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Bullying and Being Bullied: To What Extent Are Bullies Also Victims?

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The purpose of this study was to examine the victim-bully cycle in middle school and to identify student and school characteristics that contributed to the cycle of bullying, using cross-sectional data from the New Brunswick School Climate Study (N = 6,883 in grade 6 and N = 6,868 in grade 8). The results of a multivariate, multilevel analysis clearly indicated that the relationship of bully to victim was reciprocal. At the student level, gender, affective condition, and physical condition contributed to the victim-bully cycle in both grades. The number of siblings contributed to the cycle of bullying in grade 8. Gender, affective condition, and the number of siblings were more characteristics of bullies than victims, whereas physical condition was more a characteristic of victims than bullies. The victim-bully cycle at the school level has rarely been reported in the literature. This study suggests that the cycle of bullying was present in several aspects of school life. School size and discipline climate contributed to the victim-bully cycle in both grades. Parental involvement contributed to the cycle of bullying in grade 6, whereas academic press contributed to the cycle of bullying in grade 8. Although discipline climate both helped victims and discouraged bullies, parental involvement and academic press discouraged bullies more than helped victims.

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School violence traditionally refers to acts of assault, theft, and vandalism. With the increasing public concern about school safety, researchers have broadened the definition of school violence to include "any conditions or acts that create a climate in which individual students and teachers feel fear or intimidation in addition to being the victims of assault, theft, or vandalism" (Batsche & Knoff, 1994, p. 165). This broadened definition of school violence certainly includes bullying in school, which has become a prevalent, serious social problem among school-age children in both Europe (e.g., Clarke & Kiselica, 1997; Hoover & Juul, 1993; Whitney & Smith, 1993) and North America (e.g., Charach, Pepler, & Ziegler, 1995; Hoover & Juul, 1993; Hoover, Oliver, & Hazler, 1992; Perry, Kusel, & Perry, 1988).

In response to the criticism that bullying has traditionally been narrowly defined as physical harassment (see Besag, 1989), researchers now consider bullying a form of aggression in which one student or one group of students repeatedly harasses a victim verbally or physically without provocation (see Clarke & Kiselica, 1997; Hazler, 1992; Hazler, Hoover, & Oliver, 1992; Olweus, 1993; Remboldt, 1994). Based on this definition, bullying takes a wide range of forms. The coercive behaviors associated with bullying can be classified into two categories: physical and verbal. Physical bullying includes hitting, pushing, holding, and hostile gesturing. Verbal bullying includes threatening, humiliating, degrading, teasing, name-calling, put-downs, sarcasm, taunting, staring, sticking out the tongue, eye rolling, silent treatment, manipulating friendship, and ostracizing (see Clarke & Kiselica, 1997; Remboldt, 1994). A number of researchers argue that statistics concerning bullying in school may actually underestimate the problem because many adults (including educators) consider most verbal bullying tactics as normal and harmless (e.g., Hazler, 1992; Remboldt, 1994), and most teachers and parents are often not aware of children's involvement in bullying (see Charach, Pepler, & Ziegler, 1995).

Bullying in school has devastating effects on students, often leading to violent and disastrous consequences for both victims and bullies (Hazler, 1994). Many bullies in school have problems with the law in their adulthood (Batsche & Knoff, 1994; Eron & Huesmann, 1984; Farrington, 1991; Lochman, 1992; Olweus, 1994). Victims of bullying suffer from a loss of self-esteem lasting long into their adult life (Boulton & Underwood, 1992; Slee, 1994). Farrington (1991) argues that society is the utmost victim of bullying because bullies in school are very likely to bully their spouses and children later, which perpetuates the cycle of domestic violence and creates new generations of aggressive children.

Research studies have attempted with some success to identify salient characteristics of victims and bullies. In their review, Batsche and Knoff (1994) concluded that bullies come from families where parents are authoritarian, hostile, and rejecting, have poor problem-solving skills, and advocate fighting-back at the least provocation. Bullies have aggressive behavior histories, and they often take advantage of their physical strength (Olweus, 1991b). There are no significant socioeconomic differences among bullies

(Olweus, 1991a, 1993, 1994; Whitney & Smith, 1993). Bullies do not have low self-esteem as many educators expect (Rigby & Slee, 1991), and bullying behaviors are not a result of academic failure in school (Olweus, 1991a, 1993, 1994; Rigby & Slee, 1991). Bullying in school varies with grade levels (Whitney & Smith, 1993), but researchers are divided in their findings. Branwhite (1994) reported more incidents of bullying in secondary school than in elementary school. On the other hand, some researchers suggest that the percentage of students being bullied decreases significantly with age or grade, although the decline in rate is less substantial during junior and senior grades of high school (see Batsche & Knoff, 1994).

There are gender differences in bullying (e.g., Whitney & Smith, 1993). Boys are more likely to get involved in bullying than girls (Branwhite, 1994; Charach, Pepler, & Ziegler, 1995). Lane (1989) estimated that boys bully more than girls by a ratio of 3 to 1. Other researchers argue that girls are just as likely as boys to get involved in bullying if one considers the multiple forms of bullying, such as spreading rumors and social ostracism in which girls more frequently engage (Ahmad & Smith, 1994; Hoover, Oliver, & Hazler, 1992; Siann, Callaghan, Lockhart, & Rawson, 1993; Smith & Sharp, 1994). Boys and girls bully for different reasons. "Bullying for boys is more likely to be part of power-based social relationships and for girls affiliation activities are more frequently the source of bullying activities" (Lane, 1989, p. 213).

Victims of bullying are without friends at school and overly protected by their parents at home (Olweus, 1978). Students do not become victims because they are overweight, have uncommon hair colors, wear eyeglasses, speak dialects, or dress differently; instead, some students become victims because they lack social skills, or rarely defend themselves or retaliate their bullies (Olweus, 1978). Major characteristics of victims of bullying include low self-esteem and high social anxiety (Lane, 1989; Slee, 1994). Fear of negative peer evaluation is a significant characteristic of victims for both boys and girls (Slee, 1994). In addition, girls with social distress and social avoidance are also likely to be victims of bullying (Slee, 1994). Research is inconsistent on whether students with weaker physical or psychological conditions are more likely to be bullied. Mooney and Smith (1995) found that 82% of the members of the Association for Stammerers in Great Britain were bullied in their school lives and that bullying was often related to their stammer. Slee (1994) concluded that "victimization is associated with poor physical, social, and psychological well-being in primary school children" (p. 100). In contrast, Olweus (1991a, 1993, 1994) found that physical characteristics are a much less important cause of bullying, although any physical disadvantage is used against the victim once the bully finds the victim (Besag, 1989).

Schools can make a difference in reducing or eliminating bullying, because bullying occurs more often in school, rather than on the way to or from school as many educators expect (Olweus, 1991a, 1993, 1994; Whitney, Nabuzoka, & Smith, 1992). Positive school environment keeps bullying and harassment from flourishing (Hazler, 1994). Effective schools encourage students to have positive interactions with teachers, and have tougher sanctions

against bullying (Barone, 1997). Existing research mostly focuses on the effect of school context on bullying in school. For example, Olweus (1991a, 1993, 1994) and Whitney and Smith (1993) found that school size (or class size) is not related with bullying. Neither is the racial-ethnic structure of the school (Whitney & Smith, 1993). Bullying, however, is linked with school location and school average socioeconomic status (SES). Schools in large cities tend to have more incidents of bullying than schools in small towns (Olweus, 1991a, 1993, 1994; Whitney & Smith, 1993). Schools serving students from lower socioeconomic background have more incidents of bullying (Whitney & Smith, 1993).

Tougher discipline, intensive supervision, counseling for students, and training for teachers are considered effective remedies for bullying (see Barone, 1997). School counselors play a particularly significant role in reducing bullying in school (Clarke & Kiselica, 1997; Roberts & Coursol, 1996). Parental awareness and involvement is considered an important strategy to combat bullying in school (see Banks, 1997; Foltz-Gray, 1996; Horne & Socherman, 1996). Cartwright (1995) encourages schools to develop school-wide antibullying policies such as antibullying contracts and peer counseling services. Clarke and Kiselica (1997) recommended a systematic, school-wide intervention approach which includes several components, such as fostering a philosophical shift on the issue of bullying among school personnel; educating students, teachers, administrators, and parents; adopting consistent school policies; encouraging close adult supervision; providing early intervention; developing school-wide assessment; and offering supportive training and counseling. Intervention programs integrating these components have shown significant effects, with bullying incidents reduced from 20% to 50% in 2 years (Arora, 1994; Olweus, 1991a, 1993, 1994).

Some research studies have identified a victim-bully cycle of bullying in school (e.g., Besag, 1989; Carvel, 1992). For example, students with weaker physical condition are more likely than those with stronger physical condition to be both victims and bullies (Perry, et al., 1988). Social learning theory may play an important role in explaining this victim-bully cycle as it has been used in the studies of violence and abuse (e.g., Lorber, Felton, & Reid, 1984; Matson, 1989; Sobsey, 1994). For example, Lorber et al. (1984) discussed the role of social learning theory in the victim-offender cycle of abuse. These researchers found that victims of abuse are often more likely to be disruptive, aggressive, and violent than their nonabused counterparts, and they explained such results as socially learned behaviors. This explanation appears to fit well into some findings in bullying research that some of the most extreme victims of bullying are also some of the most aggressive bullies (Perry et al., 1988).

There are limitations in the literature of research on bullying. First, researchers have quite limited knowledge about the effects of school on bullying, particularly how school climate, such as discipline climate and parental involvement, affects victims and bullies. Without this type of data, researchers are unable to provide educators and administrators with working

knowledge leading to improvement in school policies and practices that discourage bullying in school.

Second, the few studies that did examine school effects on bullying largely ignored the hierarchical structure of educational data. Educational data are hierarchically structured—students are nested in classrooms, classrooms are nested in schools, and schools are nested in districts. Any policy initiatives at one level of the education system both affect and are affected by schooling processes at other levels. Thus, the hierarchical or multilevel nature of educational data has to be taken into account in data analysis (see Bryk & Raudenbush, 1992). There is a need to take a multilevel perspective of analysis to examine the issue of bullying in school.

Finally, little attention has been paid to the victim-bully cycle in the literature. Many researchers may have intentionally avoided this issue because of methodological difficulties. For example, although identifying the victim-bully cycle in some aspects of bullying, Perry, Kusel, and Perry (1988) were unable to address issues such as the extent to which bullies are also victims. To investigate similar research questions requires a multivariate perspective of analysis. A far more complex multivariate, multilevel perspective of analysis is required if one considers also the hierarchical structure of educational data.

The current study aimed to deal with these limitations. With a multivariate, multilevel approach of analysis (see Raudenbush, Rowan, & Kang, 1991), this study attempted to address the extent to which bullies are also victims based on both student and school characteristics. Specifically, this study examined how student-level and school-level variables affect the victim-bully cycle in middle school. The research questions were operationalized as (a) What are student-level characteristics that are associated equivalently with victims and bullies? (b) What are student-level characteristics that are associated differently with victims and bullies? (c) For those student-level characteristics in (b), are they associated more strongly with victims or bullies? A similar group of research questions was also asked for school-level characteristics.

Method

Data

New Brunswick, located on the Atlantic coast of Canada, is largely a rural province. Apart from people from the Mi'kmaq and Maliseet native communities, the population of New Brunswick is homogeneous, with few people from visible minorities. New Brunswick is the only province in Canada officially designated as bilingual: English and French. There are two school systems in New Brunswick, one devoted to instruction in English and the other in French. In 1996, the Atlantic Centre for Policy Research in Education at the University of New Brunswick and the New Brunswick Department of Education conducted a large-scale survey study entitled the New Brunswick

School Climate Study (NBSCS). Data were collected from all students in grades 6 and 8 as well as their teachers in the English sector throughout the province. Students completed several achievement tests and a student questionnaire. Teachers also completed a teacher questionnaire. The current study used student data that included all of the sixth graders ($N = 6,883$) from 147 schools and all of the eighth graders ($N = 6,868$) from 92 schools in the province. Therefore, these sixth and eighth graders represented two populations rather than samples.

Measures

Seven independent variables were used at the student level. Variables describing student background included student gender, SES, the number of parents, and the number of siblings. The other variables measured student academic status as well as affective and physical conditions (see Table 1). Although affective and physical conditions were based on single scales, academic status was a composite variable averaged over achievement measures from four provincial achievement tests (mathematics, science, reading, and writing). These achievement tests were developed by committees of teachers and subject-area specialists.

As a comprehension test, reading measured students' ability to understand fiction and nonfiction passages, with 35 items in grade 6 and 50 items in grade 8. Writing scores were based on teachers' assessment of two pieces of writing from students in grades 6 and 8. One was chosen from students' classwork between March and May; the other was written during the 2-week assessment period. A panel of teachers graded students' work in a six-point scale: *unrateable*, *weak*, *marginal*, *acceptable*, *competent*, and *superior*. Students' final writing scores were based on the sum of their two ratings, scaled to have a mean of 0 and a standard deviation of 1 following Mosteller and Tukey (1977).

Mathematics and science were tested in grade 6 only. The 39 items in the mathematics test measured students' skills in numeration, measurement, geometry, and data management, with an emphasis on students' ability to understand concepts and use them to solve problems. Students were encouraged to use manipulatives and allowed to use calculators. With 33 items, the science test was designed to assess students' knowledge of scientific concepts and understanding of scientific processes.

Affective condition was measured on a scale with 24 items, derived from the Self Description Questionnaire I (SDQ1) (see Marsh, 1992). The SDQ1 measures global self-esteem and specific self-concepts associated with four nonacademic dimensions (physical ability, physical appearance, peer relations, and parent relations) and three academic dimensions (reading, mathematics, and school in general). The NBSCS included the global scale of self-esteem and the specific scales on physical appearance, peer relations, reading, and mathematics. Cronbach's alpha was 0.87 in grade 6 and 0.88 in grade 8. Physical condition was measured through a scale developed by the World Health Organization (WHO) for assessing the physical health of

young children. It asks children to report the frequency of health problems such as headache, stomachache, and backache (see Table 1). Cronbach's alpha was 0.77 in grade 6 and 0.76 in grade 8.

There were two dependent variables. Students being bullied were termed as victims, and students bullying others were termed as bullies. The victims variable measured the extent to which a student had been verbally and/or physically victimized (SQ15a to SQ15d in Table 1). Cronbach's alpha was 0.72 in grade 6 and 0.68 in grade 8. The bullies variable measured whether a student had participated in bullying activities against others (SQ15e in Table 1). These two variables were analyzed together in a multivariate manner in this study.

At the school level, major variables that describe schooling processes were included. The term "schooling processes" refers to factors associated with schooling that affect schooling outcomes either directly or indirectly (see Willms, 1992). One group of factors pertains to the context of the school, such as school size, school location, and school mean SES. Contextual variables used in this study were school size and school mean SES. The other group of factors is referred to as "evaluative factors" associated with the climate of the school. These factors portray the inner workings of school life and can be affected directly through the actions of teachers, administrators, and parents. Three of the most important evaluative factors are the disciplinary climate of the school, the expectations of peers and teachers (academic press), and the extent of parental involvement in children's schooling. Because these factors are strongly associated with student outcomes (see Willms, 1992), they were measured in considerable detail in the NBSCS student questionnaire.

Disciplinary climate indicated the extent to which students internalize the norms and values of the school, and conform to them. Academic press described the extent to which school staff value academic achievement and hold high expectations for their students. Parent involvement measured the extent to which parents communicate with their children about schoolwork, help them with their homework, discuss school matters with educators, and volunteer in the school. Cronbach's alpha was 0.77 in both grades 6 and 8 for disciplinary climate, 0.61 in grade 6 and 0.65 in grade 8 for academic press, and 0.77 in grade 6 and 0.79 in grade 8 for parental involvement. In the current study, disciplinary climate, academic press, and parental involvement were aggregated to the school level based on data from the student level. Student-level and school-level variables were standardized to have a mean of 0 and a standard deviation of 1, except for gender, number of parents, number of siblings at the student level, and school size at the school level.

Statistical Analysis

Raudenbush et al. (1991) developed a multivariate, multilevel procedure for examining school effects. It is a three-level hierarchical linear model (HLM) with a measurement model at the first level, a student model at the second

Table 1
Description of Student-Level and School-Level Variables

Question	Student-level variables
Bullying SQ15	Sometimes a child or group of children pick on, tease, or bully another child. Since the beginning of school this past fall, how often have any of the following happened to you? (a) I have been teased or made fun of; (b) one or more students have threatened to hurt me; (c) I have been physically attacked by another student; (d) I have been afraid to go to school because someone has threatened me; (e) I have participated in bullying or teasing others. (1 = <i>Never</i> , 2 = <i>once or twice</i> , 3 = <i>about 3 or 4 times</i> , 4 = <i>more than 4 times</i> .)
Affective condition SQ14	(a) I get along with kids easily; (b) in general, I like being the way I am; (c) I get good marks in reading; (d) I like mathematics; (e) I am interested in science; (f) I have a physically attractive body; (g) other kids want me to be their friend; (h) overall, I have a lot to be proud of; (i) I am interested in reading; (j) I enjoy doing work in science; (k) I am good at mathematics; (l) I like the way I look; (m) I have more friends than most other kids; (n) other people think I am a good person; (o) I get good marks in science; (p) work in reading is easy for me; (q) I enjoy doing work in mathematics; (r) when I do something, I do it well; (s) I am popular with kids my own age; (t) a lot of things about me are good; (u) I look forward to reading; (v) I learn things quickly in mathematics; (w) I look forward to science; (x) my body weight is about right. (1 = <i>No</i> , 2 = <i>no</i> , 3 = <i>sometimes</i> , 4 = <i>yes</i> , 5 = <i>Yes</i> .)
Physical condition SQ16	In the last 6 months, how often have you had or felt the following? (a) Headache; (b) stomachache; (c) backache; (d) feeling low (depressed); (e) a bad mood (irritable); (f) feeling nervous (uneasy); (g) difficulties in getting to sleep; (h) feeling dizzy; (i) rashes or other skin problems. (1 = <i>Seldom or never</i> , 2 = <i>about once a month</i> , 3 = <i>about once a week</i> , 4 = <i>more than once a week</i> , 5 = <i>most days</i> .)
Discipline climate SQ19	(a) Rules at this school seem to be always changing; (b) students at this school call each other names; (c) students fool around during class; (d) children at our school know what "good behavior" means; (e) students behave well in class; (f) students at this school get into fights; (g) rules at this school are fair; (h) troublemakers disrupt my teacher's lessons; (i) often the punishment for breaking the rules is too strict; (j) the rules for behavior at this school are clear to me; (k) children know what will happen if they break a rule; (m) students are able to help make the rules here; (n) students agree with the rules at this school. (1 = <i>No</i> , 2 = <i>no</i> , 3 = <i>sometimes</i> , 4 = <i>yes</i> , 5 = <i>Yes</i> .)

(Continued)

Table 1 (Continued)

Student-level variables	
Academic press SQ20	How many students in your class: (a) think it is important to do well at school; (b) try hard to get good marks on tests; (c) could do better if they tried harder; (d) find school work too difficult; (e) usually do their homework on time; (f) think it's more important to have fun than learn; (g) feel they can do the work in class if they try? (1 = <i>Almost none</i> , 2 = <i>some</i> , 3 = <i>about half</i> , 4 = <i>most</i> , 5 = <i>almost all</i> .)
SQ22	(a) Our teacher expects all students to do well; (b) most of my school work is too easy for me; (c) we often have lively discussions in our class; (f) the teacher encourages students to try harder; (g) school work is challenging for me; (h) doing my homework helps me learn what we are taught in class; (i) the teacher encourages us to ask questions about the material we are studying; (j) I can do well in school if I work hard. (1 = <i>No</i> , 2 = <i>no</i> , 3 = <i>sometimes</i> , 4 = <i>yes</i> , 5 = <i>Yes</i> .)
Parental involvement SQ21	Since the beginning of school this past fall, how often have your parents (or guardians) done the following activities? (a) "Helped" you with your homework; (b) talked with you about how students treat you; (c) limited how much TV you could watch weekdays; (d) discussed how well you are doing in math; (e) discussed how well you are doing in reading; (f) talked with you about school projects; (g) checked your homework for mistakes; (h) said how important school work is; (i) discussed hurtful things that children might say; (l) helped in the classroom; (m) helped with school activities (e.g., field trip). (1 = <i>Never</i> , 2 = <i>once or twice</i> , 3 = <i>about 3 or 4 times</i> , 4 = <i>more than 4 times</i> .)

level, and a school model at the third level. At the measurement level, individual items describing victims and bullies were used to form various contrasts. Student-level characteristics were gender, SES, number of parents, number of siblings, academic status, affective condition, and physical condition. School-level characteristics included two contextual factors (school size and school mean SES) and three climate factors (disciplinary climate, academic press, and parental involvement).

The current study followed the two-stage approach of multivariate, multilevel analysis outlined in Raudenbush et al. (1991). In the first stage, the true scores of dependent variables (victims and bullies) were transformed to form a base variable among victims and bullies and a contrast variable between them. The purpose of this transformation was to classify the independent variables into one of three groups: (a) variables that have a partial association with victims that is significantly different from their partial association with bullies; (b) variables that have equivalent partial associations with both victims and bullies; and (c) variables that have null association

Table 2
Descriptive Statistics on Victims and Bullies

Item	Grade 6		Grade 8	
	Mean	SD	Mean	SD
I have been teased or made fun of	2.63	1.06	2.31	1.05
One or more students have threatened to hurt me	1.58	0.88	1.44	0.78
I have been physically attacked by another student	1.53	0.84	1.32	0.70
I have been afraid to go to school because someone has threatened me	1.15	0.51	1.10	0.40
I have participated in bullying or teasing others	1.89	0.92	1.75	0.85

Note. Outcome variables are in a metric of 1–4.

both with victims and with bullies. In the second stage, the model from the first stage was transformed back into the original metric. This allowed an examination of the differential effects of independent variables (at both student and school levels) on victims and bullies.

Results

Means and standard deviations on each of the five items describing victims and bullies are shown in Table 2. From a cross-sectional perspective, means and standard deviations of both victims and bullies decreased slightly. This indicates a slight decline in bullying incidents between grades 6 and 8, and both victims and bullies became slightly more homogeneous in grade 8 than in grade 6.

Table 3 presents means and standard deviations of student-level and school-level variables. Both descriptive measures on student variables were fairly commensurate between grades 6 and 8. This indicates that student characteristics remained similar across the two grade levels. In contrast, school characteristics changed to a larger extent. Average school size increased considerably between grades 6 and 8. Means of school climate variables decreased slightly between grades 6 and 8, although variation among schools remained similar.

Table 4 shows the results from the first stage of the multivariate, multilevel analysis (see Raudenbush, et al., 1991). A variable (at either student or school level) that is not significantly related to the contrast (between victims and bullies) must be considered to have the same partial association with victims as it has with bullies. If this variable is not significantly related to the base (among victims and bullies) either, its shared effect on victims and

Table 3
Descriptive Statistics on Student-Level and School-Level Variables

Variable	Grade 6		Grade 8	
	Mean	SD	Mean	SD
Student-level variables				
Gender	0.49	0.50	0.50	0.52
Socioeconomic status (SES)	0.00	1.00	0.00	1.00
Number of parents	1.87	0.34	1.84	0.37
Number of siblings	1.99	1.46	1.99	1.46
Mathematics	17.94	5.88		
Science	18.03	5.37		
Reading	23.46	6.39	28.87	8.06
Writing	0.00	1.00	0.00	1.00
Affective condition	3.78	0.60	3.66	0.63
Physical condition	4.06	0.68	4.10	0.65
School-level variables				
School size	38.97	30.49	51.97	42.83
School mean SES	0.00	1.00	0.00	1.00
Disciplinary climate	2.96	0.30	2.84	0.24
Academic press	3.72	0.16	3.58	0.15
Parental involvement	2.27	0.17	1.87	0.13

Note. Among student-level variables, SES is a standardized variable. Mathematics is in a metric of 1–39, and science is in a metric of 1–33. Reading is in a metric of 1–35 in grade 6 and 1–50 in grade 8. Writing is a standardized variable. Affective and physical conditions are in a metric of 1–5. Among school-level variables, school mean SES is a standardized variable. Climate variables are in a metric of 1–5.

bullies must be considered null. Therefore, among student-level variables in grade 6, gender, affective condition, and physical condition showed a partial association with victims that was significantly different from that with bullies. Respectively, SES, the number of parents, and academic status indicated an equivalently shared effect on victims and bullies that was statistically significant, whereas the number of siblings showed an equivalently shared effect on victims and bullies that was statistically null.

At the school level, school size and parental involvement showed a partial association with victims that was significantly different from that with bullies in grade 6. Discipline climate indicated an equivalently shared effect on victims and bullies that was statistically significant. Both school mean SES and academic press, however, showed an equivalently shared effect on victims and bullies that was statistically null.

The second half of Table 4 presents the multivariate HLM results for victims and bullies in grade 8. At the student level, gender, the number of siblings, academic status, affective condition, and physical condition all showed a partial association with victims that was significantly different from that with bullies. In contrast, both SES and the number of parents showed an equivalently shared effect on victims and bullies that was statistically null.

Table 4
Multivariate HLM Results for Victims and Bullies in Middle School
(Based on Transformed True Scores)

Variable	Grade 6				Grade 8			
	Base		Contrast		Base		Contrast	
	Effect	SE	Effect	SE	Effect	SE	Effect	SE
Student-level variables								
Gender	-.31***	.01	.08***	.02	-.21***	.01	.04*	.02
Socioeconomic status	.03***	.01	-.00	.02	.00	.01	.02	.01
Number of parents	-.05*	.02	.03	.04	-.01	.02	.01	.03
Number of siblings	.00	.00	-.01	.01	-.00	.00	-.02***	.01
Academic status	.02**	.01	-.01	.01	-.02***	.01	-.03**	.01
Affective condition	-.08***	.01	.05***	.01	-.07***	.01	.08***	.01
Physical condition	-.21***	.01	-.10***	.01	-.16***	.01	-.05***	.01
School-level variables								
School size	-.00	.00	.01*	.00	-.01***	.00	.00	.00
School mean SES	.00	.01	-.00	.02	.01	.01	-.01	.02
Discipline climate	-.04**	.02	.02	.02	-.04***	.01	-.01	.02
Academic press	.01	.01	.01	.02	-.01	.01	.04*	.02
Parental involvement	-.01	.01	.04*	.02	-.01	.01	.01	.01

Note. * $p < .05$. ** $p < .01$. *** $p < .001$. Base = $(4\pi_1 + \pi_2)/5$, and contrast = $4(\pi_1 - \pi_2)/5$, where π_1 = victims and π_2 = bullies.

Among school characteristics, academic press displayed a partial association with victims that was significantly different from that with bullies. Both school size and discipline climate indicated an equivalently shared effect on victims and bullies that was statistically significant, whereas both school mean SES and parental involvement showed an equivalently shared effect on victims and bullies that was statistically null.

Table 5 displays the results from the second stage of the multivariate, multilevel analysis as outlined in Raudenbush et al. (1991). As discussed in Table 4, gender showed a partial association with victims that was significantly different from that with bullies. Table 5 further indicates that gender was more strongly associated with bullies (effect = -0.39) than victims (effect = -0.29). The negative signs indicate that boys were more likely than girls to become both victims and bullies. The difference was 10% of a standard deviation between male bullies and male victims. This indicates that there were far more male bullies than male victims. In other words, a boy was more likely to become a bully than a victim.

Affective condition also showed a partial association with victims that was significantly different from that with bullies. Table 5 shows that affective condition was more strongly related to bullies than victims. The negative signs mean that students with weaker affective condition were more likely to become both victims and bullies. There was a difference of 6% of a standard

Table 5
Multivariate HLM Results for Victims and Bullies in Middle School
(Based on Original Outcomes)

Variable	Grade 6				Grade 8			
	Victims		Bullies		Victims		Bullies	
	Effect	SE	Effect	SE	Effect	SE	Effect	SE
Student-level variables								
Gender	-.29***	.02	-.39***	.03	-.20***	.01	-.25***	.02
Socioeconomic status	.03**	.01	.03	.02	.01	.01	-.01	.01
Number of parents	-.04	.02	-.07	.04	-.00	.02	-.02	.03
Number of siblings	.00	.01	.01	.01	-.01*	.00	.02**	.01
Academic status	.02*	.01	.03*	.01	-.03***	.01	.01	.01
Affective condition	-.07***	.01	-.13***	.01	-.05***	.01	-.15***	.01
Physical condition	-.24***	.01	-.11***	.01	-.17***	.01	-.11***	.01
School-level variables								
School size	-.00	.00	-.01*	.00	-.01**	.00	-.01**	.00
School mean SES	.00	.01	.01	.02	.01	.01	.03	.02
Discipline climate	-.03*	.02	-.06*	.03	-.04**	.01	-.04	.02
Academic press	.01	.02	-.00	.03	-.00	.01	-.06*	.02
Parental involvement	.00	.01	-.04*	.02	-.01	.01	-.02	.02

Note. * $p < .05$. ** $p < .01$. *** $p < .001$.

deviation between students with poor affective condition who were bullies and who were victims. This indicates that there were more bullies with poor affective condition than victims with poor affective condition. Or, a student with poor affective condition was more likely to become a bully than a victim.

The conclusion is totally different for physical condition, which also showed a partial association with victims that was significantly different from that with bullies. The negative signs indicate that students with weaker physical condition were more likely to become both victims and bullies. Physical condition, however, was more strongly associated with victims than bullies, with a difference of 13% of a standard deviation. This means that there were far more victims with poor physical condition than bullies with poor physical condition. Stated differently, a student with poor physical condition was more likely to become a victim than a bully.

Both SES and academic status showed an equivalently shared effect on victims and bullies that was statistically significant. Practically, however, an effect of about 3% of a standard deviation is often considered trivial. Therefore, SES and academic status may hardly have any substantially important implications for educational practice.

At the school level, Table 5 indicates that school size was more strongly related to bullies than victims. The negative sign means that students in small schools were more likely to bully. Because the variable, school size, was not

standardized, the effect (-0.01) was estimated based on one-person difference between two schools. This means that when two schools are dramatically different in enrollment, the effect of school size can become quite substantial. Therefore, there were more bullies coming from small schools than victims coming from small schools. In other words, a student in a small school was more likely to become a bully than a victim.

Parental involvement was also more strongly associated with bullies than victims. The negative sign indicates that students in schools with stronger parental involvement were less likely to bully. At the school level, 4% of a standard deviation may well represent a sizable effect.¹ A reasonable conclusion is then that there were more bullies coming from schools with weak parental involvement than victims coming from schools with weak parental involvement. Stated differently, a student in a school with poor parental involvement was more likely to become a bully than a victim. Discipline climate showed an equivalently shared effect on victims and bullies with a magnitude of 4% of a standard deviation.²

Table 5 also presents multivariate HLM results for victims and bullies in grade 8. Results regarding gender, affective condition, and physical condition were similar to those in grade 6. However, the effect gap associated with victims and bullies in terms of gender and physical condition was smaller than that in grade 6 (10% of a standard deviation for gender in grade 6 vs. 5% in grade 8, and 13% of a standard deviation for physical condition in grade 6 vs. 6% in grade 8). The effect gap associated with victims and bullies in terms of affective condition was larger than that in grade 6 (6% of a standard deviation in grade 6 vs. 10% in grade 8). In addition, both SES and the number of parents showed an equivalently shared effect on victims and bullies that was statistically null.

The number of siblings was more strongly related to bullies than victims, with a difference of 3% of a standard deviation. However, the number of siblings variable was not standardized. Thus, the estimated effect was based on one-child difference between two families. When the difference in size becomes large between two families, the effect of number of siblings can be quite substantial. This indicates that there were far more bullies coming from large families than victims coming from large families. Or, a student from a large family was more likely to become a bully than a victim. Finally, academic status was more strongly associated with victims than bullies, with a difference of 4% of a standard deviation. This indicates that there were more victims with poor academic status than bullies with poor academic status. Equivalently, a student with low academic status was more likely to become a victim than a bully. However, this effect gap (4% of a standard deviation) is not as strong as other significant variables at the student level.

At the school level, academic press was more strongly associated with bullies than victims. The negative sign indicates that students in schools with lower academic press were more likely to bully. With a difference of 6% of a standard deviation at the school level, academic press may well be a very

important school characteristic. Thus, there were more bullies coming from schools with low academic press than victims coming from schools with low academic press. In other words, a student in a school with low academic press was more likely to become a bully than a victim. Both school size and discipline climate showed an equivalently shared effect on victims and bullies that was statistically significant. Similar to the discussion in grade 6, the effect of school size can become considerable when the difference in enrollment increases between schools.

Discussion

The major purpose of this study was to examine the victim-bully cycle and to identify student and school characteristics that contributed to the cycle of bullying in middle school. At the student level, this study supports the significance of the victim-bully cycle (Besag, 1989; Carvel, 1992; Perry, Kusel, & Perry, 1988). This study also further extends our knowledge on the cycle of bullying by examining it from a set of important student characteristics. Results show that gender, affective condition, and physical condition contributed to the victim-bully cycle in both grades 6 and 8, whereas SES, the number of parents, and academic status did not contribute in a notable way to the cycle of bullying at either grade level. The number of siblings contributed to the victim-bully cycle in grade 8 but not in grade 6.

Not only did this study classify contributions of student-level variables to the victim-bully cycle, but it also determined whether each significant student characteristic contributed equivalently to both victims and bullies. Gender is more a characteristic of bullies than victims in both grades. This study found that a boy could be bullied, but he could bully others a lot more; and such a phenomenon was twice as common in grade 6 as in grade 8. In contrast to conclusions by Lane (1989), who claimed that boys bully for social power, the finding of this study that a male victim was a more serious bully may well indicate that boys bully for "indirect compensation" (revenge on innocent others rather than their bullies). The cross-sectional data in this study also suggest that boys seek indirect compensation more actively in the early grades of middle school.

Affective condition is also more a characteristic of bullies than victims in both grades. This study found that a student with poor affective condition could be bullied, but the student could bully others a lot more; and such a phenomenon was nearly twice as common in grade 8 as in grade 6. This finding does not support Rigby and Slee (1991), who reported that bullies did not have low self-esteem. The current study suggests that, from the multivariate perspective, poor affective condition as measured through the SDQ1 (Marsh, 1992) is much more a characteristic of bullies rather than victims, and this is particularly so in the later grades of middle school.

On the other hand, physical condition is more a characteristic of victims than bullies. This study found that a student with poor physical condition could bully others, but the student could be bullied a lot more; such a

phenomenon was more than twice as common in grade 6 as in grade 8. This implies that for younger students, those with weaker physical condition are more likely to be victimized. But when students grow older, physical condition becomes less a reason for being bullied. These conclusions add significant new understanding to the debate on whether physical condition is a reason for being bullied (e.g., Mooney & Smith, 1995; Olweus, 1991a, 1993, 1994; Slee, 1994). The answer seems to vary with age or grade level. For younger students, physical condition does appear to be a reason for being bullied, while for older students, it is less a reason. Again, the finding that a victim with poor physical condition was also a bully suggests that when students with weak physical condition bully, they bully for indirect compensation in which they revenge on innocent, physically weaker students rather than on their bullies.

The above discussions lead to an important practical implication. The cycle of bullying in school may be one of the major reasons why some counseling programs, in which school counselors treat victims as victims and bullies as bullies, have not worked well (see Clarke & Kiselica, 1996). Such narrowly defined programs where victims and bullies are viewed as two separate groups of individuals are rarely successful in that it is very likely that a boy bullies others right after being counseled as a victim in the school counselor's office. There is a need to take into account the victim-bully cycle in any counseling programs.

The finding that a student from a large family was more likely to become a bully than a victim indicates a "carry-over effect." Students in large families may well experience more "sibling bullying" than those in small families. Long-term exposure to sibling bullying helps students internalize bullying behaviors as normal and acceptable. They may carry this experience over to their schools, bullying others. The term "long-term exposure" is necessary to explain why the significant sibling effect appeared in grade 8 rather than grade 6. Finally, most student-level findings in this study can be explained directly through social learning theory. Like Lorber, Felton, and Reid (1984), who view abuse in the victim-offender cycle as socially learned behavior, bullying in the victim-bully cycle can also be considered socially learned behavior.

The victim-bully cycle has rarely been reported at the school level in the literature. This study does suggest that the cycle of bullying is present in several aspects of school life. School size and discipline climate contributed to the victim-bully cycle in both grades 6 and 8. Parental involvement contributed to the cycle of bullying in grade 6, whereas academic press contributed to it in grade 8. On the other hand, school mean SES did not contribute to the victim-bully cycle in either grade.

School size is more a characteristic of bullies than victims. This study found that students in small schools could be bullied, but they could bully others a lot more. There are two implications from this finding. First, victims in small schools may be repeated victims due to the less opportunity on the part of bullies to find new victims in a small school. This may well

result in some tragic consequences and calls for more attention from teachers, administrators, superintendents, and parents to bullying in small schools. Second, bullying may well be done “privately” (not in front of a crowd). This explains, at least partially, why large schools have less bullying incidents than small schools, which is at odds with the expectation of many educators. Bullying privately is less likely in large, crowded schools. This also indicates that most students know that bullying is not socially acceptable.

One of the most important findings in this study is that all three school climate variables contributed to the victim-bully cycle. Discipline climate helped victims and discouraged bullies to the same extent in both grades 6 and 8. In grade 6, parental involvement discouraged bullies more than helped victims. In grade 8, academic press also discouraged bullies more than helped victims. Therefore, a combination of improving discipline climate and inviting strong parental involvement may well reduce bullying in the early grades of middle school. In the later grades of middle school, a combination of improving discipline climate and holding high academic press may well reduce bullying.

The importance of discipline climate in reducing bullying is probably not new to many educators and researchers. However, emphases have rarely been given to other climate variables such as parental involvement and academic press. Because of close contacts, parents are in a good position to prevent or discourage their children’s involvement in bullying in school. Parents can do even more to discourage sibling bullying and relate it to school bullying in an educational way. Therefore, the importance of collaboration between schools and families to combat bullying in school is warranted, particularly in the early grades of middle school.

It may come as a surprise for many researchers and educators that academic press can help reduce bullying in school. The reason for this may well be that most students in schools with high academic press are busy with or have to concentrate on academic work. As a result, they have less time to look around for victims. It is particularly true in the later grades of middle school—many schools push harder academically on students in those grades for the transition from junior to senior high school.

Overall, however, school effects appear to be smaller than student effects. This should not trivialize the importance of school climate in reducing bullying in school. Instead, it emphasizes that a joint effort to improve all aspects of school climate is essential. The literature is abundant on “direct” remedies and treatments for bullying in school, but few researchers have considered or recommended “indirect” remedies and treatments. This study shows that meaningful improvement in school climate may well help reduce bullying in school. At least, it is warranted that a combination of direct and indirect remedies and treatments is able to better combat bullying in school.

This study has some limitations. For example, further corroboration of the findings of this study would have been possible if discipline records on the sixth and eighth graders in the survey had been available to reveal the

occurrences of bullying in school based on the number of students disciplined for fighting or harassment of other students. New Brunswick is largely a rural area with a fairly homogeneous population (few people from visible minorities). It is therefore not feasible to generalize the findings of this study to large urban settings in the United States where there is a high concentration of minority groups. The other major limitation is the lack of information on special education students (in the NBSCS), such as those classified as emotionally disturbed and those classified with Attention Deficit Hyperactivity Disorder (ADHD). Depending on the proportion of students classified with either of these disorders, the results of this study could be modified to some degree.

Notes

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¹In a multilevel analysis, it is typical to have a much smaller variance accounted for at the school level than that at the student level. This has promoted some researchers to propose different standards to determine the significance of effects for student-level and school-level variables. Although the theoretical effort on this issue has barely been attempted, this author would like to propose this alternative with caution. Therefore, in this study, if a school effect had a size of 4–6% of a standard deviation, it was still interpreted. If one uses traditional standards, such an effect size may be considered practically small.

²Theoretically, if a variable has equivalently shared effects on victims and bullies that are statistically significant, it should display exactly the same effect sizes on victims and bullies in Table 5, which shows the results from the second stage of the multivariate, multilevel analysis (see Raudenbush, Rowan, & Kang, 1991). This is because the results of the second-stage analysis are calculated from the results of the first-stage analysis via some transformation formulas, such as the following in the current study:

Victims = base – (1/4) contrast; bullies = base – contrast.

When a variable has equivalently shared effects on victims and bullies, theoretically its contrast = 0, resulting in the same value for both victims and bullies. However, this contrast may not be exactly 0 in practice, although it is not statistically significantly different from 0. This results in different effects on victims and bullies for the variable that is supposed to have equivalently shared effects, which is just an artifact. Therefore, either those different effects associated with a variable with equivalently shared effects (Table 5) should be considered nonsignificantly different or the corresponding effects from Table 4 should be used when interpreting that variable.

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