interventions in clinical settings need to be addressed, but effective management may require a multidisciplinary effort involving parents, school, and mental health professionals.

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Table 1: Prevalence of Suicidal Ideation and Suicide Attempt in the Last 12 Months and Peer Victimization at 13 and 15 Years^a

Variables; age in years	Total		Females		Males	
	13	15	13	15	13	15
Suicidal ideation, % (<i>n</i>)	4.5 (56)	5.9 (86)	5.3 (35)	8.6 (65)	3.7 (21)	3.0 (21)
Suicide attempt, % (<i>n</i>)	2.4 (30)	2.8 (40)	2.7 (18)	4.5 (34)	2.1 (12)	0.9 (6)
Peer victimization, % (<i>n</i>)	21.0 (258)	17.4 (251)	16.7(111)	17.5(132)	25.8 (147)	17.2 (119)

Note: *n*=1,234 at 13 years and *n*=1,446 at 15 years.

^a Based on maximum available sample.

Table 2: Cross-Sectional Associations of Peer Victimization by Suicidality Outcomes ($n=1,168$).

	Peer victimization ^a		Suicidality outcomes		
	Yes % (<i>n</i>)	No % (<i>n</i>)	Model 1 OR (95% CI)	Model 2 OR (95% CI)	Model 3 OR (95% CI)
Suicide ideation					
13 years	11.6 (30)	2.7 (26)	5.12 (2.89-9.09)	4.40 (2.44-7.93)	3.40 (1.82-6.37)
15 years	14.7 (37)	4.1 (49)	4.28 (2.58-7.08)	4.12 (2.44-6.94)	3.74 (2.19-6.38)
Suicide attempt					
13 years	5.4 (14)	1.6 (16)	4.02 (1.88-8.63)	3.16 (1.45-6.91)	2.28 (0.97-5.38)
15 years	6.8 (17)	1.9 (23)	3.84 (1.91-7.69)	3.59 (1.74-7.38)	3.16 (1.49-6.69)

Note: Model 1= adjusted for sex; Model 2= additionally adjusted for socioeconomic status (13 or 15 years); family structure (biological/blended/single; 13 or 15 years) and functioning (13 or 15 years); hostile-reactive parenting (13 or 15 years); intelligence (10y); maternal lifetime suicidal ideation/suicide attempt; Model 3= additionally adjusted for depression (12y); opposition/defiance (6-12y); inattention/hyperactivity (6-12y) problems; p for sex interaction= .337 and .532 for suicidal ideation at 13 and 15 years, respectively; .990 and .459 for suicide attempt at 13 and 15 years, respectively. OR = odds ratio

^a Based on maximum available sample; $n=1,234$ at 13 years and $n=1,446$ at 15 years.

Table 3: Longitudinal Associations of Peer Victimization at 13 Years Predicting Suicidality Outcomes 2 Years Later ($n=1,168$).

	OR (95% CI)		
	Model 1	Model 2	Model 3
Peer victimization at 13 years			
Suicidal ideation at 15 ^a	2.60 (1.50-4.51)	2.53 (1.43-4.47)	2.27 (1.25-4.12)
Suicide attempt at 15 ^b	3.64 (1.78-7.43)	3.58 (1.69-7.56)	3.05 (1.36-6.82)

Note: Model 1= adjusted for sex; Model 2 = additionally adjusted for socioeconomic status (13 years); family structure (biological/blended/single; 13 years) and functioning (13 years); parental hostile-reactive parenting (13 years); intelligence (10y); maternal lifetime suicidal ideation/suicide attempt; Model 3= additionally adjusted for depression (12y); opposition/defiance (6-12y); inattention/hyperactivity (6-12y); OR= odds ratio.

^a Adjusted for suicidal ideation at 13y.

^b Adjusted for suicide attempt at 13y.

Table 4: Longitudinal Associations of Duration of Victimization and Suicidality Outcomes at 15 Years ($n=1,168$)

	OR (95% CI)		
	Model 1	Model 2	Model 3
Duration of peer victimization (versus not victimized at 13 and 15 years)			
Was victimized at 13 or 15 years			
Suicidal ideation at 15 years ^a	2.06 (1.12-3.79)	1.94 (1.03-3.63)	1.88 (1.00-3.55)
Suicide attempt at 15 years ^b	1.77 (0.75-4.21)	1.76 (0.73-4.25)	1.70 (0.69-4.18)
Was victimized at 13 and 15 years			
Suicidal ideation at 15 years ^a	5.90 (2.93-11.87)	5.92 (2.88-12.14)	5.41 (2.53-11.53)
Suicide attempt at 15 years ^b	7.56 (3.18-17.98)	7.52 (2.99-18.92)	5.85 (2.12-16.18)

Note: Model 1 = adjusted for sex; Model 2 = additionally adjusted for socioeconomic status (13 years); family structure (biological/blended/single; 13 years) and functioning (13 years); hostile-reactive parenting (13 years); intelligence (10y); maternal lifetime suicidal ideation/suicide attempt; Model 3 = additionally adjusted for depression (12y); opposition/defiance (6-12y); inattention/hyperactivity (6-12y) problems. OR = odds ratio.

^a Adjusted for suicidal ideation at 13y.

^b Adjusted for suicide attempt at 13y.

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Associations Between Peer Victimization and Suicidal Ideation and Suicide Attempt During Adolescence: Results From a Prospective Population-based Birth Cohort

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