



Research Paper

Sex differences in the association between sexual violence victimization and suicidal behaviors among adolescents



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ABSTRACT

The objective of this study was to examine sex differences in the association between sexual violence victimization and suicidal ideation and suicide attempt among adolescents. Data for this study came from the 2017 National Youth Risk Behavior Survey. An analytic sample of 10,475 adolescents aged 14–18 years (52.3% female) was analyzed. We used binary logistic regression to examine the association between sexual violence victimization and suicidal ideation and suicide attempt. We adjusted for the complexity of the sampling design and handled missing data using Multiple Imputation by Chained Equations. About 18% of adolescents experienced suicidal ideation and 7.5% attempted suicide during the past 12 months. About one in ten adolescents (15.5% of females versus 3.6% of males) experienced sexual violence. Controlling for other factors, the odds of reporting suicidal ideation were 1.86 times higher for females who experienced sexual violence (AOR=1.86, 95% CI=1.44–2.42) when compared to their non-victimized counterparts. Females who experienced sexual violence had almost double the odds of making a suicide attempt (AOR=1.94, 95% CI=1.43–2.65) whereas males who experienced sexual violence had more than threefold higher odds of making a suicide attempt (AOR=3.32, 95% CI=2.17–5.08). Understanding the association between sexual violence victimization and suicidal behaviors could contribute to early identification of adolescents who may be at risk of engaging in suicidal behaviors.

1. Introduction

Suicide is a significant public health concern with lasting harmful effects on individuals, families, and society. In the United States (US), suicide has been identified as the second leading cause of death among adolescents (Centers for Disease Control and Prevention, 2019). Suicidal behaviors refer to behaviors engaged in with the intent to die and consist of suicidal ideation, suicide plan, suicide attempts, and death by suicide (Bridge et al., 2006). Suicidal ideation and suicide attempts are two of the most common suicidal behaviors found to predict death by suicide (Nock et al., 2008; Victor and Klonsky, 2014). Estimates of the presence of past-year suicidal ideation among adolescents in community samples range from 11% to 30%, and that of suicide attempts range from 5% to 8% (Anderson et al., 2015; Evans et al., 2005; Wolfe et al., 2019). Data from the 2017 Youth Risk Behavior Survey (YRBS) show that 17.2% of adolescents seriously considered suicide (22.1% of females and 11.9%

of males) and 7.4% attempted suicide (9.3% of females and 5.1% of males) in the past year (Kann et al., 2018).

While risk factors for suicidal behaviors are varied and complex, identifying factors that increase vulnerability for suicidal behaviors could help prevent death by suicide. Factors such as depression and anxiety (Brockie et al., 2015; Capron et al., 2015; Hill et al., 2018), history of childhood sexual abuse (Maniglio, 2011; Miller et al., 2013; Yoon et al., 2018), alcohol use (Baiden, Mengo et al., 2019; Baiden et al., 2019; Borges et al., 2017; Bossarte and Swahn, 2011), misuse of prescription pain medication (Ashrafioun et al., 2017; Bohnert and Ilgen, 2019), illicit drug use (Freedenthal et al., 2007; Garlow et al., 2007; Gart and Kelly, 2015), and feelings of hopelessness (Langhinrichsen-Rohling et al., 2010; Wolfe et al., 2019) have been found to be associated with suicidal ideation and suicide attempts. School bullying and cyberbullying victimization have also been found to be associated with suicidal ideation (Baiden and Tadeo, 2020; Mitchell et al., 2016; Reed et al., 2015) and suicide attempts (Baiden, Kuire et al., 2019;

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Gini and Espelage, 2014; Klomek et al., 2019; Van Geel et al., 2014). Other studies have found that adolescents identified as overweight or obese are at higher risk for suicidal ideation (Zamora-Kapoor et al., 2016) and suicide attempts (Anderson et al., 2015). In addition, gender is a consistently identified risk factor, with adolescent females being more likely to experience suicidal ideation and attempt suicides than their male counterparts (Ivanich and Teasdale, 2018; Langhinrichsen-Rohling et al., 2009; Reed et al., 2015).

Sexual violence (SV) has also been identified as a significant public health issue affecting millions of Americans (Basile et al., 2020; Black et al., 2014; Breiding, 2014; Ybarra and Mitchell, 2013) and is known as a predictor of suicidal behaviors (Anderson et al., 2015; Behnken et al., 2010; Bounds et al., 2019; Tomasula et al., 2012). SV refers to a broad range of incidents involving any unwanted sexual contact (touching, fondling, kissing, or petting), attempted coercion or coercion, attempted penetration or penetration, alcohol/drug-facilitated penetration, attempted rape, or rape (Koss et al., 2007). National data from the US suggest that 21.3% of women and 2.6% of men experienced SV at some point in their life (Smith et al., 2018a, 2018b). Similarly, data from the 2017 YRBS also show that 9.7% of adolescents experienced SV (15.2% of females and 4.3% of males) in the past year (Kann et al., 2018).

The potential influence of SV on suicide risk may be understood within the context of the interpersonal theory of suicide (Joiner, 2005). The theory draws on interpersonal processes and pain perception, positing that an individual will not engage in a suicidal behavior unless they have the desire to die by suicide and the capability to engage in a lethal self-injurious act (Joiner, 2005). According to the interpersonal theory of suicide, three interacting psychological states known as *perceived burdensomeness*, *thwarted belongingness* (i.e., *low sense of belongingness or social alienation*), and *acquired capability for suicide* are needed for an individual to attempt suicide (see Joiner, 2005). Drawing on the interpersonal theory of suicide, the experience of SV may serve as a distal risk factor for suicidal behaviors by increasing an individual's sense of perceived burdensomeness and thwarted belongingness, which in turn could lead to increased suicidal thoughts. Moreover, the experience of SV may increase the victim's ability to habituate to pain, thereby acclimatizing them to the fear associated with bodily injury and increasing their capability for lethal self-harm (Van Orden et al., 2010). Various studies have found support for different aspects of the interpersonal theory of suicide in understanding suicidal behaviors (Conner et al., 2007; Smith et al., 2018a, 2018b; Van Orden et al., 2008), but have not directly examined SV victimization, nor sex differences in SV, within its theoretical context.

Although studies have investigated and found that individuals with a history of SV are at higher risk for mental health outcomes, including anxiety (Masters et al., 2015; Stein et al., 2004), depression (Jaconis et al., 2020), poor academic performance (Baker et al., 2016), risky sexual behaviors (Thibodeau et al., 2017; Ulloa et al., 2016), and sexually transmitted infections (Sumner et al., 2016), few studies have examined sex differences in the association between SV victimization and suicidal behaviors among adolescents. One recent analysis of data from the Add Health study found that adolescents with a history of SV had between 1.4 to 2.7 times increased odds of suicidal ideation and suicide attempts in adulthood (Thompson et al., 2019). Although using a longitudinal design, the study by Thompson et al. (2019) failed to examine sex differences in rates of SV and suicidal behaviors, which is important for guiding targeted intervention and prevention strategies. Notwithstanding the fact that SV victimization is more common among females (Kann et al., 2018; Smith et al., 2018b), males who experience SV may face additional stigma given norms around masculinity and disclosure of sexual abuse (Javaid, 2018); potentially exacerbating feelings of burdensomeness or thwarted belonging. Moreover, given the differences in emotional responses to SV victimization between males and females, and how symptoms of depression relate to suicidal behaviors (Randall et al., 2014), it is important to assess if the relationship be-

tween SV victimization and suicidal behaviors differs for males and females. Therefore, this study adds to the existing literature by examining sex differences in the association between SV victimization and suicidal ideation and suicide attempts among adolescents.

2. Methods

2.1. Data source and participants

This study uses data from the 2017 YRBS. The YRBS is a cross-sectional school-based national survey conducted by the Centers for Disease Control and Prevention (CDC) every two years to examine health-risk behaviors that contribute to the leading causes of death and disability among adolescents in the US. The YRBS utilized a three-stage cluster sample design to produce a nationally representative sample of high school students in grades 9 through 12 from public and private schools in the 50 states and the District of Columbia. Schools were selected systematically with probability proportional to enrollment in grades 9 through 12 using a systematic equal probability with a random start. In all, 192 schools were sampled to participate in the 2017 YRBS. Detailed information about the YRBS, including the objectives, methodology, and sampling procedure, are available elsewhere (Brener et al., 2013; Kann et al., 2018) and in other publications by the authors (e.g., Baiden, Graaf et al., 2019; Baiden et al., 2020; Baiden and Tadeo, 2019; Baiden, Tadeo et al., 2019). The 2017 YRBS had a school response rate of 75% and a student response rate of 81%, producing an overall response rate of 60%. The study protocol for conducting the YRBS was approved by the CDC's Institutional Review Board (IRB) and is publicly available. The YRBS data were de-identified; hence, no additional IRB approval was required. There were 14,765 respondents in the 2017 YRBS, of which 14,547 were aged 14 to 18 years old. We found that 4099 (27.8%) individuals were missing data on the outcome variables bringing the total analytic sample to $n = 10,475$. Missing data on the explanatory variables were imputed using Multiple Imputation Chained Equations (MICE) (Van Buuren, 2000). MICE is a simulation-based approach for analyzing missing data that replaces missing values with multiple sets of simulated values to complete the dataset and adjust for missing data uncertainty (Rubin, 1996).

2.2. Measures

2.2.1. Outcome variables

Past year suicidal ideation and suicide attempts were the two outcome variables investigated in this study and were both measured as binary variables. Suicidal ideation was measured based on response to the question, "During the past 12 months, did you ever seriously consider attempting suicide?" Adolescents who answered "yes" were coded as 1, whereas adolescents who answered "no" were coded as 0. Suicide attempts were measured based on response to the question, "During the past 12 months, how many times did you actually attempt suicide?" Adolescents who attempted suicide at least once during the past 12 months were coded as 1, whereas adolescents who did not attempt suicide during the past 12 months were coded as 0.

2.2.2. Explanatory variable

The main explanatory variable investigated in this study was SV victimization. Adolescents were asked, "During the past 12 months, how many times did anyone force you to do sexual things that you did not want to do?" (Count such things as kissing, touching, or being physically forced to have sexual intercourse) with response options ranging from zero times to six or more times. For this study, adolescents who experienced SV at least once during the past 12 months were recoded as 1, whereas adolescents who did not experience SV during the past 12 months were coded as 0.

2.2.3. *Covariates*

Other covariates examined in this study were chosen *a priori* based on past studies (Anderson et al., 2015; Borges et al., 2017; Capron et al., 2015; Gart and Kelly, 2015; Gini and Espelage, 2014; Hill et al., 2018; Reed et al., 2015) and included school bullying and cyberbullying victimization, symptoms of depression, current alcohol use, current cigarette smoking, current marijuana use, misuse of prescription pain medication, use of illicit drugs, and being overweight/obese. Bullying victimization was measured based on two questions. The 2017 YRBS defined the term bullying to mean, “Bullying is when one or more students tease, threaten, spread rumors about, hit, shove, or hurt another student over and over again. It is not bullying when two students of about the same strength or power argue or fight or tease each other in a friendly way.” School bullying victimization was measured based on response to the question, “During the past 12 months, have you ever been bullied on school property?” Cyberbullying victimization was measured based on response to the question, “During the past 12 months, have you ever been electronically bullied? (Count being bullied through texting, Instagram, Facebook, or other social media).” Responses to both questions were coded as “0 = No” versus “1 = Yes.” Symptoms of depression were measured based on the question, “During the past 12 months, did you ever feel so sad or hopeless almost every day for two weeks or more in a row that you stopped doing some usual activities?” Adolescents who answered “yes” were coded as 1, whereas those who answered “no” were coded as 0. Adolescents who reported drinking alcohol at least once during the 30 days before the survey were coded as 1, otherwise, they were coded as 0. Adolescents who smoked a cigarette at least once during the past 30 days were considered as smokers and were coded as 1, otherwise, they were considered as non-smokers and were coded as 0. Adolescents who reported using cannabis at least once during the past 30 days were coded as 1, otherwise, they were coded as 0.

Misuse of prescription pain medication was measured as a binary variable based on response to the question, “During your life, how many times have you taken prescription pain medicine without a doctor’s prescription or differently than how a doctor told you to use it? (Count drugs such as codeine, Vicodin, OxyContin, Hydrocodone, and Percocet)”. Following the recommendation of the scholars (Kann et al., 2018), adolescents who took prescription pain medicine without a doctor’s prescription at least once were recoded as 1, whereas those who have never taken prescription pain medicine without a doctor’s prescription were coded as 0. A measure of illicit drug use was included as a binary variable (0 = no illicit drug use versus 1 = illicit drug use) based on a positive response to ever having used any of the following illicit drugs: cocaine (powder, crack, or freebase); inhalants (glue, aerosol spray cans, paints); heroin (smack, junk, or China White); methamphetamines (speed, crystal, crank, or ice); ecstasy (MDMA); hallucinogenic drugs (LSD, acid, PCP, angel dust, mescaline, or mushrooms); synthetic marijuana (K2, Spice, fake weed, King Kong, Yucatan Fire, Skunk, or Moon Rocks); and, steroid pills. Adolescents were classified as being overweight/obese based on their body mass index (kg/m²) (BMI), which was calculated from self-reported height and weight. BMI values were compared with sex- and age-specific reference data from the 2000 CDC growth charts (Kuczmarski et al., 2000). Overweight was defined as a BMI of ≥85th percentile and <95th percentile for age and sex, and BMI of ≥95th percentile was considered obese. These classifications are not intended to diagnose obesity or overweight in individual students but to provide population-level estimates of obesity and overweight (Kann et al., 2018).

2.2.4. *Demographic variables*

The study controlled for the following demographic variables: Age was measured in years, whereas sex was coded as “0 = Male” and “1 = Female”. Sexual orientation was coded as a nominal variable into “0 = Heterosexual”, “1 = Lesbian/gay”, “2= Bisexual”, and “3 = Not sure” based on sexual identity and sex of sexual contacts. Sexual orientation defined by sexual identity includes adolescents who self-identified as gay, lesbian, or bisexual and those who were not sure about their

Table 1
Sample characteristics (n = 10,475).

Variables	Frequency (weighted%)
Outcome variables	
Suicidal ideation	
No	8640 (82.5)
Yes	1835 (17.5)
Suicide attempt	
No	9690 (92.5)
Yes	785 (7.5)
Main explanatory variable	
Experienced sexual violence	
No	9467 (90.4)
Yes	1008 (9.6)
Control variables	
Age	
14 years	1229 (11.7)
15 years	2517 (24.0)
16 years	2670 (25.5)
17 years	2645 (25.3)
18 years	1414 (13.5)
Sex	
Male	4994 (47.7)
Female	5481 (52.3)
Sexual orientation	
Heterosexual	8962 (85.5)
Lesbian/gay	242 (2.3)
Bisexual	856 (8.2)
Not sure	415 (4.0)
Race/ethnicity	
Non-Hispanic White	4772 (45.6)
Black/African-American	1605 (15.3)
Hispanic	2788 (26.6)
Other race/ethnicity	1310 (12.5)
School bullying victimization	
No	8501 (81.2)
Yes	1974 (18.8)
Cyberbullying victimization	
No	8968 (85.6)
Yes	1507 (14.4)
Symptoms of depression	
No	7081 (67.6)
Yes	3394 (32.4)
Current cigarette smoking	
No	9607 (91.7)
Yes	868 (8.3)
Current alcohol use	
No	7328 (69.8)
Yes	3147 (30.2)
Current marijuana use	
No	8373 (79.9)
Yes	2102 (20.1)
Ever misused prescription pain medication	
No	9030 (86.2)
Yes	1445 (13.8)
Ever used illicit drug	
No	8994 (85.9)
Yes	1481 (14.1)
Body weight	
Normal	7204 (68.8)
Overweight	1708 (16.3)
Obese	1563 (14.9)

sexual identity. Sexual orientation defined by sex of sexual contacts included adolescents who had sexual contact with only the same sex or with both sexes. Race/ethnicity was coded as a nominal variable into the following categories “0 = non-Hispanic White”, “1 = Black/African American”, “2 = Hispanic”, “3 = Other race/ethnicity”.

2.3. *Data analyses*

Data were analyzed using descriptive, bivariate, and multivariable analytic techniques. The general distribution of all the variables included in the analysis was first examined using weighted percentages. Pearson chi-square test of association was used to compare the

Table 2
Distribution of outcome and explanatory variables by sex ($n = 10,475$).

Variables	Male 4994 (47.7%) Weighted%	Female 5481 (52.3%) Weighted%	OR (95% C.I.)
Suicidal ideation			2.11 (1.72–2.59)***
No	88.1	77.8	
Yes	11.9	22.2	
Suicide attempt			2.10 (1.64–2.69)***
No	95.4	90.8	
Yes	4.6	9.2	
Experienced sexual violence			4.97 (3.70–6.67)***
No	96.4	84.5	
Yes	3.6	15.5	
School bullying victimization			1.56 (1.37–1.77)***
No	84.0	77.2	
Yes	16.0	22.8	
Cyberbullying victimization			2.34 (1.95–2.81)***
No	90.3	79.8	
Yes	9.7	20.2	
Symptoms of depression			2.54 (2.12–3.05)***
No	78.3	58.7	
Yes	21.7	41.3	
Current alcohol use			1.22 (1.06–1.40)**
No	71.3	67.1	
Yes	28.7	32.9	
Current cigarette smoking			0.82 (0.68–0.99)*
No	90.4	91.9	
Yes	9.6	8.1	
Current marijuana use			0.99 (0.82–1.20)
No	80.2	80.4	
Yes	19.8	19.6	
Ever misused prescription pain medication			1.10 (0.95–1.26)
No	86.8	85.7	
Yes	13.2	14.3	
Ever used illicit drug			1.03 (0.86–1.24)
No	86.1	85.6	
Yes	13.9	14.4	
Body weight			0.88 (0.79–0.99)*
Normal	68.6	71.2	
Overweight	14.2	16.8	
Obese	17.2	12.0	

Note: * $p < .05$, ** $p < .01$, *** $p < .001$.

distribution of the study variables by sex. The main analysis involves the use of binary logistic regression to examine sex differences in the association between SV victimization and the outcome variables (suicidal ideation and suicide attempts). Two multivariable binary logistic regression models were fitted. In Model 1, we regressed suicidal ideation and suicide attempts on SV victimization for both males and females. In Model 2, we regressed suicidal ideation and suicide attempts on SV victimization for both males and females while controlling for the effect of other factors. Variables were considered significant if the p -value was less than 0.05. Stata's "svy" command was used to account for the weighting and complexity of the cluster sampling design employed by the YRBS. All analyses were performed using Stata version 14.

3. Results

3.1. Sample characteristics

Table 1 shows the general distribution of the study variables. Of the 10,475 adolescents, a majority 52.3% were females. About 18% of adolescents reported suicidal ideation, and 7.5% reported at least one suicide attempt during the past 12 months. About one in ten adolescents experienced SV during the past 12 months.

3.2. Distribution of outcome and explanatory variables by sex

Table 2 shows the general distribution of the outcome and explanatory variables by sex. To obtain the test statistic, we regressed a set of variables on sex using binary logistic regression with males as the reference category. The proportion of females that reported suicidal ideation

(22.2%) was significantly greater than the proportion of males that reported suicidal ideation (11.9%; OR = 2.11, $p < .001$, 95% C.I. = 1.72–2.59). About 9% of females compared to 4.6% of males attempted suicide during the past 12 months (OR = 2.10, $p < .001$, 95% C.I. = 1.64–2.69). About one in seven females (15.5%) compared to 3.6% of males experienced SV (OR = 4.97, $p < .001$, 95% C.I. = 3.70–6.67). The proportion of females that experienced school bullying or cyberbullying, had depressive symptoms, currently use alcohol, and were overweight or obese was significantly greater than the proportion of males reporting the same experience. The proportion of females that currently smoke cigarette (8.1%) was significantly lower than the proportion males that currently smoke cigarette (9.6%; OR = 0.82, $p < .05$, 95% C.I. = 0.68–0.99). The distribution of other substance use factors was similar across both sexes.

3.3. Multivariable logistic regression results predicting suicidal ideation

Table 3 shows the multivariable logistic regression results examining sex differences in the association between SV victimization and suicidal ideation while controlling for the effects of other factors. In Model 1, males who experienced SV had 5.16 times higher odds of reporting suicidal ideation when compared to males who did not experience SV (Odds Ratio (OR) = 5.16, $p < .001$, 95% C.I. = 3.32–8.03). However, this significant effect was fully attenuated once we control for the effects of other factors. For females who experienced SV, odds of reporting suicidal ideation in the unadjusted model were 4.15 times higher (OR = 4.15, $p < .001$, 95% C.I. = 3.37–5.09). This significant effect persisted after controlling for the effects of other factors. In the fully adjusted model, females who experienced SV had 1.86 times higher odds of reporting

Table 3
Multivariable logistic regression results predicting suicidal ideation.

Variables	Male				Female			
	OR (95% C.I.)	p-value	AOR (95% C.I.)	p-value	OR (95% C.I.)	p-value	AOR (95% C.I.)	p-value
Experienced sexual violence (No)								
Yes	5.16 (3.32–8.03)	<.001	1.56 (0.93–2.62)	.088	4.15 (3.37–5.09)	<.001	1.86 (1.44–2.42)	<.001
Age in years			1.12 (1.00–1.26)	.041			0.99 (0.92–1.06)	.712
Sexual orientation (Heterosexual)								
Lesbian/gay			2.37 (1.02–5.50)	.045			4.02 (2.36–6.84)	<.001
Bisexual			3.11 (1.80–5.39)	<.001			3.40 (2.72–4.25)	<.001
Not sure			1.94 (1.07–3.50)	.029			2.62 (1.80–3.82)	<.001
Race/ethnicity (Non-Hispanic White)								
Black/African-American			0.51 (0.34–0.76)	.002			1.11 (0.83–1.47)	.484
Hispanic			0.89 (0.69–1.16)	.394			0.88 (0.69–1.11)	.275
Other race/ethnicity			1.09 (0.74–1.60)	.648			1.36 (1.03–1.79)	.032
School bullying victimization (No)								
Yes			1.67 (1.12–2.50)	.014			1.66 (1.33–2.12)	<.001
Cyberbullying victimization (No)								
Yes			1.58 (0.96–2.60)	.070			1.29 (1.01–1.65)	.041
Symptoms of depression (No)								
Yes			11.77 (8.83–15.69)	<.001			8.46 (6.40–11.20)	<.001
Current alcohol use (No)								
Yes			0.92 (0.66–1.28)	.601			0.89 (0.68–1.16)	.376
Current cigarette smoking (No)								
Yes			1.04 (0.72–1.50)	.820			1.18 (0.82–1.72)	.368
Current marijuana use (No)								
Yes			1.06 (0.77–1.45)	.707			1.33 (0.98–1.81)	.068
Ever misused prescription pain medication (No)								
Yes			1.63 (1.13–2.36)	.010			1.68 (1.25–2.24)	.001
Illicit drug use (No)								
Yes			1.35 (0.97–1.88)	.076			1.29 (0.88–1.88)	.187
Body weight (Normal)								
Overweight			1.20 (0.81–1.79)	.357			1.54 (1.09–2.16)	.014
Obese			0.91 (0.62–1.33)	.614			1.68 (1.24–2.29)	.001

Note: Reference category is indicated in bracket.

suicidal ideation (Adjusted Odds Ratio (AOR) = 1.86, $p < .001$, 95% C.I. = 1.44–2.42) relative to their peers without SV victimization. For both sexes, self-identifying as lesbian/gay, bisexual, or questioning held a similarly higher odds of reporting suicidal ideation as did SV victimization. Other factors associated with suicidal ideation among both sexes included cyberbullying victimization, symptoms of depression, and misuse of prescription pain medication.

3.4. Multivariable logistic regression results predicting suicide attempts

The magnitude of the results presented in Table 4 regarding sex differences in the association between SV victimization and suicide attempts is different from that of suicidal ideation. In Model 1, males who experienced SV had 11.30 times higher odds of making a suicide attempt (OR = 11.30, $p < .001$, 95% C.I. = 7.33–17.44) and females who experienced SV had 4.54 times higher odds of making a suicide attempt (OR = 4.54, $p < .001$, 95% C.I. = 3.48–5.91), both when compared to their counterparts who did not experienced SV. This significant effect persisted for both males and females after controlling for the effects of other factors. Controlling for the effects of other factors, males who experienced SV had more than threefold higher odds of making a suicide attempt (AOR = 3.32, $p < .001$, 95% C.I. = 2.17–5.08), whereas females who experienced SV had almost double the odds of making a suicide attempt (AOR = 1.94, $p < .001$, 95% C.I. = 1.43–2.65). An increase in age by one year decreased the odds of suicide attempts among females by 20% (AOR = 0.80, $p < .001$, 95% C.I. = 0.72–0.89). Males were more likely to make a suicide attempt if they: self-identified as bisexual, self-identified as Black/African American, had symptoms of depression, ever misused prescription pain medication, or ever used illicit drugs. Females were more likely to make a suicide attempt if they: self-identified as lesbian or bisexual, self-identified as a Black/African American or “other race/ethnicity”, experienced school bullying or cyberbullying, had symptoms of depression, currently smoke cigarettes, currently use marijuana, or ever misused prescription pain medication.

4. Discussion

The objective of this study was to investigate sex differences in the association between SV victimization and suicidal ideation and suicide attempts using a nationally representative sample of adolescents from the US. We found that about 18% of adolescents experienced suicidal ideation (22.2% of females versus 11.9% of males), and 7.5% attempted suicide (9.2% of females versus 4.6% of males). Similarly, about one in ten adolescents experienced SV (15.4% of females versus 3.6% of males) during the past 12 months. The proportion of adolescents who were victims of SV is fairly consistent with past studies (Anderson et al., 2015; Kann et al., 2018; Ybarra and Mitchell, 2013).

Controlling for the effects of other factors, we found that experience of SV was statistically significantly associated with suicidal ideation for adolescent females and suicide attempts for both adolescent males and females. Also, adolescents who self-identified as lesbian/gay or bisexual were more likely to report suicidal ideation or make a suicide attempt, which is consistent with previous findings (Baiden et al., 2020; Liu et al., 2020; Marshal et al., 2011; McKay et al., 2019). The finding that adolescents who experienced SV are more likely to experience suicidal ideation and suicide attempts corroborates and extends past studies that have found a significant association between SV victimization and depressive symptomatology (Jaconis et al., 2020; Masters et al., 2015; Stein et al., 2004), risky sexual behavior (Sumner et al., 2015; Thibodeau et al., 2017; Ulloa et al., 2016), alcohol use (Resnick et al., 2013; Vik et al., 2019), and substance use (Tuchman, 2010), all of which, in turn, significantly increases the risk for suicidal behaviors (Evans et al., 2005; Liu et al., 2020; Van Geel et al., 2014). The importance of understanding the association between SV victimization and suicidal behaviors cannot be overemphasized, as both represent serious public health concerns (Basile et al., 2020; Black et al., 2014; Breiding, 2014; Kann et al., 2018; Victor and Klonsky, 2014; Ybarra and Mitchell, 2013).

Bullying victimization and SV have been found to be painful experiences that sometimes last years after the victimization experience

Table 4
Multivariable logistic regression results predicting suicide attempt.

Variables	Male				Female			
	OR (95% C.I.)	p-value	AOR (95% C.I.)	p-value	OR (95% C.I.)	p-value	AOR (95% C.I.)	p-value
Experienced sexual violence (No)								
Yes	11.30 (7.33–17.44)	<.001	3.32 (2.17–5.08)	<.001	4.54 (3.48–5.91)	<.001	1.94 (1.43–2.65)	<.001
Age in years			1.00(0.84–1.19)	.991			0.80 (0.72–0.89)	<.001
Sexual orientation (Heterosexual)								
Lesbian/gay			1.02 (0.44–2.34)	.962			2.57 (1.44–4.60)	.002
Bisexual			2.70 (1.54–4.75)	.001			2.13 (1.65–2.75)	<.001
Not sure			1.50 (0.74–3.04)	.254			1.29 (0.77–2.15)	.322
Race/ethnicity (Non-Hispanic White)								
Black/African-American			1.88 (1.24–2.84)	.004			2.49 (1.57–3.93)	<.001
Hispanic			1.52 (0.99–2.35)	.058			1.46 (0.99–2.18)	.059
Other race/ethnicity			0.93 (0.58–1.49)	.753			2.34 (1.68–3.24)	<.001
School bullying victimization (No)								
Yes			1.53 (0.87–2.69)	.134			1.84 (1.38–2.44)	<.001
Cyberbullying victimization (No)								
Yes			1.69 (0.84–3.42)	.137			1.56 (1.17–2.09)	.004
Symptoms of depression (No)								
Yes			7.06 (4.60–10.83)	<.001			6.35 (4.71–8.58)	<.001
Current alcohol use (No)								
Yes			0.74 (0.41–1.34)	.315			0.88 (0.63–1.24)	.466
Current cigarette smoking (No)								
Yes			1.34 (0.72–2.03)	.285			1.58 (1.02–2.45)	.040
Current marijuana use (No)								
Yes			1.21 (0.72–2.03)	.459			1.70 (1.09–2.65)	.020
Ever misused prescription pain medication(No)								
Yes			1.75 (1.01–3.05)	.047			1.93 (1.34–2.79)	.001
Illicit drug use (No)								
Yes			1.89 (1.21–2.97)	.007			1.10 (0.78–1.55)	.573
Body weight (Normal)								
Overweight			1.09 (0.57–2.10)	.789			1.10 (0.79–1.54)	.566
Obese			0.89 (0.54–1.47)	.651			1.26 (0.84–1.89)	.264

Note: Reference category is indicated in bracket.

(Baiden et al., 2020; Baiden and Tadeo, 2019; Scott et al., 2011). The desire to escape emotional pain has been cited in explaining the association between SV and suicidal behaviors (Miller et al., 2013). Indeed, various studies using cross-sectional and longitudinal designs have found an association between experience of SV and pain-related outcomes later in life (Davis et al., 2005; Sachs-Ericsson et al., 2007; Tietjen et al., 2016). It is possible that painful experiences from SV and bullying may predispose some adolescents to suicidal behaviors. However, the absence of pain-related measures in the YRBS limits our ability to examine this important factor. This is an avenue that warrants additional investigation given that adolescents with a history of SV or who experienced bullying are more likely to experience pain-related difficulties (Sachs-Ericsson et al., 2007; Underwood and Ehrenreich, 2017).

The findings that adolescents who experienced bullying and SV are more likely to engage in suicidal ideation or make a suicide attempt is consistent with the interpersonal theory of suicide (Joiner, 2005). Experiences of bullying could contribute to feelings of isolation, loneliness (e.g., thwarted belonging) and/or a sense of burdensomeness. Bullying or SV victimization may also increase an individual's capability for suicidal behavior by increasing the victim's ability to endure psychologically and physically painful experiences; thereby, enhancing habituation to fears associated with engaging in a suicidal act. Experiences of SV could also result in feelings of shame and guilt, potentially leading to the onset of depression and subsequent suicidal behaviors (Baiden et al., 2017).

The findings of this study have some potential clinical and research implications. First, school counselors working with adolescents should pay attention to factors identified in this study as being associated with suicidal ideation and suicide attempts. In particular, adolescents with a history of SV victimization should be assessed for suicidal ideation and history of suicide attempts and referred for appropriate counseling and mental health services. Second, SV interventions aimed at preventing suicidal behaviors among adolescents should take into account sex differences. Third, in the context of research, future studies should examine differences in sexual orientation and SV victimization and suicidal

behaviors. As this study showed, among both males and females, sexual minority adolescents, in particular bisexual adolescents, are more likely to experience suicidal ideation and make a suicide attempt. Although interventions aimed at preventing suicidal behaviors might work for adolescents in general, the added stress sexual minority adolescents experience (Baiden et al., 2020; Marshal et al., 2011) means that interventions aimed at preventing suicidal behaviors should take into account the intersection of sex and sexual orientation. Thus, future studies should aim to investigate differences in sexual orientation and SV victimization and suicidal behaviors to better inform interventions for this vulnerable population. Fourth, although the findings of this study showed an association between history of SV and suicidal ideation and suicide attempts, future research should also seek to identify the mechanism through which this association occurs. It is possible that the association between SV victimization and suicidal behaviors might be mediated by substance use. This line of reasoning is informed by studies showing that adolescents with a history of SV resort to substance use to manage the pain and psychological trauma arising from the victimization (Charak et al., 2015; Danielson et al., 2010); and substance use has been found to be associated with suicidal ideation and suicide attempts (Baiden et al., 2019).

4.1. Limitations

First, the use of secondary data limits our ability to examine other theoretically relevant factors such as pain-related outcomes and the relationship of the perpetrator of SV that are known to influence suicidal ideation and suicide attempts. Prior literature has found that SV perpetrated by a relative or friend might have a significantly detrimental impact on health (Edwards et al., 2012). Thus, future research could control the relationship of the perpetrator and the level of betrayal trauma experienced to understand the true association between SV victimization and suicidal behaviors. Second, the cross-sectional nature of the data limits our ability to make any causal claims between SV victim-

ization and suicidal ideation and suicide attempts. It is possible that some adolescents may have experienced suicidal ideation and suicide attempts prior to their experiencing SV. Additional studies that follow adolescents over time are needed to establish the temporal order between SV and suicidal behaviors. Such studies ultimately can also help us understand other plausible factors related to the onset of suicidal behaviors. Third, both suicidal ideation and suicide attempts were measured using a single item. Although both items have face validity (Kann et al., 2018), future studies may consider employing a multidimensional measure of suicidal ideation and suicide attempts. The use of a single item to measure suicidal ideation and suicide attempts is fairly common within the suicide literature (Liu et al., 2020; Reed et al., 2015). Lastly, although the data used in this study is nationally representative, responses are based on self-reports and may be subject to recall bias. It is possible that male adolescents who experience SV might experience more stigma than their female counterparts. Therefore, it is possible that males might underreport SV victimization.

4.2. Conclusion

This study sought to investigate sex differences in the association between SV victimization and suicidal behaviors among adolescents. A significant finding of this study is that whereas adolescent females who experienced SV are more likely to report suicidal ideation, adolescent males who experience SV are more likely to make a suicide attempt. The findings of the present study highlight the importance of assessing for a history of SV among adolescents to ensure early intervention and consequently prevent suicidal behaviors.

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The authors declare that they have no conflicts of interests with respect to the authorship and/or the publication of this paper.

CRedit authorship contribution statement

Philip Baiden: Conceptualization, Data curation, Formal analysis, Writing - original draft, Writing - review & editing. **Yunyu Xiao:** Formal analysis, Writing - original draft, Writing - review & editing. **Gladys Asiedua-Baiden:** Conceptualization, Writing - original draft, Writing - review & editing. **Catherine A. LaBrenz:** Writing - review & editing. **Godfred O. Boateng:** Writing - review & editing. **Genevieve Graaf:** Writing - review & editing. **Jennifer J. Muehlenkamp:** Writing - review & editing.

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References

Anderson, L.M., Hayden, B.M., Tomasula, J.L., 2015. Sexual assault, overweight, and suicide attempts in US adolescents. *Suicide Life-Threat. Behav.* 45 (5), 529–540. doi:10.1111/sltb.12148.

- Ashrafioun, L., Bishop, T.M., Conner, K.R., Pigeon, W.R., 2017. Frequency of prescription opioid misuse and suicidal ideation, planning, and attempts. *J. Psychiatr. Res.* 92, 1–7. doi:10.1016/j.jpsychires.2017.03.011.
- Baiden, P., Graaf, G., Zaami, M., Acolatse, C.K., Adeku, Y., 2019a. Examining the association between prescription opioid misuse and suicidal behaviors among adolescent high school students in the United States. *J. Psychiatr. Res.* 112, 44–51. doi:10.1016/j.jpsychires.2019.02.018.
- Baiden, P., Kuire, V.Z., Shrestha, N., Tonui, B.C., Dako-Gyeke, P., Peters, K.K., 2019. Bullying victimization as a predictor of suicidal ideation and suicide attempt among Senior High School students in Ghana: Results from the 2012 Ghana Global School-Based Health Survey. *J. Sch. Violence* 18 (2), 300–317. doi:10.1080/15388220.2018.1486200.
- Baiden, P., LaBrenz, C., Asiedua-Baiden, G., Muehlenkamp, J.J., 2020. Examining the intersection of race/ethnicity and sexual orientation on suicidal ideation and suicide attempt among adolescents: findings from the 2017 Youth Risk Behavior Survey. *J. Psychiatr. Res.* 125, 13–20. doi:10.1016/j.jpsychires.2020.02.029.
- Baiden, P., Mengo, C., Boateng, G.O., Small, E., 2019b. Investigating the association between age at first alcohol use and suicidal ideation among high school students: evidence from the Youth Risk Behavior Surveillance System. *J. Affect. Disorders* 242, 60–67. doi:10.1016/j.jad.2018.08.078.
- Baiden, P., Stewart, S.L., Fallon, B., 2017. The mediating effect of depressive symptoms on the relationship between bullying victimization and non-suicidal self-injury among adolescents: Findings from community and inpatient mental health settings in Ontario, Canada. *Psychiatr. Res.* 255, 238–247. doi:10.1016/j.psychres.2017.05.018.
- Baiden, P., Tadeo, S.K., 2019. Examining the association between bullying victimization and prescription drug misuse among adolescents in the United States. *J. Affect. Disorders* 259, 317–324. doi:10.1016/j.jad.2019.08.063.
- Baiden, P., Tadeo, S.K., 2020. Investigating the association between bullying victimization and suicidal ideation among adolescents: Evidence from the 2017 Youth Risk Behavior Survey. *Child Abuse Neglect* 102, 104417. doi:10.1016/j.chiabu.2020.104417.
- Baiden, P., Tadeo, S.K., Graaf, G., Respress, B.N., 2019. Examining the association between weapon carrying on school property and suicide attempt among adolescents in the United States. *Soc. Work Public Hlth* 34 (7), 570–582. doi:10.1080/19371918.2019.1635945.
- Baker, M.R., Frazier, P.A., Greer, C., Paulsen, J.A., Howard, K., Meredith, L.N., Anders, S.L., Shallcross, S.L., 2016. Sexual victimization history predicts academic performance in college women. *J. Couns. Psychol.* 63 (6), 685–692. doi:10.1037/cou0000146.
- Basile, K.C., Clayton, H.B., Rostad, W.L., Leemis, R.W., 2020. Sexual violence victimization of youth and health risk behaviors. *Am. J. Prev. Med.* 58 (4), 570–579. doi:10.1016/j.amepre.2019.11.020.
- Behnken, M.P., Le, Y.-C.L., Temple, J.R., Berenson, A.B., 2010. Forced sexual intercourse, suicidality, and binge drinking among adolescent girls. *Addict. Behav.* 35 (5), 507–509. doi:10.1016/j.addbeh.2009.12.008.
- Black, M.C., Basile, K.C., Breiding, M.J., Ryan, G.W., 2014. Prevalence of sexual violence against women in 23 States and two US Territories, BRFSS 2005. *Violence Against Women* 20 (5), 485–499. doi:10.1177/1077801214528856.
- Bohnert, A.S., Ilgen, M.A., 2019. Understanding links among opioid use, overdose, and suicide. *N. Engl. J. Med.* 380 (1), 71–79. doi:10.1056/NEJMra1802148.
- Borges, G., Benjet, C., Orozco, R., Medina-Mora, M.-E., Menendez, D., 2017. Alcohol, cannabis and other drugs and subsequent suicide ideation and attempt among young Mexicans. *J. Psychiatr. Res.* 91, 74–82. doi:10.1016/j.jpsychires.2017.02.025.
- Bossarte, R.M., Swahn, M.H., 2011. The associations between early alcohol use and suicide attempts among adolescents with a history of major depression. *Addict. Behav.* 36 (5), 532–535. doi:10.1016/j.addbeh.2010.12.031.
- Bounds, D.T., Edinburgh, L.D., Fogg, L.F., Saewyc, E.M., 2019. A nurse practitioner-led intervention for runaway adolescents who have been sexually assaulted or sexually exploited: effects on trauma symptoms, suicidality, and self-injury. *Child Abuse Neglect* 90, 99–107. doi:10.1016/j.chiabu.2019.01.023.
- Breiding, M.J., 2014. Prevalence and characteristics of sexual violence, stalking, and intimate partner violence victimization-national intimate partner and sexual violence survey, United States, 2011. *MMWR Surveill. Summ.* 63 (8), 1–18.
- Brener, N.D., Kann, L., Shanklin, S., Kinchen, S., Eaton, D.K., Hawkins, J., Flint, K.H., 2013. Methodology of the youth risk behavior surveillance system. *MMWR Recomm. Rep.* 62 (1), 1–20.
- Bridge, J.A., Goldstein, T.R., Brent, D.A., 2006. Adolescent suicide and suicidal behavior. *J. Child Psychol. Psychiatry* 47 (3–4), 372–394.
- Brockie, T.N., Dana-Sacco, G., Wallen, G.R., Wilcox, H.C., Campbell, J.C., 2015. The relationship of adverse childhood experiences to PTSD, depression, poly-drug use and suicide attempt in reservation-based Native American adolescents and young adults. *Am. J. Commu. Psychol.* 55 (3–4), 411–421. doi:10.1007/s10464-015-9721-3.
- Capron, D.W., Allan, N.P., Jalongo, N.S., Leen-Feldner, E., Schmidt, N.B., 2015. The depression distress amplification model in adolescents: a longitudinal examination of anxiety sensitivity cognitive concerns, depression and suicidal ideation. *J. Adolesc.* 41, 17–24. doi:10.1016/j.adolescence.2015.02.001.
- Centers for Disease Control and Prevention. (2019). Preventing Suicide. <https://www.cdc.gov/violenceprevention/suicide/fastfact.html>
- Charak, R., Koot, H.M., Dvorak, R.D., Elkliit, A., Elhai, J.D., 2015. Unique versus cumulative effects of physical and sexual assault on patterns of adolescent substance use. *Psychiatr. Res.* 230 (3), 763–769.
- Conner, K., Britton, P., Sworts, L., Joiner, T., 2007. Suicide attempts among individuals with opiate dependence: the critical role of felt belonging. *J. Consult. Clin. Psychol.* 32, 1395–1404.
- Davis, D.A., Luecken, L.J., Zautra, A.J., 2005. Are reports of childhood abuse related to the experience of chronic pain in adulthood? A meta-analytic review of the literature. *Clin. J. Pain* 21 (5), 398–405. doi:10.1097/01.aip.0000149795.08746.31.

- Danielson, C.K., McCart, M.R., de Arellano, M.A., Macdonald, A., Doherty, L.S., Resnick, H.S., 2010. Risk reduction for substance use and trauma-related psychopathology in adolescent sexual assault victims: findings from an open trial. *Child Maltreat.* 15 (3), 261–268.
- Edwards, V.J., Freyd, J.J., Dube, S.R., Anda, R.F., Felitti, V.J., 2012. Health outcomes by closeness of sexual abuse perpetrator: a test of betrayal trauma theory. *J. Aggress. Maltreat.* Trauma 21 (2), 133–148. doi:10.1080/10926771.2012.648100.
- Evans, E., Hawton, K., Rodham, K., Deeks, J., 2005. The prevalence of suicidal phenomena in adolescents: a systematic review of population-based studies. *Suicide Life-Threat. Behav.* 35 (3), 239–250.
- Freedenthal, S., Vaughn, M.G., Jenson, J.M., Howard, M.O., 2007. Inhalant use and suicidality among incarcerated youth. *Drug Alcohol Depend.* 90 (1), 81–88. doi:10.1016/j.drugalcdep.2007.02.021.
- Garlow, S.J., Purselle, D.C., Heninger, M., 2007. Cocaine and alcohol use preceding suicide in African American and white adolescents. *J. Psychiatr. Res.* 41 (6), 530–536. doi:10.1016/j.jpsychires.2005.08.008.
- Gart, R., Kelly, S., 2015. How illegal drug use, alcohol use, tobacco use, and depressive symptoms affect adolescent suicidal ideation: a secondary analysis of the 2011 youth risk behavior survey. *Issues Ment. Health Nurs.* 36 (8), 614–620. doi:10.3109/01612840.2015.1015697.
- Gini, G., Espelage, D.L., 2014. Peer victimization, cyberbullying, and suicide risk in children and adolescents. *JAMA* 312 (5), 545–546. doi:10.1001/jama.2014.3212.
- Hill, R.M., Busto, C.T.D., Buitron, V., Pettit, J.W., 2018. Depressive symptoms and perceived burdensomeness mediate the association between anxiety and suicidal ideation in adolescents. *Arch. Suicide Res.* 22 (4), 555–568. doi:10.1080/13811118.2018.1427163.
- Ivanich, J., Teasdale, B., 2018. Suicide ideation among adolescent American Indians: an application of General Strain Theory. *Deviant Behav.* 39 (6), 702–715. doi:10.1080/01639625.2017.1304799.
- Jaconis, M., Boyd, S.J., Gray, M.J., 2020. History of sexual violence and associated negative consequences: the mediating role of body image dissatisfaction. *J. Loss Trauma* 25 (2), 107–123. doi:10.1080/15325024.2019.1660500.
- Javaid, A., 2018. Male rape, masculinities, and sexualities. *Int. J. Law Crime Justice* 52, 199–210. doi:10.1016/j.ijlcrj.2017.12.003.
- Joiner, T., 2005. *Why People Die by Suicide*. Harvard University Press, Massachusetts, MA.
- Kann, L., McManus, T., Harris, W.A., Shanklin, S.L., Flint, K.H., Queen, B., Lowry, R., Chyen, D., Whittle, L., Thornton, J., 2018. Youth risk behavior surveillance—United States, 2017. *MMWR Surveill. Summ.* 67 (8), 1–114. doi:10.15585/mmwr.s6708a1.
- Klomek, A.B., Barzilay, S., Apter, A., Carli, V., Hoven, C.W., Sarchiapone, M., Hadlaczky, G., Balazs, J., Keresztesy, A., Brunner, R., 2019. Bi-directional longitudinal associations between different types of bullying victimization, suicide ideation/attempts, and depression among a large sample of European adolescents. *J. Child Psychol. Psychiatry* 60 (2), 209–215. doi:10.1111/jcpp.12951.
- Koss, M.P., Abbey, A., Campbell, R., Cook, S., Norris, J., Testa, M., Ullman, S., West, C., White, J., 2007. Revising the SES: a collaborative process to improve assessment of sexual aggression and victimization. *Psychol. Women Q.* 31 (4), 357–370. doi:10.1111/j.1471-6402.2007.00385.x.
- Kuczumarski, R.J., Ogden, C.L., Grummer-Strawn, L.M., Flegal, K.M., Guo, S.S., Wei, R., Mei, Z., Curtin, L.R., Roche, A.F., Johnson, C.L., 2000. *CDC Growth Charts: United States Advance Data from Vital and Health Statistics*. National Center for Health Statistics, Hyattsville, MD No. 314.
- Langhinrichsen-Rohling, J., Friend, J., Powell, A., 2009. Adolescent suicide, gender, and culture: a rate and risk factor analysis. *Aggress. Violent Behav.* 14 (5), 402–414. doi:10.1016/j.avb.2009.06.010.
- Langhinrichsen-Rohling, J., Lamis, D.A., Malone, P.S., 2010. Sexual attraction status and adolescent suicide proneness: the roles of hopelessness, depression, and social support. *J. Homosex.* 58 (1), 52–82. doi:10.1080/00918369.2011.533628.
- Liu, R.T., Walsh, R.F., Sheehan, A.E., Cheek, S.M., Carter, S.M., 2020. Suicidal ideation and behavior among sexual minority and heterosexual youth: 1995–2017. *Pediatrics* 145 (3), e20192221. doi:10.1542/peds.2019-2221.
- Maniglio, R., 2011. The role of child sexual abuse in the etiology of suicide and non-suicidal self-injury. *Acta Psychiat. Scand.* 124 (1), 30–41. doi:10.1111/j.1600-0447.2010.01612.x.
- Marshall, M.P., Dietz, L.J., Friedman, M.S., Stall, R., Smith, H.A., McGinley, J., Thoma, B.C., Murray, P.J., D'Augelli, A.R., Brent, D.A., 2011. Suicidality and depression disparities between sexual minority and heterosexual youth: a meta-analytic review. *J. Adolesc. Health* 49 (2), 115–123. doi:10.1016/j.jadohealth.2011.02.005.
- Masters, N.T., Stappenbeck, C.A., Kaysen, D., Kajumulo, K.F., Davis, K.C., George, W.H., Norris, J., Heiman, J.R., 2015. A person-centered approach to examining heterogeneity and subgroups among survivors of sexual assault. *J. Abnorm. Psychol.* 124 (3), 685–696. doi:10.1037/abn0000055.
- McKay, T., Berzofsky, M., Landwehr, J., Hsieh, P., Smith, A., 2019. Suicide etiology in youth: differences and similarities by sexual and gender minority status. *Child. Youth Serv. Rev.* 102, 79–90. doi:10.1016/j.chilcyouth.2019.03.039.
- Miller, A.B., Esposito-Smythers, C., Weismore, J.T., Renshaw, K.D., 2013. The relation between child maltreatment and adolescent suicidal behavior: a systematic review and critical examination of the literature. *Clin. Child Family Psychol. Rev.* 16 (2), 146–172. doi:10.1007/s10567-013-0131-5.
- Mitchell, S.M., Seegan, P.L., Roush, J.F., Brown, S.L., Sustaifa, M.A., Cukrowicz, K.C., 2016. Retrospective cyberbullying and suicide ideation: the mediating roles of depressive symptoms, perceived burdensomeness, and thwarted belongingness. *J. Interpers. Violence* 33 (16), 2602–2620. doi:10.1177/0886260516628291.
- Nock, M.K., Borges, G., Bromet, E.J., Cha, C.B., Kessler, R.C., Lee, S., 2008. Suicide and suicidal behavior. *Epidemiol. Rev.* 30 (1), 133–154. doi:10.1093/epirev/mxn002.
- Randall, J.R., Walld, R., Finlayson, G., Sareen, J., Martens, P.J., Bolton, J.M., 2014. Acute risk of suicide and suicide attempts associated with recent diagnosis of mental disorders: a population-based, propensity score—matched analysis. *Can. J. Psychiatr.* 59 (10), 531–538. doi:10.1177/070674371405901006.
- Reed, K.P., Nugent, W., Cooper, R.L., 2015. Testing a path model of relationships between gender, age, and bullying victimization and violent behavior, substance abuse, depression, suicidal ideation, and suicide attempts in adolescents. *Child. Youth Serv. Rev.* 55, 128–137. doi:10.1016/j.chilcyouth.2015.05.016.
- Resnick, H.S., Walsh, K., Schumacher, J.A., Kilpatrick, D.G., Aciermo, R., 2013. Prior substance abuse and related treatment history reported by recent victims of sexual assault. *Addict. Behav.* 38 (4), 2074–2079. doi:10.1016/j.addbeh.2012.12.010.
- Rubin, D.B., 1996. Multiple imputation after 18+ years. *J. Am. Stat. Assoc.* 91 (434), 473–489. doi:10.1080/01621459.1996.10476908.
- Sachs-Ericsson, N., Kendall-Tackett, K., Hernandez, A., 2007. Childhood abuse, chronic pain, and depression in the National Comorbidity Survey. *Child Abuse Neglect* 31 (5), 531–547. doi:10.1016/j.chiabu.2006.12.007.
- Scott, K.M., Korff, M.V., Angermeyer, M.C., Benjet, C., Bruffaerts, R., Girolamo, G.D., Haro, J.M., Lepine, J.-P., Ormel, J., Posada-Villa, J., 2011. Association of childhood adversities and early-onset mental disorders with adult-onset chronic physical conditions. *Arch. Gen. Psychiatry* 68 (8), 838–844. doi:10.1001/archgenpsychiatry.2011.77.
- Smith, N.B., Monteith, L.L., Rozek, D.C., Meuret, A.E., 2018a. Childhood abuse, the interpersonal-psychological theory of suicide, and the mediating role of depression. *Suicide Life-Threat.* 48 (5), 559–569.
- Smith, S.G., Zhang, X., Basile, K.C., Merrick, M.T., Wang, J., Kresnow, M., Chen, J., 2018b. The National Intimate Partner and Sexual Violence Survey: 2015 Data Brief—updated Release.
- Stein, M.B., Lang, A.J., Laffaye, C., Satz, L.E., Lenox, R.J., Dresselhaus, T.R., 2004. Relationship of sexual assault history to somatic symptoms and health anxiety in women. *Gen. Hosp. Psychiatry* 26 (3), 178–183. doi:10.1016/j.genhosppsych.2003.11.003.
- Sumner, S.A., Mercy, J.A., Buluma, R., Mwangi, M.W., Marcelin, L.H., Lea, V., Brookmeyer, K., Kress, H., Hillis, S.D., 2016. Childhood sexual violence against boys: a study in 3 countries. *Pediatrics* 137 (5), e20153386. doi:10.1542/peds.2015-3386.
- Sumner, S.A., Mercy, J.A., Dahlberg, L.L., Hillis, S.D., Klevens, J., Houry, D., 2015. Violence in the United States: status, challenges, and opportunities. *JAMA* 314 (5), 478–488. doi:10.1001/jama.2015.8371.
- Thibodeau, M.-E., Lavoie, F., Hébert, M., Blais, M., 2017. Childhood maltreatment and adolescent sexual risk behaviors: unique, cumulative and interactive effects. *Child Abuse Neglect* 72, 411–420. doi:10.1016/j.chiabu.2017.09.002.
- Thompson, M.P., Kingree, J.B., Lamis, D., 2019. Associations of adverse childhood experiences and suicidal behaviors in adulthood in a US nationally representative sample. *Child Care Health Dev.* 45 (1), 121–128. doi:10.1111/cch.12617.
- Tietjen, G., Karmakar, M., Elhai, J., Amialchuk, A., 2016. Exploring the effect of childhood abuse on migraine, depression and anxiety using structural equation modeling. *Neurology* 86 (16), P2.207.
- Tomasula, J.L., Anderson, L.M., Littleton, H.L., Riley-Tillman, T.C., 2012. The association between sexual assault and suicidal activity in a national sample. *School Psychol. Q.* 27 (2), 109. doi:10.1037/a0029162.
- Tuchman, E., 2010. Women and addiction: the importance of gender issues in substance abuse research. *J. Addict. Dis.* 29 (2), 127–138. doi:10.1080/10550881003684582.
- Ulloa, E., Salazar, M., Monjaras, L., 2016. Prevalence and correlates of sex exchange among a nationally representative sample of adolescents and young adults. *J. Child Sex. Abuse* 25 (5), 524–537. doi:10.1080/10538712.2016.1167802.
- Underwood, M.K., Ehrenreich, S.E., 2017. The power and the pain of adolescents' digital communication: cyber victimization and the perils of lurking. *Am. Psychol.* 72 (2), 144–158. doi:10.1037/a0040429.
- Van Buuren, S., 2000. *Multivariate Imputation by Chained Equations: MICE VI. 0 User's Manual*. TNO, Leiden.
- Van Geel, M., Vedder, P., Tanilon, J., 2014. Relationship between peer victimization, cyberbullying, and suicide in children and adolescents: a meta-analysis. *JAMA Pediatr.* 168 (5), 435–442. doi:10.1001/jamapediatrics.2013.4143.
- Van Orden, K.A., Witte, T.K., Cukrowicz, K.C., Braithwaite, S.R., Selby, E.A., Joiner Jr, T.E., 2010. The interpersonal theory of suicide. *Psychol. Rev.* 117 (2), 575–600.
- Van Orden, K.A., Witte, T.K., Gordon, K.H., Bender, T.W., Joiner Jr, T.E., 2008. Suicidal desire and the capability for suicide: tests of the interpersonal-psychological theory of suicidal behavior among adults. *J. Consult. Clin. Psychol.* 76 (1), 72–83.
- Victor, S.E., Klonsky, E.D., 2014. Correlates of suicide attempts among self-injurers: a meta-analysis. *Clin. Psychol. Rev.* 34 (4), 282–297. doi:10.1016/j.cpr.2014.03.005.
- Vik, B.F., Nöttestad, J.A., Schei, B., Rasmussen, K., Hagemann, C.T., 2019. Psychosocial vulnerability among patients contacting a Norwegian sexual assault center. *J. Interpers. Violence* 34 (10), 2138–2157. doi:10.1177/0886260516659657.
- Wolfe, K.L., Nakonezny, P.A., Owen, V.J., Rial, K.V., Moorehead, A.P., Kennard, B.D., Emslie, G.J., 2019. Hopelessness as a predictor of suicide ideation in depressed male and female adolescent youth. *Suicide Life-Threat. Behav.* 49 (1), 253–263. doi:10.1111/sltb.12428.
- Ybarra, M.L., Mitchell, K.J., 2013. Prevalence rates of male and female sexual violence perpetrators in a national sample of adolescents. *JAMA Pediatr.* 167 (12), 1125–1134. doi:10.1001/jamapediatrics.2013.2629.
- Yoon, Y., Cederbaum, J.A., Schwartz, A., 2018. Childhood sexual abuse and current suicidal ideation among adolescents: problem-focused and emotion-focused coping skills. *J. Adolesc.* 67, 120–128. doi:10.1016/j.adolescence.2018.06.009.
- Zamora-Kapoor, A., Nelson, L.A., Barbosa-Leiker, C., Comtois, K.A., Walker, L.R., Buchwald, D.S., 2016. Suicidal ideation in American Indian/Alaska Native and White adolescents: the role of social isolation, exposure to suicide, and overweight. *Am. Indian Alaska Nat.* 23 (4), 86–100.