Bullying and School Climate: Associations and Group Differences

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Abstract

Bullying is an international public health problem that school climate could help prevent or promote. The present paper contains an analysis of an anonymous school climate survey, completed by 9554 students, in grades 5-12 (response rate 87%). Links in the literature between school climate and bullying lack specificity. We examined associations between specific school climate domains and bullying; we studied associations between bullying and even more specific school climate issues, among different student groups. We hypothesized that students involved (bullies, victims, bully-victims) would be differentiable from uninvolved students based on school climate, and each involved group would have a distinct climate profile. Results could help in designing prevention and intervention programs. Nearly 30% of students reported involvement. School climate, especially interpersonal relationship quality, was significantly related to bullying (R^2 = .37). Involved groups reported both shared and distinct climate concerns.

Keywords: Bullying; Victimization; School Climate; Psychology-Educational; Prevention; Intervention

Introduction

Bullying can be defined as repeated, unwanted exposure to negative actions by one or more individuals (Olweus, 1993), where there is a clear power differential between the bully and the victim. Bullying behaviors can be direct or indirect, and can include: name calling, spreading rumors or lies, intentionally ostracizing, teasing, pushing, shoving, hitting, kicking, slapping, and stealing, and other noxious actions (Nansel, Overpeck, Pilla, Ruan, Simons-Morton & Scheidt, 2001; Bradshaw, Sawyer, & O'Brennan, 2007). Recently, cyberbullying has become a serious concern (Wang, Iannotti, Luk, & Nansel, 2010; Bonanno & Hymel, 2013; Litwiller & Brausch, 2013). Research has clearly demonstrated that there is no benefit for bullying; all of those involved, including those that bully, face a shared set of psychosocial concerns, as well as unique problems associated with their role.

A cross-cultural study of 100,000 adolescents, from nationally-representative samples in 25 countries, indicated that the percentage of students involved in bullying varied widely between nations, from 9% to 54%. However, across all participating countries, involvement was significantly related to poorer psychosocial adjustment for those involved (victims, bully-victims, bullies) (Nansel, Craig, Overpeck, Gitanjali, & Ruan, 2007). A self-report study of a nationally-representative U.S. student sample, grades 6 to 10, with 15,000 participants, found that 29% of students reported moderate or frequent involvement, 13% as a bully, 10.6% as a victim, and 6.3% as bully-victims. All three groups demonstrated significantly poorer psychosocial adjustment when compared to their uninvolved peers (Nansel, Overpeck, Pilla, Ruan, Simons-Morton, & Scheidt, 2001). Recent research showed that just being a bystander to

bullying was associated with significantly lower psychosocial adjustment (Rivers & Noret, 2010).

Bullying and Victimization: Psychosocial and Psychosomatic Impacts

Literature on bullying indicates that involved students suffer a set of negative psychosocial and psychosomatic impacts, regardless of which role they play. These impacts included a significantly higher risk for depression (Kaltiala-Heino, Rimpela, Marttunen, Rimpela, & Rantanen, 1999), and a significantly higher risk for suicidal ideation, after controlling for depression (Espelage & Holt, 2012). All involved groups reported higher levels of psychosomatic symptoms, including head, stomach, and back ache, difficulty sleeping, and bed wetting, and these symptoms increased as bullying increased (Williams, Chambers, Lowan, Robinson, 1996; Forero, McLellan, & Bauman, 1999). All three groups of involved students, reported significantly higher rates of additional victimization, including child maltreatment, criminal victimization, sexual abuse, and witnessing victimization (Leff, 2007; Holt, Finkelhor, & Kaufman Kantor, 2007). Involvement in bullying means involvement in interactions of a cyclical, conflictual nature, constituting a serious chronic stressor. Such chronic stressors have negative social, emotional, academic, and physical sequelae for children and teens (Shonkoff & Garner, 2012).

Besides these shared impacts, each involved group had unique problems. Victims (victims and bully-victims) reported significantly higher levels of loneliness, social isolation, and poorer social relationships (Espelage & Swearer, 2003; Nansel, et al., 2004; Holt, Finkelhor, & Kaufman Kantor, 2007). A review of 20 years of research on victimization (Hawker & Boulton,

2000), indicated that victims were at higher risk for poor global and social self-esteem, and general and social anxiety. In a retrospective study of adults, 18 through 55 and older, 18.7% recalled childhood victimization, and reported a 3 times higher rate of suicidal ideation, even after controlling for demographics and depression (Roeger, Allison, Korossy-Horwood, Eckert, & Goldney, 2010; Biebl, DiLalla, Davis, Lynch, & Shinn, 2011). Thus, involvement in bulling and victimization likely has serious and sometimes devastating long term effects.

Bullies were perceived by teachers as popular and feared (Bradshaw, Saywer, & O'Brennan, 2007); they reported poorer school adjustment and achievement, and greater involvement in delinquent and criminal behaviors than other involved groups (Nansel, et al., 2001; Nansel, et al., 2004; Holt, Finkelhor, & Kaufman Kantor, 2007). Unlike the others involved, bullies did not suffer any social deficit, reporting ease in making friends. Being a bully may confer some social advantage (Nansel, Overpeck, et al., 2001; Leff, 2007), but this advantage cannot compensate for the poor psychosocial outcomes associated with bullying, including dropping out of school and becoming involved in criminal activities.

Bully-victims reported significantly higher levels of other types of victimization, when compared to all other groups (Holt, Finklehor, & Kaufman Kantor, 2007); so they were victimized at school and victimized elsewhere as well, to a greater degree than bullies or victims. They also reported the highest level of suicidal ideation (Espelage & Holt, 2013), and were considered at greatest risk for psychosomatic and psychological problems, including delinquent behaviors (Nansel, et al., 2004; Forero, McLellan, Rissel, & Bauman, 1999; Williams, Chambers, Logan, & Robinson, 1996), and poor school performance (Nansel, et al., 2001).

School Climate and Bullying

School climate is characterized by "the quality and character of school life," (Welsh, 2000, p. 180) which can be understood globally ("What is your school like?"), as well as through examination of specific aspects of school climate, like teaching and learning, patterns of interpersonal interaction, institutional challenges, and engagement. Research has demonstrated that positive, democratic school climates promoted engagement, safety, healthy relationships, school improvement, and optimal learning environments (Welsh, 2000). School climate has also been connected to academic achievement and violence prevention (Nansel, et al., 2001). It was also significantly related to school avoidance, offending, and misconduct (Welsh, 2000; Cohen, McCabe, Michelli, & Pickeral, 2009).

The relationship between bullying and school climate is assumed to be straightforward: school climates that are unsupportive of bullying, limit these behaviors from occurring (Waasdorp, Bradshaw, & Leaf, 2012). Supportive relationships between students and teachers, student participation in decisions, and clear guidelines against violence, were significantly related to lower levels of bullying (Beatty-O'Farrall, Green, & Hanna, 2010).

Conversely, Espelage and Swearer (2003) found that teachers who did not promote respectful interaction, and did not speak out against bullying, had classrooms with higher aggression. They also stated, "Unfortunately, a paucity of research on bulling and school climate has been conducted, and virtually no studies have examined school climate variables and bullying" (p. 37; Yoneyama & Naito, 2003). There is more research now, but many publications are tests of interventions or new measures. There is still a lack of basic research concerning the

detailed connections between bullying and different aspects of school climate. The major exception is the work of Dan Olweus (1993) and his colleagues in Finland. The evidence-based programs Olweus created after exhaustive research, are still in use all over the world. There are no other school-based bullying prevention and intervention programs that are based on the kind of research evidence that Olweus spent decades performing.

There are many measures of school climate and related concepts, like school health and school disorder. In 2010, the Center for Social and Emotional Education reviewed the landscape and recommended four basic domains for school climate measurement. *Safety*, physical and psychological, is the cornerstone of school climate; it promoted learning and healthy student development (Devine & Cohen, 2007). *Relationships* are critically important, and should involve mutual respect, which made classroom management easier (Center for Social and Emotional Education, 2010; Beaty-O'Ferrall, Green, & Hanna, 2010). *Teaching and Learning* practices were directly related to motivation and academic achievement (Zoller Booth, 2011). The quality of the *Institutional Environment* enhanced engagement and success in school (Lunenburg, 2011). This domain can include school management issues, like rules and extracurricular activities, and instrumental concerns, like the condition and quality of text books, computers and the physical plant itself.

The chronic conflict created in a school with a bullying problem, pervades all of that school's environments. Whether it is the lunch room, the gym, the halls, the classroom, bullying crosses all contexts. And school is a complex context, replete with exacting time tables, codes of conduct, pressure to achieve, and social concerns. The social milieu involves scripted and

unscripted roles and interactions with both adults and peers. There is a strong pressure to conform, and serious consequences, like social isolation, for those who do not. Cliques and other subgroups add further role expectations and communication rules. School is also a constant evaluative context: student behavior and performance are evaluated by teachers, peers, other students, and administration every day (Perry & Weinstein, 1998).

What specific aspects of the climate are most salient in addressing bullying, and for which kids? Which aspects of school climate are easy to address, and which might be difficult to remedy? Importantly – can one size fit all, or is it more likely that multiple prevention and intervention programs are needed? We know one style of learning does not work for all students, so it seems logical that a single anti-bullying program can't reach all, or even nearly all, of the students at any particular school. And we also know from decades of intervening in schools, that prevention programs differ from intervention programs, and both are often required (Cicchetti & Toth, 1992).

Many programs view change in school climate as a vehicle for combatting bullying, but no unifying approach or theoretical model has emerged about bullying and school climate, and this has led to a plethora of under-researched programs currently drifting in our schools. With the recent surge of interest in bullying, even more schools have quickly adopted bullying prevention and intervention programs based on school climate, but many of these programs have little or no research behind them. Many programs report success in reducing bullying, but comparisons between programs are difficult, because each measures school climate and other relevant variables differently, so conclusions from one study are not easily comparable to the

next study. School climate is a mutable concept within its own literature, with multiple definitions and measures. Additionally, in research reports on successful programs, it is hard to understand what mechanisms led from alterations in school climate, to observed reductions in bullying (Merrell, Isava, Gueldner, & Ross, 2008). The concern is on outcomes; exactly how those outcomes are achieved is less interesting to some personnel and educational researchers, but the mechanisms of change are essential to understand if we want to design the most effective programs. Our schools are already underfunded; it should cause perturbation to know that some are buying anti-bullying programs at high costs that are not based on good evidence.

Present Objectives

The objective of this study was to move forward in the development of our understanding of bullying and its relationship to school climate. We understand the psychosocial impacts of involvement in bullying, so we understand some of the personal and interpersonal consequences, but we still lack a comprehensive and detailed understanding of which aspects of school climate are most important. Presently, we seek to estimate the size of the the role played by school climate in relation to bullying. We also investigate detailed relations between specific school climate perceptions and student reporting on bullying and victimization. We examine inter-group variation in school climate perceptions, wanting to learn whether the involved groups have similar and/or unique school climate concerns. The more specific our understanding of the role of school climate is, the better informed our prevention and intervention programs will be.

Materials and Methods

Procedures

Participants were 9554 students, grades 5 through 12, from a small New England city with a population of 120,000 and a median family income of $35,000. The district reported approximately 20,000 students in 2011-2012. Estimates for the current sample, indicated that approximately 48% of the students were female. District ethnicity data included: 55% African Americans, 31% Latino, 11% Caucasian, 2% "other," 1% Asian Americans, and <1% Native American. District values are provided, because the survey instrument did not require reporting gender or ethnicity.

All students in grades 5 through 12 were eligible to participate anonymously. Both students and parents had the ability to opt out. The study was open for 3 months in the Spring of 2012. The response rate was 87%. The district reported that non-participants were either absent the day their class participated, or had opted out. No further data were collected on non-participants. Both English Language Learner and Special Education students participated, although the district did not adapt the survey in any way for these groups. The instrument was completed electronically at school computing labs. Students had 30 minutes; the district reported that most students completed the survey in 15 minutes. Teachers were available to assist students.

The present analysis was examined by the institutional review board at the University of Rochester, and was deemed exempt.

Measures

The first version of this survey was created in 2009 by a committee consisting of school personnel and community stakeholders. They were tasked by the district to establish surveys on the learning environment for students, teachers, staff, and parents. Some questions were created by the committee, many were selected from several established surveys. The committee identified 5 domains of interest by face validity/design: Academic Expectations, Collaboration, Communication, Engagement, and Safety & Respect. These domains are not fully consistent with the existing literature.

The student survey contained 60 items, more than necessary to measure school climate. Very similar questions from multiple measures were often included, which resulted in very high and significant inter-item correlations. There was no uniform approach to choosing questions, domains, or the length of the survey; some domains chosen were represented by 8 items, some by 5 or by 4 items. These issues encouraged a data reduction and unification strategy. We were not seeking to establish another duplicative measure of school climate. We wanted to extract a set of items representative of the current measure, in sync with the key climate domains in the literature, that would be useful for this analysis alone.

We first attempted to derive the domains cited most frequently using Factor Analysis, but every type of extraction and rotation method employed, produced roughly the same thing: a large single factor that 40 or more out of 60 items loaded on, and that explained around 55% of the variance. This may have occurred for several reasons, including the extremely high inter-item correlations, and significant correlations between the latent domains. Because Factor Analyses

failed to yield our domains of interest, we turned to iterative reliability analyses, rotating items in and out of domains systematically, seeking those domains with good item-total correlations, lower between-item correlations, and lower correlations between domains. We make no claims concerning the generalizability of the reduced measure. We only claim that it fits the existing data and remedied problems inherent in the full survey. We produced 4 domains, each with 6 items, for a total of 24 items out of the original 60. No items were changed or modified in any way.

The first domain was Safety/Engagement (n = 9404, Cronbach's alpha = .80). Research demonstrated that when students had fears about school, their confidence in teachers and other adults declined, and this weakened informal controls against aggression (Welsh, 2000). Analyses indicated that Safety and Engagement co-varied predictably and significantly, so these domains were combined. There were too few safety questions available for a stand-alone Safety domain.

The second domain was Interpersonal Relationships (n = 9424, Cronbach's alpha = .80). Studies indicated that a climate of mutual respect is optimal for learning. The third domain, Institutional Environment (n = 9374, Chronbach's alpha = .83), included items about school cleanliness, condition of textbooks, if students followed rules, and school disciplinary procedures. Teaching and Learning was the final domain (n = 9477, Chronbach's alpha = .88). Research demonstrated that teacher-student relationship quality predicted engagement, sense of belonging, peer acceptance, achievement motivation, well-being, and academic success (Beaty-O'Ferrall, Green, & Hanna, 2010; Downer, Rimm-Kaufman, & Pianta, 2007).

An outcome scale, Bullying/Hostile Behavior (n = 9480, Chronbach's alpha = .84), had 3 items: 'Students bully other students', 'Students get into physical fights', and 'Students threaten other students at my school.'

All items in this survey used the following response scale: 1 (*strongly agree*), 2 (*agree*), 3 (*neither agree or disagree*), 4 (*disagree*), and 5 (*strongly disagree*). Lower scores, therefore, represent higher agreement with the statement, but each item required careful examination to determine whether lower or higher agreement was optimal. Students were also asked if they had been bullied, and if they had bullied someone in the past year. These questions were dichotomous yes/no classifications which allowed us to form groups.

Analysis

All analyses were completed using SPSS v. 20. Based on student self-report, 4 mutually exclusive groups were formed: bullies, victims, bully-victims and uninvolved students. Multiple regression examined how much variation in bullying could be attributed to the four school climate domains. Logistic regression asked if school climate scores could differentiate between involved and uninvolved students. Finally, to examine inter-group differences that could influence the design of prevention and intervention programs, a MANOVA, with ANOVA and post-hoc Scheffe testing, examined differences between groups on each of the 24 items in the reduced survey, looking for potential shared school climate concerns, as well as concerns unique to each group. Participant data were excluded pairwise when missing data prevented multivariate analyses; participant data were excluded listwise when creating domain scores and

groups.

Results

Demographics

Table 1 contains demographic data derived from district values because the survey did not inquire about race or gender.

[Insert Table 1]

Bullying-related statistics (self-reported bullying and victimization) are found in Table 2, along with the groups we formed using the self-report data.

[Insert Table 2]

The majority of children were ethnic minorities (over 80%). Over one fifth of students reported victimization in the past year (victims combined with bully-victims, 16% + 7%, = 23%). Overall, 29% of students were involved in bullying (victims 16 %, plus bully-victims 7%, and bullies 6% = 29%). Self-reported bullying decreased as students advanced in grade, but this trend was not apparent for self-reported victimization.

Multiple Regression

To determine the magnitude of the relationship between school climate and bullying, we employed multiple regression. All four school climate domains (Safety/Engagement, Teaching and Learning, Interpersonal Relationships, Institutional Environment) were entered simultaneously. With 9255 students, we obtained an $R^2 = .37$, with a standard error of .84. The

overall model was highly statistically significant, $F(1, 9255) = 1338.5,\ p < .001$). Table 3 shows the multiple regression coefficients.

The Safety/Engagement domain was not a significant predictor of bullying. However, all other domains were highly statistically significant. Interpersonal Relationships was the strongest predictor. Teaching and Learning had a negative beta coefficient; all questions from this domain were positively phrased, so the negative coefficient indicated that *less* agreement with these items was *more strongly* associated with Bullying/Hostile Behavior (after accounting for the variance associated with the other domains).

[Insert Table 3]

Logistic Regression

Could school climate domains differentiate students involved in bullying from those uninvolved? All three involved groups (bullies, victims, and bully-victims) were combined for this analysis. Data from 9086 students was available. All school domains were entered simultaneously. The omnibus test was highly statistically significant ($\chi^2 = 277.72,\ p < 0.001$). Beta coefficients are shown in Table 4.

[Insert Table 4]

All domains were significant; Interpersonal Relationships had the highest Wald score, indicating that it accounted for more unique variance in the prediction compared to the other domains. Teaching and Learning, along with the Institutional Environment, had effect sizes greater than one. Safety and Interpersonal Relationships had negative Beta coefficients; they

were inversely related to making the prediction.

Ideal data for logistic regression should include two approximately equal sized groups. Here, the groups are not equally sized (2664 involved; 6839 uninvolved). With this substantial imbalance in group size, logistic regression will emphasize prediction of the larger group, because predicting this group maximizes the overall percentage of those correctly classified.

The classification results are presented in Table 5. Prediction of those uninvolved with bullying was nearly perfect (99.3%), but school climate domains could not predict those involved. Although school climate domains accounted for almost 40% of the variance in Bullying/Hostile Behavior in the multiple regression analysis, this still leaves over 60% of the variance unaccounted for. Therefore, it might have been unreasonable to expect good classification results from school data alone. However, it should again be noted that the uninvolved group was nearly perfectly predicted. Perhaps, school climate data alone can easily parse out those uninvolved, but additional data of different types may be needed to accurately predict involvement in bullying.

[Insert Table 5]

School Climate and Involved Groups

You will recall from the introduction, that research on the psychosocial impacts of bullying has consistently demonstrated that all students involved, regardless of role, shared some negative impacts, like depression and suicidal ideation. Each group also had unique psychosocial difficulties. We wondered if the same pattern might be found regarding perception of school climate. Would all three involved groups share some school climate concerns, while

also having unique issues?

Significant differences in school climate perceptions between involved students and uninvolved students, would highlight the impact of simply being involved in bullying, and might also suggest promising avenues for the design of school-based bullying prevention programs. The psychosocial research also demonstrated that each involved group had unique psychosocial impacts. If each involved group had a unique set of school climate concerns, their concerns could be used to create targeted school-based intervention programs.

To examine these questions, we ran a MANOVA with all 24 school climate items as dependent variables, and the four mutually exclusive student groups as the independent variable. The multivariate test was highly statistically significant (Pillai's Trace = 12.180, $p < .001$, Adjusted odds ratio = .031), indicating the presence of multivariate differences. These results allowed us to move on to tests of group differences on each one of the 24 survey items.

We ran all 24 possible ANOVAs, again using the four student groups as the independent variable, with each item as the dependent variable. All 24 tests indicated the presence of statistically significant differences between groups ($p < .001$). Adjusted odds ratios for the items ranged from .002 to .031, with an average effect size of .009. The following items had Adjusted odds ratios equal to, or higher than, .01: I feel safe in my school (.031), My opinions are respected in this school (.017), My teachers respect me (.010), My teachers have control of classroom behavior (.010), Students treat teachers with respect (.015), Students treat each other with respect (.029), The presence and actions of disciplinary staff help to promote a safe and respectful learning environment (.010), and Students know and follow school rules (.014).

Because all 24 ANOVAs indicated significant inter-group differences, we then examined the specific nature of those differences. Using the post-hoc Scheffe procedure, we explored the patterns of differences between all possible inter-group pairings, on all 24 school climate items.

We first examined differences between involved students and uninvolved students, to assess the impact of simply being involved in bullying. These results are provided in Table 6. We only list those items on which there were significant mean differences ($p < .05$) between each involved group when compared to uninvolved students. Of note, three of the five items are from the Interpersonal Relationships domain.

[Insert Table 6]

Uninvolved students generally agreed with these statements, while those involved in bullying felt less respected, less included, and targeted unfairly by the discipline team. A bullying prevention program could stress interpersonal respect, increase student involvement in activities, and make student perception of discipline practices more appropriate and helpful.

Next, we focused on the particular role played. We examined differential responses to the 24 items between the three involved groups, first examining the perspective of the bully-victims (Table 7).

[Insert Table 7]

Victims were in significantly greater agreement with caring and enjoyment of school. They also indicated that they were more likely to receive help from teachers, and felt they were respected by teachers. Bully-victims disagreed with these items, and also indicated that they felt less safe in school compared to bullies, and were significantly less likely to view teachers as role

models (p <.05).

For bully-victims, teachers could make a special point of offering extra assistance. The school could endeavor to find activities that might make the bully-victims care more for school, and enjoy going. Importantly, schools must address the lack of safety that bully-victims feel in school. This may involve changes in disciplinary procedures.

Finally, we examined significant differences between victims and bullies and these are shown in Table 8.

[Insert Table 8]

Dramatic differences were found between victims and bullies (p <.05). Bullies were in significant disagreement with victims on all the items listed, and disagreements were found on every school climate domain. Perhaps surprisingly, bullies indicated less feelings of safety when compared to victims. This may be a result of the fact that bullies were aware of the possibility of retribution for their aggressive, hurtful actions against others. Bullies also were significantly less positive regarding their school's teaching and learning practices, and in particular they held negative views of their teachers' effectiveness. Their negative views even impacted their perspective on the cleanliness of the school environment. Interventions for bullies would likely do best to attempt to repair their negative views of their teachers and the learning environment. It also seems clear that if they decreased their bullying, then they would likely feel safer at school. Again, revised disciplinary procedures might help.

Conclusion

School Climate and Bullying

Bullying constitutes a serious international public health problem. In this sample, consistent with many others, almost 30% of students indicated that they were involved with bullying. Research has repeatedly documented the negative psychosocial, psychosomatic, and educational consequences associated with involvement, and in this paper we expose major aspects of school climate that are associated with bullying. We found that students involved in bullying held significantly more negative perceptions of the tone of interpersonal relationships in their schools when compared to uninvolved students, indicating an overall lack of felt mutual respect. This lack of mutual respect accounted for the largest amount of unique variance in bullying scores, compared to other school climate domains. Involved students also reported a harder time getting help from teachers, and were not assured that the actions of disciplinary staff would provide a safe environment.

In contrast, uninvolved students reported more mutual respect between students, and between students and teachers. They perceived the presence of disciplinary staff as helpful, saw school as safe, and felt that teachers were responsive. They were engaged with their studies and activities. The discrepancies between involved and uninvolved students, indicates that they have very different school experiences.

The three involved groups shared some characteristics, but also, could be clearly differentiated from one another. Bully-victims did not like going to school and did not care about school. They perceived their classrooms as chaotic, felt disrespected by teachers, failed to voice their views, and had serious safety concerns. They appeared foreclosed on the school experience.

Bullies demonstrated a pattern of defiant engagement. They held negative views of teachers, negative views of the methods of instruction, and negative views of school resources, like books and computers. Bullies were the group most concerned about the Institutional Environment. Additional analyses demonstrated that bully-victims and bullies reported not having to work hard to get good grades in school, compared to victims and uninvolved students. But both bully groups reported significantly lower grades than the other groups, indicating they had lower academic expectations of themselves. These two groups also reported less support/encouragement about school from parents, compared to victims and uninvolved students.

Victims resembled uninvolved students in many ways. They were invested in their relationships with teachers, their studies, and their extracurricular activities. However, they perceived an overall lack of order and discipline in school, and they did not feel they had a voice in classroom and school affairs. They also experienced a significant lack of safety. Despite these negatives, their level of engagement was high.

Implications for Prevention and Intervention

"Before designing effective prevention and intervention programs…school personnel must understand the scope of bullying in the United States, as well as characteristics of bullies and victims" (Milsom & Gallo, 2006, p. 13). When Olweus (1993) began his pioneering studies in the 1970s, bullying was not considered a serious public health problem. But his systematic research and evaluation, led to the development of data-informed prevention and intervention programs, which have been successfully implemented worldwide. We agree that programs should be built from a place of comprehensive, data-driven understanding on how school climate

encourages or discourages bullying (Swearer, Espelage, Vaillancourt, & Hymel, 2010).

In looking at prevention programs, the CDC found that universal (full-school) programs were successful in reducing violence by approximately 15%, and it did not matter what particular issue the school focused on; it could be bullying, disruptive students, character development, the exact content did not matter. Students in all grades perceived that the school was taking the issue seriously, and any pathway was good for them (Hahn, Dawna, Wethington, Lowy, Lieberman, Crosby, et al., 2007). Fifteen percent is most definitely not enough. We have to do better.

Our data indicated that there were some characteristics of school climate that helped discriminate between involved and uninvolved students. Those items of disagreement, like the inability of involved students to obtain extra help from teachers when they needed it, and the lack of mutual respect they perceived, could be the focus of a universal prevention program. Intervention programs could be designed to focus on the unique school climate concerns of each involved group. The ability to target each group's unique concerns, should make intervention programs much more effective.

Limitations

This exploratory analysis has several limitations, including an inability to make comparisons by gender and race/ethnicity. We did not have any follow up data on non-participants. The district reported that the most common reason for not participating was school absence. Absenteeism is not random; research has shown several systematic biases operating concerning school absence (Corville-Smith, Ryan, Adams, & Dalicandro, 1998). We therefore assume that non-participants may differ in systematic ways from participants. However, we are

satisfied with our overall response rate of 87%.

We report on student perceptions of bullying and school climate, but we do not have objective data on incidents of bullying, or concrete examples of the tone of interpersonal relations, the behavior of teachers, or the quality of the instruction and the institution. However, the perceptions of student are an important target for change; perceptions act like a filter through which students make sense of their school experiences. If the filter has a negative bias, then the experience likely will too.

Future Directions

Bulling is very costly. Research has shown that the cost of bullying for a single school district could exceed two million dollars each year, based on the costs of suspensions, expulsions, absenteeism, truancy, and loss of some federal funds (Phillips, 2001; DeAngelis, Brent, & Ianni, 2011). This estimate doesn't include possible long-term costs that might result from involvement, including treatment for mental illness and costs associated with criminal activity. However, research has demonstrated that the costs, in time and money, associated with implementing an anti-bullying program, prove to be a good investment, because they are much lower than the cost of unfettered bullying (Smith, Cousins, & Stewart, 2005).

Evaluating school climate is an important part of accountability. Research has shown that school climate is significantly associated with domains viewed as vital to school success, like engagement, achievement, and enjoyment of the school experience. Nearly 30% of students in our study reported involvement in bullying, which places them at significant psychosomatic, psychosocial, and educational risk. A similar percentage of US students are also likely to be at

risk, which underscores the public health imperative for finding solutions to bullying. Our data suggest that new solutions can be created through specific knowledge of the perceptions of school climate held by students.

The school experiences of involved and uninvolved students are as different as night and day. But there are many potential ways to use school climate to bridge the divide. Our data suggest that focusing on evidence-based aspects of school climate in the design of bullying prevention and intervention programs may yield good results. Everyone can be involved in actively transforming their existing school climate into one where aggressive actions against others are strongly discouraged, and mutual respect infuses interpersonal relations.

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Table 1: Demographics

Characteristic	N (%)
Gender*	
Males	4949 (52)
Females	4605 (48)
Race*	
Asian Americans	118 (1)
African-Americans	5328 (55)
Latino	2857 (31)
Caucasian	1059 (11)
Other	182 (>2)
*Estimations made from district data.	

Table 2: Bullying Statistics, by Grade and by Mutually Exclusive Group, n (%)

Bullying Status	Grades 5 and 6	Grades 7 and 8	Grades 9 and 10	Grades 11 and 12
I have bullied	876 (33)	648 (25)	261 (11)	156 (9)
I have been bullied	363 (14)	389 (15)	380 (15)	208 (12)
Mutually Exclusive Groups, n (%)				
Victims	1495 (16)			
Bullies	552 (6)			
Bully-victims	617 (7)			
Uninvolved	6839 (72)			

Table 3: Multiple regression coefficients for school climate domains: Final model

Model	*B*	*SE(B)*	β	*T*-score
(Constant)	0.7	0.03		22.66[a]
Safety/Engagement	0.04	0.02	0.03	1.92[ns]
Teaching and Learning	-0.23	0.02	-0.18	-14.18[a]
Interpersonal Relationships	0.71	0.02	0.54	39.23[a]
Institutional Environment	0.27	0.02	0.21	16.61[a]

[a] $p < .001$, [ns] non-significant

Table 4: Coefficient values in prediction of involved vs. uninvolved students

Domain	B	S.E.	Wald	AOR[a]	95% CI for AOR	
					Lower	Upper
Safety/Engagement	-0.2[c]	0.05	16.58	0.82	0.74	0.9
Teaching and Learning	0.29[c]	0.04	44.84	1.34	1.23	1.46
Interpersonal Relationships	-0.61[c]	0.05	152.29	0.54	0.49	0.6
Institutional Environment	0.13[b]	0.04	8.49	1.14	1.04	1.24
Constant	2.06[c]	0.09	554.88	7.85		

[a]Adjusted Odds Ratio, [b]$p < .005$, [c]$p < .001$

Table 5: Classification Results: Involved vs. Uninvolved Students

Classification Table			
Observed	Yes (N)	No (N)	Prediction was Correct (%)
Involved in Bullying	52	2484	2.1
Uninvolved in Bullying	43	6507	99.3
Overall Percentage			72.2%

Table 6: Items that significantly differentiated involved from uninvolved students

Domain	Item
Interpersonal Relationships	My opinions are respected in this school
	Students treat each other with respect
	Teachers often shout at students
Institutional Environment	My school provides information on clubs, sports, and other non-academic activities
	The presence and actions of disciplinary staff help to promote a safe and respectful learning environment

Table 7: Items that significantly differentiated bully-victims from victims and bullies

Group Difference	Group	Item
Safety/Engagement	Victim	I care about this school
	Victim	I like to go to school
	Bully	I feel safe in school
Teaching and Learning	Victim	My teachers respect me
	Victim	Teacher(s) give me extra help when I need it
	Bully	My teachers are role models
Interpersonal Relationships	Victim	Adults treat each other with respect

Table 8: Significant differences between victims and bullies

Domain	Item
Safety/Engagement	I care about this school
	I like to go to school
	There are activities and programs at my school that I look forward to.
	I feel safe in my school
Teaching and Learning	Teachers treat students with respect
	My teachers are excited about the subjects they teach
	My teacher(s) inspire me to want to learn
	My teachers have control of classroom behavior
	My teachers are role models
	My teachers respect me
Institutional Environment	My school is kept clean
Interpersonal Relationships	Adults treat each other with respect