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## School Bullying and Health Risk Behavior Outcomes among Adolescents in Florida

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# SCHOOL BULLYING AND HEALTH RISK BEHAVIOR OUTCOMES AMONG ADOLESCENTS IN FLORIDA

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*This study's purpose is to examine the association between bullying and health-risk behavior outcomes among adolescents in Florida schools. Data were drawn from the 2015 Florida Youth Risk Behavior Survey (YRBS), a school-based survey of high school students from grades 9 to 12 that is conducted biennially. The YRBS estimates six types of health-risk behaviors that contribute to the disability of young youth and the leading causes of morbidity and mortality. The six health risk behaviors are unintentional injuries, tobacco use, sexual health behaviors, dietary, physical activity, and alcohol use. Overall, 6.4 % of students were involved in both kinds of bullying (in-person and electronic bullying); 7.6% in in-person bullying; 4.4% in electronic bullying; and 81.6% of students were uninvolved in bullying. This study adds to previous findings and emphasizes that bullying does not come about in seclusion, but is a pattern of risk behaviors or stipulations, such as school and sexual violence, suicide, substance use, and unhealthy weight control practices.*

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**Background** | According to the World Health Organization,<sup>1</sup> bullying is defined as a repeated, aggressive behavior – both direct (e.g., hitting, kicking, or pushing) and indirect (e.g., teasing, social exclusion, or spreading a rumor) – intended to cause physical and/or psychological harm to another individual. School bullying is a major public health threat as it presents a variety of developmental and psychological adolescent hazards that stretch into adulthood problems.<sup>2</sup> Bullying typically involves a prominent individual or group who abuses their power and directs it toward a target.<sup>3,4</sup> This individual or group will make the target feel powerless by using behaviors that are threatening, demeaning, and/or belittling.<sup>4</sup> Bullying victimization has been linked with a plethora of adverse health risk behaviors such as mental health risks,<sup>5-7</sup> substance use,<sup>8,9</sup> weight-related factors,<sup>9-11</sup> school violence (physical fighting and weapon carrying),<sup>9,12,13</sup> poor school performance (absenteeism and grade point average),<sup>14</sup> psychosocial distress,<sup>7</sup> sexual risks,<sup>9</sup> and sleep disturbances.<sup>9</sup> Although bullying takes place among both children and adults in a variety of settings, most of the current research focuses primarily on children and youth enrolled in school.<sup>3,4</sup> Basile et al.<sup>15</sup> found that the prevalence of experiencing any type of bullying

victimization was 24.8% among U.S. high school students. This prevalence varied by sex, race/ethnicity, and sexual identity; the highest was among females (30.2% vs 19.2% for males), Whites (28.8% vs 18.0% for Blacks), and LBG (lesbian, bisexual, and gay) students (39.5% vs 22.2% for heterosexual students).<sup>15</sup> Bullying victimization can occur on school grounds or even electronically. Among U.S. high school students, 19.5% reported being bullied on school property while 15.7% reported experiencing electronic bullying.<sup>15</sup>

In addition to the physical and emotional impact that bullying can produce, financial repercussions are an additional consequence. In the U.S., it is estimated that preventing bullying in high school results in lifetime cost benefits of over \$1.4 million per individual in school.<sup>16</sup> Bullying, whether in-person or online, may lead an individual to miss school due to perceived safety.<sup>1,17,18</sup> In 2013, the estimated loss of funds to the California school system due to absenteeism was \$1 billion.<sup>17</sup> California school districts are projected to receive \$276 million less in annual funding because their students are not feeling safe in school.<sup>17</sup> Missing school due to bullying can lead to decreased academic performance and negative mental health consequences (anxiety, depression, and intentional self-harm). Moreover, absenteeism puts

students at risk of failing to complete high school or even college and carries financial repercussions.<sup>16</sup>

Although awareness has been raised on adolescent bullying and its association with morbidity and mortality, the call to action is still not enough as we have seen multiple reported adolescent deaths linked to bullying. Unfortunately, the consequences of adolescent bullying extend into adulthood. In particular, psychiatric morbidity in later adulthood has been associated with bullying.<sup>2</sup> Furthermore, schools serve as an occupational environment for students to develop their physical, cognitive, social, moral, and ethical skills.<sup>2</sup> Legislative initiatives have also been done around the world due to the multiple reported death cases that have been linked to bullying.<sup>2</sup>

Several studies have examined the association between bullying and adverse health risk behaviors among high school students in the United States. However, little is known about this relationship among youth in Florida schools. Therefore, the purpose of this study is to examine the association between bullying and health-risk behavior outcomes among adolescents in Florida schools.

## Methods |

### Participants

Data were drawn from the 2015 Florida Youth Risk Behavior Survey (YRBS). The YRBS is a school-based survey of high school students from grades 9 to 12 that is conducted biennially. Florida Departments of Health and Education oversees the YRBS in collaboration with the U.S. Centers for Disease Control and Prevention (CDC) to gather data on Florida public high school students.<sup>19</sup> The YRBS estimates six types of health-risk behaviors that contribute to the disability of young youth and the leading causes of morbidity and mortality. The six health risk behaviors are unintentional injuries, tobacco use, sexual health behaviors, dietary, physical activity, and alcohol use. The YRBS consists of a two-stage cluster probability sample design. This survey is anonymous and voluntary. The procedures of local parental permission are also used. A self-administered computerized questionnaire or answer sheet recorded the student's responses. Responses are weighted to make the sample representative of the public high school students in Florida. Responses from 4,437 students in grades 9-12 were examined. The Florida A & M University's Institutional Review Board reviewed and approved the research proposal as an exempt study.

### Procedure

#### *Outcome variables*

The outcome measures that were examined in this study included: 1) violence-related risks, 2) mental health risks, 3) substance use, and 4) weight-related factors. The violence outcomes included being

involved in a physical fight, injured in a physical fight, in a physical

fight at school, carrying a weapon on school property, feeling unsafe, school violence, and forced sexual intercourse. Mental health outcomes included depression, suicide ideation, suicide planning, suicide attempt, and severe suicide attempt. The distinction between a suicide attempt and a severe suicide attempt is that medical attention is required for the latter. Substance use outcomes included tobacco use, alcohol use, marijuana use, and cocaine use. Weight-related factors included self-reported overweight, dieting, and purging.

Physical fighting anywhere, physical fighting on school property, and school violence were assessed by asking the questions: "During the past 12 months, how many times were you in a physical fight?", "During the past 12 months, how many times were you in a physical fight on school property?", and "During the past 12 months, how many times has someone threatened or injured you with a weapon such as a gun, knife, or club on school property?" Being injured in a physical fight was assessed with the question: "During the past 12 months, how many times were you in a physical fight in which you were injured and had to be treated by a doctor or nurse?" Carrying a weapon on school property and not going to school due to safety concerns were assessed with the questions: "During the past 30 days, on how many days did you carry a weapon such as a gun, knife, or club?" and "During the past 30 days, on how many days did you not go to school because you felt you would be unsafe at school or on your way to or from school?" Forced sexual intercourse was assessed with a single item: "Have you ever been physically forced to have sexual intercourse when you did not want to?"

Depression, suicide ideation, and suicide planning were assessed with the questions: "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?", "During the past 12 months, did you ever seriously consider attempting suicide?", and "During the past 12 months, did you make a plan about how you would attempt suicide?" A suicide attempt was assessed by asking the question: "During the past 12 months, how many times did you actually attempt suicide?" A severe suicide attempt was assessed with a single item: "If you attempted suicide during the past 12 months, did any attempt result in an injury, poisoning, or overdose that had to be treated by a doctor or nurse?"

Tobacco and alcohol use were assessed with the questions: "During the past 30 days, on how many days did you smoke cigarettes?" and "During the past 30 days, on how many days did you have at least one drink of alcohol?" Marijuana use was assessed by asking: "During your life, how many times have you used marijuana?" Cocaine use was assessed with a

single item: “During your life, how many times have you used any form of cocaine, including powder, crack, or freebase?”

Self-reported overweight was assessed with the question: “How do you describe your weight?” The response options were “very underweight”, “slightly underweight”, “about the right weight”, “slightly overweight”, and “very overweight”. Purging and dieting behaviors were assessed with the questions: “During the past 30 days, did you go without eating for 24 hours or more (also called fasting) to lose weight or to keep from gaining weight?” and “During the past 30 days, did you vomit or take laxatives to lose weight or to keep from gaining weight?”

#### **Independent variables**

The main independent variable was bullying. In-person bullying was assessed with the question: “During the past 12 months, have you ever been bullied on school property?” Electronic bullying was assessed with the item: “During the past 12 months, have you ever been electronically bullied?” The response options for both questions were “yes” or “no”. A 4-level variable was generated using the in-person and electronic bullying questions resulting in four mutually exclusive bullying categories based on the responses from the survey. In-person bullying only, electronic bullying only, both in-person and electronic bullying, and none.

We included age, race/ethnicity, and sex as the socio-demographic variables. Age was classified into 3 categories: 14 or younger, 15 to 17, and 18 or older. Race/ethnicity was categorized into 4 groups: White non-Hispanic as “White”, Black non-Hispanic as “Black or African American”, Hispanic as “Hispanic/Latino”, and other non-Hispanic as “Asian”, or “multiple-non-Hispanic”. All responses to the risk factors listed above were dichotomized.

#### **Data Analysis**

This analysis was stratified by sex as prior research identified differences in the types of bullying victimization among males and females.<sup>9</sup> Multiple logistic regression analysis was then used to examine the relationship between in-person and electronic bullying victimization and the health risk behaviors, violence-related risks, mental health risks, substance use, and weight-related factors after controlling for race and grade. For adjusting varying probabilities of selection and non-response, the data were weighed. Analyses were performed using PROC SURVEYFREQ and PROC SURVEYLOGISTIC in SAS Version 9.4 (SAS Institute Inc., Cary, NC).

## **Results |**

### **Survey Respondents Characteristics**

The weighted total of the adolescent population represented a total of 550,702 (n=4,437). Table 1 provides the descriptive statistics of the adolescent

population. Our study participants ranged in age from  $\leq 14$  years to  $\geq 18$ . The 15-17-year-old age group represented 74.8% of the population. Most of the population consisted of Whites at 46.7%; Blacks, at 18.5%; Hispanics, at 29.5%; and other race groups, at 5.3%. With respect to sex, females represented 52.1% of the population. Regarding grade level, 26.8% of students were in 9<sup>th</sup> grade, 26.6% in 10<sup>th</sup> grade, 23.8% in 11<sup>th</sup> grade, and 22.8% in 12<sup>th</sup> grade. Overall, 6.4 % of students were involved in both kinds of bullying (in-person and electronic bullying); 7.6% in in-person bullying; 4.4% in electronic bullying; and 81.6% of students were uninvolved in bullying.

### **Association between Bullying Victimization and Health Risk Behaviors**

#### **Violence-Related Factors**

Among both male and female students, students who reported being a victim of both kinds of bullying were positively associated with all violence-related variables except for some differences (Table 2). Forced sexual intercourse held the highest odds ratio among all violence-related measures among females (AOR = 11.407) while school violence had the strongest association among males (AOR = 12.948) with both kinds of bullying. Having been only electronically bullied was associated with being in a physical fight at school among males but not female students. Experiencing either in-person bullying only, or e-bullying only failed to reach statistical significance with carrying a weapon on school property for both males and females. Having been only e-bullied was associated with feeling unsafe among females but not male students. Experiencing either in-person bullying only, or e-bullying only failed to reach statistical significance with forced sexual intercourse among males but not female students.

#### **Mental Health Factors**

The mental health outcomes examined in this study presented a strong association with all kinds of bullying among both male and female students except for suicide planning (Table 3). Having been victimized by bullying only in person was strongly associated with suicide planning among females but not male students. Both kinds of bullying consistently held the highest odds ratio for both males and females for suicide attempt (AOR = 16.679 and AOR = 8.767, respectively). The second highest odds ratio was reported for the suicide ideation model for males (AOR = 10.699) while for females it was suicide planning (AOR = 8.341). Both kinds of bullying were significantly associated with severe suicide attempt for females only. Concerning the last mental health outcome variable, both kinds of bullying were strong predictors of depression.

#### **Substance Use Factors**

The substance use outcomes that were examined in this study were tobacco use, alcohol use, marijuana,

and cocaine use (Table 4). Both kinds of bullying held the strongest association with cocaine use among males (AOR = 4.380) and tobacco use among females (AOR = 3.051). Experiencing either in-person or e-bullying only was associated with tobacco use among females only but not males. Having been only e-bullied was strongly associated with marijuana and cocaine use among females but not males. For substance use outcomes, except tobacco use, experiencing in-person bullying only was not significant for both males and females. However, it is the double exposure to both kinds of bullying that led to adverse substance use outcomes. Race failed to reach statistical significance in all outcome measures

**Discussion** | The findings of our study reinforce the premise that being a victim of bullying in childhood or adolescence leads to adverse outcomes that could shape victims' lives<sup>20,21</sup> and thus impact the family, community, and society. This study adds to previous findings and emphasizes that bullying does not come about in seclusion, but is a pattern of risk behaviors or stipulations, such as school and sexual violence, suicide, substance use, and unhealthy weight control practices. We explored the relationship between bullying and health risk behaviors among adolescents in Florida after adjusting for race and grade. Most of the health risk behavior outcomes examined in this study were associated with both in-person and electronic bullying victimization except for a few results.

Our findings are consistent with previous work from a national study<sup>9</sup> however, there were some exceptions. Among female students, being a victim of electronic bullying only was not significant with the odds of being injured in a physical fight, being in a physical fight at school, carrying a weapon on school property, and with self-reported overweight. The findings that were consistent with the Hertz et al.<sup>9</sup> results were carrying a weapon on school property and self-reported overweight. Whereas being a victim of in-person bullying only was not associated with the odds of carrying a weapon on school property, current alcohol use, marijuana use, and cocaine use. Our findings were in agreement with Hertz et al.<sup>9</sup> for current alcohol use.

Males who were bullied electronically were not any more likely than uninvolved to being injured in a physical fight, carrying a weapon on school property, feeling unsafe, having forced sexual intercourse, using tobacco, marijuana, and cocaine,

that were examined in the study except for alcohol and tobacco use for females and alcohol use for males. The odds were significant for Whites and Hispanics as compared to other races but not for Blacks.

#### **Weight-Related Factors**

The weight-related outcomes included self-reported overweight, dieting, and purging (Table 5). Both kinds of bullying held the strongest association with purging among males (AOR = 8.425) and females (AOR = 6.733). Having been only e-bullied was associated with dieting and purging among females but not male students. Self-reported overweight was not associated with having been a victim of e-bullying among male and female students.

self-reported overweight, dieting, and purging. The only result that was in agreement with Hertz et al.<sup>9</sup> findings included self-reported overweight. Carrying a weapon on school property, forced sexual intercourse, and all substance use-related outcomes (tobacco, alcohol, marijuana, and cocaine use) were not significantly associated with in-person bullying among male students. Our findings were in agreement with Hertz et al.<sup>9</sup> except for carrying a weapon on school property and marijuana use. In addition, our results were also consistent with another study that examined the association between e-bullying and marijuana use and found it differs by gender in a sample of Florida adolescents.<sup>22</sup> In summary, experiencing both kinds of bullying was most strongly associated with forced sexual intercourse for female adolescents as compared to suicide attempts for male adolescents. To our knowledge, no other studies have been conducted to examine the impact of bullying on health risk behavior outcomes among adolescents in Florida in terms of violence-related risks, mental health risks, substance use, and weight-related factors. In the bullying dynamic, students who are bullied often suffer the most and are thrust into mental health problems, including depression, suicidal ideation, suicidal planning, suicidal attempts, severe suicide attempts, violence-related risks, and other weight-related problems. These issues could extend into adulthood. The rationale of this study is to provide some of the much-needed information to better understand the role of bullying victimization on a comprehensive list of outcome variables among adolescents in Florida.

**Table 1:** Characteristics of Respondents Who Were In-Person and Electronically Bullied, Youth Risk Behavior Survey, Florida, 2015 (n=4,437)

<b>Characteristics</b>	<b>Weighted N<sup>a</sup> (N=550,702)</b>	<b>Weighted (%)</b>
<b>Age</b>		
<=14	61,217	11.1
15-17	411,633	74.8
>=18	77,852	14.1
<b>Race</b>		
White NH	257,383	46.7
Black NH	102,098	18.5
Hispanic	162,329	29.5
Other NH	28,892	5.3
<b>Gender</b>		
Male	263,600	47.9
Female	287,102	52.1
<b>Grade</b>		
9 <sup>th</sup>	146,682	26.8
10 <sup>th</sup>	146,142	26.6
11 <sup>th</sup>	130,544	23.8
12 <sup>th</sup>	125,257	22.8
<b>School Bullying</b>	77,416	14.1
<b>E-Bullying</b>	59,383	10.8

**Table 2:** Logistic Regression Models Predicting Adjusted Odds Ratio (AOR) for Violence-Related Risks among Florida High School Students, by In-Person and E-Bullying

	Female		Male	
	AOR	(95% CI)	AOR	(95% CI)
<b>In a Physical Fight</b>				
Both Kinds of Bullying	4.092	(4.092, 5.425)	4.417	(2.689, 7.256)
In-Person Bullying only	1.732	(1.112, 2.696)	1.605	(1.104, 2.334)
E- Bullying only	2.719	(1.668, 4.432)	2.529	(1.541, 4.150)
None	1.0		1.0	
<b>Injured in a Physical Fight</b>				
Both Kinds of Bullying	9.266	(3.728, 23.028)	4.362	(1.788, 10.644)
In-Person Bullying only	4.733	(1.487, 15.068)	3.448	(1.448, 8.209)
E- Bullying only	2.901	(0.742, 11.338)	2.436	(0.554, 10.718)
None	1.0		1.0	
<b>In a Physical Fight at School</b>				
Both Kinds of Bullying	4.311	(2.492, 7.458)	6.064	(3.798, 9.683)
In-Person Bullying only	2.330	(1.160, 4.679)	2.552	(1.479, 4.403)
E- Bullying only	2.046	(0.879, 4.761)	2.386	(1.068, 5.333)
None	1.0		1.0	
<b>Carrying a Weapon on School Property</b>				
Both Kinds of Bullying	2.308	(1.449, 3.676)	2.902	(1.938, 4.344)
In-Person Bullying only	1.525	(0.912, 2.552)	1.341	(0.898, 2.004)
E- Bullying only	1.760	(0.849, 3.646)	1.355	(0.566, 3.244)
None	1.0		1.0	
<b>Feeling Unsafe</b>				
Both Kinds of Bullying	8.381	(5.151, 13.639)	9.093	(4.838, 17.089)
In-Person Bullying only	5.443	(3.254, 9.106)	5.039	(3.049, 8.329)
E- Bullying only	4.416	(2.344, 8.318)	3.166	(0.984, 10.180)
None	1.0		1.0	
<b>School Violence</b>				
Both Kinds of Bullying	7.459	(4.702, 11.833)	12.948	(6.736, 24.888)
In-Person Bullying only	4.920	(2.468, 9.808)	5.143	(3.143, 8.416)
E- Bullying only	2.918	(1.450, 5.872)	6.504	(2.998, 14.109)
None	1.0		1.0	
<b>Forced Sexual Intercourse</b>				
Both Kinds of Bullying	11.407	(7.358, 17.684)	12.770	(5.682, 28.702)
In-Person Bullying only	5.155	(3.187, 8.338)	2.689	(0.897, 8.056)
E- Bullying only	4.156	(2.402, 7.193)	1.288	(0.189, 8.776)
None	1.0		1.0	

**Table 3:** Logistic Regression Models Predicting Adjusted Odds Ratio (AOR) for Mental Health Risks among Florida High School Students, by In-Person and E-Bullying

	Female		Male	
	AOR	(95% CI)	AOR	(95% CI)
<b>Depression</b>				
Both Kinds of Bullying	5.919	(4.185, 8.372)	7.472	(4.707, 11.859)
In-Person Bullying only	3.267	(2.335, 4.572)	3.970	(2.956, 5.332)
E- Bullying only	4.402	(2.888, 6.711)	3.576	(2.078, 6.151)
None	1.0		1.0	
<b>Suicide Ideation</b>				
Both Kinds of Bullying	8.175	(6.046, 11.055)	10.699	(6.969, 16.427)
In-Person Bullying only	3.765	(2.597, 5.457)	2.012	(1.185, 3.417)
E- Bullying only	4.603	(2.984, 7.101)	5.185	(2.829, 9.504)
None	1.0		1.0	
<b>Suicide Planning</b>				
Both Kinds of Bullying	8.341	(5.943, 11.707)	7.422	(4.641, 11.869)
In-Person Bullying only	3.890	(2.721, 5.562)	1.691	(0.888, 3.219)
E- Bullying only	4.356	(2.711, 6.999)	6.301	(3.313, 11.984)
None	1.0		1.0	
<b>Suicide Attempt</b>				
Both Kinds of Bullying	8.767	(6.203, 12.391)	16.679	(8.519, 32.655)
In-Person Bullying only	3.814	(2.579, 5.640)	2.975	(1.333, 6.637)
E- Bullying only	4.663	(2.986, 7.282)	9.374	(4.205, 20.898)
None	1.0		1.0	
<b>Severe Suicide Attempt</b>				
Both Kinds of Bullying	7.761	(4.006, 15.035)	+	
In-Person Bullying only	2.855	(1.014, 8.040)	+	
E- Bullying only	3.467	(1.605, 7.485)	+	
None	1.0			

<sup>+</sup>Unreliable estimate results of the adjusted ORs are not reported due to failure in convergence.



**Table 4:** Logistic Regression Models Predicting Adjusted Odds Ratio (AOR) for Substance Use among Florida High School Students, by In-Person and E-Bullying

	Female		Male	
	AOR	(95% CI)	AOR	(95% CI)
<b>Tobacco</b>				
Both Kinds of Bullying	3.051	(1.918, 4.853)	3.288	(1.821, 5.939)
In-Person Bullying only	1.964	(1.319, 2.925)	0.595	(0.271, 1.309)
E- Bullying only	2.995	(1.560, 5.750)	1.369	(0.514, 3.642)
None	1.0		1.0	
<b>Alcohol</b>				
Both Kinds of Bullying	1.888	(1.453, 2.454)	2.859	(1.905, 4.290)
In-Person Bullying only	1.275	(0.961, 1.693)	0.856	(0.505, 1.452)
E- Bullying only	2.116	(1.425, 3.141)	2.829	(1.489, 5.373)
None	1.0		1.0	
<b>Marijuana</b>				
Both Kinds of Bullying	2.788	(2.048, 3.797)	1.916	(1.128, 3.254)
In-Person Bullying only	0.843	(0.498, 1.429)	0.563	(0.299, 1.061)
E- Bullying only	2.544	(1.713, 3.777)	1.026	(0.455, 2.314)
None	1.0		1.0	
<b>Cocaine</b>				
Both Kinds of Bullying	2.476	(1.430, 4.287)	4.380	(2.120, 9.052)
In-Person Bullying only	0.858	(0.359, 2.050)	0.526	(0.263, 1.050)
E- Bullying only	2.403	(1.216, 4.749)	1.962	(0.569, 6.763)
None	1.0		1.0	

**Table 5:** Logistic Regression Models Predicting Adjusted Odds Ratio (AOR) for Weight-Related Factors among Florida High School Students, by In-Person and E-Bullying

	Female		Male	
	AOR	(95% CI)	AOR	(95% CI)
<b>Self-Reported Overweight</b>				
Both Kinds of Bullying	1.481	(1.045, 2.097)	1.600	(1.045, 2.450)
In-Person Bullying only	1.439	(1.074, 1.928)	1.655	(1.167, 2.348)
E- Bullying only	1.423	(0.971, 2.085)	1.784	(0.982, 3.240)
None	1.0		1.0	
<b>Dieting</b>				
Both Kinds of Bullying	4.337	(3.039, 6.189)	3.448	(1.761, 6.754)
In-Person Bullying only	2.688	(1.860, 3.883)	2.820	(1.580, 5.032)
E- bullying only	3.105	(2.027, 4.757)	0.714	(0.179, 2.852)
None	1.0		1.0	
<b>Purging</b>				
Both Kinds of Bullying	6.733	(4.673, 9.701)	8.425	(3.144, 22.577)
In-Person Bullying only	2.814	(1.668, 4.747)	5.374	(2.321, 12.443)
E- Bullying only	4.527	(2.411, 8.498)	2.311	(0.360, 14.816)
None	1.0		1.0	

**Limitations** | This study had some limitations. Data may not be representative at the national level since the Florida YRBS is limited to state public high school students. In addition, this study cannot be generalized to other age groups since the YRBS is limited to high school students. Moreover, these findings cannot be generalized to high school dropout youth. Furthermore, this study is predisposed to recall bias due to its self-reported survey data. The level of underreporting or overreporting of health-related behaviors also cannot be determined. Another limitation is that the YRBS is a cross-sectional study and thus cannot determine temporal relationships between the exposure and the outcomes. We were limited by the bullying victimization questions that were asked in the YRBS (in-person and electronic bullying). However, the frequency or severity of bullying was not addressed in the dataset. In addition, anxiety as a potential mental health outcome was not captured in the YRBS dataset.

**Implications** | The effectiveness of current bullying prevention programs in the United States has varied in the current literature. Some programs focus on interventions targeting parents or caregivers,<sup>23,24</sup> school-based interventions,<sup>25,26</sup> or multi-level interventions.<sup>27</sup> Interventions targeted at the parental level show a reduction in adolescent risk behaviors and increased protective behaviors.<sup>24</sup> Parent involvement in bullying behavior reduction, parent-children communication about bullying, and parental skills can all help aid in bullying reduction.<sup>23</sup> School-based interventions can occur at the curriculum level, the whole school, in small groups, and through social workers.<sup>25</sup> In-school bullying interventions are effective at reducing bullying rates as well as improving mental health risk behaviors in youth.<sup>26</sup> Interventions could also exist at multiple levels, as Gaffney et al.<sup>27</sup> examined the relationship between anti-bullying activities and intervention components (i.e., school, classroom, teacher, parent/guardian, peer, or individual levels, and intervention specific). However, their findings suggest that having a multitude of interventions does not indicate a more robust program that will significantly impact and

reduce bullying behavior. Therefore, a better empirical and theoretical understanding of this relationship is critical for the development of intervention strategies that effectively target modifiable risk and protective factors of victimization.

To conclude, schools should provide safe and supportive environments and take steps to prevent bullying by<sup>28</sup>:

- Educating all stakeholders (students, staff, and parents) about bullying regularly using multiple channels (newsletters, emails, and flyers).
- Training staff and students to identify bullying and respond accordingly.
- Implementing a bullying reporting system that will ensure a prompt investigation and response to bullying as well as protection from retaliation
- Referring perpetrators and victims to counseling and other services.
- Promoting school violence prevention programs that will integrate whole-school programs with classroom curricula. Other interventions could also include small-group or individual-level programs that will address mentoring and social skills.

The Anti-Bullying Policies and Enumeration disseminated by the CDC have been implemented by Florida schools. Bullying in schools has been at the center of the attention of Florida schools, districts, and the Florida Department of Education. The 2022 Florida Statute 1006.147, known as “The Jeffrey Johnston Stand Up for All Students” Act, requires school districts to adopt a policy that bans bullying and harassment of students and school personnel on school grounds, at school-sponsored events, and via school computer systems. The anti-bullying law also requires educators to be trained on the policy and bullying intervention, parents and students to be informed about the policy, procedures for investigating bullying events to be established, and counseling for victims and bullies to be provided.<sup>29</sup>

## References |

- Hong JS, Davis JP, Sterzing PR, Yoon J, Choi S, Smith DC. A Conceptual Framework for Understanding the Association between School Bullying Victimization and Substance Misuse. *Am J Orthopsychiatry*. 2014;84(6):696-710. doi:10.1037/ort0000036
2. Srabstein JC, Leventhal BL. Prevention of bullying-related morbidity and mortality: a call for public health policies. *Bull World Health Organ*. 2010;88(6):403. doi:10.2471/BLT.10.077123
  3. Rettew DC, Pawlowski S. Bullying. *Child Adolesc Psychiatr Clin N Am*. 2016;25(2):235-242. doi:10.1016/j.chc.2015.12.002
  4. Juvonen J, Graham S. Bullying in schools: the power of bullies and the plight of victims. *Annu Rev Psychol*. 2014;65:159-185. doi:10.1146/annurev-psych-010213-115030
  5. Kuehn KS, Wagner A, Vellozo J. Estimating the Magnitude of the Relation Between Bullying, E-Bullying, and Suicidal Behaviors Among United States Youth, 2015. *Crisis*. 2019;40(3):157-165. doi:10.1027/0227-5910/a000544
  6. Messias E, Kindrick K, Castro J. School bullying, cyberbullying, or both: correlates of teen suicidality in the 2011 CDC Youth Risk Behavior Survey. *Compr Psychiatry*. 2014;55(5):1063-1068. doi:10.1016/j.comppsy.2014.02.005
  7. Schneider SK, O'Donnell L, Stueve A, Coulter RWS. Cyberbullying, school bullying, and psychological distress: a regional census of high school students. *Am J Public Health*. 2012;102(1):171-177. doi:10.2105/AJPH.2011.300308
  8. Case KR, Cooper M, Creamer M, Mantey D, Kelder S. Victims of Bullying and Tobacco Use Behaviors in Adolescents: Differences Between Bullied at School, Electronically, or Both. *J Sch Health*. 2016;86(11):832-840. doi:10.1111/josh.12437
  9. Hertz MF, Everett Jones S, Barrios L, David-Ferdon C, Holt M. Association Between Bullying Victimization and Health Risk Behaviors Among High School Students in the United States. *J Sch Health*. 2015;85(12):833-842. doi:10.1111/josh.12339
  10. Waasdorp TE, Mehari K, Bradshaw CP. Obese and overweight youth: Risk for experiencing bullying victimization and internalizing symptoms. *Am J Orthopsychiatry*. 2018;88(4):483-491. doi:10.1037/ort0000294
  11. Wang C, Li Y, Li K, Seo DC. Body Weight and Bullying Victimization among US Adolescents. *Am J Health Behav*. 2018;42(1):3-12. doi:10.5993/AJHB.42.1.1
  12. Pontes NMH, Pontes M. Additive Interactions Between School Bullying Victimization and Gender on Weapon Carrying Among U.S. High School Students: Youth Risk Behavior Survey 2009 to 2015. *J Interpers Violence*. 2021;36(19-20):NP10886-NP10907. doi:10.1177/0886260519877945
  13. Perlus JG, Brooks-Russell A, Wang J, Iannotti RJ. Trends in bullying, physical fighting, and weapon carrying among 6th- through 10th-grade students from 1998 to 2010: findings from a national study. *Am J Public Health*. 2014;104(6):1100-1106. doi:10.2105/AJPH.2013.301761
  14. Glew GM, Fan MY, Katon W, Rivara FP. Bullying and school safety. *J Pediatr*. 2008;152(1):123-128, 128.e1. doi:10.1016/j.jpeds.2007.05.045
  15. Basile KC, Clayton HB, DeGue S, et al. Interpersonal Violence Victimization Among High School Students - Youth Risk Behavior Survey, United States, 2019. *MMWR Suppl*. 2020;69(1):28-37. doi:10.15585/mmwr.su6901a4
  16. Wolke D, Lereya ST. Long-term effects of bullying. *Arch Dis Child*. 2015;100(9):879-885. doi:10.1136/archdischild-2014-306667
  17. Baams L, Talmage CA, Russell ST. Economic costs of bias-based bullying. *Sch Psychol Q Off J Div Sch Psychol Am Psychol Assoc*. 2017;32(3):422-433. doi:10.1037/spq0000211
  18. Grinshteyn E, Yang YT. The Association Between Electronic Bullying and School Absenteeism Among High School Students in the United States. *J Sch Health*. 2017;87(2):142-149. doi:10.1111/josh.12476
  19. Florida Department of Health. Youth Risk Behavior Survey. Published 2022. Accessed May 29, 2022. <https://www.floridahealth.gov/statistics-and-data/survey-data/florida-youth-survey/youth-risk-behavior-survey/index.html>
  20. Anda RF, Felitti VJ, Bremner JD, et al. The enduring effects of abuse and related adverse experiences in childhood. A convergence of evidence from neurobiology and epidemiology. *Eur Arch Psychiatry Clin Neurosci*. 2006;256(3):174-186. doi:10.1007/s00406-005-0624-4
  21. Graham-Bermann SA, Seng J. Violence exposure and traumatic stress symptoms as additional predictors of health problems in high-risk children. *J Pediatr*. 2005;146(3):349-354. doi:10.1016/j.jpeds.2004.10.065
  22. Boccio CM, Leal WE, Jackson DB. Bullying victimization and nicotine and marijuana

vaping among Florida adolescents. *Drug Alcohol Depend.* 2022;237:109536.

doi:10.1016/j.drugalcdep.2022.109536

23. Chen Q, Zhu Y, Chui WH. A Meta-Analysis on Effects of Parenting Programs on Bullying Prevention. *Trauma Violence Abuse.* 2021;22(5).

doi:10.1177/1524838020915619

24. Burrus B, Leeks KD, Sipe TA, et al. Person-to-person interventions targeted to parents and other caregivers to improve adolescent health: a community guide systematic review. *Am J Prev Med.* 2012;42(3). doi:10.1016/j.amepre.2011.12.001

25. Vreeman RC, Carroll AE. A systematic review of school-based interventions to prevent bullying. *Arch Pediatr Adolesc Med.* 2007;161(1). doi:10.1001/archpedi.161.1.78

26. Fraguas D, Diaz-Caneja CM, Ayora M, et al. Assessment of School Anti-Bullying

Interventions: A Meta-analysis of Randomized Clinical Trials. *JAMA Pediatr.* 2021;175(1).

doi:10.1001/jamapediatrics.2020.3541

27. Gaffney H, Ttofi MM, Farrington DP. What works in anti-bullying programs? Analysis of effective intervention components. *J Sch Psychol.* 2021;85. doi:10.1016/j.jsp.2020.12.002

28. Anti-Bullying Policies and Enumeration | Adolescent and School Health | CDC. Published September 23, 2021. Accessed December 3, 2022. [https://www.cdc.gov/healthyyouth/health\\_and\\_academics/bullying/anti\\_bullying\\_policies\\_infobrief-basic.htm](https://www.cdc.gov/healthyyouth/health_and_academics/bullying/anti_bullying_policies_infobrief-basic.htm)

29. Safe Schools. Published November 22, 2022. Accessed January 20, 2023. <https://www.fldoe.org/safe-schools/bullying-prevention.stml>

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