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Abstract

Bullying attitudes and behaviors and perceptions of peers were assessed in a case study experiment employing a social norms intervention in five diverse public middle schools in the State of New Jersey (Grades 6 to 8). Data were collected using an anonymous online survey (baseline $n = 2,589$; postintervention $n = 3,024$). In the baseline survey, students substantially misperceived peer norms regarding bullying perpetration and support for probullying attitudes. As predicted by social norms theory, they thought bullying perpetration, victimization, and probullying attitudes were far more frequent than was the case. Also as predicted, variation in perceptions of the peer norm for bullying was significantly associated with personal bullying perpetration and attitudes. Using print media posters as the primary communication strategy, an intervention displaying accurate norms from survey results was conducted at each of the five school sites. A pre-/postintervention comparison of results revealed significant reductions overall in perceptions of peer bullying and probullying attitudes while personal bullying of others and victimization were also reduced and support for reporting bullying to adults at school and in one's family increased. The extent of reductions across school sites was associated with the prevalence and extent of recall of seeing poster messages reporting actual peer norms drawn from the initial survey data. Rates of change in bullying measures were highest (from around 17% to 35%) for the school with the highest message recall by students after a one-and-a-half-year intervention. Results suggest that a social norms intervention may be a promising strategy to help reduce bullying in secondary school populations.

Keywords

bullying, students, middle schools, violence, social norms, peers, perceptions, misperceptions, norms, adolescents

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Introduction

Over the last decade, increased media attention to the characteristics of school shooting and cyberbullying perpetrators and their victims has heightened research interest in bullying among adolescents, particularly in school settings (Dake, Price, & Telljohann, 2003; Elias & Zins, 2003; Reuter-Rice, 2008; Srabstein, 2008). In the United States, a nationally representative survey of youth in Grades 6 to 12 showed that 9%, 9%, and 3% were identified as bullies, victims, and both bullies and victims, respectively, in 2001 (Spriggs, Iannotti, Nansel, & Haynie, 2007). A 2002–2003 study on the prevalence of various forms of victimization in a nationally representative sample of young children and adolescents found that emotional teasing (one form of bullying) occurred among 20% of the sample (Finkelhor, Ormrod, Turner, & Hamby, 2005). Other studies focusing on different areas within the United States have shown a similar prevalence of bullying ranging from 20 to 30% (Carlyle & Steinman, 2007; Juvonen, Graham, & Schuster, 2003; Sawyer, Bradshaw, & O'Brennan, 2008).

Given the potential psychosomatic, violent, and other negative consequences of bullying (Brunstein Klomek, Marrocco, Kleinman, Schonfeld, & Gould, 2007; Klomek et al., 2008, 2009; Lund et al., 2009; Nansel, Craig, Overpeck, Saluja, & Ruan, 2004; Nansel et al., 2001; Nansel, Overpeck, Haynie, Ruan, & Scheidt, 2003; Salmon, James, & Smith, 1998; Sourander, Helstela, Helenius, & Piha, 2000; Srabstein & Piazza, 2008), understanding why some people are at risk of either bullying perpetration or victimization is salient. Numerous studies and reviews have shown many individual, family, peer/social, community, and school risk factors that contribute to bullying and youth violence such as low IQ, antisocial attitudes, weight status, substance use, television viewing, exposure to family violence, low parental involvement, poor family functioning, social rejection by peers, poor academic performance, diminished economic opportunities, socially disorganized neighborhoods, school social environment, school size, and school policy (Bowes et al., 2009; Center for Disease Control and Prevention [CDC], 2008;

Department of Health and Human Services [DHHS], 2001; Janssen, Craig, Boyce, & Pickett, 2004; Johnson, 2009; Kuntsche, Knibbe, Engels, & Gmel, 2007; Kuntsche et al., 2006; Lipsey & Derzon, 1998; Resnick, Ireland, & Borowsky, 2004; Smith & Myron-Wilson, 1998; Spriggs et al., 2007). Although several reports on youth violence (American Psychological Association [APA], 1996; DHHS, 2001; Hahn et al., 2007; Murray, Guerra, & Williams, 1997; Srabstein et al., 2008) have signaled the necessity of developing effective prevention programs, many of the aforementioned studies do not fully identify the mechanisms explaining why youth may engage in bullying, knowledge that would help to devise effective prevention.

Conformity to peer norms

Although sociodemographic and contextual factors represent an important consideration when attempting to predict and prevent bullying perpetration and victimization, another set of potential risk factors—peer norms and the perception of peer norms—deserves special attention. Decades of research in social psychology going all the way back to the classic experiments of Solomon Asch (Asch, 1956) and Muzafer Sherif (Sherif, 1936, 1937) have demonstrated the strong tendency of people to conform to peer norms as they look to others in their midst to help define the situation and give guidance on expected behaviors in the group or cultural setting. Although many people, and especially adolescents, frequently think of themselves as individuals in their actions, a considerable degree of peer influence is consistently documented in laboratory experiments, social surveys, and observations of crowd behavior. In studies on antecedents of personal health-related behaviors, for example, extensive evidence has supported the theory of reasoned action (Ajzen & Fishbein, 1980) and its extension, the theory of planned behavior, which posits norms as a determinant of personal behavior along with personal attitudes and perceived behavioral control (Ajzen, 2001, 2002; Ajzen & Madden, 1986). Furthermore, research on adolescents' health and well-being has singled out peer influence as

crucial in regard to risk behaviors such as alcohol, tobacco, and other drug use. Bullying and victimization in schools are inherently relational processes, relying on domination, subjugation, and bystander apathy, all presumably shaped by peer norms. This type of violence is a demonstration of “peer group power” in which a whole peer group participates in the bullying with individuals fulfilling different roles and acting as moderators of such behavior (Salmivalli, 1999).

Often, bullying occurs in academic settings, not only because adolescents spend a significant portion of every day in school, but also because schools are such peer intensive social environments where behaviors such as who sits with whom in the lunchroom are rigidly defined by student norms and pervasively communicated in the ways students talk (or not talk) to each other (Eder, Evans, & Parker, 1995). Thus, students form impressions, be they correct or incorrect, about what is going on in the school environment and who is involved in peer social interaction from a context where peer talk frequently dominates the milieu. In turn, these impressions may lead students to participate in bullying, to acquiesce to victimization, or to remain as bystanders to the bullying of others.

Thus, widely shared practices or behaviors (descriptive norms) and widely shared beliefs or common attitudes (injunctive norms) serve as social cues directing and constraining individuals’ behaviors and attitudes in educational environments at various stages of development. For example, among 1,368 female sixth graders, friends’ bullying perpetration or victimization was associated with personal bully/victim status (Mouittapa, Valente, Gallaher, Rohrbach, & Unger, 2004). Among college students, peer group ideological beliefs predicted individual members prejudiced attitudes (Poteat & Spanierman, 2010).

Misperceived norms and the social norms approach to reducing problem behavior

Since its introduction in an initial study of university student drinking (H. W. Perkins & Berkowitz,

1986), the examination of the degree of discrepancy between actual and perceived norms as well as the potential influence of both has received a great deal of theoretical and empirical examination as applied to adolescent and young-adult consumption of alcohol, tobacco, and other drugs (H. W. Perkins, 2003a). Indeed, a consistent and dramatic pattern of misperceptions about peer norms for substance use has been documented in studies conducted in several nations (Hughes, Julian, Richman, Mason, & Long, 2008; Kilmer et al., 2006; Linkenbach & Perkins, 2003; Lintonen & Konu, 2004; McAlaney & McMahon, 2007; Page, Ihasz, Hantiu, Simonek, & Klarova, 2008; Page, Ihasz, Simonek, Klarova, & Hantiu, 2006; H. W. Perkins, 2007; H. W. Perkins & Craig, 2003; H. W. Perkins, Haines, & Rice, 2005; H. W. Perkins, Meilman, Leichliter, Cashin, & Presley, 1999) where the tendency is to overestimate the permissiveness of peers and the extent or prevalence of use, even in peer contexts where use is relatively high. Similarly, adolescent and young adult misperceptions of norms have been identified for other concerns regarding health and well-being including body weight and image (Clemens, Thombs, Olds, & Gordon, 2008; J. M. Perkins, Perkins, & Craig, 2010a), consumption of sugar-sweetened drinks (J. M. Perkins, Perkins, & Craig, 2010b), violence against women (Fabiano, Perkins, Berkowitz, Linkenbach, & Stark, 2003; Neighbors et al., 2010), and sexual behavior (Martens et al., 2006).

Thus, the various studies consistently show that positive attitudes and behaviors, though most often the norm among young people in schools and communities, are often not perceived to be the peer norm. Adolescents and young adults tend to believe that risky or problem behaviors and attitudes are most common among peers and think protective responsible action is rare. These exaggerated or erroneous perceptions may be the result of (a) attribution error where behavior occasionally observed in others is thought to be typical of them when only incomplete or superficial information about peers is available, (b) social conversation among youth about the most extreme behavior in their midst

getting disproportionate attention, thus creating a sense that the extreme behavior is common, and (c) entertainment and news media further amplifying misperceptions by focusing almost entirely on images and stories of the risky or problem behavior (H. W. Perkins, 1997, 2002, 2003a).

It is argued that these misperceptions then contribute to or exacerbate the problem behavior as more youth begin to support and engage in the behavior than would otherwise be the case if norms were accurately perceived. Amidst these widely held misperceptions of problem behavior as "normal" among peers, those who regularly engage in the problem behavior freely do so thinking they are just like most others and are likely to have the greatest commitment to the misperception. Those who are ambivalent about joining in the behavior, nonetheless, by misperceiving the norm, may occasionally do so mistakenly feeling a false majority pressure. Finally, most of those who oppose the behavior (the real majority) remain silent as bystanders to the problem behavior believing that they, as bystanders, are alone in their opposition. They may hold less extreme misperceptions of the problem as the norm and thus feel least pressured to actually engage in the behavior. However, the misperception that does exist among them is still harmful as it spawns apathy and withdrawal from interaction with peers (H. W. Perkins, 2007).

Thus, the strategy of the social norms approach to preventing problem behavior, put simply, is to dispel the myths about the problem being the norm among peers. Social norms interventions seek to turn the process around by intensively communicating the truth about positive norms based on credible data drawn from the target population. In short, social norms theory (H. W. Perkins, 1997, 2003b) predicts that by reducing misperceptions and increasing the proportion of students with more accurate information about existing healthy norms, occurrences of unhealthy or problem behavior will decrease. Several intervention studies regarding alcohol, tobacco, and other drug use have shown that when students are intensively exposed to actual norms, their misperceptions and actual problem behavior

can be reduced (Bewick, Trusler, Mulhern, Barkham, & Hill, 2008; DeJong et al., 2006; Haines & Spear, 1996; Haines, Barker, & Rice, 2003; Hansen & Graham, 1991; Linkenbach & Perkins, 2003; Mattern & Neighbors, 2004; Neighbors, Larimer, & Lewis, 2004; H. W. Perkins & Craig, 2006; Turner, Perkins, & Bauerle, 2008). Interventions using social norms feedback about peer and community attitudes and behavior for other topic areas such as conservation and recycling have demonstrated positive effects as well (Cialdini, Reno, & Kallgren, 1990; Schultz, 1999; Schultz, Khazian, & Zaleski, 2008).

Although limited research has examined the relationship between bullying norms and personal involvement in bullying, and some studies have found norms to be important predictors of other health-related behavior among adolescents, no studies have examined the accuracy of students' perceptions of bullying norms (personal perception of the bullying norm in a given group versus the actual extent of bullying behavior and attitudinal support for it in the group). Furthermore, no study has reported an intervention to challenge misperceptions as a means to reduce bullying. Thus, the current study introduces research examining three important questions related to perceived norms of bullying. Specifically, we consider: (a) the extent and direction of misperceptions about bullying as well as how much variation in perceived norms exists, (b) the degree of association between perceptions of the peer bullying norm and personal involvement in bullying, and (c) the impact that might be produced by disseminating actual norms about bullying in adolescent populations. Thus, the objective of the study was to address these three questions with action-oriented research on bullying conducted in five middle-school populations.

Method

Participants

Students in five middle schools located throughout the State of New Jersey in the United States provided the data for this research. Each school

contained Grades 6 through 8 and almost all students were between the ages of 11 and 14. The five schools were from an initial group of seven middle schools in the state that had chosen to participate in an online survey of their students regarding bullying in late spring of 2006. The five sites providing data for this study were all of the schools from the initial survey group that fulfilled the following criteria: (a) the entire school population served as the sampling frame for the survey; (b) the school subsequently conducted an intervention to challenge misperceptions with data-based messages about actual peer norms in the local school; (c) the intervention campaign included at least the posting of print media in the school with messages that had been created by the research team and displayed with supporting images created or approved by the researchers (additional communication venues were also used by local schools in some instances); (d) the same survey of bullying was again administered as a postintervention assessment with all students as the sampling frame; and (e) demographically comparable pre- and postintervention samples were obtained from the school as a result of the surveys. The two other schools that participated initially were excluded from the study because their response rates for the baseline survey were very low (17% and 22%) and resulted in samples that did not adequately represent the school populations. No schools conducted the survey at two time points without conducting the intervention so no overtime control comparison sites were available. Thus, this study provides

five case studies of the intervention based on representative cross-sectional data collected at each school site at pre- and postintervention time points.

Four schools in this study were very large middle schools (populations between 900 and 1,300 students) and one was midsize (300–400 students). Three were located in suburban settings, one was in a combined urban and suburban area, and one was rural. Three schools were largely homogeneous in racial composition (85% or higher White) and two schools reflected substantial diversity (about 50% minority races). The average response rate across schools from the school populations was 59%. Table 1 provides the pre- and postintervention respondent characteristics for each school.

Survey procedures

Data were collected using the “Survey of Bullying at Your School” (Social Norms Surveys Online). The Institutional Review Board of the academic institution hosting the online survey approved the survey procedures and local schools obtained parental consent for student participation. From class sessions or other group assignments in school, students who had parental consent were instructed to go in groups to rooms where a computer was available for each student. Each group was given general information about the online survey and told that the survey was voluntary and anonymous. A student could leave all questions

Table 1. Pre- and postintervention sample demographics for five school sites

	School A ^a		School B ^a		School C ^a		School D ^b		School E ^b	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
N	180	225	759	681	578	799	484	592	588	727
Response rate (%)	50	70	80	71	47	69	43	50	50	61
Female (%)	58	56	53	53	55	52	53	50	50	52
Mean age	12.5	12.3	12.8	12.3	12.7	12.4	12.8	12.5	12.6	12.5
(SD)	(.9)	(1.0)	(1.0)	(1.0)	(.9)	(1.0)	(.9)	(1.0)	(1.0)	(1.0)
Minority (%)	27	24	21	25	29	29	48	57	57	59

Note. ^aSchools with 1.5 academic-year intervention; ^bSchools with 1.0 academic-year intervention.

blank if they did not want to participate. No personal computing accounts were used. To access the survey all students in a specific group session were publicly given the same password and URL address in order to assure students of their anonymity in completing the survey. However, the password was changed between sessions so that no student could access the survey and submit multiple responses after leaving his or her survey session. There was a teacher or other adult monitor present simply to make sure that students did not speak with each other while taking the survey. The survey data were subsequently checked to screen out submissions with intentionally provided erroneous or random answers. The small number of respondents who submitted multiple answers that were clearly outside of possible ranges or who answered sets of questions with contradictory responses was eliminated.

Measures

Bullying perpetration The survey instrument included a series of questions about what are commonly identified as bullying behaviors in schools including: (a) pushing, shoving, hitting, kicking, hair pulling, or tripping; (b) teasing in an unfriendly way; (c) calling hurtful names; (d) excluding someone from a group to make them feel bad; (e) taking or damaging someone else's belongings; (f) spreading unkind stories or rumors about someone else; (g) threatening to hurt someone; and (h) making someone do something they did not want to do. Specifically, respondents were asked how often in the last 30 days they had done each of these eight behaviors to another student using the response categories of "Not in the last 30 days" (coded 0), "Once" (coded 1), "2–3 times" (coded 2), and "4 or more times" (coded 3). We refer to these behaviors as personal bullying behaviors. An index measure of personal bullying perpetration was subsequently computed by summing scores for responses to all eight items. Scale reliability analyses (Cronbach's alpha) indicated high inter-item reliability for responses in both the preintervention (.82) and postintervention (.83) surveys.

Using the same behavioral items and response categories, respondents were also asked how often they thought most other students had done these things at their school. We refer to these responses as perceived peer norms for bullying behaviors. An index measure of the perceived norm for bullying perpetration was subsequently computed by summing scores of responses to all eight items. Scale reliability analyses (Cronbach's alpha) indicated high inter-item reliability for the perceived norm measure in both the preintervention (.91) and postintervention (.91) surveys.

Bullying victimization Seven items comprised measures of personal bullying victimization and the perceived norm for bullying victimization that paralleled the first seven items of the perpetration measures. Respondents were asked how often in the last 30 days each of the following things had happened to them, and also how often in the same 30 days they thought these things had happened to most other students at their school: (a) being pushed, shoved, hit, kicked, hair pulled, or tripped; (b) being teased in an unfriendly way; (c) being called hurtful names; (d) being excluded from a group to hurt feelings; (e) belongings being taken or damaged; (f) unkind story or rumor spread; and (g) threatened to be hurt. The eighth item in the list of perpetration measures—making someone do something they did not want to do—was not converted to a victimization item in the construction of the survey because it was judged that "being made to do something you did not want to do" might be confused with being required to perform legitimate or positive behaviors under the direction of peers or others at school. Thus, the survey only presented seven victimization items. The same response categories and scores as used in the bullying perpetration questions were employed, and again, indices were created by summing responses to the items. Scale reliability analyses (Cronbach's alpha) also indicated high inter-item reliability for personal bullying victimization in both the preintervention (.82) and postintervention (.81) surveys and for the perceived norm for bullying victimization at both times (.86 and .88).

Probullying attitudes A second set of questions measured personal pro-bullying attitudes and the perceived norm for pro-bullying attitudes by providing four statements and asking respondents to what extent they agreed or disagreed and to what extent they thought most other students agreed or disagreed. Statements were as follows: (a) "Students should NOT tease in a mean way, call others hurtful names, or spread unkind stories about other students"; (b) "Students should NOT shove, kick, hit, trip, or hair pull another student"; (c) "Students should NOT threaten to hit another student even if they don't actually hit the other student"; (d) "Students should always try to be friendly with students who are different from themselves." Response categories for personal beliefs and for what respondents thought most others would say were strongly agree, agree, disagree, and strongly disagree coded 0 to 3, respectively. Indices for personal attitude and the perceived norm were created by summing the response scores for all four items. Scale reliability analyses (Cronbach's alpha) indicated high inter-item reliability for personal probullying attitudes (.82 and .84 for pre- and postsurveys, respectively) and for the perceived norm for pro-bullying attitudes (.82 at each survey time).

Reporting bullying In a third set of questions students were asked: "Who do you think students should tell if they or someone else are being bullied at school? And what would most other students say?" Respondents could indicate any of several different types of people for their personal opinion with a separate listing of the same types for their perceptions about what would be most others' response (perceived peer norm). Of specific interest for the intervention and for assessment in this study were the three categories: (a) principal, (b) teacher or counselor, and (c) parent or other adult relative.

Poster campaign message exposure One final measure used in this study was drawn from a set of questions added to the postintervention survey at the end of the survey instrument. The

questions asked how often and where during the school year respondents had seen or heard information about what most students or the majority do or think about bullying and unfriendly behaviors based on survey results from students at their school. Given the nature of the intervention described below, the item focusing on how often, if ever, students had seen such material on posters at school was of specific interest for this study. Response categories were "never," "once," and "more than once" (scored 0, 1, or 2, respectively).

Intervention

The basic strategy of the social norms intervention was to provide students in each local school with feedback about the results of the initial survey by conveying actual positive norms, which were widely misperceived. Social norm messages about the prevalence of positive behavior and opinion were created for each school based on their data. Messages indicated the recent survey on bullying at their school as the source of information and noted the large number of students participating. Examples of norm messages (school name deleted) are:

Most ____ Middle School students (9 out of 10) agree that students should always try to be friendly with students who are different from themselves.

95% of ____ Middle School students say students should NOT tease in a mean way, call others hurtful names, or spread unkind stories about other students.

94% of ____ Middle School students believe students should NOT shove, kick, hit, trip, or hair pull another student.

9 out of 10 ____ Middle School students agree that students should NOT threaten to hit another student even if they don't actually hit the other student.

Most ____ Middle School students (3 out of 4) do NOT exclude someone from a group to make them feel bad.

Most ____ School students (9 out of 10) do NOT take or damage other's belongings.

Most ____ Middle School students (8 out of 10) think that students should tell a teacher or counselor if they or someone else are being bullied at school.

94% of ____ students say they are encouraged to help and respect other students.

Most (4 out of 5) ____ students do NOT spread unkind rumors or stories about other students.

2 out of 3 ____ students think that students should tell a parent or other adult relative if they or someone else are being bullied at school.

7 out of 10 ____ students do NOT get involved in any pushing, shoving, kicking, pulling hair or tripping any other students.

Poster images containing these messages did not display the negative behavior. Rather, they presented scenes of positive student interaction or simply scenes or emblems associated with the local school. Figures 1 and 2 provide examples (with actual school names and survey dates changed or removed). These posters were printed as large (3 by 4 feet) wall posters and as smaller posters for display in the school. In three schools, the campaign was carried out over one and one half academic years before the postintervention assessment and in two schools the campaign ran for one academic year before the postintervention assessment.

Analytic approach

The first hypothesis we examined was that students tend to overestimate the prevalence of and

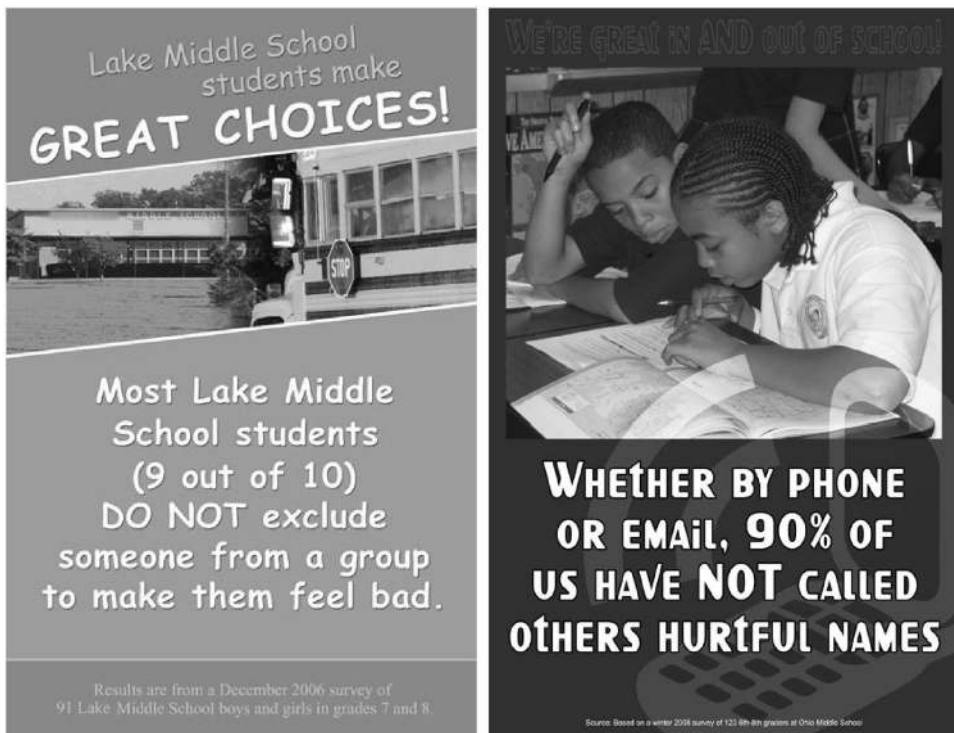


Figure 1. Examples of social norms intervention posters.



Figure 2. Example of social norms intervention poster.

support for bullying behaviors among peers. We assessed this initial assumption by comparing the mean reported personal bullying perpetration, bullying victimization, and probullying attitudes with the corresponding perceived peer-norm mean for perpetration, victimization, and attitudes at each school using a paired sample *t* test of significance for each set of measures in each preintervention school sample. We then tested our second hypothesis that students' personal behaviors and attitudes are associated with what they perceive to be the norm. That is, even though most individuals may overestimate problem behaviors and attitudes, we further hypothesized that those who tend to think bullying behaviors and attitudes are more pervasive than not will also be the ones who engage in more of the actual behavior and more often believe it is acceptable. To test this assumption we calculated the correlation (Pearson *r*) between the perceived norm and personal behavior or attitude in each initial sample.

Our third hypothesis was that an intervention providing students with information about actual

norms to challenge misperceptions of the peer norm would reduce misperceptions (i.e., lower students' estimates of the prevalence and support for bullying behavior and raise estimates of peer support for reporting bullying to principals, teachers, and parents), and, in turn, reduce the actual levels of bullying and support for bullying and raise levels of personal support for reporting bullying. This prediction was tested for each school site by (a) comparing the pre- and postintervention levels on each of the perception of peer measures of this study, and (b) comparing the pre- and postintervention levels on each of the personal measures. For each of these comparisons, we conducted an independent sample *t* test for a significant pre/postintervention difference in means or proportions in the predicted direction. It is important to note that although the social norms intervention model predicts that perceptions of peers can be shifted in the direction of the actual norms by providing accurate normative information, it does not necessarily predict that the gap between perceived and actual norms will be lessened. Rather, the model predicts that

changing what is perceived as normative will lead to a change in personal attitudes and behaviors. Thus, an equally large gap may still exist in the wake of an effective intervention if both perceptions of norms and personal attitudes or behaviors have shifted toward the actual and subsequently more positive norm. Assessing the pre/post differences in perception and in personal attitude or behavior, and not a change in the gap between perceived peer and personal attitudes or behaviors, is the critical measure of impact.

Furthermore, it is most appropriate to use an independent samples test of the difference of pre/post means (proportions) in this instance (and not a paired sample test). First, the data were collected anonymously so there are no links between the pre- and postintervention respondent records. Second, the samples measured at baseline preintervention represented mostly different respondents than the respondents in the postintervention survey. The postintervention survey, which took place 12 to 18 months later, was intended to measure the impact of the intervention on perceptions and experiences of bullying for all grade levels in the school including new cohorts that moved into the middle school after such an intervention was underway. Thus, one or two new grade cohorts had moved in (and out) of each school by the time the postsurvey was given. Therefore, posttest samples inherently included from one third to two thirds different respondents who were new in each school. Moreover, some additional students move in and out of the school district every year as families move. Finally, each year a significant portion of the student body did not participate (response rates reported in Table 1) due to absences on the survey days or parental permission slips for participation not being available. The net result is that only a relatively small percentage of students were the same in the pre- and postsamples, and thus very little distortion is created in using the independent samples *t* test. Also, it is important to note that the significance test is fundamentally conservative in identifying true Time 1/Time 2 differences in the population because the sampling frame

used was the entire population itself, not a random sample drawn from the population.

An additional prediction associated with our third hypothesis was that the degree of success of a social norms intervention is based on achieving widespread and intensive exposure to the campaign messages. Thus, variation among school sites in the prevalences of recalling multiple exposures and no exposure to social norms poster media about bullying at school were examined. The mean exposure level for each school was calculated and then correlated (Pearson *r*) with the mean rate of pre/post intervention change in all bullying measures at each site.

Results

Baseline findings

Table 2 presents the initial mean scores in all five school samples (preintervention surveys) for personal bullying perpetration compared to the perceived norm for bullying perpetration, for personal bullying victimization compared to the perceived norm for bullying victimization, and for personal probullying attitudes compared to the perceived norm for probullying attitudes. Here, the mean of each personal measure provides an estimate of the actual norm existing in each school based on the sample. The mean of each perceived-norm index provides an estimate of students' average subjective perception of how much bullying perpetration, victimization, and attitudinal support for bullying is the peer norm. Perceptions of the peer norm for bullying behavior are three to four times higher than the estimates of the actual norm based on the aggregate of personal behaviors in each sample. Perceived levels of victimization are more than twice as large as what are found in the anonymous personal reports, and peers are perceived to be about twice as supportive of probullying attitudes as what is actually found among students at each school. Statistically significant differences ($p < .001$) were found in the predicted direction in every instance of comparing means in each set of measures at each site.

Table 2. Preintervention bullying perpetration, victimization, and attitude norms compared to perceived peer norms by school site

	School A	School B	School C	School D	School E
BULLYING PERPETRATION					
Personal bullying perpetration mean (SD)	2.3 (2.8)	2.9 (3.8)	2.7 (3.7)	3.0 (3.6)	2.4 (3.3)
Perceived norm for bullying perpetration mean (SD)	10.6 (5.7)	10.7 (6.6)	13.0 (6.8)	11.5 (6.3)	9.4 (6.2)
BULLYING VICTIMIZATION					
Personal bullying victimization mean (SD)	5.0 (4.6)	4.4 (4.4)	4.7 (5.0)	4.5 (4.3)	4.1 (4.2)
Perceived norm for bullying victimization mean (SD)	10.7 (4.9)	10.8 (5.4)	12.7 (5.6)	11.4 (5.1)	10.2 (5.2)
PROBULLYING ATTITUDES					
Personal bullying attitudes mean (SD)	1.7 (2.0)	1.8 (2.2)	1.8 (2.2)	1.8 (2.1)	1.7 (2.0)
Perceived norm for bullying attitudes mean (SD)	3.3 (2.1)	3.5 (2.6)	4.5 (2.7)	3.9 (2.4)	3.5 (2.2)

Note: All personal index means are significantly different from the corresponding perception index means at $p < .001$.

Table 3. Preintervention correlations of personal bullying perpetration and attitudes with the corresponding perceived peer norm index by school site

	School A	School B	School C	School D	School E
BULLYING PERPETRATION					
Personal bullying perpetration by perceived norm for bullying perpetration	0.356	0.407	0.330	0.412	0.474
PROBULLYING ATTITUDES					
Personal bullying attitudes by perceived norm for bullying attitudes	0.465	0.563	0.395	0.503	0.529

Note: All correlations are significant at $p < .001$.

Table 3 presents correlation coefficients examining the association between students' personal bullying perpetration and their perceived norm for bullying perpetration as well as the association between the perceived norm for probullying attitudes and personal probullying attitude. Clearly one's personal behavior and attitudes regarding bullying are highly linked to how commonplace one thinks such behaviors are and how much support one believes exists for these actions among peers, regardless of the accuracy (or more often inaccuracy) of these perceptions. All correlations are positive as predicted, ranging from .33 to .56 in strength, and all are statistically significant at $p < .001$.

Pre/postintervention comparisons

Table 4 presents the results comparing pre- and postintervention data on all perceived norm and personal measures used in this study (all bullying indices as well as the measures of respondents' perceived norms and personal attitudes regarding reporting bullying perpetration). School A demonstrated significant change in the predicted direction on all measures. There was less perception of bullying perpetration and victimization, less personal reporting of being a perpetrator or victim, and less personal and perceived peer support for bullying and more personal and perceived peer willingness to report bullying to

Table 4. Pre- and postintervention perceived norms and personal bullying perpetration, victimization, probullying attitudes, and beliefs about reporting by school site

	School A			School B			School C			School D			School E		
	Pre	Post	Rate (%) change	Pre	Post	Rate (%) change	Pre	Post	Rate (%) change	Pre	Post	Rate (%) change	Pre	Post	Rate (%) change
BULLYING PERPETRATION															
Perceived norm for bullying perpetration mean	10.6	8.1	-24***	10.7	8.4	-21***	13.0	10.7	-18***	11.5	9.2	-20***	9.4	9.4	0
Personal bullying perpetration mean	2.3	1.5	-35**	2.9	2.5	-14*	2.7	2.4	-11	3.0	2.0	-33***	2.4	2.3	-4
BULLYING VICTIMIZATION															
Perceived norm for bullying victimization mean	10.7	8.8	-18***	10.8	8.9	-18***	12.7	10.7	-16***	11.4	9.7	-15***	10.2	10.0	-2
Personal bullying victimization mean	5.0	3.3	-34***	4.4	4.0	-9	4.7	4.2	-11*	4.5	4.0	-11*	4.1	3.7	-10
PROBULLYING ATTITUDES															
Perceived norm for bullying attitudes mean	3.3	2.4	-27***	3.5	3.0	-14**	4.5	3.4	-24***	3.9	3.2	-18***	3.5	3.2	-9*
Personal bullying attitudes mean	1.7	1.1	-35**	1.8	1.5	-17*	1.8	1.7	-6	1.8	1.4	-22***	1.7	1.5	-12
REPORTING BULLYING															
Perceived most peers would say students should tell _____ if they or others are being bullied (%)															
A principal	46	60	30**	36	48	33***	39	48	23***	31	37	19*	30	36	20**
A teacher or counselor	59	69	17*	54	63	17***	48	54	13*	57	63	11*	51	61	20***
A parent/other adult relative	52	61	17*	48	54	13***	41	48	17**	48	53	10	38	48	26***
Personally thinks students should tell _____ if they or others are being bullied (%)															
A principal	55	73	33***	40	53	33***	58	67	16***	37	43	16*	44	44	0
A teacher or counselor	77	89	16**	72	79	10***	74	80	8*	81	83	2	78	80	3
A parent/other adult relative	71	81	14*	68	73	7*	68	76	12**	73	75	3	62	69	11**

Note: **p* < .05; ***p* < .01; ****p* < .001 in the predicted direction.

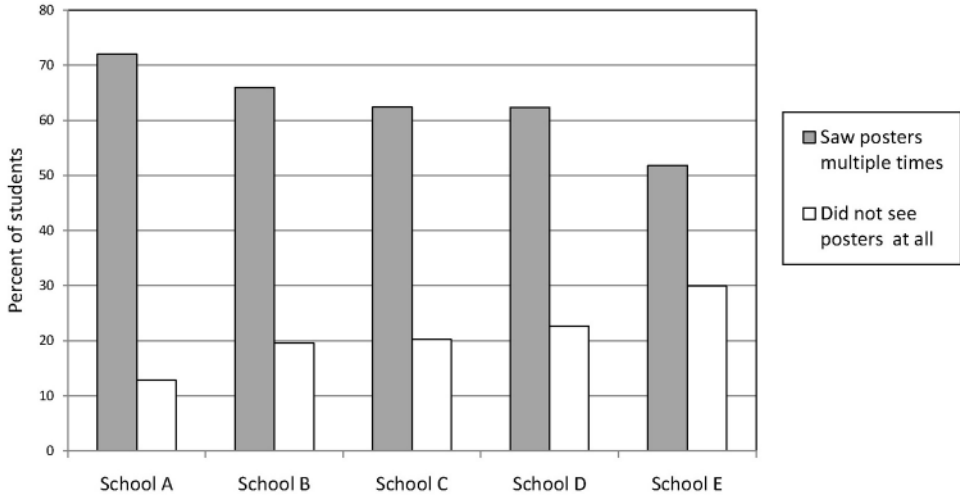


Figure 3. Recollection of seeing posters reporting survey results during the school year by intervention site.

principals, teachers and counselors, and adult relatives. Rates of change ranged from 17% to 35% in the expected direction. Postintervention samples from schools B, C, and D, likewise, displayed change as predicted on all 12 pre/postcomparisons with 11, 10, and 9 of them producing statistically significant results, respectively. Rates of change on the significant items ranged between 7% and 33% in the expected direction. Finally, School E demonstrated the least change after the intervention; only 5 of the 12 measures showed a statistically significant difference in the predicted direction and two items showed no change. Nevertheless, observed differences between the pre- and postintervention samples of School E remained in the predicted direction and there were appreciable rates of change (between 9% and 26%) in the expected direction on the five statistically significant measures for this school with the weakest impact. Thus, overall, four schools provided strong support for the intervention having a positive impact while one school showed a more mixed or weaker positive result.

Exposure to poster message intervention

Figure 3 presents the prevalence of respondents recalling having seen multiple poster messages at school about what the majority of peers think and do regarding bullying based on survey data and the prevalence of respondents not recalling seeing any poster with this type of message. Prevalence of exposure and lack of exposure to the poster campaign is broken down by school. The school achieving the greatest postintervention change in the expected direction with significant results on all bullying items (School A) is also the school demonstrating the highest exposure level to the poster campaign with 72% reporting multiple exposures and only 13% reporting no recall. Schools B, C, and D with 11, 10, and 9 measures demonstrating significant pre/postchange, respectively, exhibited multiple exposures for 66%, 62%, and 62% of their students, respectively, and no recall for 20%, 20%, and 23%, respectively. Finally, the school that revealed the least change in perceptions of norms and personal attitudes and behaviors regarding bullying

with significant differences on just five measures (School E), also demonstrated the lowest campaign exposure level. Only about half (52%) recalled seeing multiple poster messages and almost one third (30%) recalled no messages.

As a further assessment of the relationship between poster message exposure levels achieved at each school and pre/postchange in school bullying climate, the mean score on the exposure question (scored as 0 for never recalling seeing a poster, 1 for once, and 2 for recalling seeing two or more poster messages) at each school was compared with the mean percentage pre/post-intervention rate of change in all attitudinal and behavioral measures of perceived and personal bullying and victimization. That is, the average of absolute values of all percentage rates of change reported in Table 4 was calculated for each school. Absolute values of rates of change were used because declines were expected based on item wording and scoring for the measures of bullying perpetration, victimization, and probullying attitudes whereas increases were expected for the measures of attitudes about reporting bullying to school officials and familial adults. Absolute values could be used for this computation because all observed change at each school

was in the predicted direction. Table 5 reports these means by school along with the correlation between mean exposure and mean rate of change. Near perfect association is demonstrated here with a Pearson r of .96, which is highly significant in the expected direction at $p < .005$ even taking into consideration the small number of schools in the correlation.

Thus, overall school exposure levels to the campaign were strongly related to the overall change experienced at the school. More social norm message exposure was associated with greater change in the school in an almost perfect correlation. This pattern of results provides further evidence supporting the claim that the intervention to reduce misperceptions about bullying was the crucial factor accounting for the postintervention change in bullying.

Discussion

This study expands the realm of research on misperceptions of peer norms among youth to the phenomenon of bullying in middle schools. Without doubt, participation in bullying behaviors is a serious problem in schools. However, this research finds that middle school students grossly

Table 5. Mean exposure to poster media and mean percentage pre-/postintervention rate of change in all bullying measures by school site

School site	Mean exposure to poster media ^a	Mean percentage rate of change in all bullying measures ^b
A	1.59	25.0
B	1.46	17.1
C	1.42	14.4
D	1.40	15.1
E	1.22	9.7
Pearson r	.96 ^c	

Note. ^aMean score was computed from respondent recall of the frequency of seeing posters displaying survey information about what most students think and do about bullying during the school year where 0 = never, 1 = once, and 2 = 2 or more times. ^bMean percentage pre/postintervention rate of change was computed from the absolute values of the rates of change in all survey measures of perceived and personal bullying as reported in Table 4. Absolute values of rates of change were used because declines were expected for the measures of bullying perpetration, victimization, and probullying attitudes whereas increases were expected for the measures of attitudes about reporting bullying. Absolute values could be used for this computation because all observed change at each school was in the predicted direction. ^c $p < .005$ in the predicted direction.

overestimate the prevalence of bullying, and also overestimate support for it in their perceptions of the norm for peer attitudes (the first hypothesis). The pattern replicates what has been found for other youth risk behaviors, most notably concerning alcohol, tobacco, and other drug use.

Furthermore, variation in personal attitudes and behaviors observed among individual students was highly correlated with variation in their perceptions of the peer norm (the second hypothesis), again a pattern commonly found in research of substance abuse. Although variation in personal behavior may be, in part, a determinant of one's perception (presuming some students will rely on themselves as a referent for establishing a sense of the peer norm), much research as previously discussed, has also indicated that peer norms, and more importantly, the perception of peer norms, are strong determinants of personal attitudes and behaviors. This suggests that interventions to reduce misperceptions can help reduce problem behaviors.

The third hypothesis predicted that an intervention exposing students to accurate positive norms based on local data through a print media campaign at each of the five research sites would reduce perceptions of bullying attitudes and behaviors as the peer norm and concomitantly reduce personal bullying behaviors and attitudes. The predicted result of the intervention was precisely what was observed in the comparison of the pre- and postintervention data. That is, results showed significant reductions in problematic misperceptions of the prevalence of bullying and of peer support for bullying and simultaneous reductions in personal bullying behaviors and experiences of victimization. Students were also more supportive of reporting bullying to school authorities and parents and they came to believe that peers more often supported this behavior than was previously thought to be the case.

Without the availability of control site comparisons, one must be cautious in attributing the change observed to the intervention that was conducted. Other local events or newly introduced programs or policies might have contributed to the observed changes. However, all five

schools with differing demographic characteristics and drawn from different areas within the state exhibited significant changes in the predicted direction and none of the schools experienced any changes in the opposite direction. Moreover, variation in the extent of change from pre- to postintervention across sites corresponded highly to the level of message exposure achieved at each school. These facts provide a greater confidence that the results are likely due to the effect of the intervention, but further research employing simultaneous control sites are no doubt needed to more rigorously test our third hypothesis. Use of a multiple baseline design (multiple pretest assessments over time before introducing the intervention) in future research might be considered to strengthen the evidence of any intervention effect if control sites cannot be enlisted.

Another limitation of this study is the reliance on self-report measures for an estimate of actual bullying norms. It may be that some students did not fully recall all of the bullying behaviors in which they engaged over the last month or they may not want to reveal the full extent of their actions, and therefore, actual norms might be higher than estimated based on self-reports. If so, then the gap between the actual norm for personal behavior and perceived norms in reality may not be as great as the results of this study suggested. However, at least three points argue against this possibility as significantly accounting for the difference. First, the method employed made clear that the surveys were anonymous for students. Thus, they did not need to hide their behavior for fear of punishment. Second, given that students most often believed that the norm for bullying behavior among other students was so much more than they did, even among those engaging in bullying, then it could be argued that there should be little shame or fear in reporting more behavior if they in fact were doing more bullying. And, if they thought most others were engaging in extensive bullying one might argue that their perceived norm could even encourage them to say they were personally doing more bullying than was actually the case, meaning that the

actual gap could be larger than observed. Third, the suggestion that recall error—the possibility that the respondent would tend not to remember all of the bullying behaviors over several weeks time—is not an issue for the measures of attitudes about bullying. One does not forget what one's attitude is, and yet the gap between personal attitudes and perceived attitudinal norms of peers was substantial as well. Although one may not always act in accordance with one's attitudes—and here that may occur precisely because of the pressure one feels to behave in bullying ways because of misperceptions of the peer norm—one's attitude is still presumably what one states unless one is intentionally being evasive.

The question about the accuracy of self-reporting personal behavior may also arise in the context of assessing the pre- to postintervention change. It is possible that exposure to messages indicating that engaging in bullying is not normative might lead some respondents to simply say they are doing less than what they reported in the initial survey given the new information. However, there were no messages about the prevalence rates of victimization, only messages about volitional behavior. And yet, being a victim of bullying also declined in the wake of the intervention, which strengthens the conclusion that actual bullying had declined.

To conclude, this research suggests that a social norms intervention may be a promising strategy to help reduce bullying. Future research should examine this approach in a broader range of school settings, consider how misperceptions emerge and are transmitted from cohort to cohort in the school context, determine which groups are most vulnerable to acting in accordance with the erroneously perceived norm, and explore other ways of delivering accurate norm messages that would effectively reduce misperceptions.

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