

Factors Associated With Bullying Behavior in Middle School Students

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In this study, bullying was examined as a continuum of mild-to-extreme behaviors, and the potential correlates of bullying others were delineated. To improve identification and targeting of those youth at risk for bullying, demographic, behavioral, and psychosocial correlates were tested on a continuous measure of bullying behavior rated according to the number and frequency of behaviors. Among 558 middle school students surveyed in 1995, only 20% reported no bullying behavior. In multiple regression analysis, misconduct, anger, beliefs supportive of violence, confidence in using nonviolent strategies, and intentions to use nonviolent strategies were associated with levels of bullying behavior. Although boys reported more bullying behavior than did girls, gender was not a significant predictor in the multiple regression analysis. These study results were inconsistent with the perspective that early adolescents were either bullies or nonbullies and indicated the need for a comprehensive approach to preventing bullying behavior.

Themes in classic literature and memories of students throughout the decades attest to the common presence of intimidation, threat, abuse, and bullying of students by other peers. A single student who bullies can have far-reaching effects in the school and create a climate of fear and intimidation not only in his or her victims but in fellow students as well. Students who bully, their victims, and bystanders are all affected. When asked for the number one reason for not returning to school, 10% of high school dropouts reported fear of being harassed or attacked (Greenbaum, Turner, & Stephens, 1988). Similarly, more than one-third of middle school students felt unsafe at school

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because of bullying and did not report such behaviors to school personnel because they were scared, lacked the necessary skills for reporting, and felt teachers and administrators did nothing to stop the bullying (Batsche & Knoff, 1994; Hazler, Hoover, & Oliver, 1993; Slee, 1994).

Because bullying behaviors arouse a sense of fear and can lead to physical altercations that disrupt learning, educators are urged to address actively the impact of bullies on their school culture and on the academic success of their students. Galloway (1994) concluded that freedom from fear of bullying is not enough to ensure successful learning but it is a necessary condition for effective learning. Hoover, Oliver, and Thomson (1993) argued that to the extent that bullying sets a tense and violent tone in a school, such behavior might precipitate hate crimes.

Bullying has been identified and studied internationally, with the earliest work in the field initiated by Olweus in the late 1970s in Norway (Olweus, 1978). Other researchers in Great Britain (e.g., Arora, 1987; Boulton & Smith, 1994; Galloway, 1994; Lowenstein, 1978; Sharp & Smith, 1991), Austria (Klicpera & Klicpera, 1996), Finland (Salmivalli, Lagerspetz, Bjorkqvist, Osterman, & Kaukiainen, 1996), Canada (Bentley & Li, 1995), Australia (Rigby & Slee, 1991), Japan (Kikkawa, 1987), and the Czech Republic (Rican, 1995), as well as several researchers in the United States (Hazler et al., 1993; Perry, Kusel, & Perry, 1988), have contributed to the current understanding of the dynamics underlying bullying behavior.

The international nature of the research on bullying is complicated by the use of a variety of definitions. Olweus (1978) originally defined *bullying* as "the systematic use of physical and/or mental violence by one boy or several boys against another boy." More recently, Olweus has refined this definition and concluded that a "bully chronically harasses somebody else either physically or psychologically" (Olweus, 1991). Arora (1987), in studying British children, reported that bullying is "achieving or maintaining social dominance through overtly aggressive means which occur because the victims have no sufficient skills or capacity to integrate with their peer group" (p. 116). Another British researcher reported that bullying occurs "when one person or group deliberately causes distress to another person or group" (Galloway, 1994, p. 76). In the major study of United States adolescents, Hoover and colleagues (1993) defined bullying as "physical or psychological abuse of an individual by one or a group of students." Although there are many definitions, most converge on the notion that bullying behavior can be either physical or psychological.

Bullying has been operationalized in various ways and includes a variety of hurtful actions such as name-calling, social exclusion, and having money taken or belongings damaged, as well as the more obvious forms of hitting

and kicking (Crick, 1997; Crick, Casas, & Mosher, 1997; Menesini et al., 1997; Rigby, Cox, & Black, 1997; Thompson & Sharp, 1998). Those behaviors have been classified as direct and indirect bullying (Olweus, 1991). Direct bullying involves open attacks on a victim and indirect bullying is distinguished by social isolation, exclusion from a group, or nonselection for activities (Olweus, 1991).

Current strategies for assessing bullying have several weaknesses that pose additional problems in interpreting findings across research studies. First, many studies focus on the ends of the continuum by excluding students who report low and moderate levels of bullying behavior or by collapsing participants into categories of students who are more or less extreme on a bullying scale. Categorizing students in that way results in reduced precision in the measurement of bullying behavior. The second weakness of current strategies relates to the manner in which self-reports of bullying others are collected. In many studies, study participants were given a definition of bullying and then asked to report how often they did certain things to others (Menesini et al., 1997; Salmivalli et al., 1996). Using such approaches might produce unreliable self-reports from students who feel uncomfortable describing their behaviors toward others as bullying. Thus, it might be more appropriate to simply ask students about the frequency of specific behaviors such as teasing and hitting. A third weakness of the assessment of bullying behavior relates to the research on aggression within the United States. In the United States, bullying has been studied as a subset of aggression, and the majority of the studies have focused on physical aggression. Students identify teasing and practical jokes as a part of bullying (Hoover & Oliver, 1996; Hoover et al., 1993), and perhaps bullying behaviors are more widely distributed than documented in studies that focus only on physical aggression.

Because the extant literature uses differing definitions, operationalizations, and strategies for assessment, educators in the United States concerned about problems associated with bullying might not find the direction they need. In addition, much of the work on these phenomena has been conducted internationally. Although those investigations can inform research conducted in the United States, it is unclear how the findings from international studies will replicate with U.S. students. In addition, definitions of what constitutes bullying behavior vary and need to be clarified.

In the current study, bullying was defined as a subset of aggressive behavior that has potential to cause physical or psychological harm to the recipient. Measurement was not linked to the subjective perception of what bullying was; rather, study participants were asked about the frequency of specific behaviors (e.g., teasing and making fun of others).

Correlates of Bullying Behavior

Clearly, as educators struggle to reduce violence, dealing with bullying behaviors comes to the forefront. Before effective programs in the United States can be developed, adults working with early adolescents must first be able to identify the students most at risk for engaging in bullying behavior and to articulate the demographic, behavioral, and psychosocial characteristics associated with levels of those behaviors. To date, investigators who have studied bullying have used an array of definitions, have focused on the identification of bullies and victims, and have examined differing aspects of demographic and psychosocial factors. Thus, a coherent set of variables that could be used to explain bullying behavior is lacking. Therefore, this study was exploratory, drawing on several theoretical and evaluative sources from the research on bullying and aggression.

Previous research with dichotomous measures of bullying has indicated gender differences in the prevalence of bullying and the types of behaviors used by children and adolescents who bully (Boulton & Underwood, 1992; Sharp & Smith, 1991). In a study of British primary and secondary students, Sharp and Smith (1991) found that boys bullied more than did girls. Boys were more likely to use physical bullying and verbal threats. In contrast, girls used social and verbal means, including spreading rumors about other students and excluding students from peer groups (Boulton & Underwood, 1992; Sharp & Smith, 1991). The current study was an attempt to replicate the gender findings for bullying others and to extend the current understanding of demographic correlates by examining whether grade, ethnicity, family income (measured by eligibility for free or reduced lunch), and academic achievement (measured by Chapter 1 status) were associated with levels of bullying.

The findings from previous research also have indicated several behavioral and psychosocial measures that might be associated with bullying others. Several correlates included in the study reported here include misconduct, beliefs supportive of aggression, feelings of depression, impulsivity, and school sense of belonging. In a sample of eighth graders in Austria, students who bullied reported they were more likely to resolve conflicts using physical power. In addition, those students were involved in more antisocial acts in school and had a negative image of the school in general (Klicpera & Klicpera, 1996). In a study of Canadian fourth, fifth, and sixth graders, Bentley and Li (1995) found bullies were more likely to hold beliefs supportive of aggression than were nonbullies. Australian students who bullied were more likely to report feelings of depression and feeling unhappy at school (Slee,

1995). Finally, Olweus (1994) found a relation between impulsivity and bullying.

An additional goal of this study was to explore the relations between anger and bullying others. Although anger has not been examined specifically in the literature about bullying, this construct has been discussed in the research on subtypes of aggression (Dodge, 1991; Price & Dodge, 1989). Although those researchers have examined anger as a potential precursor to aggressive behavior, they have not discussed the association between aggression and general levels of anger. Thus, the question of whether students who bully others are more likely to report high levels of general anger than are students who do not bully others remains unanswered. A significant association between anger and bullying others might highlight anger as an important focus of prevention and intervention programs.

Also, eminent researchers have reported that aggressive children and adolescents lack basic social skills when interacting with their peers (e.g., Dodge & Frame, 1982; Dodge, Pettit, McClaskey, & Brown, 1986). Applying a social skills deficit model to students who bully others has been relatively problematic (Smith, Bowers, Binney, & Cowie, 1993). Researchers in the United Kingdom have found that students who bully others are not lacking in social skills. Instead, those students deliberately select strategies to maintain dominance and power in social relations (Smith et al., 1993). In the current study, the relationships between lack of confidence in using nonviolent strategies and intentions to use these strategies were examined as potential correlates of bullying others.

In addition to the behavioral and psychosocial measures, participants' perceived access to guns was considered as a relevant correlate. Immediate access to firearms is associated with increased risk for homicide, suicide, and unintentional firearm death (Brent et al., 1991; Cummings, Koepsell, Grossman, Savarino, & Thompson, 1997). Given the risks for lethal consequences, access to guns is a particularly important environmental correlate of bullying behavior. An association between reports of physically or verbally bullying one's peers and access to guns might indicate the potential for severe immediate consequences of those bullying behaviors.

Current Study

The study reported here included several purposes that were aimed at assisting educators and others who work with young adolescents to develop prevention programs. The first purpose was to determine the distribution of bullying behavior within a sample of urban middle school students. Rather

than categorizing students, bullying behavior was viewed as a continuum of mild-to-extreme behaviors, varying according to the number and frequency of self-reported bullying behaviors committed on others. The second purpose was to describe the demographic characteristics associated with bullying behavior. A third purpose was to examine the extent to which misconduct, access to guns, psychosocial risk factors (e.g., anger, feelings of depression, impulsivity, and beliefs supportive of aggression), and prosocial factors (sense of belonging at school, confidence, and intentions to use nonviolent strategies) were associated with involvement in bullying others.

METHOD

Data were collected in a large middle school (sixth, seventh, and eighth grades) located within 10 miles of the heart of a major Midwestern metropolis with a diverse socioeconomic population. All participants completed a survey as part of the baseline data collection for an evaluation of a violence prevention study (Bosworth, Espelage, DuBay, Dahlberg, & Daytner, 1996). Students for whom parental permission was granted were given a pencil and paper survey in January 1995. A detailed description of the evaluation design, survey administration, and preliminary analyses can be found in Bosworth et al. (1996).

Participants

Parent permission forms were sent to all 1,361 students registered at the school and 700 (51%) returned permission forms. Of those, 142 had been denied permission, thus leaving a sample of 558. Of those 558 student participants, 54% ($n = 300$) were girls and 46% were boys ($n = 258$), with 42% being sixth graders ($n = 232$), 31% seventh graders ($n = 173$), and 27% eighth graders ($n = 153$). Approximately 84% were Caucasian ($n = 468$), 9% ($n = 52$) were African American, 4% ($n = 19$) were biracial, and 3% reported other racial backgrounds. Forty-nine percent ($n = 271$) were currently living with two biological or adoptive parents (two parents, no stepparents); 20% ($n = 113$) were living with two parents, one of whom was a stepparent; 28% ($n = 157$) reported residing with a single parent; and the remaining 3% reported other living arrangements (e.g., grandparents or foster care). In addition, 29% of the sample were receiving free or reduced priced lunch and 18% had Chapter I status indicating qualification for remedial support.

To determine the representativeness of the study sample, chi-square analyses were conducted to test differences on relevant demographic

variables (i.e., gender, grade, ethnicity, and zip code) between the 558 study participants and those students who did not participate in the investigation. In addition, chi-square analyses were calculated to evaluate the differences between study participants and the entire student population (i.e., all sixth through eighth grade students) on the same demographic variables. A significant difference was found only for the distribution of grade between study participants and nonparticipants; approximately 42% of the study participants were sixth graders, whereas 25% of the nonparticipants were sixth graders. No other significant differences were found between study participants and nonparticipants, and no differences were found between the study participants and the entire student population (Bosworth et al., 1996).

Measures: Demographics, Misconduct, Gun Access, and Psychosocial Factors

All study measures were developed in a similar manner with the exception of the demographic variables. Existing measures with strong psychometric properties were selected from a comprehensive literature review. Other measures were developed specifically for a violence prevention intervention. All measures were presented to groups of middle school students for their review. Based on the results from those student groups, items were modified for clarity and readability. Exploratory factor analysis was then conducted for all study measures. Factors were extracted based on eigenvalues, percentage of variance explained, and examination of scree plots. Items that had factor loadings above .50 and those items that did not have cross-loadings above .30 on any other factor were retained. Although a lengthy description of this scale development process is beyond the scope of the current article, details on the development of the bullying and anger scale are included in more detail later in this section.

Demographic variables. Self-reports of gender, grade, and ethnicity were included as demographic characteristics. In addition, Chapter 1 and free/reduced lunch status were included.

Misconduct. Misconduct was measured with a six-item scale developed specifically for this study. Participants were asked how many times in the past 30 days they did each of the following: (a) "Did you break a rule at home?"; (b) "Did you break a rule at school?"; (c) "Did you break a rule/law in the community?"; (d) "Did you get in trouble at home?"; (e) "Did you get in trouble at school?"; and (f) "Did you get in trouble in the community?" Response choices included 0 = never, 1 = 1 or 2 times, 2 = 3 or 4 times, 3 = 5 or 6 times,

and 4 = 7 or more times (Cronbach's alpha = .79) Total scores ranged from 0 through 24, with higher scores indicating more misconduct.

Gun access. Participants were asked how much they would agree or disagree with the following statement: "I can get a gun easily." Response choices included 0 = *strongly disagree*, 1 = *disagree*, 2 = *neither agree nor disagree*, 3 = *agree*, and 4 = *strongly agree*. This variable had a skewed distribution; thus, a dichotomous variable was created representing two groups: (a) those students who reported that they were either neutral, disagreed, or strongly disagreed in response to this item and (b) those students who responded that they agreed or strongly agreed with the statement.

Feelings of depression. Self-reported feelings of depression were assessed using the five-item University of Texas Depression Scale (Dahlberg, Toal, & Behrens, 1998). Student participants were asked how often in the past 30 days: (a) "Were you very sad?" (b) "Did you feel hopeless about the future?" (c) "Did you feel like not eating or eating more than usual?" (d) "Did you sleep a lot more or a lot less than usual?" and (e) "Did you have difficulty concentrating on your schoolwork?" Response choices included 0 = *never*, 1 = *seldom*, 2 = *sometimes*, 3 = *often*, and 4 = *always* (Cronbach's alpha = .74). Total scores ranged from 0 through 20; higher scores indicate more depressive symptoms.

Impulsivity. A four-item scale developed specifically for this investigation was used to assess impulsivity. Students were asked how often they would say the following statements about themselves: (a) "I have a hard time sitting still," (b) "I start things but have a hard time finishing them," (c) "I do things without thinking," and (d) "I need to use a lot of self-control to keep out of trouble." Response choices included 0 = *never*, 1 = *seldom*, 2 = *sometimes*, 3 = *often*, and 4 = *always* (Cronbach's alpha = .62). Total scores ranged from 0 through 16. Higher scores indicate higher self-reported impulsivity.

School sense of belonging. Perceived belonging at school was assessed with 4 of the 20 items from the Psychological Sense of School Membership Scale (Goodenow, 1993). Students were asked how much they agreed with these four statements: (a) "I feel proud of belonging to my school," (b) "I am treated with as much respect as other students," (c) "The teachers here respect me," and (d) "There is at least one teacher or other adult in this school I can talk to if I have a problem." Response choices included 0 = *strongly disagree*, 1 = *disagree*, 2 = *neither agree nor disagree*, 3 = *agree*, and 4 = *strongly agree*

(Cronbach's alpha = .63). Total scores ranged from 0 through 16, and higher scores indicate a greater sense of belonging at school.

Confidence. A 5-item Confidence Scale was developed specifically for the violence prevention investigation from which these data were drawn. To assess confidence in using nonviolent strategies, each student was asked how confident he or she was doing each of the following: (a) "How confident are you that you can stay out of fights?" (b) "How confident are you that you can understand another person's point of view when you are mad?" (c) "How confident are you that you can calm down when you are mad?" (d) "How confident are you that you can talk out a disagreement?" and (e) "How confident are you that you can learn to stay out of fights?" Response choices were 0 = *not at all confident*, 1 = *not very confident*, 2 = *unsure*, 3 = *somewhat confident*, and 4 = *very confident* (Cronbach's alpha = .85). Total scores ranged from 0 through 20, and higher scores indicate a higher sense of self-efficacy or confidence.

Intentions to use nonviolent strategies. An 8-item Intentions to Use Nonviolent Strategies Scale that measured the respondent's intentions to use nonviolent strategies in a future anger-provoking situation was developed specifically for the violence prevention investigation. Participants were asked, "How likely is it that you would do each of the following the next time you find yourself really angry at someone or something?" The eight items were: (a) "Wait for the other person to change his or her behavior," (b) "Ignore the situation," (c) "Try to talk it out," (d) "Suggest peer mediation," (e) "Channel my anger into something constructive," (f) "Laugh it off," (g) "Try to reduce my anger," and (h) "Try to see the other person's point of view." Response choices included 0 = *very unlikely*, 1 = *unlikely*, 2 = *likely*, 3 = *very likely*. Items (a) and (b) were reverse scored. Total scores ranged from 0 through 24 (Cronbach's alpha = .63). Higher scores indicate greater intentions to use nonviolent strategies.

Beliefs supportive of violence. The Beliefs Supportive of Violence Scale was a modified version of a scale from the Houston Community Project Scale (Dahlberg et al., 1998). To assess participants' beliefs supportive of violence, six items were presented and participants were asked how much they agreed or disagreed with the following statements: (a) "If I walked away from a fight, I'd be a coward," (b) "It's okay to hit someone who hits you first," (c) "If a kid teases me, I usually cannot get him/her to stop unless I hit him/her," (d) "If I refuse to fight, my friends will think I'm afraid," (e) "I don't need to fight

because there are other ways to deal with being mad," and (f) "If I really wanted to, I can usually talk someone out of wanting to fight with me." Items (e) and (f) were reverse scored to create a total score. Response choices included 0 = *strongly disagree*, 1 = *disagree*, 2 = *neither agree nor disagree*, 3 = *agree*, and 4 = *strongly agree* (Cronbach's alpha = .71). Total scores ranged from 0 through 24. Higher scores indicate more beliefs supportive of aggression.

Measures: Bullying and Anger

A literature review was conducted to obtain measures of bullying, fighting, and anger; however, many available self-report measures of bullying rely on a subjective label. For example, those measures ask students how many times they bullied their peers rather than asking about the frequency of specific behaviors such as name-calling, teasing, and hitting. However, the 11-item Aggression Scale from the University of Texas–Houston Health Science Center Student Questionnaire (Dahlberg et al., 1998) does include items related to those specific behaviors. The Aggression Scale was adapted and four items related to anger were developed to supplement this scale (i.e., "I frequently got angry," "I was grouchy, irritable or in a bad mood," "I took my anger out on an innocent person," and "I was mean to someone when angry"). The Modified Aggression Scale with the four new items were hypothesized to contain two subscales, one reflecting bullying behavior and the other reflecting anger. Therefore, these items were included in a principal factors analysis (PFA) with an oblique rotation.

Results of the PFA with an oblimin rotation supported the hypothesis that two factors provided the best fit for the data based on the extraction criterion of an eigenvalue greater than 1.0. In addition, examination of the scree plot supported a two-factor structure. The first factor accounted for 43% of the variance and included eight items to form the modified Aggression Scale with factor loadings ranging from .39 through .83. Items that had factor loadings less than .50 and those that had cross-loadings greater than .30 on another factor were deleted. Two items had factor loadings less than .50 and one item had a cross-loading greater than .30 on the second factor. Thus, three items were deleted from the first factor. The second factor accounted for an additional 10% of the variance and consisted of one anger item from the modified Aggression Scale and four new anger items with factor loadings ranging from .46 through .66. One item was deleted because it had a cross-loading greater than .30 on the first factor. Next, these nine items were entered in a confirmatory factor analysis (CFA) (Principal Axis Factoring

TABLE 1: Final Factor Loadings From Principal Axis Factor Analysis of Bullying and Anger Items

Item	Factor Loadings	
	Bullying	Anger
I pushed, shoved, slapped, or kicked other students.	.83	-.07
I called other students names.	.83	-.11
I said things about students to make other students laugh.	.71	.02
I teased students.	.70	-.05
I threatened to hit or hurt another student.	.67	.08
I was angry most of the day.	-.02	.66
I was grouchy or irritable, or in a bad mood, so that even little things made me mad.	-.04	.62
I frequently got angry	.01	.58
I took my anger out on an innocent person.	.19	.51

with oblique rotation) and the final loadings for each factor are presented in Table 1.

Bullying behaviors. As a result of the CFA, the final Bullying Scale used in this study consisted of five items from the modified Aggression Scale (Dahlberg et al., 1998) that loaded on the first factor. As hypothesized, the items on the final Bullying Scale were consistent with the definition of bullying used in the current study and reflected psychological and physical aspects of bullying. Participants were asked how many times they did the following in the past 30 days: (a) "I called other students names," (b) "I teased students," (c) "I said things about students to make other students laugh," (d) "I threatened to hit or hurt another student," and (e) "I pushed, shoved, slapped, or kicked other students." Response choices included 0 = *never*, 1 = *1 or 2 times*, 2 = *3 or 4 times*, and 3 = *5 or more times* (Cronbach's alpha = .83). Summing across all five items created total scores ranging from 0 through 15, with 0 meaning no bullying activity. As can be seen in Table 2, the Bullying Scale in the current sample was skewed with the highest percentage of students reporting low levels of bullying behavior, and examination of the skewness statistic to its standard error confirmed that the distribution was nonnormal. Thus, a log transformation was used on the sum scores in subsequent analyses. After the transformation, the skewness statistic to its standard error indicated that the distribution resembled a more normal distribution.¹

TABLE 2: Distribution of Scores on the Bullying Scale for 558 Middle School Students

<i>Scale Score</i>	<i>Number of Students</i>	<i>Percentage of Total Sample</i>	<i>Cumulative Percentage</i>
0	106	19.00	19.00
1	51	9.10	28.10
2	53	9.50	37.60
3	53	9.50	47.10
4	60	10.80	57.90
5	36	6.50	64.30
6	45	8.10	72.40
7	26	4.70	77.10
8	28	5.00	82.10
9	19	3.40	85.50
10	13	2.30	87.80
11	13	2.30	90.10
12	12	2.20	92.30
13	11	2.00	94.30
14	9	1.60	95.90
15	23	4.10	100.00

Anger. As a result of the CFA, the hypothesis that there was an anger factor was supported. A final Anger Scale that was distinct from the Bullying Scale consisted of four items that loaded on the second factor. The Anger Scale consisted of one item from the University of Texas–Houston Health Science Center Student Questionnaire (UT scale) (Dahlberg et al., 1998), and three items developed specifically for this current investigation. First, from the UT scale, respondents were asked how often they did the following in the past 30 days: (a) "I was angry most of the day." They were also asked how often in this time period they did the following: (b) "I took my anger out on an innocent person." Response choices included 0 = *never*, 1 = *1 or 2 times*, 2 = *3 or 4 times*, and 3 = *5 or more times*. In addition, student participants were asked how often they would make the following statements: (c) "I frequently got angry," and (d) "I was grouchy or irritable, or in a bad mood, so that even little things would make me mad." Response choices included 0 = *never*, 1 = *seldom*, 2 = *sometimes*, 3 = *often*, and 4 = *always*. Because the response options were dissimilar across the four items, individual item scores were converted to z scores. These standardized variables then were used to calculate a Cronbach's alpha for the scale, which was .70. Summing across all four z scores created total scores, with higher scores indicating more self-reported anger.

Data Analysis

To test the association between levels of bullying behaviors and demographics, misconduct, gun access, and psychosocial variables, analyses were conducted in which bullying was used as a continuous variable. Because previous investigations have treated bullying as a categorical variable, an analysis was conducted in which students were divided into three groups based on their Bullying Scale score. The results of those analyses showed increased risk of the predictor variables by level of bullying.² Therefore, bullying was recoded as a continuous measure, and only those results are reported here.

Next, relations between demographic variables (i.e., grade, gender, ethnicity, family type, Chapter I status, and lunch status) and bullying were tested by using a single multiple regression model in which Bullying Scale score was entered as a continuous criterion variable. Significant demographic variables were included as covariates in subsequent analyses. Partial correlations were calculated to examine the associations between the continuous measure of bullying and each study variable, controlling for any significant demographic variable. Finally, one multiple regression analysis was conducted to determine the strongest correlates of bullying within the entire set of predictor variables.

RESULTS

As seen in Table 2, 19% of students in the current study sample indicated that they had not bullied their peers in the past 30 days. Thus, 81% of the students reported at least one act of bullying behavior during this period, and 7.7% reported frequently bullying other students.

Demographic Correlates of Bullying Behavior

Gender was associated significantly with bullying behavior, with boys ($\bar{X} = 5.50$; $SD = 4.49$) engaging in higher amounts of bullying behavior than girls ($\bar{X} = 3.98$; $SD = 3.87$). No significant relations were found between bullying behavior and grade, ethnicity, family type, Chapter I status, or receipt of free or reduced lunch. Because of the potential relation of gender on the associations tested, the extent to which gender was related to these associations was examined. That is, regression models included the main effect of the psychosocial variable (e.g., anger) and gender, and a gender by psychosocial variable (e.g., Gender \times Anger) interaction term. Gender was not related significantly to any of the associations between bullying and the study variables (all

TABLE 3: Means and Standard Deviations for Bullying Scale and Predictor Variables, Correlations Between Bullying Scale and Predictor Variables (controlling for gender) Among 558 Middle School Students

Variable	\bar{X}	SD	Correlation With Bullying Scale ^b
Bullying ^a	4.68	4.24	
Misconduct	6.34	4.75	.55*
Access to guns	1.24	.43	.17*
Anger ^c	.00	.73	.46*
Feelings of depression	7.03	4.23	.29*
Impulsivity	7.21	3.63	.33*
Belonging at school	14.32	3.76	-.35*
Confidence in using nonviolent strategies	13.28	4.82	-.55*
Intentions to use nonviolent strategies	12.31	5.33	-.34*
Beliefs supportive of violence	11.47	4.34	.45*

a. Means and standard deviations are those before log transformation.

b. Gender was entered as a covariate in each correlation.

c. Four anger items were converted to z scores and the mean of these z scores is presented.

* $p < .001$.

p values $> .05$). Therefore, the interaction terms were removed, each model was recalculated, and partial correlations between each study variable and the Bullying Scale, controlling for gender, are reported in Table 3.

Misconduct, Gun Access, and Psychosocial Correlates of Bullying Behavior

Partial correlations. In Table 3, means and standard deviations for bullying behavior and other study measures are presented. In addition, partial correlation coefficients between bullying behavior and each predictor variable are provided. After controlling for gender differences, students who reported recent acts of misconduct and who had access to guns reported more acts of bullying their peers. Also, students who reported high levels of anger, impulsivity, and feelings of depression; who felt like they did not belong at school; and who held beliefs supportive of violence were significantly more likely than were other students to bully their peers. Those students who were confident in using nonviolent strategies and who intended to use those strategies in conflict situations were significantly less likely to bully others.

Multiple regression results. In the multiple regression analysis (Table 4), predictors were entered at the same time in the model and together accounted

TABLE 4: Multiple Regression Analysis Results for Misconduct, Gun Access, and Psychosocial Factors as Predictors of Bullying Behavior Among 558 Middle School Students^a

Predictor Variable	b	SE (b)	β	t
Female gender	-.050	.030	-.06	-1.94
Misconduct	.020	.003	.29	6.97***
Access to guns	.020	.030	.00	.27
Anger	.090	.020	.19	4.34**
Feelings of depression	.002	.004	.02	.59
Impulsivity	.001	.004	.01	.25
Belonging at school	-.006	.004	-.06	-1.75
Confidence in using nonviolent strategies	-.010	.004	-.12	-2.57*
Intentions to use nonviolent strategies	-.007	.003	-.10	-2.81*
Beliefs supportive of violence	.010	.004	.12	2.68*

a. Gender was entered as a covariate in the regression model.
 Full model statistics: $R^2 = .44$, $F(10, 547) = 42.43$.
 * $p < .01$. ** $p < .001$.

for 44% of the variance in bullying behavior. Misconduct and anger ($\beta = .29$, $.19$) were the best predictors of bullying behavior. Students who got in trouble or broke a rule at school, home, or in the community were more likely than were other students to report bullying their peers. In addition, students who reported frequently being angry were more likely to report bullying their peers. Those students who held beliefs supportive of violence ($\beta = .12$) also were likely to report more bullying behavior. Finally, students who reported confidence in using nonviolent strategies ($\beta = -.12$) and those with intentions to use nonviolent approaches to manage anger ($\beta = -.10$) were less likely to report bullying others.

DISCUSSION

In this study, correlates of bullying behavior were examined within a sample of 558 urban middle school students. Rather than focusing on comparisons between groups of students identified as bullies and nonbullies or victims, this investigation differed from the previous literature in that bullying was conceptualized as a continuum of behaviors. In addition, the bullying measure used in this study reflected specific behaviors and was not linked to students' subjective perceptions of bullying.

Several limitations lend caution to interpretation of the findings. First, the data were from student self-reports. Corroborating data from other

informants (e.g., teachers, parents, or other students) would have made the findings more robust. However, several studies have reported that bullying behaviors occur in locations (e.g., bathroom or school bus) and at times in which adult supervision is limited or nonexistent (Espelage, Asidao, & Chavez, 1998; Kikkawa, 1987). For example, Kikkawa (1987) found in a sample of secondary school teachers in Japan that it was difficult for teachers to notice bullying in the classroom because bullying activities were often subtle and indirect. Second, the data presented in this article were cross-sectional, allowing for a snapshot of these behaviors and thus precluding any statement about the stability or instability of bullying behavior over time or the directionality of the associations tested. Third, bullying was measured in terms of behavior in the past 30 days. Thus, the systematic or chronic nature of bullying behaviors was not assessed. Fourth, although the study sample matched characteristics of the larger school, the participation rate was less than 50% due, in part, to the need to secure active parental consent. Thus, it is possible that the students at the greatest risk for bullying might be underrepresented in the sample. Therefore, the results might not generalize to more aggressive or less participatory or shy youth. Finally, the context in which these behaviors were exhibited was not explored. For example, teasing was included as bullying behavior; however, in certain contexts, teasing might be a common part of socialization to later adolescence (Evans & Eder, 1993; R. Hammond, personal communication, February 1998). Nonetheless, regardless of how common teasing might be in certain settings, if teasing is related to other problem behaviors or has negative consequences for the victim, prevention and intervention strategies are indicated.

Despite these limitations, the current study extends the body of literature on bullying in several ways. First, the measurement of bullying in this study differed from previous conceptualizations of bullying behavior as a dichotomous occurrence. Second, measures used to assess bullying required participants to report the frequency with which they did or said certain things (e.g., teasing or made fun of) to other students, rather than asking participants to report how much they bullied others. It was assumed that students would be more truthful about their behavior toward others when they were not given the value-laden term. Finally, in contrast to previous investigations of bullying and aggression, prosocial factors, such as confidence in using nonviolent strategies to resolve conflicts, were examined in this investigation.

Overall, only 19% of students in the sample reported that they had not engaged in bullying behavior in the past 30 days. The distribution of bullying ranged from infrequent participation in just one bullying behavior (9.1%) to frequent involvement in all five bullying behaviors (7.7%). These results did

not support the perspective that adolescents fall into categories of either bullies or nonbullies. Rather, the findings indicated that the bullying behaviors measured (i.e., teasing, name-calling, threatening, and social ridiculing of peers) were common, with most students reporting some involvement in bullying others. The distribution of bullying behaviors did not lend itself to a clear cutoff, rather it indicated that a continuous coding would be more appropriate. In addition, a categorical approach indicated a linear association between bullying, behavioral, and psychosocial variables. As bullying increased, self-reports of negative correlates (e.g., misconduct and anger) increased and prosocial skills (e.g., confidence in using nonviolent strategies) decreased.

Consistent with many previous studies, in this correlational analysis, boys reported significantly more bullying behaviors. Other demographic variables of grade, ethnicity, family type, Chapter I status, and free/reduced lunch were not significant. Thus, bullying behaviors appeared to be distributed equally across most of these middle school students and were not isolated to one particular group of students.

In the multiple regression analysis, a strong, significant association between bullying behavior and general misconduct in several settings was found. This association might reflect a direct or an indirect relation. Perhaps the number and frequency of bullying behaviors increase directly with the likelihood of misconduct. On the other hand, factors that potentially could put students at risk for bullying also might influence the likelihood of general misconduct. Either type of association is consistent with the perspective that adolescent problem behaviors are part of a syndrome rather than isolated events (Jessor, 1987). Regardless of the explanation for the link between bullying and other misconduct, the fact that they co-occur indicates the need for a comprehensive approach to prevention. The impact of effective prevention programs might generalize across problem behaviors. For example, Olweus (1994) found that a schoolwide bullying intervention reduced antisocial activities such as vandalism, fighting, theft, and truancy, as well as bullying.

Associations between psychosocial factors and bullying behavior were examined to elucidate variables that might be avenues for intervention. Anger was a powerful predictor of bullying behavior, with high levels of anger associated significantly with the highest levels of bullying. Previous studies have not explored the association between anger and bullying. However, in a related area, Rigby and Slee (1991) found that bullying was correlated negatively with happiness in Australian adolescents 12 through 18 years of age. In that study, participants were shown a series of faces depicting a range of emotions on a continuum from smiles to frowns. Participants were

asked to select the face that described how they generally felt. Although those students identified as bullies selected unhappy faces, it is unclear whether those faces represented anger, frustration, sadness, or anxiety.

Although anger has not been addressed specifically in the literature related to bullying, several researchers have used the construct to classify types of aggressive behavior (Dodge, 1991; Dodge, Coie, Pettit, & Price, 1990; Price & Dodge, 1989). Dodge (1991) has distinguished between reactive and proactive aggression. Generally, reactive aggression reflects an angry and volatile approach to others, whereas proactive aggression is aggressive acts used to meet a person's goals and might not involve an angry reaction to a specific precipitating event. Some researchers have conceptualized bullying as proactive aggression because students who bully do so to attain social position and maintain control over others. The finding in the current study points to a strong relation between general levels of anger and bullying behavior. Although it is not clear the extent to which anger contributes to the tendency to bully others, further investigations are needed to examine the role of anger in bullying behaviors.

Lack of confidence in being able to use nonviolent strategies, such as talking out a disagreement, as well as lack of intentions to use those strategies were associated with higher levels of bullying. Although this study was the first investigation to examine those factors in relation to bullying, the results help to explain the finding that students who bully others purposely choose to bully others (Smith et al., 1993). That is, perhaps the students in the study reported here chose to tease or threaten others because they were not confident that other approaches would produce the same outcome. In designing prevention interventions, it appears that confidence in the ability to handle social situations might be a deterrent to using bullying behaviors.

Consistent with previous research, bullying was associated significantly with beliefs supportive of violence (Bentley & Li, 1995). This finding was consistent also with those investigations in which aggressive children and adolescents were more likely, when compared to their nonaggressive peers, to accept aggression as justifiable and satisfactory (Huesmann, Guerra, Miller, & Zelli, 1992; Slaby & Guerra, 1988). Researchers who have attempted to change beliefs supportive of violence through violence prevention programs have been successful in changing those attitudes (Guerra, Eron, Huesmann, Tolan, & Van Acker, 1997). Thus, further studies aimed at reducing bullying behaviors should explore also the extent to which changing normative beliefs about violence can contribute to a reduction in bullying behaviors in students.

Impulsivity, feelings of depression, and sense of belonging in school were associated with bullying behavior in the correlational analyses. Those

findings were consistent with previous investigations of Australian primary and middle school boys in which the tendency to bully was found to be associated significantly with unhappiness at school, disliking school, and depressive symptoms (Slee, 1995; Slee & Rigby, 1993). Olweus (1994) also noted a relation between impulsivity and bullying in a Scandinavian sample. Results of the multiple regression analysis indicated that impulsivity, feelings of depression, and sense of belonging at school were no longer associated significantly with bullying others. Such findings highlight the need to use multiple regression analysis in assessing correlates of bullying behavior that are independent of each other.

In summary, these findings offer directions for possible prevention and intervention strategies for middle school students. Although additional research is needed to clarify these relations, findings from the current study provided preliminary support for using a universal comprehensive approach for bullying prevention and intervention strategies. Such approaches might incorporate several key components commonly found in violence prevention programs such as teaching anger management and promoting nonviolent approaches to conflict (Dusenbury, Falco, Lake, Brannigan, & Bosworth, 1998; Guerra, Tolan, & Hammond, 1994).

NOTES

1. *Bullying Scale* scores were evaluated for the assumption of normality. As a result, the skewness to its standard error statistic ratio was equal to 8:1, indicating a highly skewed distribution. A log-base 10 transformation yielded an improvement in this ratio, which was equal to 3:1. Because many researchers have found regression analyses to be robust to the violation of the normality assumption (Drasgow & Dorans, 1982; Vasu, 1978), the transformed *Bullying Scale* scores were used in the study analyses.

2. Three groups of participants were created using tertial division of the original scores on the *Bullying Scale*. Participants with scores less than or equal to 1 comprised the no bully group; those participants with scale scores ranging from 2 through 5 were placed in the moderate bully group; and the remaining participants with scores greater than 5 were placed in the high bully group. Nine one-way analyses of covariance (ANCOVAs) with gender as a covariate were calculated to determine the extent to which the three bully groups differed on the study measures. Significant group differences were found for all correlates, $F_s(2, 554) = 9.21$ to 90.06 , $ps < .001$. Tukey post-hoc comparisons were then calculated to determine which groups differed. A Bonferroni correction was used to control for the experimentwise error rate. Thus, an experimentwise error rate was set at .006 (.05/9). Results indicated that the no bully group differed from the high bully group on all variables, and the no bully group differed from the moderate bully group on their level of misconduct, anger, intentions, and confidence in using nonviolent strategies. Participants in the moderate bully group differed from the high bully group on all variables except for access to guns.

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