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Erin Grinshteyn
University of San Francisco, egrinshteyn@usfca.edu

Y. Tony Yang
George Mason University, ytyang@gmu.edu

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Erin Grinshteyn, Ph.D., M.S. and Y. Tony Yang, Sc.D, LL.M, M.P.H.

Erin Grinshteyn, Ph.D., M.S.

Assistant Professor

Population Health Sciences Department

School of Nursing and Health Professions

University of San Francisco

San Francisco, CA 94177

Email: egrinshteyn@usfca.edu

Y. Tony Yang Sc.D, LL.M, M.P.H.

Associate Professor

College of Health and Human Services

4400 University Drive

Fairfax, VA 22030-4444

Phone: 703-993-1901

Email: ytyang@gmu.edu

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ABSTRACT

BACKGROUND: This study examines the relationship between exposure to electronic bullying and absenteeism as a result of being afraid.

METHODS: This multivariate, multinomial regression analysis of the 2013 Youth Risk Behavior Survey data assessed the association between experiencing electronic bullying in the past year and how often students were absent in the last month due to feeling unsafe at/in transit to school. The model controlled for other predictors of school absence including demographics, physical / behavioral health, and risk factors. Missing data were multiply imputed.

RESULTS: Electronic bullying was significantly associated with absences. Controlling for model covariates, the relative risk of missing one day of school was 1.77 times higher, the relative risk of missing two to three days of school per month increased by a factor of 2.08, and the relative risk of missing four or more days of school per month increased by a factor of 1.77 for those who experienced electronic bullying in the past year compared with those who were not electronically bullied.

CONCLUSIONS: Electronic bullying's association with absenteeism places it among already recognized negative influences such as depression and binge drinking, necessitating schools to implement policies to mediate the resulting harmful effects.

Keywords: Bullying; Public health; child & adolescent health; violence

Lapses in school attendance are associated with a number of negative consequences for adolescents as well as the communities in which they live. Missing school is associated with poorer school performance, greater participation in risk-taking behaviors, and greater risk for dropping out of school all together. [1, 2, 3, 4, 5, 6] Truancy is also associated with increased neighborhood crime. [7]

Previous research has identified a number of demographic characteristics associated with school absenteeism. As age increases, truancy also increases. [8] Being from a lower-income family is associated with greater numbers of school days missed. [5, 9] LGBTQ youth are also at greater risk of missing school as a result of fear. [10]

A number of physical and behavioral health conditions have been identified as correlates of increased school absences for children and adolescents. Both chronic conditions such as asthma and infectious conditions such as influenze are associated with missed school days. [11] The odds of missing school among children who were awakened in the night by asthma increased with the numbers of nights that they were awakened. [12] Research shows that students who are overweight and obese [9, 13] also suffer from more school days missed. Dental pain led students with poor oral health to be almost three times more likely to have school absences than those who did not have poor oral health. [14] Mild and severe depression [6] as well as ADHD with comorbid depression, anxiety, and phobias [15] have all been linked to absenteeism. However, these relationships could suffer from endogeneity (endogenous variables are correlated with the error term often as a result of uncontrolled confounding or reverse causality between the independent variable of interest and dependent variable); thus, the actual effect and the direction of effect may be unclear. [16]

Risk taking behaviors are associated with negative attendance outcomes for students. One analysis found that inner city, low income high school students in Los Angeles who used alcohol or marijuana during the past month were significantly more likely to miss school. [6]

Parent-, school-, and neighborhood-level factors influence the amount of school missed. When compared to children of authoritative parents, children of parents who were neglectful or indulgent were associated with more school truancy. [6] Research shows more truancy among students who perceived their classes, teachers, and other students as being less focused on college preparation. [6] Students who perceived their school environment as chaotic or unsafe and those who perceived their school to be dangerous were also more at risk for missing school days. [17, 18] Perceived neighborhood disorder (as represented by gang presence) and perceived neighborhood danger are also associated with school truancy. [19, 17]

The purpose of this study is to examine the association between being the victim of electronic bullying and missing days of school. A recent meta-analysis identified a number of negative outcomes associated with being the victim of electronic bullying including those related to psychological health, physical health, behavior, and social functioning with stress and suicidal ideation as the outcomes with the strongest associations among adolescents. [20] While exposure to violence [21] and traditional, face-to-face bullying [19, 22] have been correlated with school absenteeism, the effect of electronic bullying has not been examined separately for its association with school attendance. However, electronic bullying is an increasingly common experience among adolescents that has been associated with other negative outcomes. [23] It is important to understand the potential association of electronic bullying with school attendance if it is to be prevented.

This analysis specifically examines the association between experiencing electronic bullying and missing days of school among high school aged adolescents. While it is known that there are a host of negative consequences that result from electronic bullying, it is unclear whether there is an association with school absenteeism. While traditional bullying usually occurs within the confines of the school grounds, electronic bullying, as a result of the technology used to perpetrate these actions, often occurs outside of school and is particularly malignant due to the often anonymous and far reaching potential given the use of electronic media to perpetrate these offenses. Thus, while the association of face-to-face bullying at school and school absence is logically intuitive, it is important to understand whether this association is still significant when the perpetration likely happens outside of school.

METHODS

This secondary data analysis was performed using the 2013 Youth Risk Behavior Survey (YRBS). The YRBS was started in 1990 as a survey to monitor health risk behaviors among youth in the U.S. [24] The survey measures behaviors associated with injuries, violence, sexual behavior, and alcohol and drug use. In 2013, a question related to electronic bullying was added.

Participants

The total 2013 YRBS sample of 13,583 included 13,554 high school students in the United States who answered the question used as the dependent variable (school days missed) thus, only 29 respondents had missing data for the dependent variable. The sample is comprised of 9th through 12th grade public and private school students.

Procedure

The YRBS, a nationally representative survey of US high school students, is conducted by the Centers for Disease Control and Prevention (CDC) using a paper-and-pencil questionnaire. A three-stage cluster sample design is used in an effort to produce a sample of high school students in grades 9-12 that is representative.[24] Weighting factors were applied to each record, which allows for adjustment for nonresponse; black and Hispanic students were over sampled.[24] School response rates were 77% and student response rates were 88%. Thus, the overall response rate (the multiplication of the two rates) was 66%. The sample of students included in this analysis were those in the 2013 data set who answered the question that is used as the dependent variable, which assesses school absenteeism (N=13,554, item response rate: 99.8% of the total sample). Additional methodological details have been previously published.[25]

Instruments

The YRBS survey instrument was used to obtain responses to all questions included in this analysis. The dependent variable for this research asked, "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?" Response categories were: zero days, one day, two or three days, four or five days, six or more days. Due to the distribution of these data, those who answered "four or five days" were combined with those who responded "six or more days" due to only having less than one percent of the sample who answered that they had missed "four or five days" of school due to feeling unsafe.

The regressor of interest, electronic bullying, was defined using a question that asked, “During the past 12 months, have you ever been electronically bullied?” Response categories were yes or no.

A number of control variables were included based on the conceptual model, which was developed from an extensive literature review (see Appendix). Demographic characteristics included grade cohort measured as grade 9, 10, 11, 12, and other, male or female sex, race measured as white, American Indian/Alaskan native, Asian, black, Hawaiian/Pacific islander, multiple races Hispanic, and multiple races non-Hispanic, and Hispanic ethnicity. Physical and behavioral health outcomes included an asthma diagnosis, feeling sad or hopeless almost every day for at least two weeks in the previous year, a serious consideration of suicide in the past year, and being overweight or obese as calculated by using 85th and 95th percentile cut offs for BMI within age and sex categories. Risk factors included marijuana use in the past 30 days and binge drinking in the past 30 days. Exposure to violence was assessed using a created variable assessing personal experience with intimate partner violence, physical fighting, or forced sex. Whether or not an adolescent had been threatened or injured with a weapon on school property in the past year was also included as a control variable.

Data Analysis

The dependent variable is a four category variable using the following categories of days of school missed in the previous month due to feeling unsafe: zero days, one day, two or three days, or four or more days. The main analysis is a multivariate multinomial regression model because the dependent variable, a four category response variable, failed the test of proportional hazards required to use an ordered logit model. Complex survey

weights were used to assure a representative sample. Multiple imputation (N=5 iterations) using chained equations (MICE), which performs well when data are missing arbitrarily, [26] was used to address missing data in the independent variables as list wise deletion may provide biased estimates as a result of non-response. The dependent variable was not imputed. Missing data are assumed to be missing at random (MAR). All independent variables had less than ten percent of observations missing data. Stata SE version 13.1 was used for all analyses. [27] IRB approval was obtained from the University of Nevada Reno.

RESULTS

Descriptive Characteristics (see Table 1)

The vast majority of the sample (N=13,554) did not miss school in the previous month due to feeling unsafe (93%). Four percent missed one day in the past month due to feeling unsafe, while 2% missed two to three days and 1.65% missed four of more days due to feeling unsafe. Fourteen percent of students experienced electronic bullying in the previous year. The sample was distributed pretty evenly across the four grades with less than a fifth of one percent categorized as "other" grade. Almost 49% of the sample were female, 47% were white, 26% were black, 13% were Latino, 14% were more than one race Hispanic, with much smaller numbers in each of the other racial categories. A large percentage had experienced violent victimization (42%) and 7% had been threatened with violence.

[INSERT TABLE 1 HERE]

Electronic Bullying (see Table 2)

Electronic bullying was significantly associated with missing days of school when all three outcomes (one day, two to three days, four or more days) are compared with missing zero days of school due to feeling unsafe, with the biggest effect seen in missing two to three days of school (see Table 2). The relative risk of missing one day of school per month due to feeling unsafe was 1.77 times higher for those who experienced electronic bullying in the past year than those who did not after controlling for a host of other covariates (CI: 1.40-2.23, $p<0.0001$). The relative risk of missing two to three days of school per month for those who experienced electronic bullying in the past year compared with those who had not is expected to increase by a factor of 2.08 holding all other variables in the model constant (CI: 1.40-3.11, p=.001). Finally, the relative risk of missing four or more days of school per month for those who experienced electronic bullying in the past year compared with those who had not is expected to increase by a factor of 1.77 after controlling for all other model covariates (CI: 1.14-2.75, p=.012).

[INSERT TABLE TWO HERE]

Other Significant Covariates (See Table 2)

While not the primary focus of this paper, there were other interesting, significant relationships in this model. Exposure to violence was associated with significantly more days of school missed. The relative risk of missing one day of school per month for those who experienced violence compared with those who had not increases by a factor of 1.67 holding all other variables in the model constant (CI: 1.28-2.19, p=.001). The relative risk of missing two to three days of school per month for those who experienced violence compared with those who had not increases by a factor of 1.5 holding all other covariates constant though this was only marginally significant (CI: 0.99-2.26, p=.054). The relative

risk of missing four or more days of school per month for those who experienced violence compared with those who had not increases by a factor of 2.64 holding all other variables in the model constant (CI: 1.42-4.92, p=.003).

Being threatened or injured with a weapon was highly significant for the number of days of school missed, even after controlling for all other model covariates including other exposures to violence. While this result is to be expected, the magnitude of the effect is large enough to note in this paper. The relative risk of missing one day of school per month for those who were threatened or injured with a weapon compared with those who were not increases by a factor of 2.93 holding all other variables in the model constant (CI: 2.11-4.07, p<.0001). The relative risk of missing two to three days of school per month for those who were threatened or injured with a weapon at school compared with those who were not increases by a factor of 8.89 holding all other covariates constant, though this was only marginally significant (CI: 0.99-2.26, p=.054). The relative risk of missing four or more days of school per month for those who were threatened or injured with a weapon at school in the previous year compared with those who were not increases by a factor of 10.20 holding all other variables in the model constant (CI: 6.38-16.31, p<.0001).

Feeling sad or hopeless almost every day for at least two weeks in the previous year was significantly associated with school absences due to feeling unsafe. The relative risk of missing one day of school per month for those who experienced sadness compared with those who did not increases by a factor of 2.36 holding all other variables in the model constant (CI: 1.62-3.43, p<.0001). The relative risk of missing two to three days increases by a factor of 3.08 (CI: 2.19-4.35, p<.0001) and the relative risk of missing four or more

days of school per month increases by a factor of 1.77 (CI: 1.19-2.64, p=.006) holding all other variables in the model constant.

Binge drinking was significantly associated school absences. The relative risk of missing four or more days of school per month for those who participated in binge drinking compared with those who did not increases by a factor of 2.68 holding all other variables in the model constant (CI: 1.27-5.65, p=.016).

DISCUSSION

School absences as a result of being fearful in transit to or at school are significantly associated with electronic bullying. It is possible that students who have been electronically bullied fear facing their perpetrator or other students, which leads to fear-based absences. The literature on the association between face-to-face bullying and school absences is mixed; some show an association, some show a weak association, and some show no association between face-to-face bullying and school absences.[28] This could be due to the fact that there have been many more studies on face-to-face bullying, many of which measure bullying and school absences differently. Thus, it is not clear whether electronic bullying has the same association with school absences as face-to-face bullying. Previous research on school absences did not assess why students were missing school For example, previous studies that found that adolescents with chronic conditions missed school more but did not isolate whether or not this was a result of illness or, perhaps, being afraid of victimization at school for being different. However, this analysis was able to isolate truancy as a result of being fearful. In addition, this research examines electronic bullying specifically, which could have a different association than face-to-face bullying has

on school absences, the focus of the majority of previous research. However, this analysis only assessed the association of electronic bullying with absences due to feeling unsafe. It is likely that many adolescents who miss school after electronic bullying did so as the result of embarrassment and not feeling unsafe. Thus, these results are likely an underestimation of school absences associated with electronic bullying as they only capture those related to feeling unsafe.

Students who experience fear as a result of electronic bullying miss more school days, which in turn opens them up to further potential harm in the form of poor performance or increased opportunity to engage in negative behaviors. While the biggest effect of electronic bullying can be seen in missing two to three days of school per month, there are also significant increases in the likelihood of missing one day or four or more days. While these sound like a small number of absences when viewed on the monthly-level, missing two to three days of school per month equates to missing roughly 10-15% of school days per month. These associations are significant for all increases in school days missed compared with adolescents who had not been electronically bullied, and are significant even after controlling for a host of other covariates that may also lead to missing school. Still, electronic bullying remains a significant correlate for missing one, two to three, and four or more days of school per month due to feeling unsafe. In light of this evidence, electronic bullying poses as grave an influence on student absenteeism as already widely recognized problems like binge drinking and depression. In addition, exposure to violence and being threatened or injured with a weapon also have large and significant associations with missing school due to fear even after controlling for all other model covariates. While the primary intent of this paper is to assess the association of electronic

bullying with truancy, it is important to note that variables assessing multiple forms of violence are also significant. Just as schools have allocated significant resources to combating these problems, it appears in light of this study, schools need to develop equally responsive programs to face the challenges electronic bullying presents.

Limitations

This research has limitations. First, omitted variable bias could have skewed the results to some extent. While the literature review and conceptual model identify an enormous number of variables that would ideally be included in the analysis, the variables used here are limited because of available data. While the model does include extensive control variables, a number of factors such as neighborhood-level predictors of fear such as gang presence and physical disorder are not included. It is possible that, while other variables related to events that would make an adolescent feel unsafe were controlled for including exposure to violence and being threatened or injured with a weapon, some of the absences related to feeling unsafe were due to another cause that was not included in this model. Furthermore, these data were analyzed as cross-sectional data. Thus, only associations between variables can be shown. Finally, only absences related to feeling unsafe were measured. Electronic bullying is likely also associated with absences due to embarrassment, which would not be captured in these data.

Conclusions

This analysis shows that school absences as a result of being fearful at school or in transit to school are significantly associated with electronic bullying. Much electronic bullying occurs outside of school while adolescents are in other locations making it more difficult to address within schools; however, this victimization that occurs beyond the

confines of the school boundaries has implications for school attendance and, thus, must be addressed within school settings.

IMPLICATIONS FOR SCHOOL HEALTH

This work has implications for policy approaches and future research. Because the influence electronic bullying has on absenteeism places it among already recognized factors like depression and binge drinking for which schools have devoted resources to develop programs and policies, school policies should also focus specifically on addressing electronic bullying. Research has previously called for schools to develop plans that specifically address this type of bullying.[29] According to Willard (2007), plans to address electronic bullying must support reporting, educating both teachers and students, and taking action against those committing such offenses. In addition, there is a need for regular evaluation and monitoring of the practices set in place.[29] However, as Masiello (2014) states, the approach to preventing bullying is similar to the health care system in the US: fragmented. The US has not addressed bullying with a comprehensive public health approach[30] and the additional challenges associated with electronic bullying further complicate this fragmentation.

Given the weight of the association between electronic bullying and absenteeism, electronic bullying cannot merely be seen as bullying in another form. The nature of the relationship between victim and bully demands special attention to mediate the harm, which runs counter to many schools' approaches to the problem. Many school-based programs seem to simply add electronic bullying onto traditional bullying interventions; however, it is clear that there need to be key distinctions between these programs simply due to the differing nature of the offenses. Anonymity and the ability to bully from afar

makes electronic bullying easier, coupled with the ability to disseminate electronic bullying behavior more widely, making it far more pernicious. Programs in schools need to be developed and tested specifically to address this type of behavior. Some researchers have called on schools to go beyond interventions and change their culture as a whole to become an environment that does not tolerate any form of aggressive behavior.[31] Concrete, empirically based strategies to achieve culture change in schools have been developed and should be implemented in an effort to prevent a climate that enables these behaviors.[32] In addition, there are implications for parents. Research shows that low parental monitoring is significantly related to adolescent aggressive behavior and fighting,[33] which relates not just to electronic bullying but also the other variables related to exposure to violence and being threatened or injured with a weapon, all of which had large, significant effects on absences. While schools have a responsibility to monitor this type of behavior, the fact that electronic bullying overwhelmingly occurs outside of school means that parents also have some responsibility in monitoring the online behavior of underage adolescents if electronic bullying is to be prevented. Some have called for community engagement to prevent bullying, which can utilize community resources and create a multi-level strategy throughout all sectors to further reinforce prevention efforts.[34]

Future research should place more emphasis on work that seeks to measure neighborhood-level factors in order to create a fuller model able to measure multiple levels of influence including individual, family, school, and area factors. While the YRBS survey question asked if students' absences were due to feeling unsafe at school or on their way to or from school, little is known about the physical and social structures that may shape adolescents' perceptions of safety. As noted in the limitations section, variables such as

area gang penetration are important predictors of fear and could be important predictors of fear-based absences. By gaining more insight into what shapes students' perceptions of safety, a more accurate measure of electronic bullying's impact on that perception can be determined. Future research should address all forms of violence and school absenteeism since all three variables that addressed violence were significant and had some of the largest effect sizes in this analysis. Violent victimization and violent threats are important predictors of school absences and future research should address methods of prevention and intervention for those experiencing violence of all forms. In addition, future research could examine these questions over time using longitudinal data that could establish whether or not a temporal relationship exists between the onset of electronic bullying and subsequent school absences. Finally, research must continue to evaluate electronic bullying prevention programs to understand what works. For example, a comparative study of the effectiveness of school policies or programs that employ differentiated approaches to electronic bullying from traditional bullying would help identify what factors unique to each are of greatest importance to address in order to have an effective program. A recent analysis found that compliance with anti-bullying legislation was associated with lower rates of electronic bullying.[35] However, many laws simply expand existing anti-bullying definitions. Future work should not just add on to existing bullying research but should be developed specifically for the complex challenges of addressing electronic bullying. Electronic bullying is unique in both the method by which the victimization occurs, the anonymity by which it can be perpetrated, and the scope of widespread victimization. These unique aspects must be researched to address the problem through appropriately developed policies and programs.

Human Subjects Approval Statement

This research received approval from the University of Nevada Reno Institutional Review Board.

REFERENCES

1. Maynard BR, McCrea KT, Pigott TD, Kelly MS. Indicated truancy interventions for chronic truant students: a Campbell systematic review. *Res Soc Work Pract*. 2013;23(1):5-21.
2. Lehr CA, Sinclair MF, Christenson SL. Addressing student engagement and truancy prevention during the elementary school years: a replication study of the check and connect model. *J Ed Stud Placed Risk*. 2004;9(3):279-301.
3. Maynard BR, Salas-Wright CP, Vaughn MG, Peters KE. Who are truant youth? Examining distinctive profiles of truant youth using latent profile analysis. *J Youth Adolesc*. 2012;41(12):1671-1684.
4. Petrides KV, Chamorro-Premuzic T, Frederickson N, Furnham A. Explaining individual differences in scholastic behaviour and achievement. *Br J Educ Psychol*. 2005;75(Pt 2):239-255.
5. Morrissey TW, Hutchison L, Winsler A. Family income, school attendance, and academic achievement in elementary school. *Dev Psychol*. 2014;50(3):741-753.
6. Gase N, Kuo T, Coller K, Guerrero LR, Wong MD. Assessing the connection between health and education: identifying potential leverage points for public health to improve school attendance. *Am J Pub Health*. 2014;104(9):e47-e54.
7. Weisburd D, Groff ER, Yang SM. Understanding and controlling hot spots of crime: the importance of formal and informal social controls. *Prev Sci*. 2014;15(1):31-43.
8. Nolan JR, Cole T, Wroughton J, Clayton-Code KP, Riffe HA. Assessment of risk factors for truancy of children in grades k-12 using survival analysis. *Journal of At-Risk Issues*. 2013;17(2):23-30.
9. Echeverria SE, Velez-Valle E, Janevic T, Prystowsky A. The role of poverty status and obesity on school attendance in the United States. *J Adolesc Health*. 2014;55(3):402-407.
10. Friedman MS, Marshal MP, Guadamuz TE, et al. A meta-analysis of disparities in

childhood sexual abuse, parental physical abuse, and peer victimization among sexual minority and sexual nonminority individuals. *Am J Pub Health*. 2011;101(8):1481-1494.

11. Neuzil KM, Hohlbein C, Zhu Y. Illness among schoolchildren during influenza season: effect on school absenteeism, parental absenteeism from work, and secondary illness in families. *Arch Pediatr Adolesc Med*. 2002;156(10):986-991.
12. Diette GB, Markson L, Skinner EA, Nguyen TTH, Algatt-Bergstrom P, Wu AW. Nocturnal asthma in children affects school attendance, school performance, and parents' work attendance. *JAMA Pediatr*. 2000;154(9):923-928.
13. Jiang Y, Risica PM, Arias W, Perry D, Viner-Brown S. Perceived weight status effect on adolescent health-risk behaviors: findings from 2007 and 2009 Rhode Island Youth Risk Behavioral Survey. *School Ment Health*. 2012;4(1):46-54.
14. Jackson SL, Vann WF, Kotch JB, Pahel BT, Lee JY. Impact of poor oral health on children's school attendance and performance. *Am J Pub Health*. 2011;101(10):1900-1906.
15. Classi P, Milton D, Ward S, Sarsour K, Johnston J. Social and emotional difficulties in children with ADHD and the impact on school attendance and healthcare utilization. *Child Adolesc Psychiatry Ment Health*. 2012(6):33-40.
16. Wood JJ, Lynne-Landsman SD, Langer DA, et al. School attendance problems and youth psychopathology: structural cross-lagged regression models in three longitudinal data sets. *Child Dev*. 2012;83(1):351-366.
17. Bowen NK, Bowen L. Effects of crime and violence in neighborhoods and schools on the school behavior and performance of adolescents. *Journal Adolesc Res*. 1999;14(3):319-342.
18. Ma S, Truong K, Sturm R. School characteristics and behavior problems of U.S. fifth-graders. *Psychiatr Serv*. 2007;58(5):610.
19. Randa R, Wilcox P. School disorder, victimization, and general v. place-specific student avoidance. *J Crim Justice*. 2010;38(5):854-861.
20. Kowalski RM, Giumetti GW, Schroeder AM, Lattanner MR. Bullying in the digital

age: a critical review and meta-analysis of cyberbullying research among youth. *Psychol Bull*. 2014;140(4):1073-1137.

21. Ramirez M, Wu Y, Kataoka S, et al. Youth violence across multiple dimensions: a study of violence, absenteeism, and suspensions among middle school children. *J Pediatr*. 2012;161(3):542-546.
22. Hutzell KL, Payne AA. The impact of bullying victimization on school avoidance. *Youth Violence Juv Justice*. 2012;10(4):370-385.
23. Juvonen J, Gross EF. Extending the school grounds? Bullying experiences in cyberspace. *J Sch Health*. 2008;78(9):496-505.
24. Centers for Disease Control and Prevention. Youth Risk Behavior Surveillance System (YRBSS). *2013 YRBS Data User's Guide*. June 2014. Available at: http://www.cdc.gov/healthyyouth/yrbs/pdf/YRBS_2013_National_User_Guide.pdf. Accessed September 10, 2014.
25. Centers for Disease Control and Prevention. Methodology of the Youth Risk Behavior Surveillance System — 2013. *Centers for Disease Control and Prevention*. March 1, 2013. Available at: http://www.cdc.gov/mmwr/pdf/rr/rr6201.pdf. Accessed October 10, 2015.
26. Stata Corp. mi impute. *Stata.com*. Available at: http://www.stata.com/manuals13/mimiimpute.pdf. Accessed October 01, 2015.
27. StataCorp. Stata Statistical Software: Release 13
28. Dake JA, Price JH, Telljohan SA. The nature and extent of bullying at school. *J Sch Health*. 2003;73(5):173-180.
29. Willard N. The authority and responsibility of school officials in responding to cyberbullying. *J Adolesc Health*. 2007;41(Suppl):S64-S65.
30. Masiello MG. Public health and bullying prevention. *A Public Health Approach to Bullying Preventions*. Washington: APHA Press; 2014.
31. Worthen M. Education policy implication from the expert panel on electronic media and youth violence. *J Adolesc Health*. 2007;41(Suppl):S61-S63.

32. Cohen J. Effective Bullying prevention efforts and school climate reform. *A Public Health Approach to Bullying Prevention*. Washington: APHA Press; 2014.
33. Orpinas P, Murray N, Kelder S. Parental influences on students' aggressive behaviors and weapon carrying. *Health Educ Behav*. 1999;26(6):774-787.
34. Good K. Community engagement in bullying prevention. *A Public Health Approach to Bullying Prevention*. Washington: APHA Press; 2014.
35. Hatzenbueler ML, Schwab-Reese L, Ranapurwala SI, Hertz MF, Ramirez MR. Associations between antibullying policies and bullying in 25 states. *JAMA Pediatr*. 2015;169(10):e152411.

Table 1. Sample characteristics for all variables included in these analyses (N=13,554).[a]	
Variable	Proportion (SE)
Dependent Variable	
Days of School Missed per Month due to Feeling Unsafe	
Zero Days	0.93 (0.01)
One Day	0.04 (0.00)
Two-Three Days	0.02 (0.00)
Four or More Days	0.01 (0.00)
Covariate of Interest	
Electronically Bullied [Past Year]	0.15 (0.01)
Other Independent Variables	
Grade	
Grade 9	0.27 (0.01)
Grade 10	0.26 (0.01)
Grade 11	0.24 (0.00)
Grade 12	0.23 (0.01)
Grade Other	0.001 (0.00)
Female Sex	0.50 (0.01)
Race	
White	0.54 (0.03)
Asian	0.03 (0.01)

Black	0.14 (0.02)
American Indian/Alaskan Native	0.01 (0.00)
Native Hawaiian/Other Pacific Islander	0.01 (0.00)
Multiple Hispanic	0.10 (0.01)
Multiple Non-Hispanic	0.04 (0.00)
Hispanic Ethnicity	0.10 (0.02)
Exposure to Violence [Past Year]	0.40 (0.01)
Threatened [Past Year]	0.07 (0.00)
Overweight or Obese	0.30 (0.01)
Asthma	0.22 (0.01)
Felt Sad or Hopeless at Least Two Weeks [Past Year]	0.30 (0.01)
Considered Suicide Seriously [Past Year]	0.17 (0.01)
Marijuana Use [Past Month]	0.24 (0.01)
Binge Drinking [Past Month]	0.06 (0.00)
[a] Estimates presented are weighted, imputed estimates as a baseline comparison to the multivariate model, which also presents weighted, imputed estimates.	

Table 2. Relative risk ratio of all model covariates on likelihood of missing days of school per month due to feeling unsafe (N=13,554).[a]

Predictor	One Day of School Missed per Month (Unadjusted rate = 0.037)			Two-Three Days of School Missed per Month (Unadjusted rate = 0.019)			Four or More Days of School Missed per Month (Unadjusted rate = 0.014)		
	RRR	**SE**	**p-value**	**RRR**	**SE**	**p-value**	**RRR**	**SE**	**p-value**
Electronically Bullied [Past Year]	**1.77**	**0.20**	**<.0001**	**2.08**	**0.41**	**.001**	**1.77**	**0.38**	**.01**
Grade (Referent: Grade 9)									
Grade 10	1.21	.23	.33	1.00	0.29	.99	0.97	0.26	.92
Grade 11	0.72	0.15	.12	1.15	0.27	.55	1.56	0.37	.08
Grade 12	**0.61**	**0.12**	**.02**	1.03	0.19	.86	1.30	0.38	.37
Grade Other	**0.05**	**0.06**	**.01**	**0.00**	**0.00**	**<.0001**	1.15	0.72	.82
Female Sex	**0.60**	**0.07**	**<.0001**	**0.51**	**0.08**	**<.0001**	1.32	0.25	.14
Race (Referent: White)									
Asian	0.74	0.26	.40	0.93	0.63	.92	**3.02**	**1.41**	**.02**
Black	1.12	0.20	.52	1.47	0.39	.15	**2.27**	**0.71**	**.01**
American Indian / Alaskan Native	**3.10**	**1.25**	**.008**	**4.09**	**1.57**	**.001**	2.56	1.62	.15
Native Hawaiian / Other Pacific Islander	0.82	0.50	.75	2.22	1.43	.22	2.38	1.53	.19
Multiple Hispanic	**1.65**	**0.34**	**.02**	**1.81**	**0.51**	**.04**	**2.20**	**0.54**	**.002**
Multiple Non-Hispanic	0.92	0.24	.74	1.22	0.52	.65	2.22	1.12	.12

Hispanic Ethnicity	1.30	0.29	.25	1.34	0.32	.22	1.62	0.51	.14
Exposure to Violence [Past Year]	**1.68**	**0.21**	**.001**	**1.50**	**0.30**	**.05**	**2.64**	**0.80**	**.003**
Threatened [Past Year]	**2.93**	**0.48**	**<.0001**	**8.88**	**1.88**	**<.0001**	**10.20**	**2.37**	**<.0001**
Overweight or Obese	0.84	0.15	.34	1.17	0.22	.42	1.22	0.26	.36
Asthma	1.21	0.17	.19	1.09	0.21	.66	1.34	0.30	.22
Felt Sad or Hopeless at Least Two Weeks [Past Year]	**2.36**	**0.44**	**<.0001**	**3.08**	**0.52**	**<.0001**	**1.77**	**0.35**	**.006**
Considered Suicide Seriously [Past Year]	0.86	0.13	.33	0.80	0.16	.27	1.49	0.36	.11
Marijuana Use [Past Month]	1.10	0.15	.50	1.01	0.27	.98	1.55	0.41	.12
Binge Drinking [Past Month]	0.78	0.20	.34	0.52	0.19	.09	**2.68**	**0.86**	**.02**

[a] Bolded results indicate significance at the alpha=.05 level or below.