

# Bullying and Victimization in Elementary Schools: A Comparison of Bullies, Victims, Bully/Victims, and Uninvolved Preadolescents

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Research on bullying and victimization largely rests on univariate analyses and on reports from a single informant. Researchers may thus know too little about the simultaneous effects of various independent and dependent variables, and their research may be biased by shared method variance. The database for this Dutch study was large ( $N = 1,065$ ) and rich enough to allow multivariate analysis and multisource information. In addition, the effect of familial vulnerability for internalizing and externalizing disorders was studied. Gender, aggressiveness, isolation, and dislikability were most strongly related to bullying and victimization. Among the many findings that deviated from or enhanced the univariate knowledge base were that not only victims and bully/victims but bullies as well were disliked and that parenting was unrelated to bullying and victimization once other factors were controlled.

*Keywords:* bullying, childhood development, peer relations, psychosocial factors, victimization

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All over the world, bullying and victimization are common in elementary and secondary schools. The estimated rates of bullying and victimization range from 15% to 25% in Australia (Rigby & Slee, 1991), Austria (Klicpera & Gasteiger Klicpera, 1996), England (Whitney & Smith, 1993; Wolke, Woods, Stanford, & Schulz, 2001), Finland (Kumpulainen et al., 1998; Kumpulainen & Rasanen, 2000), Germany (Wolke et al., 2001), Norway (Olweus, 1978, 1993b), and the United States (Nansel et al., 2001). Bullying is defined as a repeated aggression in which one or more persons intend to harm or disturb another person physically, verbally, or psychologically (Boulton & Underwood, 1992; Nansel et al., 2001; Olweus, 1978; 1993b; Wolke et al., 2001). Examples of physical bullying are hitting, kicking, pushing, and the taking of personal belongings; examples of verbal bullying are name calling and threatening; and examples of psychological bullying are excluding, isolating, and gossiping. Bullying among children and adolescents is an important problem affecting well-being and psychosocial functioning (Nansel et al., 2001).

Bullying presents a serious threat to a healthy development during the school career. Bullies are at increased risk of becoming involved in delinquency, crime, and alcohol abuse (Kaltiala-Heino, Rimpela, Rantanen, & Rimpela, 2000; Loeber & Dishion, 1983; Nansel et al., 2001, 2004; Olweus, 1993a, 1993b). Haynie et al. (2001) concluded that "bullying might allow children to achieve their immediate goals without learning socially acceptable ways to negotiate with others, resulting in persistent maladaptive patterns" (p. 31). Long-term negative consequences have also been documented for victims. In general, victims are at increased risk of depression and lower

self-esteem in adulthood (Kaltiala-Heino et al., 2000; Kumpulainen & Rasanen, 2000; Olweus, 1993c).

Why yet another study on bullying and victimization? So far, the knowledge base has mainly been built on univariate analyses of bullying or victimization that use only one regressor and regressand at a time (see, for an exception, Haynie et al., 2001). Some studies have used, for example, multiple regression or path analysis to examine the predictors solely of victimization (e.g., Finnegan, Hodges, & Perry, 1998; Kochenderfer-Ladd, 2003; Ladd & Kochenderfer-Ladd, 1998; Olweus, 1993c) or solely of bullying (e.g., Bosworth, Espelage, & Simon, 1999; Espelage, Holt, & Henkel, 2003). Other multivariate studies have examined the outcomes of victimization or bullying (e.g., Bellmore, Witkow, Graham, & Juvonen, 2004; Boivin, Hymel, & Bukowski, 1995; Buhs & Ladd, 2001; Craig, 1998; Nishina, Juvonen, & Witkow, 2005; Schwartz, McFadyen-Ketchum, Dodge, Pettit, & Bates, 1998). However, none of these studies distinguished bully/victims from bullies or victims.

A large gap in the literature is the lack of multivariate studies with several categorical groups as outcome. In this study we have a nominal outcome consisting of four groups: bullies, victims, bully/victims, and uninvolved preadolescents. Using a multivariate analytic strategy that includes categorical groups, we thought that we might be better able to disentangle the various effects of bullying and victimization and check possible confounders. The present study uses a sample of more than 1,000 preadolescents—a sample large enough to enable us to take the impact of various characteristics into account simultaneously. A second advantage of the present study is that we have gathered information on bullying and victimization by peer reports and that we used information from different informants (self-reports, parents, teachers) for the measurement of the independent variables. Previous studies mainly relied on one source of information for both the independent and the dependent variables. As a result, earlier results may be biased by shared method variance. The development of interventions for bullying and victimization requires an understanding of the simultaneous effects of various factors and their robustness.

### The Knowledge Base on Bullying

Research suggests that children and adolescents identified as bullies demonstrate poorer psychosocial functioning than their classmates. Bullies have been reported to be aggressive, impulsive, hostile, domineering, antisocial, and uncooperative toward peers and to exhibit little anxiety or insecurity (Craig, 1998; Kumpulainen et al., 1998). When they are in control, bullies feel more secure and less anxious (Batsche & Knoff, 1994). Surprisingly, according to self-reports, bullies make friends easily (Nansel et al., 2001, 2004) and obtain classmate support similar to that of uninvolved youth (Demaray & Malecki, 2003). Bullies believe they will achieve success through their aggression, are unaffected by inflicting pain and suffering, and process information about victims in a rigid and automatic fashion (Perry, Perry, & Kennedy, 1992). Bullies believe that they pick on their victim because they are provoked or because they do not like the victim (Boulton & Underwood, 1992). They show poorer school adjustment, both in terms of achievement and well-being (Nansel et al., 2001, 2004), and perceive less social support from teachers (Demaray & Malecki, 2003). These children may be more difficult in the classroom

and frustrating for teachers (Demaray & Malecki, 2003). Evidence suggests that bullies come from homes in which parents prefer physical discipline, are sometimes hostile and rejecting, have poor problem-solving skills, and are permissive toward aggressive childhood behavior or even teach their children to strike back at the least provocation (Demaray & Malecki, 2003; Loeber & Dishion, 1984). We wished to explore which characteristics are most related to bullying when these influences are considered simultaneously.

### The Knowledge Base on Victimization

Research on victimization suggests that children and adolescents identified as victims also exhibit poor psychosocial functioning. They tend to be more withdrawn, depressed, anxious, cautious, quiet, and insecure than others (Craig, 1998; Kumpulainen et al., 1998; Olweus, 1993c; Perry, Kusel, & Perry, 1988; Schwartz et al., 1998) and also less prosocial than uninvolved children (Schwartz, 2000). Victims report feeling lonelier and less happy at school and having fewer good friends (Boulton & Underwood, 1992; Nansel et al., 2001, 2004) than their classmates. The most frequently cited motivation for victimization is that the victims “did not fit in” (Hoover, Oliver, & Hazler, 1992). At the same time, others may avoid victims for fear of being bullied themselves or losing social status among their peers (Nansel et al., 2001). Although victims respond in various ways to bullying, avoidance behaviors (such as not going to school and refusing to go to certain places) are common (Batsche & Knoff, 1994; Kumpulainen et al., 1998).

Some studies examined associations between parenting and victimization. Overprotection and poor identification with parents affects the degree of victimization by peers (Batsche & Knoff, 1994; Bowers, Smith, & Binney, 1994; Olweus, 1993c). Finnegan et al. (1998) suggested that victimization was associated with perceived maternal overprotection for boys and with perceived maternal rejection for girls. Victimization was also associated with greater parental involvement in school, which may reflect parental awareness of children’s difficulties but which may also reflect a reduced independence among these youths (Nansel et al., 2001, 2004). Again, the question is which characteristics are most related to victimization once researchers control for various factors simultaneously.

### The Knowledge Base on Bully/Victims

Other research suggests that bullies and victims are not mutually exclusive categories (Austin & Joseph, 1996; Espelage & Swearer, 2003; Haynie et al., 2001; Klicpera & Gasteiger Klicpera, 1996; Pellegrini, Bartini, & Brooks, 1999; Schwartz, 2000). About half of the bullies report to be victims as well. Recently, researchers have begun to investigate the characteristics of these bully/victims (or aggressive victims as opposed to passive victims). The findings suggest that bully/victims demonstrate high levels of both aggression and depression, and they score low on measures of academic competence, prosocial behavior, self-control, social acceptance, and self-esteem. They function more poorly than bullies or victims (Hanish & Guerra, 2004; Nansel et al., 2001, 2004; Schwartz, 2000). They are also involved in other problem behavior such as alcohol abuse, delinquency, and violations of parental rules. Bully/

victims are among the most disliked members of a classroom (Batsche & Knoff, 1994; Schwartz, 2000). Evidence suggests that bully/victims come from homes in which parents are less involved with their children and are sometimes hostile and rejecting (Bowers et al., 1994; Klicpera & Gasteiger Klicpera, 1996). At elementary school age, these youth apparently represent a particularly high-risk group and are probably at greater risk of future psychiatric problems (Kumpulainen & Rasanen, 2000). We were interested in whether the multivariate analyses would confirm the univariate findings on bully/victims.

### The Knowledge Base on Gender and Socioeconomic Background

In general, the knowledge base suggests that boys are overrepresented among bullies, particularly among bully/victims, whereas differences between boys and girls are less pronounced among victims (Espelage, Mebane, & Adams, 2004; Hanish & Guerra, 2004; Klicpera & Gasteiger Klicpera, 1996; Pellegrini et al., 1999; Schwartz, 2000). Boys use more physical aggression and direct bullying, whereas girls use more relational aggression and indirect bullying (Craig, 1998; Crick & Bigbee, 1998). Name calling and social exclusion are forms of bullying that are common for both boys and girls. Hitting and threatening are types of bullying that are common for boys in particular. Gossiping and the taking of personal belongings are types of bullying that are common for girls in particular. Research suggests further that socioeconomic status (SES) is inversely related to bullying and victimization (Wolke et al., 2001). It is not quite clear what influences are represented by SES. Various parenting characteristics or adverse family circumstances could be possible influences. Again, the question is how robust these findings are once the covariates are controlled.

### The Present Study

There have been multivariate studies on bullying or victimization, and one multivariate study that looked at bullies, victims, bully/victims, and uninvolved ones (Haynie et al., 2001). Haynie et al.'s study was a great step forward. It revealed that behavioral misconduct, self-control, deviance acceptance, and deviant peer influences were the best predictors of bullying and victimization, followed by depressive symptoms, social competence, and school functioning. Furthermore, they concluded that parenting characteristics were moderately associated with bullying and victimization. Parenting characteristics may have indirect effects on bullying, because parenting is likely associated with characteristics such as social competence, school functioning, and peer choices, all of which are related to bullying (Haynie et al., 2001). A possible limitation of Haynie et al.'s study is that they used self-reports for measuring both the independent and the dependent variables. Their results may thus be affected by shared method variance. The present study uses multiple sources of information for the dependent variables. For bullies and bully/victims, the present multivariate research includes several individual (aggressiveness, academic performance, prosocial behavior, and dislikability), parenting (emotional warmth and rejection), and background (gender and SES) characteristics that have been linked to bullying in univariate studies. For victims, the present multivariate research includes several individual (isolation, prosocial behavior, and dislikability),

parenting (overprotection and rejection), and background (gender and SES) characteristics that have been linked to victimization in univariate studies.

We also included familial vulnerability for externalizing and internalizing disorders (Heath, Neale, Kessler, Eaves, & Kendler, 1992). Familial vulnerability has not been considered in previous research on bullying and victimization. Besides having a direct familial vulnerability effect on bullying and victimization, the effect may also be indirect, through gene-environment correlations. In other words, familial vulnerability may go hand in hand with adverse family circumstances because of parents' psychiatric symptoms, and part of the effect of parenting may actually be genetically originated (Rutter, 2002). To assess possible confounding by familial vulnerability, we included a vulnerability index for externalizing and for internalizing disorders in the analyses.

The central question was the extent to which uninvolved pupils, bullies, victims, and bully/victims differ on the basis of gender, SES, familial vulnerability, parenting (emotional warmth, overprotection, and rejection), and individual characteristics (aggressiveness, isolation, academic performance, prosocial behavior, and dislikability). We were interested in exploring whether the multivariate analyses would confirm the univariate findings that parenting characteristics (specifically a reduced emotional warmth and an enlarged rejection) are positively related to bullies and bully/victims and that overprotection and rejection are positively related to being a victim. Would the univariate findings that bullies, victims, and bully/victims have a weak social profile (not being prosocial and being disliked) hold up in our analyses? Is it so that bullies and bully/victims have higher levels of aggressiveness and lower levels of academic performance, whereas victims have a higher level of isolation? Which characteristics are most related to bullying and victimization—individual characteristics or social circumstances (such as parenting, SES)—when these influences are considered simultaneously? Some questions have not been treated in univariate analyses, especially concerning familial vulnerability. Given that bullying and victimization may be transmitted intergenerationally, bullies and bully/victims may have an enlarged familial vulnerability to externalizing disorders, whereas victims may have an enlarged familial vulnerability to internalizing disorders. We wanted to determine whether these possibilities would be borne out.

## Method

### Sample

The TRacking Adolescents' Individual Lives Survey (TRAILS) is a new prospective cohort study of Dutch preadolescents who will be measured biennially until they are at least 25 years old. The present study involved the first assessment wave of TRAILS, which ran from March 2001 to July 2002. TRAILS is designed to chart and explain the development of mental health and social development from preadolescence into adulthood. The TRAILS target sample involved preadolescents living in five municipalities in the northern part of the Netherlands, including both urban and rural areas (De Winter et al., 2005; Oldehinkel, Hartman, De Winter, Veenstra, & Ormel, 2004).

Of all the children approached for enrollment in the study (i.e., children selected by the municipalities and attending a school that was willing to participate;  $N = 3,145$  children from 122 schools, with 90.4% of the schools responding), 6.7% were excluded because of incapability or lan-

guage problems. Of the remaining 2,935 children, 76.0% were enrolled in the study, yielding a sample size of 2,230. Both the child and the parent consented to participate. The mean age of the children was 11.09 years ( $SD = 0.55$ ); 50.8% were girls; 10.3% were children who had at least one parent born in a non-Western country; and 32.6% of children had parents with a low educational level (i.e., a lower track of secondary education was the highest level attained). We did not find any nonresponse bias in our study for the estimation of the prevalence rates of psychopathology, including antisocial behavior. Boys, children from lower social strata, and children with worse school performance were somewhat more likely to belong to the nonresponse group (De Winter et al., 2005).

Well-trained interviewers visited one of the parents (preferably the mother, 95.6%) at their homes to administer an interview covering a wide range of topics, including the child's developmental history and somatic health, parental psychopathology, and care utilization. The parent was also asked to fill out a questionnaire. Children filled out questionnaires at school (in the classroom), under the supervision of one or more TRAILS assistants. In addition, intelligence and a number of biological and neurocognitive parameters were assessed individually (also at school). Teachers were asked to fill out a brief questionnaire for all children in their class who were participating in TRAILS. Measures that were used in the present study are described more extensively in the following sections.

### Subsample With Peer Information

For the analyses we used a subsample of 1,065 of the 2,230 TRAILS respondents. Peer nominations, which were essential for our study, were only assessed in classrooms with at least 10 TRAILS respondents. This restriction made the subsample less representative. Children in special education (5.6% of the sample), in small schools (6.4%), and who repeated (16.9%) or skipped (2.2%) a grade were excluded from the subsample. The subsample of 1,065 children differed from the other TRAILS respondents in terms of several individual and psychosocial characteristics: They were more often girls,  $\chi^2(1, N = 2,230) = 16.1, p < .01$ ; came on average from higher socioeconomic strata,  $t(2186) = 5.1, p < .01$ ; lived more often with the same parents throughout their lives,  $\chi^2(1, N = 2,230) = 12.5, p < .01$ ; had a higher level of academic performance,  $t(1923) = 5.8, p < .001$ ; and were more prosocial,  $t(1926) = 4.4, p < .01$ , less aggressive,  $t(1927) = -3.3, p < .01$ , and less isolated,  $t(1927) = -4.4, p < .01$ . However, the subsample did not differ from the other TRAILS respondents in terms of emotional warmth,  $t(2205) = 1.0, p = .32$ , or rejection,  $t(2204) = -1.2, p = .23$ , by parents. They were only somewhat less overprotected by parents,  $t(2004) = -1.9, p = .05$ . In sum, the findings with our subsample can only be generalized to a population of preadolescents who attend regular elementary schools and did not repeat grades. This subsample contains fewer children who were at risk.

### Measures

**Peer nominations.** Bullying and victimization were assessed with peer nominations. Children received a list of all classmates and were asked to nominate them in a number of dimensions. They nominated their classmates on, among other things, bullying ("By whom are you bullied?") and victimization ("Whom do you bully?"). The number of nominations they could make was unlimited, and the nominations were asked at the dyadic level. Thus, we had information on the relationship of each pair of children in a class. Children were not required to nominate anyone. We used the number of nominations children received from their classmates, the so-called indegree, as indicators for this study. A definition of bullying was not provided to the children, and children may have differed in the constructs they attached to the term. However, our measure was the aggregate of all the nominations someone received from others and is for that reason potentially much more reliable and valid (Newcomb, Bukowski, & Pattee, 1993). To allow for differences in the number of

respondents per class, we used the proportion of nominations (standardization per class, common in sociometric research, was impossible, because no one bullied in some classes). The correlation between the indegree of bullying and victimization was .30 ( $p < .01$ ). We used as an indicator of dislikeability the number of nominations children received from their classmates on the question "Whom do you not like at all?"

**Familial vulnerability.** Parental psychopathology with respect to depression, anxiety, substance abuse, antisocial behavior, and psychoses was measured by means of the Brief TRAILS Family History Interview (Ormel et al., in press), administered at the parent interview. Each syndrome was introduced by a vignette describing its main symptoms and followed by a series of questions to assess lifetime occurrence, professional treatment, and medication use. The scores for substance abuse and antisocial behavior were used to construct a familial vulnerability index for externalizing disorder. The scores for depression and anxiety disorder were used to construct an index for internalizing disorder. For each syndrome, parents were assigned to any of the categories (0 = [probably] not, 1 = [probably] yes, 2 = yes and treatment/medication [substance abuse, depression, and anxiety] or picked up by police [antisocial behavior]). Ormel et al. have given information about the lifetime prevalence of psychopathology in the parents of the TRAILS children and compared them with rates found in adult population samples in the Netherlands and Europe with the Composite International Diagnostic Interview (CIDI; World Health Organization, 1997). The Brief TRAILS Family History Interview yielded lifetime rates that were comparable to those found in studies in which CIDI interviews were used, with the exception of fathers' rates for anxiety and substance abuse, which were relatively low.<sup>1</sup>

**Parenting characteristics.** The Egna Minnen Beträffande Uppfostran (My Memories of Upbringing) for Children (EMBU-C; Markus, Lindhout, Boer, Hoogendijk, & Arrindell, 2003) has been developed to assess children's and adolescents' perception of parents' rearing practices. Each item, with a 4-point answer scale, was presented for both the father and the mother. The EMBU-C contains the factors Emotional Warmth, Rejection, and Overprotection. The main concepts of Emotional Warmth are giving special attention, praising for approved behavior, unconditional love, and being supportive and affectionately demonstrative. The scale for Emotional Warmth contained 18 items, with an internal consistency of .91 for both

<sup>1</sup> The construction of a familial vulnerability index was based on Kendler, Prescott, Myers, and Neale's (2003) study, in which they performed multivariate twin modeling to investigate the structure of genetic risk factors for common psychiatric and substance use disorders. Kendler and colleagues found evidence for two genetic common factors: one externalizing (with high loadings on adult antisocial behavior, conduct disorder, alcohol dependence, and other drug abuse or dependence) and one internalizing (with high loadings on major depression, generalized anxiety disorder, and phobia). We used the path coefficients found in Kendler et al.'s study as regression coefficients in our own analysis. The scores for substance abuse and antisocial behavior were used to construct a familial vulnerability index for externalizing disorder. The regression coefficient for substance abuse was constructed as the mean of the path coefficients for alcohol dependence (.58) and other drug abuse or dependence (.65). The regression coefficient for antisocial behavior was constructed as the mean of the path coefficients for adult antisocial behavior (.56) and conduct disorder (.37). The scores for depression and anxiety disorder were used to construct a familial vulnerability index for internalizing disorder. The regression coefficient for depression was .54. The regression coefficient for anxiety was constructed as the mean of the path coefficients for generalized anxiety disorder (.53) and phobia (.33). The following regression equations were used: genetic risk for externalizing disorder = .61 (substance abuse mother + substance abuse father) + .47 (antisocial mother + antisocial father); genetic risk for internalizing disorder = .54 (depression mother + depression father) + .43 (anxiety mother + anxiety father).

Table 1  
*Informant, Mean, Standard Deviation, Range of Scores, and Number of Completed Scales for Bullying, Victimization, and Other Characteristics*

Variable	Informant	<i>M</i>	<i>SD</i>	Range of scores		<i>N</i>
				Minimum	Maximum	
<b>Outcomes</b>						
Bullying	Peers	0.06	0.08	0.00	0.70	1,065
Victimization	Peers	0.04	0.08	0.00	0.73	1,065
<b>Background characteristics</b>						
Gender (1 = boys)	Child	0.45				1,065
Not the same parents	Parent	0.20				1,065
Socioeconomic status	Parent	0.04	0.77	-1.85	1.72	1,047
<b>Familial vulnerability</b>						
Externalizing behavior	Parent	0.11	0.33	0.00	2.49	1,037
Internalizing behavior	Parent	0.54	0.76	0.00	3.88	1,037
<b>Parenting characteristics</b>						
Emotional warmth	Child	3.22	0.49	1.17	4.00	1,057
Overprotection	Child	1.84	0.37	1.00	3.46	1,057
Rejection	Child	1.47	0.30	1.00	3.47	1,056
<b>Individual characteristics</b>						
Aggressiveness	Teacher	2.06	0.92	1.00	4.83	935
Isolation	Teacher	2.19	0.76	1.00	4.33	935
Academic performance	Teacher	3.74	0.86	1.20	5.00	932
Prosocial behavior	Teacher	3.42	0.66	1.55	5.00	935
Dislikability	Peers	0.13	0.13	0.00	0.85	1,065

fathers and mothers. The Rejection factor is characterized by hostility, punishment (physical or not, abusive or not), derogation, and blaming of subject (12 items: .84 for fathers and .83 for mothers). The Overprotection factor is measured by fearfulness and anxiety for the child's safety, guilt engendering, and intrusiveness (12 items: .70 for fathers and .71 for mothers). The answers for both parents were highly correlated ( $r_s = .79$  for Emotional Warmth, .67 for Rejection, and .81 for Overprotection), so we felt it was justified to combine them. Markus et al. (2003) have reported on the validity of the EMBU-C.

*Individual characteristics.* In close consultation with Masten, we adapted the Revised Class Play (Masten, Morison, & Pellegrini, 1985). First, we used it as a measure of teacher assessment rather than of peer assessment. Second, we used a 5-point answer scale (rating each child on a range from 1 [not applicable] to 5 [very clearly or frequently applicable]) and the 30 roles as items. This resulted in reliable measures: aggressiveness/disruptiveness was measured with six items and had an internal consistency of .89; isolation/sensitivity was measured with six items and had an internal consistency of .80. Academic performance was measured with a scale that contained five items on effort and achievement (e.g., on language and mathematics), with an internal consistency of .85. Prosocial behavior was measured with a scale of 11 items, with an internal consistency of .93 (Veenstra et al., 2005).

*Background characteristics.* The subsample consisted of 55% girls and 45% boys. Eighty percent of the children had lived with the same parents from birth to preadolescence. The 20% for whom that was not the case could be divided into those who have always lived with a single parent (4.3%), who experienced a divorce and have lived with a single parent since then (8.8%), and who experienced a divorce and have lived with a stepparent (7%). The TRAILS database contains various variables for SES: income level, educational level of the father and the mother, and occupational level of both parents (occupational level was based on the *International Standard Classification for Occupations*; Ganzeboom & Treiman, 1996). These five variables were standardized and combined into one scale with an internal consistency of .84. The scale captures 61.2% of the variance in the five items. Missing values (e.g., when there is only one parent in the family) did not affect the association of this scale with other

variables. The mean and standard deviation of all measures are reported in Table 1.

### Analysis

Children were classified as uninvolved ( $n = 652$ ), bully ( $n = 139$ ), victim ( $n = 164$ ), or bully/victim ( $n = 110$ ) on the basis of the peer nominations. As shown in Demaray and Malecki's (2003) study, bullies belonged to the highest quartile on bullying, victims belonged to the highest quartile on victimization, and bully/victims belonged to the highest quartile on both characteristics. We chose the top 25th percentile, a liberal criterion, because we did not want to focus only on extreme levels of bullying and the victimization (see also Haynie et al., 2001). Our findings were not sensitive to this choice. Our outcomes were similar, with the top 10th percentile as criterion.<sup>2</sup>

We performed chi-square tests and analyses of variance (with post hoc Scheffé tests) to study univariate differences between the four groups. Subsequently, we conducted multinomial logistic regression. The multinomial logistic model (MNL) may be used to examine the effects of independent variables on a nominal dependent variable, such as the four groups of bullies, victims, bully/victims, and uninvolved children. With four outcomes, the MNL is roughly equivalent to running six binary logistic regressions comparing outcomes 1 to 2, 1 to 3, 1 to 4, 2 to 3, 2 to 4, and 3 to 4. In the MNL, all of the logits are estimated simultaneously, which enforces the logical relationship among the parameters and uses the data more efficiently (Long, 1997). To interpret the outcomes of the MNL, we used marginal effects (Borooah, 2001; Liao, 1994). The marginal effect for a dummy variable is the difference between being in Category 1 and being in Category 0. The marginal effect for a continuous variable is the effect of a variable on an outcome, with one point of increase being the score of the variable. The marginal effects sum up to zero per variable.

<sup>2</sup> A dissimilarity was that there was no longer a gender difference among victims.

We used corrected-item-mean imputation to handle missing data at the item level (Huisman, 2000). At the scale level we did multiple imputation by using the MICE (multivariate imputation by chained equations) method (Allison, 2002; Royston, 2004; Van Buuren, Boshuizen, & Knook, 1999). These procedures assume that the data are missing at random (see Table 1 for the amount of missing data). About 12.5% of our sample had missing teacher data. As a result of the imputations, we could use all 1,065 cases in our analyses.

## Results

### Prevalence of Bullying and Victimization

On average, respondents designated 6% of the relations with their classmates as bullying and 4% as victimization. Uninvolved children were almost never perceived as bullies (.02) or as victims (.01) by their classmates. The victims scored .03 on bullying and .13 on victimization; the bullies, .17 on bullying and .02 on victimization; and the bully/victims, .20 on bullying and .15 on victimization. The cutoff points for bullying and victimization were about .07 for victimization and .09 for bullying.

### Analysis of Variance

First we present our univariate results in order to compare them with previous findings. Figures 1 and 2 show the mean scores for the four types of bullying and victimization. Figure 1 shows the differences on SES,  $F(3, 1043) = 9.27, p < .01$ ; emotional warmth,  $F(3, 1053) = 3.13, p = .03$ ; rejection,  $F(3, 1053) = 3.20, p = .02$ ; and familial vulnerability to externalizing disorder,  $F(3, 1033) = 3.66, p = .01$ . Post hoc tests revealed that the uninvolved group's SES was significantly higher than that of all the other groups. On rejection and familial vulnerability to externalizing disorder, we found a significant difference only between the bully/victims and the uninvolved group. Bully/victims perceived the most rejection at home, whereas the uninvolved group and the victims perceived the least rejection at home. The bully/victims

also had the highest familial vulnerability to externalizing disorder, whereas the risk of the uninvolved group was the lowest. No differences between the four groups were found for not the same parents,  $\chi^2(3, N = 1,065) = 4.90, p = .18$ ; overprotection,  $F(3, 1052) = 1.71, p = .16$ ; and familial vulnerability to internalizing disorder,  $F(3, 1033) = 1.52, p = .21$ . Our univariate results are to some extent in accord with earlier findings that suggest that the level of emotional warmth and the SES are lower among bullies and bully/victims and that the level of rejection is higher among bully/victims. Our findings on familial vulnerability to externalizing disorder also provide evidence for the idea that bully/victims have a poorer psychosocial background than the uninvolved group. In contrast with earlier findings, our findings did not reveal that victims had an overall disadvantaged psychosocial background.

Figure 2 shows the differences between the four groups on aggressiveness,  $F(3, 931) = 43.07, p < .01$ ; isolation,  $F(3, 931) = 12.35, p < .01$ ; academic performance,  $F(3, 928) = 12.04, p < .01$ ; prosocial behavior,  $F(3, 931) = 25.60, p < .01$ ; and dislikability,  $F(3, 1061) = 92.70, p < .01$ . Post hoc tests revealed that the levels of aggressiveness of the bully/victims and the bullies were significantly higher than those of the victims and the uninvolved group. The uninvolved group had the lowest level of aggressiveness and scored even significantly lower than the victims. The bully/victims and the victims were the most isolated, and the uninvolved group was the least isolated. The uninvolved group had a significantly higher level of academic performance than the bullies and the bully/victims, and victims also scored significantly higher than bully/victims.

On prosocial behavior we found significant differences between the uninvolved group and the victims on the one hand and the bullies and the bully/victims on the other hand. The bullies and the bully/victims had a lower level of prosocial behavior than the victims and the uninvolved group. The bully/victims were most disliked, whereas the uninvolved group was least disliked. Bullies and victims did not differ from each other in terms of dislikability.

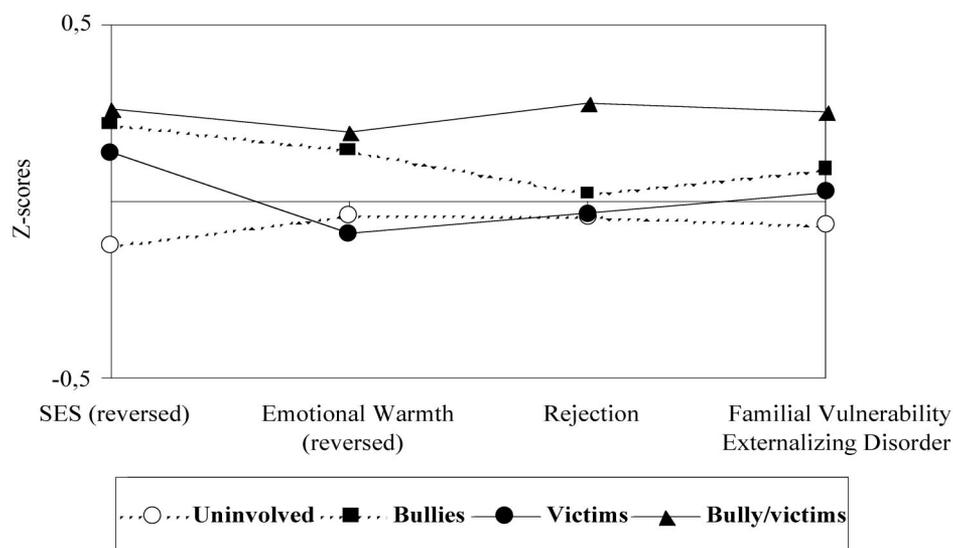


Figure 1. Bullying and victimization: Differences in socioeconomic status (SES), parenting, and familial vulnerability to externalizing disorders characteristics.

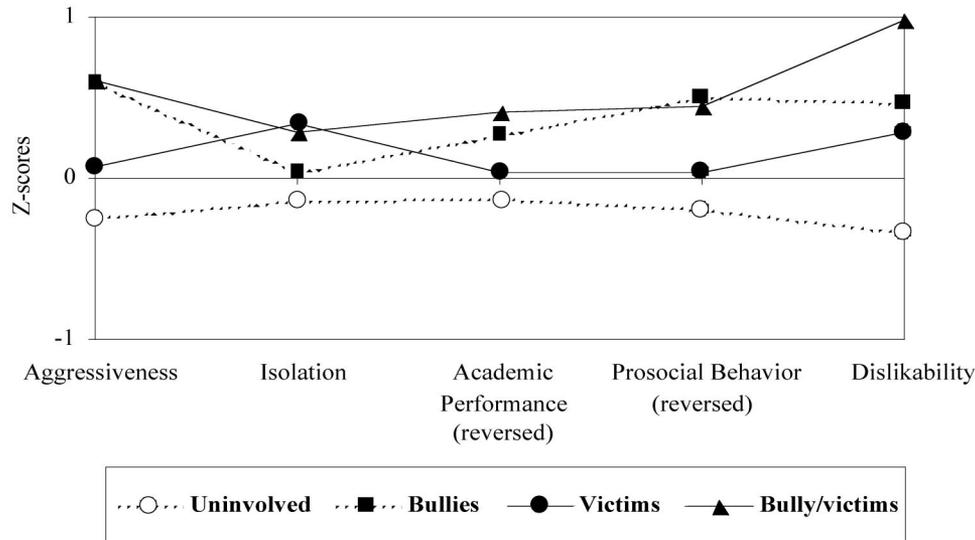


Figure 2. Bullying and victimization: Differences in individual characteristics.

Our univariate results mainly confirm previous studies. Our findings suggest that bullies, victims, and bully/victims have a more disadvantaged individual background than the uninvolved group and that there are also differences between the involved groups: Bullies and bully/victims had higher levels of aggressiveness, whereas victims and bully/victims had higher levels of isolation. The differences in individual characteristics were larger than the differences on parenting or familial vulnerability characteristics.

Finally, we also found differences between boys and girls,  $\chi^2(3, N = 1,065) = 66.32, p < .01$ . The sex ratio for bully/victims was 2.43, which means that the probability that boys were bully/victims was almost 2.5 times higher than the probability for girls. The sex ratio for bullies was 2.50. The chance that girls were victims was 1.74 times higher than the chance for boys (sex ratio of .57). These large gender differences for bullies and bully/victims are in line with earlier findings. We found, in contrast to earlier findings, that girls were overrepresented among victims.

### Multinomial Logistic Regression

In this section we report on the multinomial logistic regression. First, we investigated a model with gender, family composition, SES, and familial vulnerability. The difference in chi-square with the empty or intercept-only model was 108.3 with 15 degrees of freedom, which means that the improvement was significant at the .01 level. Subsequently, we added parenting characteristics. None of the parenting characteristics had a significant effect, and the fit of the model did not improve from including these characteristics.<sup>3</sup> Finally, we added the individual characteristics: The decrease in chi-square with the former model was 154.2 with 15 degrees of freedom, which means that the improvement was significant at the .01 level.<sup>4</sup>

Table 2 contains the marginal effects of the MNLM. The table contains columns showing the impact of the independent variables on bully/victims, bullies, victims, and uninvolved preadolescents. The sum of each row equals zero. The numbers in parentheses are the standard errors. As shown in Table 2, it was 4.2 and 7.3%

points more likely for boys than for girls to be a bully/victim or a bully, whereas it was 9.7% points more likely for girls than for boys to be a victim. A significant marginal effect for SES occurred for uninvolved preadolescents (.050). Familial vulnerability to externalizing and internalizing disorders had an impact on bully/victims and victims, respectively. Children who scored high on aggressiveness were more likely to be bully/victims or bullies and less likely to be uninvolved. The marginal effects of isolation were significant for bullies and victims. When all other characteristics are taken into account, the marginal effect was positive for victims, whereas the effect was negative for bullies. In the MNLM, dislikability distinguished all four groups. Being disliked was related to being involved with bullying.

Dislikability had the biggest impact on the outcome variable. Our multivariate research distinguished the strong predictors (aggressiveness, isolation, dislikability, gender) of bullying and victimization from the weak predictors (SES, familial vulnerability) and the unrelated characteristics (parenting, prosocial behavior, and academic performance).

### Discussion

Our study was based on a large population sample of preadolescent boys and girls, covered both bullying and victimization, and used multiple informants. The advantage of our study was that

<sup>3</sup> Additional analyses revealed that the effect of parenting practices was not confounded by familial vulnerability for externalizing or internalizing disorders but by gender and SES. Differences in parenting overlapped with differences between boys and girls and between socioeconomic strata.

<sup>4</sup> Dislikability has the strongest effect on the four types of bullying and victimization. We were afraid that this might be the result of shared method variance, because dislikability also was measured by peer nominations. For that reason we also ran a model without dislikability. The same variables as in our full model had an effect on the classification into the four groups. This suggests that dislikability did not disturb the effects of the other characteristics.

Table 2  
*Multinomial Logistic Regression on the Four Types of Bullying and Victimization: Marginal Effects (and Standard Errors)*

Variable	Bully/victims (10.3%)	Bullies (13.1%)	Victims (15.4%)	Uninvolved (61.2%)
Gender (1 = boys)	.042 (.018)*	.073 (.023)***	-.097 (.025)**	-.017 (.035)
Not the same parents	-.011 (.020)	.014 (.027)	-.045 (.029)	.044 (.044)
Socioeconomic status	-.014 (.009)	-.016 (.011)	-.020 (.014)	.050 (.019)**
Familial vulnerability				
Externalizing disorder	.022 (.009)*	.009 (.013)	.002 (.017)	-.033 (.023)
Internalizing disorder	-.015 (.010)	-.012 (.011)	.020 (.012)†	.008 (.017)
Emotional warmth	-.006 (.009)	-.011 (.011)	.017 (.015)	.000 (.020)
Overprotection	.002 (.009)	.008 (.012)	.003 (.015)	-.014 (.020)
Rejection	.003 (.010)	-.019 (.013)	-.009 (.017)	.025 (.022)
Aggressiveness	.031 (.010)**	.050 (.014)**	.012 (.016)	-.093 (.022)**
Isolation	-.013 (.011)	-.044 (.013)**	.054 (.015)**	.003 (.023)
Academic performance	-.010 (.010)	.004 (.013)	.005 (.015)	.001 (.022)
Prosocial behavior	.014 (.011)	-.021 (.015)	.018 (.018)	-.011 (.025)
Dislikability	.068 (.009)**	.064 (.012)**	.078 (.014)**	-.210 (.022)**

Note.  $N = 1,065$ .

†  $p < .10$ . \*  $p < .05$ . \*\*  $p < .01$ . (Tests were two-tailed.)

we could perform multivariate analyses. What we knew thus far about bullies, victims, and bully/victims was mainly based on univariate analyses. However, only multivariate analyses can give insight into which characteristics have a real influence and which have a spurious one.

The MNLM revealed, as we had expected, that a boy was more likely to be a bully/victim or a bully than was a girl. This finding is in line with those of univariate studies (Espelage et al., 2004; Hanish & Guerra, 2004; Klicpera & Gasteiger Klicpera, 1996; Pellegrini et al., 1999; Schwartz, 2000). Furthermore, we found that girls were more likely to be passive victims. This finding is different from the findings of other studies; however, it was related to the use of the top 25% of participants as cutoff point for bullying and victimization. With more stringent criteria, we found no gender difference among victims.

To our knowledge, our study is the first on bullying and victimization that includes an index for familial vulnerability to externalizing and internalizing behavior. We found indications that bully/victims and victims had an enlarged familial vulnerability to externalizing and internalizing disorder, respectively. Thus, familial vulnerability proved an additional factor to be considered.

Uninvolved preadolescents came from families with a higher SES than that of bully/victims, bullies, or victims. Their familial background was advantaged. However, neither emotional warmth nor rejection and overprotection distinguished between bully/victims, bullies, victims, and uninvolved children in the MNLM. These findings about the impact of parenting differ from those of univariate research (Demaray & Malecki, 2003; Rodkin & Hodges, 2003). Our multivariate analyses suggest that SES represents influences other than familial vulnerability and parenting characteristics and that in future research it would be worthwhile to find out what these influences are. That parenting characteristics had no impact on bullying and victimization (not even indirectly) is indeed surprising. This may indicate that parenting has more impact on bullying and victimization in (early) childhood than in preadolescence, because then parents are rarely present when aggressive interactions occur (Doll, Song, & Siemers, 2004). They hear about conflicts after the fact and only when children choose

to discuss them (Kerr & Stattin, 2000; Stattin & Kerr, 2000). As a result, parents are relatively unaware of bullying and victimization (Olweus, 1993a). Our findings suggest that victims are positive about their relations with parents. They have relational problems with (some of) their peers but not with their parents. Bully/victims perceive their parenting circumstances to be less favorable than do victims or uninvolved children (less warmth and more rejection). However, these findings were supported only by our univariate analyses and not by our multivariate analyses.

As expected, individual characteristics had a stronger impact than social circumstances on bullying and victimization. In addition to the overrepresentation of boys among bully/victims and bullies, a main characteristic of bully/victims and bullies was their high level of aggressiveness. Bullies were less isolated and victims were more isolated than uninvolved children. Bullies, victims, and bully/victims were all more disliked than the uninvolved group. A growing body of research on prosocial and antisocial behavior (Hawley, 2003; Hawley, Little, & Pasupathi, 2002; Rodkin et al., 2000) or on sociometric and perceived popularity (Cillessen & Mayeux, 2004; Parkhurst & Hopmeyer, 1998; Pellegrini et al., 1999; Prinstein & Cillessen, 2003) found that antisocial children are not always worse off than others. However, in this study we found that both aggressive groups were disadvantaged. Both bully/victims and bullies were highly disliked. The most important difference between the groups was that bullies were less isolated than bully/victims (and than the uninvolved group as well). Although bullies were disliked, they were not marginalized (see also Schwartz, 2000). Estell, Farmer, and Cairns (2004) have found a similar result. In their sample of rural African American youth, bullies were sociometrically rejected but had average levels of perceived popularity and were clearly integrated into the social network of the classroom.

An important finding was that individual characteristics, such as dislikability, aggressiveness, isolation, and gender, were strongly related, whereas parenting was unrelated to bullying and victimization in the multivariate analyses. Also, only recently have researchers begun to distinguish bully/victims. We have found, as have other researchers (Haynie et al., 2001; Nansel et al., 2001,

2004), that bully/victims function more poorly than bullies or victims.

All in all, we feel that this is an excellent starting point for further research. However, a number of limitations of our study should also be mentioned:

1. The study was based on cross-sectional data. This limitation will be overcome in the near future. The longitudinal nature of our survey, TRAILS, will allow us to investigate prospective relations as new waves of data come in.

2. We only had peer information from a subsample of TRAILS. This subsample excluded children in special education and children who repeated a grade. As a result, the findings of this article can only be generalized to a somewhat advantaged population of preadolescents. The excluded group contained more children who had behavior problems and came from lower socioeconomic strata. This probably has weakened the detected associations in our analyses of variance and MNLM, and it certainly limits the generalizability of our findings.

3. Our measure of familial vulnerability to externalizing or internalizing disorder was based on retrospective information from the mother. We hope that in the future, this information can be combined with genetic information to be gathered in one of the following waves of TRAILS.

A potential limitation might also be that we used peer nomination as an exclusive measure for bully/victim status. Another limitation might be that a definition of bullying was not provided to the children. Although peer nominations are widely acknowledged as reliable and valid, it might still be the case that children are unlikely to nominate peers whom they like for negative categories and that children may have differed in the constructs they attached to the term *bullying*. Our finding that bullies and victims are disliked is in accordance with peer nomination results from Salmivalli, Lagerspetz, Björkqvist, Osterman, and Kaukiainen (1996), who found that more than 50% of the bullies and more than 70% of the victims belonged to the rejected status group. Juvonen, Nishina, and Graham (2001) showed that self- and peer reports of victim status tap different constructs, namely subjective experiences and social reputation. They also provided evidence that the sources of data have partly independent correlates. Self-views of victimization are associated with low self-worth and high social anxiety, whereas peer perceptions of victim status are associated with high rejection and low acceptance.

Despite some limitations at present, TRAILS offers a unique opportunity to study bullying and victimization over time. At the next wave of our study, the participants will have made the transition to secondary education. It will be possible to investigate the stability of bullying and victimization and the longer term outcomes of the different groups, make use of multiple sources of information, and study the simultaneous effects of a great variety of social and individual factors.

Although findings from this study do not constitute proof of causal relations, they do suggest that the predictors of bullying and victimization in preadolescence are individual characteristics and not parenting practices. Furthermore, bullies, victims, and, in particular, bully/victims can all be regarded as high-risk groups at elementary school age.

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