Low-Level Violence in Schools: Is There an Association Between School Safety Measures and Peer Victimization?

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ABSTRACT

BACKGROUND: Low-level violent behavior, particularly school bullying, remains a critical public health issue that has been associated with negative mental and physical health outcomes. School-based prevention programs, while a valuable line of defense to stave off bullying, have shown inconsistent results in terms of decreasing bullying. This study explored whether school safety measures (eg, security guards, cameras, ID badges) were associated with student reports of different forms of peer victimization related to bullying.

METHODS: Data came from the 2007 School Crime Supplement of the National Crime Victimization Survey. Chi-square tests of independence were used to examine differences among categorical variables. Logistic regression models were constructed for the peer victimization outcomes. A count variable was constructed among the bullying outcomes (0-7) with which a Poisson regression model was constructed to analyze school safety measures’ impacts on degree of victimization.

RESULTS: Of the various school safety measures, only having adults in hallways resulted in a significant reduction in odds of being physically bullied, having property vandalized, or having rumors spread. In terms of degree of victimization, having adults and/or staff supervising hallways was associated with an approximate 26% decrease in students experiencing an additional form of peer victimization.

CONCLUSIONS: Results indicated that school safety measures overall were not associated with decreased reports of low-level violent behaviors related to bullying. More research is needed to further explore what best promotes comprehensive safety in schools.

Keywords: violence; bullying; preventive measures; schools.

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Peer victimization and bullying behaviors among school-age children and adolescents continue to gain attention as a significant public health problem with consequences for both mental and physical well-being. Dupper and Meyer-Adams1 outlined bullying as just one area of low-level violent behaviors that are often overshadowed by both conciliatory sociocultural beliefs (eg, “boys will be boys”) and high-level violent behaviors (eg, weapon-carrying, school-associated homicide and suicides, gang-related activity, etc).

Bullying can be viewed as a specific form of peer victimization although the use of a “standard” definition of bullying in terms of surveillance has been an issue in research.2 While there is no standardized definition of bullying, researchers often cite the Olweus3 definition, which outlines critical components of bullying to distinguish it from other forms of peer victimization: victims are exposed repeatedly and over time to negative actions from one or more other students; there is intent to distress or harm the victim; and a power imbalance often exists (typically physical, but can may also be a social imbalance). It is also important to note that negative actions can range from nonverbal (ie, ostracism) to overt (ie, punching, throwing objects, vandalism of property). Two decades of research on bullying behavior has found that it is, indeed, a prevalent problem.
The consequences of bullying and peer victimization are widespread and range from poor mental and physical health, to psychosomatic outcomes, to poor academic performance. Fekkes et al found a positive association between bullying and psychosomatic complaints that included headaches, sleep disturbances, and anxiety. Numerous studies have documented increased risk of depression among both those who reported being bullied and those who bullied others. Research also has indicated poorer psychosocial development and/or adjustment (eg, making friends, unhappiness at school, self-esteem) among those involved in bullying. Additionally, peer victimization through bullying has been associated with extreme violent behavior such as school homicides. In a thorough review of over 200 incidents resulting in school-associated violent deaths, Anderson and colleagues noted that homicide perpetrators were over twice as likely to have been bullied when compared with their victims. Furthermore, victims of bullying may also be at increased risk for suicidal behavior, even into young adulthood.

Given the serious consequences of bullying and peer victimization, prevention and intervention programs are crucial and have been implemented with mixed results. There seems to be general agreement that the best programs to stop bullying are those that involve a whole-school approach, which includes active involvement from administration, faculty and staff, and students. The Olweus Bullying Prevention Program is one such program and has been designated by the Substance and Mental Health Services Administration (SAMHSA) as a Model Program. While some impact studies have found decreases in bullying, results of a recent controlled trial showed inconsistent positive results and no overall decrease in reports of victimization.

In addition to programmatic measures aimed at stopping bullying, limited research has examined how school safety measures (eg, security guards, metal detectors, locker checks) may affect low-level violent behaviors. Schreck et al found that the use of metal detectors, security guards, and visitor sign-in policies did not impact victimization rates among students in sixth through twelfth grades. However, their measure of victimization was limited to theft from the respondent’s desk or locker; taken money or other things through coercion; and being physically attacked. While school safety measures are primarily aimed at preventing high-level violence (ie, homicide, weapon-carrying, gang activity), the presence of school safety measures may confer an awareness among students of surveillance and proactivity on the part of the school, such that bullying may be decreased.

Building from this theoretically plausible notion of surveillance, we aimed to examine the associations of school safety measures with low-level violence, particularly peer victimization related to bullying behaviors. Using data from the 2007 School Crime Supplement (SCS) of the National Crime Victimization Survey (NCVS), this study aimed to explore the individual effects of 4 school safety measures on 7 different forms of peer victimization (called names; rumors; threatened with harm; physically bullied [ie, pushed, shoved, tripped, etc]; coerced to do something did not want to do; ostracized; property vandalized). Additionally, we examined differences in the associations between school safety measures and degree of peer victimization based on how many forms of victimization a student experienced.

METHODS

Data for this study were obtained from the 2007 SCS, which is a publicly available, de-identified data set from the Inter-university Consortium for Political and Social Research (http://www.icpsr.umich.edu/).

Subjects

Respondents were selected from a random household sample recruited to participate in the NCVS. Persons between the ages of 12 and 18 were also eligible for the SCS (N = 11,161); respondents who indicated being homeschooled were excluded. In 2007, the SCS included information from 5722 participants.

Instruments

In addition to demographic information, the NCVS collects information about experiences of criminal victimization (eg, type and number of incidents, time and place of incidents, etc). The SCS component asks respondents a host of questions involving school life, including participation in extracurricular activities, access to drugs, weapon carrying, and injuries sustained on school property.

Procedures

The SCS uses a rotating panel design of randomly selected households to gather a representative sample of the population aged 12 years and older. The US
Census Bureau collects the sample for the Bureau of Justice Statistics. Households are interviewed every 6 months during their 3-year rotation period with both computer-assisted telephone and person interviewing procedures. Data were collected through paper-and-pencil interviews or computer-assisted telephone interviewing. Individual interviews required approximately 10 minutes to complete.

Data Analysis

The dependent variables of interest were 7 dichotomous (1 = yes/0 = no) measures of what the SCS qualifies as bullying victimization (ie, “Now I have some questions about what students do at school that make you feel bad or are hurtful to you. We often refer to this as being bullied. You may include events you told me about already. During this school year, has any other student bullied you? That is, has another student . . . [read type of bullying behavior]?”). The 7 different types of bullying behaviors included (1) made fun of you, called you names, or insulted you; (2) spread rumors about you; (3) threatened you with harm; (4) pushed you, shoved you, tripped you, or spit on you; (5) tried to make you do things you did not want to do, for example, give them money or other things; (6) excluded you from activities on purpose; (7) destroyed your property on purpose.

To analyze degree of victimization, a count variable was constructed among the 7 victimization outcomes, depending on whether a student responded “yes” to any of the types of victimization; values ranged from 0 (experienced no forms of bullying) to 7 (experienced all types of bullying).

Based on previous findings of gender-, age-, race-, and place-specific differences in bullying, covariates for regression analyses included sex (1 = male/0 = female), age (12-18), and 1990 Metropolitan Statistical Area status (1 = MSA/0 = non-MSA). Race was originally asked as an exhaustive list from which respondents could select all categories that applied. Given the resulting numerous combinations, race-, and place-specific differences in bullying, 4,260 measures of what the respondents attended public school (91.6%) and lived in urban areas (80.1%). The racial/ethnic composition of the sample was mostly Non-Hispanic white (62.4%), followed by Hispanic (17.5%) and Non-Hispanic black (13.0%). The average age of respondents was 14.8 years (SD = 1.8).

RESULTS

In the final analytic sample, there were slightly more males (51.9%) than females, and the majority of respondents attended public school (91.6%) and lived in urban areas (80.1%). The racial/ethnic composition of the sample was mostly Non-Hispanic white (62.4%), followed by Hispanic (17.5%) and Non-Hispanic black (13.0%). The average age of respondents was 14.8 years (SD = 1.8).
The overall prevalence of peer victimization related to bullying (ie, experiencing one or more forms of victimization) was 31.3% among the sample. Approximately 12.8% (n = 734) reported 1 type of victimization, 8.6% (n = 491) reported 2 types of victimization, 5.1% (n = 294) experienced 3 types of victimization, 2.9% (n = 167) reported 4 types of victimization, 1.4% (n = 80) reported 5 types of victimization, 0.5% (n = 31) reported 6 types of victimization, and 0.3% (n = 18) reported experiencing all 7 forms of victimization.

In weighted analyses, the most prevalent form of victimization reported was being called names/insulted/made fun of (see Table 1). Differences in types of victimization were found based on demographic and contextual variables. Concordant with previous research,\(^3\)\(^9\) significantly more girls than boys reported indirect bullying, namely having rumors spread about them ($\chi^2 = 80.1, p < .01$) and being ostracized ($\chi^2 = 3.9, p < .05$), but more boys reported direct aggression, such as being pushed, tripped, or shoved ($\chi^2 = 10.2, p < .01$) and being coerced to do something they did not want to do ($\chi^2 = 7.2, p < .05$). Students in MSAs reported significantly more instances of rumor spreading ($\chi^2 = 32.1, p < .01$); being threatened with harm ($\chi^2 = 3.8, p < .05$); being pushed, tripped, or shoved ($\chi^2 = 6.1, p < .05$); and coerced ($\chi^2 = 3.7, p < .05$). Compared with students in private schools, more students in public schools reported both being threatened with harm ($\chi^2 = 17.7, p < .01$) and being pushed, tripped, or shoved ($\chi^2 = 10.9, p < .01$).

Results of weighted adjusted logistic regression analyses showed that, by and large, most school safety measures were not associated with a decrease in reports of peer victimization. Having adults and/or staff supervising hallways was the only measure associated with lower odds of reports of bullying victimization (see Table 2). Regression diagnostics showed no collinearity among predictor variables. Additionally, all of the Hosmer-Lemeshow statistics showed that the models fit the data well (range of $p = .36-.95$), and using squared linear predicted values showed that the refitted models were not significant (range of $p = .20-.93$), indicating that the models were not misspecified.

In examining the single outcome of degree of victimization by number of forms of victimization experienced, the sole measure associated with decreased victimization was having adults and/or staff supervising hallways, which was associated with an approximate 26% decrease ($B = -0.302, SE = .079, p < .01$) in students experiencing an additional form of peer victimization (see Table 3).

Table 1. Peer Victimization Prevalence, Total and by Sex, Weighted Percents\(^1\)

<table>
<thead>
<tr>
<th>Types of Peer Victimization</th>
<th>Total Prevalence % (95% CI)</th>
<th>Male % (95% CI)</th>
<th>Female % (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Called names</td>
<td>20.9 (19.8-22.0)</td>
<td>10.3 (9.6-11.2)</td>
<td>10.5 (9.6-11.4)</td>
</tr>
<tr>
<td>Rumors</td>
<td>18.1 (17.1-19.1)</td>
<td>6.9 (6.3-7.7)</td>
<td>11.1 (10.3-12.0)*</td>
</tr>
<tr>
<td>Threatened with harm</td>
<td>5.8 (5.2-6.4)</td>
<td>3.1 (2.6-3.5)</td>
<td>2.7 (2.3-3.1)</td>
</tr>
<tr>
<td>Physical (ie, pushed, tripped)</td>
<td>11.0 (10.2-11.8)</td>
<td>6.3 (5.7-6.9)</td>
<td>4.7 (4.2-5.3)*</td>
</tr>
<tr>
<td>Coerced to do something did not want to do</td>
<td>4.1 (3.6-4.7)</td>
<td>2.5 (2.1-2.9)</td>
<td>1.7 (1.4-2.0)*</td>
</tr>
<tr>
<td>ostracized</td>
<td>5.2 (4.6-5.8)</td>
<td>2.4 (2.0-2.8)</td>
<td>2.8 (2.4-3.3)**</td>
</tr>
<tr>
<td>Property vandalized</td>
<td>4.1 (3.6-4.7)</td>
<td>2.0 (1.7-2.4)</td>
<td>2.1 (1.8-2.6)</td>
</tr>
</tbody>
</table>

CI, confidence interval.
\(^*p < .01; **p < .05.\)
\(^1\) Bullying prevalence estimates are not mutually exclusive, as respondents may have experience more than 1 form of bullying; chi-square comparisons are between males and females.

Table 2. Associations Between School Safety Measures and Types of Peer Victimization\(^*\)

<table>
<thead>
<tr>
<th>Types of Peer Victimization</th>
<th>Called Names</th>
<th>Rumors</th>
<th>Threatened With Harm</th>
<th>Physically Bullied</th>
<th>Coerced</th>
<th>Ostracized</th>
<th>Property Vandalized</th>
</tr>
</thead>
<tbody>
<tr>
<td>School Safety Measures</td>
<td>AOR (95% CI)</td>
<td>AOR (95% CI)</td>
<td>AOR (95% CI)</td>
<td>AOR (95% CI)</td>
<td>AOR (95% CI)</td>
<td>AOR (95% CI)</td>
<td>AOR (95% CI)</td>
</tr>
<tr>
<td>Student IDs/badges</td>
<td>1.15 (0.96-1.39)</td>
<td>1.18 (0.97-1.44)</td>
<td>1.04 (0.76-1.43)</td>
<td>0.85 (0.68-1.07)</td>
<td>0.80 (0.56-1.13)</td>
<td>1.11 (0.80-1.55)</td>
<td>1.11 (0.76-1.62)</td>
</tr>
<tr>
<td>Security guards</td>
<td>1.01 (0.86-1.20)</td>
<td>1.01 (0.85-1.21)</td>
<td>1.06 (0.79-1.41)</td>
<td>0.96 (0.77-1.19)</td>
<td>0.92 (0.67-1.27)</td>
<td>0.94 (0.70-1.28)</td>
<td>1.11 (0.78-1.59)</td>
</tr>
<tr>
<td>Adults in hallways</td>
<td>0.83 (0.65-1.06)</td>
<td>0.62 (0.49-0.78)</td>
<td>0.72 (0.48-1.07)</td>
<td>0.57 (0.43-0.76)</td>
<td>0.86 (0.54-1.38)</td>
<td>0.73 (0.49-1.07)</td>
<td>0.60 (0.38-0.93)</td>
</tr>
<tr>
<td>Security cameras</td>
<td>1.11 (0.93-1.32)</td>
<td>1.13 (0.94-1.36)</td>
<td>1.03 (0.77-1.48)</td>
<td>1.14 (0.91-1.43)</td>
<td>1.07 (0.75-1.52)</td>
<td>1.04 (0.76-1.41)</td>
<td>1.25 (0.86-1.82)</td>
</tr>
<tr>
<td>Code of conduct</td>
<td>1.32 (0.82-2.13)</td>
<td>1.25 (0.75-2.08)</td>
<td>1.06 (0.64-2.03)</td>
<td>1.64 (0.87-3.09)</td>
<td>1.19 (0.46-3.07)</td>
<td>1.61 (0.66-3.95)</td>
<td>1.21 (0.47-3.11)</td>
</tr>
</tbody>
</table>

AOR, adjusted odds ratio; CI, confidence interval.
\(^*\) Results are weighted estimates. Adjusted for age, race, type of school, and urban status. Bold indicates statistical significance.

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Table 3. Associations Between School Safety Measures and Degree of Peer Victimization (n = 4786)*

<table>
<thead>
<tr>
<th>School Safety Measures</th>
<th>β</th>
<th>SE</th>
<th>Exp(β)</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student IDs/badges</td>
<td>.052</td>
<td>.065</td>
<td>1.054</td>
<td>.44</td>
</tr>
<tr>
<td>Security guards</td>
<td>.005</td>
<td>.059</td>
<td>1.006</td>
<td>.46</td>
</tr>
<tr>
<td>Adults in hallways†</td>
<td>−.302</td>
<td>.079</td>
<td>0.739</td>
<td>.00</td>
</tr>
<tr>
<td>Security cameras</td>
<td>.088</td>
<td>.062</td>
<td>1.092</td>
<td>.16</td>
</tr>
<tr>
<td>Code of conduct</td>
<td>.249</td>
<td>.179</td>
<td>1.283</td>
<td>.17</td>
</tr>
</tbody>
</table>

*Results are weighted estimates. Adjusted for age, race, type of school, and urban status.
†Indicates statistical significance.

DISCUSSION

To our knowledge, this is the first study to look at the effects of school safety measures in relation to low-level violence specific to particular forms of peer victimization related to bullying—from verbal harassment, to vandalism, to physical assault. Results indicated that school safety measures overall were not associated with reports of low-level violent peer victimization. While some types of safety measures would likely not affect certain types of peer victimization (eg, security cameras and rumor-spreading), others that seemingly would (eg, security cameras and physical bullying) had no statistically significant effect.

Although the principal intention of these safety measures is, arguably, to prevent high-level violent behavior (ie, weapon carrying, gang activity), the nuances of the perceptions of surveillance among these different school safety measures invite several questions about the etiology of their effectiveness. One might hypothesize that if students know that they are being watched (whether by teachers in the hall or by a security guard or camera), they would be less likely to engage in overt peer victimization behaviors related to bullying. For instance, having adults/staff supervising hallways seems to be associated with decreases in physical victimization and vandalism; however, other measures that seemingly have similar aspects of surveillance, specifically security guards and security cameras, have no association with physical victimization and vandalism. Are students less aware, and thus less affected by, security cameras? Similarly, why are students less likely to be physically bullied when adults are in the hallway and not when schools have security guards? Conners-Burrow and colleagues30 found that students who were bullies and bully-victims (ie, both a victim and perpetrator of bullying) showed fewer signs of depression when they reported having social support from teachers. It may be possible that having teachers/adults in the hallways allows for greater cohesion/interaction between students and adults that would facilitate prosocial behaviors. Such nuanced questions, which are crucial to understanding the prevention of low-level violent behavior, may be better served with qualitative research methodology that may help to further explore these issues.

On a conceptual level, it is of the utmost importance to note that there could be issues of measurement error due to discordance in how the SCS asks about bullying and the 3 components conventionally held as defining bullying. The SCS captures 1 component of the definition (ie, negative and aggressive behavior), but does not discern the other 2 aspects of bullying—experienced repeatedly over time and experienced within an imbalanced power dynamic. As such, the results here should be interpreted with caution in terms of whether respondents truly understood the full definition of bullying when answering items about victimization. This issue also introduces questions as to how researchers and agencies gather information about bullying, specifically how bullying is being operationalized in the data. It is critical for future research to strive to collect data on all 3 aspects of bullying in order to fully distinguish true bullying, which is chronic and perpetrated within a power imbalance, from other forms of peer victimization that are acute and not perpetrated with a power imbalance, such as fighting or retaliatory violence.

Limitations

There are several other limitations that should be noted in this analysis. First, the SCS data are cross-sectional, so it is not possible to ascertain whether the lone school safety measure effective against peer victimization related to bullying (ie, having adults/staff in hallway) had a causal effect in the decrease of the behavior. Second, there may be bidirectionally in that schools with more safety measures in place are already experiencing more violence (including low-level violence), suggesting that the mediating and/or moderating roles of nonbullying violent behaviors should be explored in future analyses. Third, given the sampling criteria of the SCS (ie, respondents had to have been enrolled in school within the last 6 months), selection bias may have resulted from severely victimized or bullied respondents not being included since students who experience intense victimization are more likely to drop out of or be truant from school.31 Additionally, recall bias may be a factor in reporting victimization incidents based depending on the timing of the survey administration. Last, the SCS asked questions solely about victimization. Future analyses examining the associations between the school safety measures and perpetration of low-level violent behaviors are recommended.

Conclusion

It is important to emphasize that the lack of statistically significant associations between school
safety measures and reduced odds of reports of peer victimization related to bullying in this analysis does not negate their potential importance in deterring high-level violent behavior. While research remains discordant about the effectiveness of programmatic bullying prevention strategies,17,18,32 schools looking to decrease low-level violence, such as bullying, should also be aware that some school safety measures are not likely to affect peer victimization related to bullying. Having teachers/staff in the hallway was the only measure that showed protective associations against some victimization measures, and from a cost-benefit perspective this safety measure may be a more affordable option for schools to consider. Furthermore, research suggests that students prefer their teachers to be primary sources of support and help in terms of bullying intervention.33

More research is needed to further explore what best promotes comprehensive safety in schools. Given the many nuanced aspects involved in bullying behaviors, recent multilevel studies (see Bradshaw et al34 and Bowes et al35) have begun to examine the interaction of risk factors in the school, family, and community. Similar multilevel approaches from a protective, rather than risk, perspective may be particularly helpful to examine the constellation of factors at the individual, school, community, and policy levels that deter low-level violent behavior.

IMPLICATIONS FOR SCHOOLS

While the findings of this project can inform programming and policy decisions regarding implementation and evaluation of school safety measure, they do not warrant or substantiate any immediate changes to current safety measures. As schools continue to grapple with issues of peer victimization, violence, and bullying behaviors, the present study lends some insight on how specific safety measures are associated with low-level violent behavior, particularly peer victimization often related to bullying.

To begin, evaluation is a key part of both programmatic and systemic interventions aimed at violence prevention, which has clear ties with school health issues, both in terms of physical health from injuries and mental health issues from the depression, anxiety, and stress stemming from victimization. This project lends an initial example of how schools can broaden the outcomes examined in evaluations, specifically by investigating issues of low-level violence in addition to more overt, serious violent behaviors.

Of the school safety measures examined, only having adults in hallways was significantly associated with decreased reports of multiple forms of peer victimization. This finding raises additional questions regarding how teachers and other adults in the school system view their roles in stopping and preventing peer victimization and bullying. Schools should take steps to assure that teachers and other staff have the training and administrative support needed to safely and appropriately handle situations of peer victimization.

Last, schools wanting to evaluate effectiveness of safety measures in terms of their potential association with decreases in violence need to be sure to have clear definitions of and distinctions between peer victimization and bullying. The ability to make critical comparisons between study findings hinges on the use of standardized definitions of concepts.

Human Subjects Approval Statement

Being a publicly available, de-identified data set, this project was classified as “not human subjects research” and did not need formal review by the first author’s institutional review board.

REFERENCES
