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RESEARCH ARTICLE

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Suicidal thoughts and behaviors in preadolescents: Findings and replication in two population-based samples

Rachel F. L. Walsh[1] | Ana E. Sheehan[2] | Richard T. Liu[3,4]

[1]Department of Psychology, Temple University, Philadelphia, Pennsylvania

[2]Department of Psychological and Brain Sciences, University of Delaware, Newark, Delaware

[3]Massachusetts General Hospital, Boston, Massachusetts

[4]Department of Psychiatry, Harvard Medical School, Boston, Massachusetts

Correspondence
Rachel Walsh, Department of Psychology, Temple University, Weiss Hall, 1701 N 13th St, Philadelphia, PA 19122.
Email: rachel_walsh@temple.edu

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Abstract

Introduction: Given increasing concern in suicide in preadolescent children, this study aimed to characterize and identify potential indicators of risk for suicidal ideation (SI) and suicide attempts (SAs) in this population.

Methods: Data were drawn from two population-based samples of preadolescents: the 2007 and 2010 Minnesota Student Survey and analyses were restricted to 11- and 12-year-olds. Sociodemographic characteristics, childhood maltreatment, parental relations, peer relations, and school climate were examined in relation to past-year SI and SA. To examine correlates of SI, unconfounded by risk for SA, individuals with a history of SA were excluded from SI analyses. Correlates of SA were examined among individuals with past-year SI. Logistic regression analyses were conducted with past-year SI and SA as criterion variables.

Results: Results from the 2007 and 2010 data sets were highly consistent. The prevalence of past-year SI was 9.28% and 9.25% in 2007 and 2010, respectively. Of the total sample, 1.90% and 1.87% reported a past-year SA (17.00% and 16.78% of those with past-year SI). Overall, effect sizes were generally modest to medium. The strongest effects were observed for sexual and physical abuse, parental support, and perceived safety at school (*ps* < .001). In multivariate analyses of SI and SA, sexual and physical abuse had the largest effect sizes (OR_{SI} = 2.18 [95% CI = 1.90–2.51] to 2.96 [95% CI = 2.69–3.26]; OR_{SA} = 1.55 [95% CI = 1.29–1.86] to 2.26 [95% CI = 1.82–2.80]).

Conclusions: SI and SA occur at a concerning rate among preadolescent children. Screening for childhood sexual and physical abuse may be important for identifying those at risk for these clinical outcomes.

KEYWORDS

early childhood, suicidal ideation, suicide

1 | INTRODUCTION

Suicide is a major public health concern. Indeed, rates of suicide in the United States have risen 33% over the past two decades (Centers for Disease Control and Prevention, 2018). Child and adolescent suicide is of particular concern: from 2007 to 2017, suicide rates increased 56% among 10–24-year-olds (Centers for Disease Control and Prevention, 2019). In fact, suicide is the second leading cause of death among this demographic, second only to death by unintentional injury (Centers for Disease Control and Prevention, 2018). Considering these troubling statistics, a great deal of recent research has aimed to understand what may account for the high incidence of youth suicide. However, this study has almost exclusively focused on teenagers, with preadolescents being relatively neglected. This is particularly concerning because although preadolescent suicide occurs at a relatively low base rate, the prevalence in this age group has been increasing (Centers for Disease Control and Prevention, 2019). From 2007 to 2017, rates of suicide among 10–14-year-olds specifically have nearly

tripled (Curtin & Heron, 2019). In response to this concerning development, the National Institute of Mental Health recently identified research on suicide in children as a priority and convened a meeting to guide future work in this area (National Institutes of Mental Health, 2019). It is therefore all the more necessary to characterize and identify potential indicators of risk for suicidal thoughts and behaviors in this age group to shape developmentally appropriate prevention and intervention efforts.

There is currently a paucity of studies on preadolescent suicide. Early research in this area is employed relatively small sample sizes (Pfeffer, Plutchik, & Mizruchi, 1988; Pfeffer, Zuckerman, Plutchik, & Mizruchi, 1984) and heavily relied on clinical samples (Pfeffer et al., 1989, 1998). Nevertheless, significant associations with psychiatric disorders, especially depression (Renaud, Berlim, McGirr, Tousignant, & Turecki, 2008; Shafii, Steltz-Lenarsky, Derrick, Beckner, & Whittinghill, 1988), a family history of psychopathology (Brent, 1995; Sarkar et al., 2010), and negative interpersonal factors such as physical and sexual abuse (Klimes-Dougan et al., 1999; Salzinger, Rosario, Feldman, & Ng-Mak, 2007) have been observed. There is also evidence that preadolescents with conduct problems (e.g., shoplifting history (Shafii, Carrigan, Whittinghill, & Derrick, 1985) and tendencies to engage in externalizing behaviors, e.g., aggression) are at increased risk for suicide (McGirr et al., 2008). Externalizing psychopathology may be particular to risk in preadolescents, with one recent study finding ADHD (attention-deficit/hyperactivity disorder) to be more common among preadolescents who died by suicide than among adolescents (Sheftall et al., 2016). Two recent studies utilized data from the Adolescent Brain Cognitive Development Study to examine risk and protective correlates of child suicidality, with an emphasis on familial influences. Internalizing and externalizing problems, family conflict, and low parental monitoring were all significantly associated with child suicide (DeVille et al., 2020; Janiri et al., 2020).

There are several significant methodological challenges, however, that have hindered overall progress in research in this area. Specifically, studies that do include preadolescents tend to combine them with adolescents (Gibbons, Hur, Bhaumik, & Mann, 2006; Goldstein et al., 2012). Given that suicidal thoughts and behaviors are more prevalent in teenagers than in children, it is likely the findings from studies of merged samples are largely reflective of adolescents and thus can speak little of preadolescents. Seeing as indicators of risk for suicide differ between adolescents and adults, and adolescents are developmentally different from preadolescents, it cannot be assumed that characteristics or processes applicable to older age groups are equally relevant to preadolescents (Goldston et al., 2009; Sheftall et al., 2016). As an example of developmental differences in the strength of associations between such characteristics and suicidal behavior, trait impulsivity has been associated with suicidal behavior in both adolescents and adults, but this association appears stronger in adolescents (Kasen, Cohen, & Chen, 2011; McGirr et al., 2008). Thus, merging preadolescents and adolescents makes it impossible to evaluate risk markers specifically in relation to the former age group.

Another limitation is that much of the prior literature does not clearly differentiate between characteristics associated with suicidal ideation (SI) and with suicidal attempts (SAs). That is, many studies assessed SI and SAs together as a single outcome. Other studies examining risk for SI tend to include individuals with a history of SAs in the samples. Additionally, studies of risk for SAs tend to compare individuals with SAs to all other individuals, which in community samples are predominantly of individuals without attempts or SI. Consequently, it is often unclear whether any observed findings are reflective of SI, suicide, attempts, or both. For example, since individuals who attempt suicide also generally have SI, in the aforementioned community samples, it becomes unclear whether any observed association is a function of SI or SAs. This concern is not inconsequential, because characteristics of risk for SI are not necessarily the same as those for SAs (Joiner, 2005; Klonsky, May, & Saffer, 2016; May & Klonsky, 2016; Van Orden et al., 2010). To address this limitation, there is a need for studies of "pure" SI, unconfounded by SAs (i.e., SI in individuals with no history of SAs) and studies that assess risk for SAs among the subset of ideators, thereby identifying markers of risk specific to SAs (Klonsky et al., 2016; Liu, Case, & Spirito, 2014; May & Klonsky, 2016). This would allow for greater understanding of factors that give rise to "pure" SI, as well as factors that may contribute to the transition from SI to suicidal behaviors. This latter consideration is important because although SI is a strong predictor of SAs, the vast majority of ideators never make an attempt (Klonsky & May, 2014; Ten Have et al., 2009).

Potentially in part accounting for this limitation, the low base rates of SI and behavior pose a significant challenge to meaningful progress. Although suicide is a leading cause of death, it is still relatively uncommon. Thus, large samples are often needed for sufficiently powered analyses.

The current study aims to address these limitations by assessing indicators of risk for "pure" SI and SAs using two population-based samples of preadolescents: the 2007 and 2010 Minnesota Student Survey (MSS). The large sample size of the MSS makes the current study uniquely positioned to address the aforementioned limitations. Furthermore, to evaluate the robustness of any observed associations, the planned analyses will be repeated in these independent samples. Based on prior research on associations with suicide in other populations, this study will specifically examine sociodemographic characteristics (Nock et al., 2008), childhood maltreatment (Klimes-Dougan et al., 1999; Maniglio, 2011; Norman et al., 2012), parental relations (Brent et al., 1994; DeVille et al., 2020), peer relations, (Pfeffer et al., 1993), and school climate (Young, Sweeting, & Ellaway, 2011) in relation to SI and behavior among preadolescents. This will facilitate the comparison of indicators of risk in different domains.

2 | METHODS

2.1 | Study samples and procedures

The MSS is a population-based surveillance system administered every 3 years to public school students by the Minnesota Departments of Education, Health, Human Services, and Public Safety.

Students were asked to answer questions anonymously regarding various health risk behaviors such as substance use and violence, and protective factors like community engagement and family dynamics. Anonymous inquiry has been shown to increase openness in adolescent reporting of sensitive behaviors (Turner et al., 1998). Data were drawn from the 2007 and 2010 surveys; preadolescent students were not asked about suicidal thoughts and behaviors in subsequent iterations. The study samples were restricted to 11- and 12-year-old students. All public school districts in Minnesota were invited to participate; the majority agreed: 309 (91%) in 2007 and 295 (88%) in 2010. Student participation rates were also high; 81% of 6th graders participated in 2007 and 79% in 2010. This study used publicly available secondary data and was exempt from institutional review board review. Data sharing is not applicable to this article as no new data were created or analyzed in this study.

2.2 | Measures

2.2.1 | Suicide variables

The main outcome variables were past-year SI and past-year SAs. These were each measured by a single item: "Have you ever thought about killing yourself" and "Have you ever tried to kill yourself?" Response options were as follows: "no," "yes, during the last year," and "yes, more than a year ago." This single-item approach is consistent with that of other large population-based surveys (i.e., Youth Risk Behavior Survey), and psychometric analyses (May & Klonsky, 2011) have supported its validity for assessing suicidality, especially in large population-based studies.

2.2.2 | Sociodemographic variables

Participants were asked to report on their race and gender. As a proxy for socioeconomic status (SES), students were asked "Do you currently get free or reduced-price lunch at school?" Free or reduced-price lunch has been recognized as a valid measure of SES (Nicholson, Slater, Chriqui, & Chaloupka, 2014) and has been used extensively in prior research (Baams, 2018; Barnes, Eisenberg, & Resnick, 2010).

2.2.3 | Childhood maltreatment

Two types of childhood maltreatment were measured: physical abuse and sexual abuse. To evaluate lifetime physical abuse, students were asked "Has any adult in your household ever hit you so hard or so often that you had marks or were afraid of that person?" Lifetime sexual abuse was measured by combining two items: "Has any older person outside the family touched you sexually against your wishes or forced you to touch them sexually?" and "Has any older/stronger member of your family touched you sexually or had you touch them sexually?"

2.2.4 | Parental relations

The quality of parent–child relationships was assessed by asking "How much do you feel your parents care about you?" Response options were on a five-point Likert scale from "not at all" to "very much." For analyses, responses were reverse coded such that a higher score reflected worse parental relationships.

2.2.5 | Peer relations

To assess the quality of students' friendships, participants were asked "How much do you feel friends care about you?" Response options were initially coded on a five-point Likert scale, ranging from "not at all" to "very much" and then reverse coded for analyses. Negative peer relations were measured with three questions. Bullying within the past month was assessed by asking "During the last 30 days, how often has another student or group of students made fun of or teased you in a hurtful way, or excluded you from friends or activities?" Participant response options were on a five-point Likert scale, ranging from "never" to "every day." Students were administered two additional items about being threatened and physical assault at school, respectively, in past 12 months with dichotomous response options.

2.2.6 | School variables

To evaluate general attitudes toward school, participants were asked "How do you feel about going to school?" Responses were recorded on a five-point Likert scale, with response options ranging from "I like school very much" to "I hate school." Students were also asked about feeling safe at school on a four-point Likert scale ranging from "strongly agree" to "strongly disagree." Finally, students were asked whether they felt teachers at school cared about them on a five-point Likert scale, with response options ranging from "not at all" to "very much." Responses to this item were reverse coded so higher scores reflected a worse relationship.

2.3 | Data analysis

Data were analyzed in 2019. A series of univariate logistic regression analyses were conducted separately for 2007 and 2010 with past-year SI and past-year SAs as the criterion variables. In analyses of correlates of SI, participants were excluded if they ever made a SA. This approach was utilized to validly examine correlates of "pure" SI, unconfounded by correlates specific to SAs (Walsh, Sheehan, & Liu, 2018). Individuals who reported lifetime SI but not past-year SI, were also excluded to allow for greater temporal precision in evaluating correlates of SI.

As in prior studies (Stewart et al., 2017), logistic regression analyses of SAs were restricted to participants who reported past-year SI to better understand factors that may contribute to the

transition from ideation to attempt (Cheek, Nestor, & Liu, 2015). Participants were excluded from the SA analyses if they endorsed a SA in their lifetime but not within the past year.

Sociodemographic characteristics (i.e., gender and SES), family variables (i.e., parental support), childhood maltreatment (i.e. sexual abuse and physical abuse), school variables (i.e., teacher support, attitude toward school, perceived safety at school), and peer relations (perception of friends caring, bullying, threatening behaviors, and physical assault at school) were assessed individually as candidate predictor variables. Each predictor found to be significant at $p < .05$ was included in the corresponding final multivariate logistic regression model with SI and SAs, respectively, as the criterion variables.

3 | RESULTS

In total, there were 47,667 11- and 12-year-old participants in the 2007 data set, and 45,450 in the 2010 data set. After excluding individuals with lifetime (but not current) SI and past-year SAs, the 2007 and 2010 data sets for analyses of SI included 42,149 and 40,359 preadolescents, respectively. Descriptive information regarding the study variables are presented in Table 1. In 2007, 3,911 (9.28%) preadolescents reported past-year SI. Similarly, there were 3,735 (9.25%) individuals with past-year SI in 2010. Correlations among all study variables are presented in Table 2. Correlation coefficients derived from the 2007 data were largely consistent with the values from the 2010 data set.

TABLE 1 Sample characteristics for 2007 and 2010 data

	2007 (n = 42,149)	2010 (n = 40,359)
	% or mean (*SD*)	% or mean (*SD*)
Sociodemographic variables		
Gender (female)	50.4%	51.0%
Free or reduced lunch	27.3%	30.6%
Race (white)	75.7%	74.7%
Family variables		
Low parental support	1.12 (0.49)	1.13 (0.52)
Childhood maltreatment		
Lifetime sexual abuse	3.8%	3.7%
Lifetime physical abuse	9.2%	9.8%
School variables		
Low teacher support	2.16 (1.06)	2.14 (1.07)
Negative attitude toward attending school	2.38 (1.08)	2.38 (1.08)
Low perceived safety at school	1.53 (0.63)	1.52 (0.63)
Peer relations variables		
Low peer social support	1.91 (0.98)	1.88 (0.97)
Bullying victim	1.84 (1.06)	1.81 (1.04)
Threatened at school	22.5%	23.3%
Physically assaulted at school	54.9%	53.1%

Abbreviation: *SD*, standard deviation.

Results of univariate and multivariate logistic regression analyses for past-year SI are presented in Table 3. Variables that reached significance ($p < .05$) at the univariate level were entered into the multivariate analyses. All variables emerged as significant ($ps < .001$) in both the univariate and multivariate analyses. In the multivariate analyses, odds ratios ranged from 1.09 (95% CI = 1.05–1.13) to 2.96 (95% CI = 2.69–3.26).

To examine correlates of SAs, analyses were restricted to all individuals with past-year SI, with and without past-year SAs, (n_{2007} = 4,712; n_{2010} = 4,488). Among past-year ideators, 801 (17.00%) and 753 (16.78%) individuals reported past-year SAs in the 2007 and 2010 data sets, respectively. The prevalence of past-year SAs among the entire sample was 1.90% and 1.87%, respectively.

Results of univariate and multivariate logistic regression analyses for past-year SAs among past-year ideators are presented in Table 4. For both 2007 and 2010 all variables except for gender reached significance at the univariate level ($ps < .001$). All variables that were significant at the univariate level were entered into the multivariate analyses. In both the 2007 and 2010 multivariate analyses socioeconomic status, parental support, physical and sexual abuse, and perceived safety at school remained significant ($ps < .01$). In the 2007 model, but not the 2010 model, teacher support also remained significant ($p < .05$). Overall, most of the peer relationship variables (except for being threatened at school in the 2007 data set) emerged as nonsignificant in the multivariate model, $ps > .05$.

4 | DISCUSSION

Given the rise in suicidal thoughts and behaviors among preadolescents (Centers for Disease Control, 2018), it is essential to characterize at-risk individuals to inform intervention and prevention efforts for this population. To address this need, the current study employed two large population-based samples of preadolescents to assess indicators of risk for SI and SAs in four domains: family, childhood maltreatment, school, and peer relations. In the analyses of SI, unconfounded with SAs, all variables emerged as significant in the multivariate models. For multivariate models examining SAs among children with past-year ideation, only demographic characteristics, family relations, childhood maltreatment, and several school-related variables remained significant. Several of these findings warrant discussion.

Notably, results were highly consistent from 2007 to 2010. Almost all variables that emerged as significant in 1 year remained significant in the other year. Effect sizes were largely comparable, and, occasionally virtually identical. This is likely because both sample sizes were very large and highly representative of the same population, which reduces statistical error due to sampling. The observed consistency between years suggests the findings are robust and stable, thereby increasing confidence in their interpretation. Given the recent emphasis on reproducibility in science (Maxwell, Lau, & Howard, 2015), this is a particular strength of this study.

TABLE 2 Correlations between study variables (n_{2007} = 42,149 and n_{2010} = 40,359)

Variable	1	2	3	4	5	6	7	8	9	10	11	12
1. Gender (female)	–	.02**	−.01*	.08***	−.01*	−.06***	−.22***	−.03***	−.23***	.02***	−.13***	−.18***
2. Free or reduced lunch	.01	–	.05***	.06***	.07***	.02***	.01	.07***	.07***	.02***	.06***	.04***
3. Low parental support	<.01	.06***	–	.07***	.21***	.25***	.13***	.15***	.20***	.13***	.11***	.10***
4. Lifetime sexual abuse	.06***	.06***	.09***	–	.16***	.05***	.02***	.07***	.02***	.12***	.12***	.09***
5. Lifetime physical abuse	<.01	.09***	.23***	.16***	–	.11***	.07***	.12***	.10***	.18***	.18***	.16***
6. Low teachers support	−.05***	.02***	.25***	.05***	.11***	–	.31***	.29***	.39***	.15***	.14***	.16***
7. Negative attitude toward attending school	−.18***	<.01	.13***	.04***	.08***	.32***	–	.28***	.22***	.12***	.13***	.16***
8. Low perceived safety at school	−.03***	.07***	.16***	.07***	.14***	.29***	.28***	–	.23***	.24***	.25***	.21***
9. Low peer social support	−.23***	.06***	.21***	.02***	.11***	.39***	.22***	.24***	–	.22***	.14***	.17***
10. Bullying victim	.01	.02***	.12***	.11***	.18***	.15***	.12***	.25***	.24***	–	.36***	.38***
11. Threatened at school	−.13***	.07***	.11***	.12***	.19***	.14***	.13***	.26***	.15***	.38***	–	.36***
12. Physically assaulted at school	−.16***	.05***	.10***	.10***	.16***	.16***	.16***	.23***	.18***	.40***	.39***	–

Note: Values above the diagonal line represent correlations from the 2007 data. Values below the diagonal line are from the 2010 data.
*p < .05.
**p < .01.
***p < .001.

TABLE 3 Univariate and multivariate predictors of past-year suicidal ideation

	Univariate		Multivariate	
Predictor	2007 Odds ratio (95% CI)	2010 Odds ratio (95% CI)	2007 Odds ratio (95% CI)	2010 Odds ratio (95% CI)
Sociodemographic variables				
Gender (female)	1.11 (1.04–1.19)**	1.17 (1.09–1.25)***	1.47 (1.34–1.58)***	1.50 (1.38–1.63)***
Free or reduced lunch	1.46 (1.36–1.57)***	1.52 (1.42–1.63)***	1.20 (1.11–1.31)***	1.22 (1.13–1.33)***
Family variables				
Low parental support	2.07 (1.98–2.16)***	2.25 (2.16–2.35)***	1.41 (1.34–1.50)***	1.56 (1.48–1.65)***
Childhood maltreatment				
Lifetime sexual abuse	4.70 (4.19–5.27)***	4.91 (4.37–5.51)***	2.18 (1.90–2.51)***	2.23 (1.93–2.58)***
Lifetime physical abuse	5.67 (5.24–6.14)***	5.66 (5.22–6.13)***	2.96 (2.69–3.26)***	2.52 (2.28–2.79)***
School variables				
Low teachers support	1.51 (1.47–1.56)***	1.57 (1.53–1.62)***	1.09 (1.05–1.13)***	1.11 (1.06–1.15)***
Negative attitude towards attending school	1.44 (1.40–1.48)***	1.45 (1.40–1.49)***	1.20 (1.16–1.25)***	1.14 (1.10–1.19)***
Low perceived safety at school	2.07 (1.97–2.17)***	2.21 (2.11–2.32)***	1.19 (1.12–1.26)***	1.19 (1.12–1.27)***
Peer relations variables				
Low peer social support	1.50 (1.45–1.54)***	1.59 (1.54–1.64)***	1.14 (1.10–1.19)***	1.13 (1.09–1.18)***
Bullying victim	1.70 (1.65–1.74)***	1.74 (1.70–1.79)***	1.25 (1.21–1.30)***	1.27 (1.22–1.31)***
Threatened at school	3.24 (3.03–3.47)***	3.60 (3.36–3.86)***	1.47 (1.34–1.61)***	1.64 (1.49–1.80)***
Physically assaulted at school	3.02 (2.79–3.26)***	3.23 (2.98–3.49)***	1.56 (1.42–1.72)***	1.51 (1.37–1.67)***

Note: n_{2007} = 42,149 and n_{2010} = 40,359.
Abbreviation: CI, confidence interval.
*p < .05.
**p < .01.
***p < .001.

TABLE 4 Univariate and multivariate predictors of past-year suicidal attempts

Predictor	Univariate		Multivariate	
	2007 Odds ratio (95% CI)	2010 Odds ratio (95% CI)	2007 Odds ratio (95% CI)	2010 Odds ratio (95% CI)
Sociodemographic variables				
Gender (female)	1.04 (0.89–1.21)	1.05 (0.89–1.22)	–	–
Free or reduced lunch	1.58 (1.35–1.86)***	1.51 (1.28–1.77)***	1.43 (1.19–1.70)***	1.42 (1.19–1.70)***
Family variables				
Low parental support	1.45 (1.36–1.55)***	1.31 (1.23–1.40)***	1.24 (1.14–1.35)***	1.16 (1.06–1.26)***
Childhood maltreatment				
Lifetime sexual abuse	2.56 (2.13–3.09)***	2.87 (2.38–3.46)***	1.96 (1.58–2.43)***	2.26 (1.82–2.80)***
Lifetime physical abuse	2.12 (1.81–2.48)***	2.30 (1.96–2.70)***	1.55 (1.29–1.86)***	1.79 (1.48–2.17)***
School variables				
Low teachers support	1.34 (1.26–1.43)***	1.20 (1.13–1.28)***	1.12 (1.03–1.21)**	1.02 (0.94–1.11)
Negative attitude toward attending school	1.22 (1.14–1.29)***	1.18 (1.11–1.26)***	1.06 (0.98–1.14)	1.06 (0.98–1.15)
Low perceived safety at school	1.61 (1.47–1.78)***	1.47 (1.34–1.62)***	1.24 (1.10–1.40)***	1.27 (1.12–1.43)***
Peer relations variables				
Low peer social support	1.13 (1.06–1.21)***	1.10 (1.03–1.17)**	0.95 (0.87–1.02)	0.99 (0.91–1.08)
Bullying victim	1.22 (1.15–1.29)***	1.15 (1.08–1.21)***	1.07 (1.00–1.15)	0.99 (0.91–1.06)
Threatened at school	1.83 (1.56–2.14)***	1.57 (1.33–1.84)***	1.29 (1.05–1.58)*	1.22 (0.99–1.50)
Physically assaulted at school	1.33 (1.09–1.61)**	1.46 (1.19–1.80)***	0.87 (0.68–1.10)	1.06 (0.82–1.36)

Note: $n_{2007} = 4{,}712$ and $n_{2010} = 4{,}488$.
Abbreviation: CI, confidence interval.
*$p < .05$.
**$p < .01$.
***$p < .001$.

In analyses of SI, effect sizes ranged from ORs of 1.09 to 2.96. Generally, factors related to gender, physical safety/violence, and parental support exhibited the largest effect sizes (OR = 1.41–2.96). The smallest effects were observed among variables related to school and peer relations. Among the three types of social support assessed (i.e., parent, teacher, and peer), parental support appeared to have the largest effect, which is consistent with the view that parental relationships have a larger role in preadolescence (Steinberg & Silverberg, 1986). That is, children spend more time interacting with family than peers, often relying on parents for emotional support (Ryan & Lynch, 1989). This differs from adolescence, which is characterized by a transition to greater autonomy from their parents and increasing affiliation with same-aged peers (Choudhury, Blakemore, & Charman, 2006; Wentzel, 1998), making them more susceptible to peer influence. This finding builds on the existing literature; whereas past studies have found parental (DeVille et al., 2020) and peer influences (Pfeffer et al., 1993), respectively, to predict risk for suicidal outcomes among preadolescents, to our knowledge ours is the first to evaluate the relative effects of parental and peer influences. This finding is also consistent with prominent theories of suicide, which hold that social disconnectedness with important figures within the social network may feature prominently in risk for SI (Van Orden et al., 2010). When the most salient social relationships for children this age (i.e., parental relationships) are compromised feelings of social isolation may manifest, thereby increasing risk of SI.

That factors associated with physical safety/violence (i.e., sexual and physical abuse, and the threat of or being the victim of assault) are linked to SI may initially seem to be inconsistent with theoretical perspectives of suicide (Klonsky et al., 2016; Van Orden et al., 2010) that associate physically painful experiences and ones involving threats to physical safety more with suicidal behavior than ideation. However, given that these three experiences all occur within the interpersonal context, the social disconnectedness inherent in these experiences may be driving their association with SI.

In analyses of SAs, similar patterns emerged, except, unlike in the case of SI, peer relations and school variables were largely not significant. Gender is the only variable that did not reach significance at the univariate level. This is in line with the developmental course of suicidal behavior and other forms of psychopathology (e.g., depression), for which sex differences do not emerge until adolescence (Hankin et al., 1998; Nock et al., 2008). In contrast, experiences associated with more severe forms of violence (i.e., sexual and physical abuse) appeared to be the main predictors of SAs. It is important to note, however, that these analyses were aimed at predicting SAs among preadolescents with active SI (i.e., differentiating between SI and SAs). Thus, sexual and physical abuse may be particularly potent predictors when considering the stringency of these analyses.

Several limitations must be considered when interpreting these findings. First, the data are cross-sectional, and thus preclude inferences of directionality. However, given the relative want of research on preadolescent suicide, the current findings provide a meaningful foundation for future work in this area, offering candidates for longitudinal evaluations of potential risk factors (Faraone et al., 2000; Kraemer, 1997). Additionally, although findings were replicated in a second independent sample, the two samples were drawn from the same population (Minnesota residents). It will be important to replicate these findings in other populations to determine the extent of their generalizability. Lastly, the indicators of risk investigated in this study are not comprehensive and it will be important to examine other factors such as early-onset puberty, irritability, and symptoms of psychopathology.

These findings have several clinical implications. First, it is important to note that overall, the observed effect sizes were relatively modest to medium. This supports the notion that suicidal thoughts and behaviors are multi-determined, that there are numerous factors that give rise to their occurrence (Brent & Mann, 2005; Smith et al., 2012). These findings thus underscore the challenge of predicting risk for and preventing the occurrence of suicidal thoughts and behaviors, particularly the need simultaneously to consider multiple indices of risk. Second, the current findings suggest that sexual and physical abuse may be especially important in screening for SI and SAs. These findings, however, also highlight the difficulty of assessing suicide risk, as many individuals may be uncomfortable disclosing such personally sensitive and traumatic experiences as childhood abuse (Lemaigre, Taylor, & Gittoes, 2017). Finally, the challenges indicated by the current findings support the need for additional research identifying predictors of suicidal thoughts and behaviors in preadolescents. Individuals who experience severe mental health difficulties at a young age tend to have poor prognosis (Jaffee et al., 2002; Korczak & Goldstein, 2009; Weissman et al., 1999). Thus, identifying additional risk indicators for early targeted prevention efforts with preadolescents could have a substantial impact in interrupting the increasingly severe course often observed with suicidal behavior (Goldston et al., 2015).

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CONFLICT OF INTERESTS

The authors declare that there are no conflict of interests.

ORCID

Rachel F. L. Walsh http://orcid.org/0000-0002-0879-0612
Richard T. Liu https://orcid.org/0000-0002-1367-9716

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