Bullying and victimization: cause for concern for both families and schools

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Abstract. This study examines the roles of family variables (authoritarian and authoritative parenting, family disharmony) and school variables (liking school, perceived control of bullying and school hassles) in discriminating non-bully/non-victims, victims and bullies. Participants were parents and their children aged 9–12 years ($N = 610$). Data were analyzed using ANOVA and discriminant function analysis (DFA). Two significant functions emerged, both of which appeared important in discriminating children according to their bullying status. Together they allowed for the correct classification of 76% of the non-bully/non-victims, 57% of victims, and 61% of bullies. The main conclusion is that family and school systems working together may provide the most effective means of intervention for bullying problems.

1. Introduction

School bullying is widely regarded as a serious personal, social and educational problem which affects a substantial portion of school children. Not only does bullying cause harm and distress to the children who are bullied (Besag, 1989; Farrington, 1993; Rigby, 1996), it also inflicts emotional and developmental scars that can persist into adolescence and beyond (Kochenderfer & Ladd, 1996). Victims of bullying are not the only ones who are adversely affected. Children who bully others enjoy exercising power and status over victims (Besag, 1989) and fail to develop empathy for others (Rigby, 1996). In this way, bullying eases the way for children who are drawn to a path of delinquency and criminality (Farrington, 1993). To the extent that schools carry responsibility for providing a safe environment for children in which they learn to contribute productively to society, effective containment of the bullying problem is a high priority.

In response to concerns about school bullying, a substantial number of school-based interventions and preventive programs have been set up (for a review, see Morrison & Braithwaite, 1998). Some programs have produced a dramatic cut in rates of school bullying (e.g., Pikas, 1989; Olweus, 1991), but the reasons for why these changes occur are less well understood. In particular, theoretical accounts need to address the interaction of the two most important socializing organizations: the family and the school. While a substantial literature has investigated

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their independent effects, less is known of the ways in which one system acts on the other. Furthermore, theories of bullying need to recognize the relational component. Without a victim, as Rigby (1996) asserts, there will be no bully. Just as it is vital to understand how family and school systems work together to shape the identity of bullies, it is also important to understand how they shape the identity of victims. This study, therefore, examines the extent to which family and school variables together contribute to the social roles of school bullies and victims.

1.1. FROM THE FAMILY PERSPECTIVE

Various components of child-rearing styles and family experiences have been related to both bullying and victimization. Children who bully their peers are more likely to come from families where the child-rearing practices are authoritarian in nature, characterized by harshness and punitiveness (e.g., Espelage, Bosworth, & Simon, 2000; Shields & Cicchetti, 2001; for a review, see Smith & Myron-Wilson, 1998). Drawing on the theory of reintegrative shaming (Braithwaite, 1989), Ahmed's study (2001) implicates parental use of stigmatizing shaming (the disapproval of the offender's self as well as the offence) in children's bullying behavior.

Bandura's (1986) social learning theory has provided a base for studies of how displays of aggressiveness in parents' behavior can serve as a model for children who bully others (Farrington, 1993; Rican, Klicperova, & Koucka, 1993). In a 24-year longitudinal survey of adolescents, Farrington (1993) found that adolescent bullies not only tended to grow up to be adult bullies, but also tended to have children who were bullies.

While a substantial body of research has documented the negative effects of parental punitiveness and aggression on bullying, other research points to the protection afforded by parental child-rearing styles. Rican, Klicperova, and Koucka (1993) observed that children who perceived their parents as authoritative, especially supporting their independence and autonomy, were less likely to engage in bullying behavior. Ahmed (2001) has demonstrated that parental use of non-stigmatizing shaming (the disapproval of the offence while respecting the offender's self) is associated with less bullying behavior in children.

The importance of a positive parent–child relationships has also emerged in a number of studies. For example, children who perceived their parents as holding positive attitudes toward them were less likely to be involved in bullying (Rigby, 1993; Rican, Klicperova, & Koucka, 1993). Based on Bowlby's attachment theory (1973), Troy and Sroufe (1987) demonstrated that children who were securely attached to their parents were also less likely to bully others.

Along with child-rearing styles and parent–child relationships, the family environment has received attention as a source of information about bullying. Bullies are significantly more likely than others to perceive their family as less cohesive (Bowers, Smith, & Binney, 1992) and as less concerned about each other's problems and needs (Rican, 1995).

How much is known about the victims? Research concerning the family factors associated with becoming the victims of bullies has produced contradictory results. A number of researchers report that victimized children present a somewhat similar profile to bullies (Komiyama, 1986; Rican, Klicperova, & Koucka, 1993; Schwartz, Dodge, Pettit, & Bates, 1997), whereas others (Bowers, Smith, & Binney, 1992) report major differences.

Those proposing similar profiles point out that children who are victimized by peers come from homes that use controlling and dominating disciplinary styles with high levels of hostility and rejection (Rican, Klicperova, & Koucka, 1993; Finnegan, Hodges, & Perry, 1998; Shields & Cicchettti, 2001). Children who are victims also have been shown to have insecure (Troy & Sroufe, 1987) and disagreeable relationships with other family members (Komiyama, 1986). By way of contrast, Bowers, Smith, and Binney (1992) reported that victimized children were different from others in perceiving their family as highly cohesive.

In summary, empirical research on bullying and parental child-rearing practices supports the basic view that violence at home 'begets' violence at school. However, there is less consensus as to the family factors that render some children victims and others not.

1.2. FROM THE SCHOOL PERSPECTIVE

Researchers have identified a number of significant correlates of bullying within the peer group and the school environment. Children who bully others are more likely to be nominated as responsible for 'starting fights' and 'disrupting' others (Whitney, Nabuzoka, & Smith, 1992). Not surprisingly, they tend to be rejected by peers (Boulton & Smith, 1994). In general, bullies lack friends (Rigby & Slee, 1993a) and feel lonely at school (Rigby, 1996).

Apart from having interpersonal difficulties, bullies experience higher levels of daily hassles in relation to school work (O'Moore & Hillery, 1991). In addition, they express strong dissatisfaction with school (Slee, 1995) and feel disengaged from the school community (Ahmed, 2001).

Finally, what school staff do in response to bullying appears to be as important as what students do in a bullying situation. Being serious about containing or controlling bullying problems is a factor that differentiates schools that have bullying problems from those that do not. School personnel in low bullying schools have been found to articulate purposeful preventive views on bullying to a greater extent than school personnel in high bullying schools (Olweus, Limber, & Mihalic, 1999).

What about the school factors that are related to being victimized? A number of studies point to victimized children as being generally unpopular (Stephenson & Smith, 1989) and more likely to belong to a rejected group (Hodges, Malone, & Perry, 1997). As a consequence, being victimized is related to having few friends (Kochenderfer & Ladd, 1996) and to loneliness at school (Hodges, Malone, & Perry, 1997).

Like children who bully, children who are victims report being unhappy at school (Rigby & Slee, 1993a; Kochenderfer & Ladd, 1996) and having trouble with school performance (Juvonen, Nishina, & Graham, 2000; Schwartz, 2000). In addition, victims express little confidence that teachers at their school will intervene to stop bullying. In fact, victims believe that school is not a safe place for them (Smith & Shu, 2000).

In summary, the school variables that have been linked with bullying overlap considerably for bullies and victims. Both perform poorly academically. They have difficulties in peer relationships, few friends and lower popularity at school. In addition, they dislike school and perceive school staff as being uninterested in controlling the bullying problem.

1.3. THE PRESENT STUDY

This study builds on previous work, acknowledging that bullying describes a harmful social relationship and that its containment demands an understanding of both bully and victim roles. It addresses an important limitation of past research. Little effort has been devoted to mapping family and school variables together for both bullies and victims. The home environment is often held up as the primary socialization institution for children. Arguments of this kind serve the purpose of relieving schools of responsibility for intervention: They cannot repair damage that is done at home (Garbarino & Bedard, 2001). At the same time, parent groups have expressed concern that schools are unable to provide a safe environment for their children. The family is undoubtedly a significant socializing institution, but school is no less important. Indeed, some have argued that schools may be better equipped to provide systematic social control in the prevention of disruptive behavior (Gottfredson & Hirschi, 1990). The purpose of this study was to use a multivariate research design to empirically examine the role of family and school variables in discriminating children who were self-identified and parent-identified bullies, victims and non-bully/non-victims.

This research uses both parent and child self-reports[1] of bullying and victimization as dependent variables. The advantage of this approach is methodological. To be assigned to a group, namely bully, victim, bully/victim or non-bully/non-victim, both parent and child must be in agreement on the child's bullying status. This is a cautious assignment strategy, making it more difficult for a child to be assigned to a bully or victim group because parents and children have to independently confirm each other's story. It means that for purposes of statistical analyses, the 'noise' or variability within the bullying status groups is reduced. Bullying or victimization had to have reached a point where parents knew about it. Similarly, the absence of either bullying or victimization had to be corroborated following this design.

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[1] In the field of bullying, self-report methodology has received great support in providing reliable and valid data for bullying/victimization involvement (Rigby, 1996; Kochenderfer & Ladd, 1996).

The independent variables were selected from two important socialization sources, family and school. The components of family variables examined in the present study are authoritarian parenting, authoritative parenting and family disharmony. The school variables of interest were liking for school, perceived control of bullying, and school hassles.

In light of the previous findings, we propose six hypotheses as to how non-bully/non-victims, victims and bullies may differ from each other. These are:

(1) Parents of bullies would more likely use an authoritarian parenting style than the parents of victims and non-bully/non-victims.
(2) Parents of non-bully/non-victims and victims would more likely to use an authoritative parenting style than the parents of bullies.
(3) Bullies would be more likely to experience a disharmonious family environment than both victims and non-bully/non-victims.
(4) Non-bully/non-victims would have higher scores on school liking and perceived control of bullying than both bullies and victims.
(5) Both bullies and victims would have higher scores on school hassles than the non-bully/non-victims.
(6) Adequate discrimination among the non-bully/non-victims, victims and bullies would require an additive approach, because family and school have often been reported as interconnected socializing institutions (Manaster, 1989; Scott & Scott, 1998). Therefore, it is proposed that family and school-related variables together would be able to effectively discriminate among these three groups of children.

The current study with its focus on a multidimensional integration of known predictors does not lend itself to testing hypotheses to discriminate the bully/victim group from either bullies or victims. But there are opportunities in this study to tentatively explore the specific characteristics that differentiate this group.

Recent studies suggest that there is reason to be concerned about bully/victims (Kumpulainen et al., 1998) as they display socio-emotional and behavioral problems (Smith & Myron-Wilson, 1998; Ahmed, 2001). Bully/victims have been found to experience relatively high levels of troubled relations with parents (Bowers, Smith, & Binney, 1994), loneliness, and school problems associated with peer relationships and academic attainment (Nansel et al., 2001).

On the basis of previous research that has flagged bully/victims as an at-risk group, we explored the question of whether children who adopted both roles of bully and victim adopt extreme patterns of responses on the hypothesized predictors of both bullying and victimization. For example, they would have highest scores on authoritarian parenting, family disharmony, and school hassles, but lowest scores on authoritative parenting, liking school and perceived control of bullying.

2. Method

2.1. SAMPLE AND PROCEDURES

Participants in this study were 1401 students (54% girls and 46% boys) from grades four to seven (mean age = 10.86, SD = 0.90) and 978 of the 1401 primary caregivers (89% were mothers). The sample was drawn from 32 public and private schools in the Australian Capital Territory (ACT). All these schools were co-educational. The overall rate of participation was 47.3%. It should be emphasized that obtaining both parent and child consent in this study involved ethically stringent participation criteria. This is consistent with previous research of this kind, where active consent from parents typically resulted in response rates ranging between 40 and 60% (Donovan, Jessor, & Costa, 1988; Severson & Biglan, 1989).

The sample was representative of the ethnic diversity in the region: 25% of students were born either in a non-English speaking country, or in an English speaking country with one or both parents born in a non-English speaking country. The sample was biased, however, toward families where the parents had post-school qualifications (88% of caregivers had post-school qualifications) and where the primary caregiver was in the workforce (75% worked part-time or full-time). According to the Australian Bureau of Statistics (1996, 1997), the proportion of females in the ACT who have completed post-school education is 39% and who have participated in labor force is 54%. This bias may be in part due to our requirement that parents sign the consent form in order for the children to take part in the study. Such procedures possibly create less alarm and suspicion among parents in the workforce than among parents who are less familiar with the paper processes that have come to accompany research. By the same token, it is of note that the prevalence of bullying and victimization in our data is on a par with the Australian findings of Rigby (1996) using the same questions (Ahmed, Harris, Braithwaite, & Braithwaite, 2001).

Participation in the 'Life at School Survey' (http://crj.anu.edu.au/school.html) was voluntary for all students who had been given written permission to participate by a parent or guardian. The children completed their questionnaires during school hours. The survey took approximately 25–40 min to complete for the older groups, and 35–65 min for the younger groups.

Children took home a version of the questionnaire for parents to complete. The completed parent questionnaire was returned to a mailbox in the school in a sealed envelope. Approximately 70% of primary caregivers returned their questionnaire.

2.2. MEASURES

The child questionnaire provided information on (a) bullying/victimization experiences, (b) school hassles, (c) liking for school, (d) perceived control of bullying, and (e) family disharmony.

The parent questionnaire measured parents' knowledge of bullying in their child's school and sought information about their child-rearing styles (authoritarian and authoritative parenting). Descriptions of the measures used in this study are provided below grouped as family related variables, school related variables, and bullying/victimization variables.

2.2.1. *Family-related Variables*

Child-rearing styles were assessed by administering to parents a modified version (Kochanska, Kuczynski & Radke-Yarrow, 1989; Huntley, 1995) of the Child-Rearing Practices Report (CRPR; Block, 1965).

For present purposes, parents were asked to indicate how well five items of authoritarian parenting (with the theme of control, guilt induction, punishment and negative affect) and four items of authoritative parenting (with the theme of rational guidance and positive affect) described their own style of parenting.

The five items of authoritarian parenting were: (1) I do not allow my child to question my decisions; (2) I often feel angry with my child; (3) I let my child know how ashamed and disappointed I am when he/she misbehaves; (4) there is a good deal of conflict between my child and me; and (5) I punish my child by putting him/her off somewhere by him/herself for a while. Responses were made on a six-point rating scale (see Rickel & Biasatti, 1982; Huntley, 1995) ranging from 1 (strongly disagree) to 6 (strongly agree). These items were aggregated and averaged to construct the authoritarian child rearing index ($M = 3.18$; SD $= 0.71$; $\alpha = 0.54$).

The four items of authoritative parenting were: (1) I make sure my child knows that I appreciate what he/she tries or accomplishes; (2) I express affection by hunting, kissing and holding my child; (3) I find some of my greatest satisfactions in my child; and (4) I believe in praising a child when he/she is good and think it gets better results than punishing him/her when he/she is bad. Responses on the 1 (strongly disagree) to 6 (strongly agree) rating scale were averaged to form the authoritative child rearing index ($M = 5.29$; SD $= 0.55$; $\alpha = 0.59$). High scores mean parents' greater use of the respective child-rearing style.

Family disharmony captured the child's perception of lack of care and mutual regard in the family and was measured by items taken from Groube (1987): How often do you experience (1) parents ignoring you; (2) parents checking up on you; (3) difficulties among family members; and (4) arguments or disagreements in the family. Responses to each item were made on a 3-point scale, with 1 representing never, 2 sometimes, and 3 a lot of the time. Scores on family harmony were obtained by averaging responses across these four items ($M = 1.76$; SD $= 0.41$; $\alpha = 0.59$). A high score indicated that the family was plagued by conflict, disinterest and disagreement among its members.

2.2.2. *School-related Variables*

Liking for school was measured with two sets of drawings. The first was a pictorial representation of the Smiley Face Scale (Mooney, Creeser, & Blatchford, 1991)

ranging from 1 (ugh, I hate it) to 5 (great, I love it). The second set, the School Engagement-Withdrawal scale (Braithwaite, 1996), depicted a series of five drawings of a boy and a girl bearing the postures of children ranging from 1 (low energy withdrawal) to 5 (high energy engagement) at school. Students were asked to shade the child who was most like them when they were at school. The Smiley Face Scale and School Engagement-Withdrawal Scale were correlated ($r = 0.46$, $p < 0.001$), and therefore, were averaged to construct the school liking and belongingness index ($M = 3.90$; SD $= 0.79$; $\alpha = 0.63$). A high score indicated greater liking and belongingness.

Children's perceived control of bullying was assessed through seven items taken from the Peer Relations Questionnaire (Rigby & Slee, 1993b). Two involved making responses on a 4-point scale: (1) In your view, is this school a safe place for young people who find it hard to defend themselves from attack from other students? [the response categories ranged from 1 (it is never safe for them) to 4 (yes, it is a safe place for them)]. (2) Do you think that teachers at this school are interested in trying to stop bullying? [the response categories ranged from 1 (not really) to 4 (they always are)]. Five involved making responses on a 3-point scale ranging from 1 (never) to 3 (always): (1) How often would you say that bullying happens at this school? (2) Have you noticed bullying going on in this school in any of these places? (a) in the classroom (b) at recess/lunch (c) on the way to school (d) on the way home from school. All seven items were standardized and coded so that high scores indicated that children perceived their school as controlling the bullying problems, before being summed and averaged ($M = 0.00$; SD $= 0.57$; $\alpha = 0.66$).

Children's appraisal of *school hassles* was measured by eight items taken from Groube (1987): (1) failing a test or exam; (2) feeling unsure about what is expected of me at school (e.g., schoolwork); (3) doing worse in schoolwork than I expected; (4) failing to do my homework; (5) having no friends; (6) having things go wrong in my relationships with friends; (7) having to make new friends; and (8) disagreements or misunderstanding with friends. Items were scored on a 3-point scale ranging from 1 (never) to 3 (a lot of time). The measure of school hassles was formed by averaging responses to these eight items. A high score indicated high levels of hassles at school ($M = 1.79$; SD $= 0.32$; $\alpha = 0.71$).

2.2.3. *Bullying/Victimization Variables*

To classify children into their bullying status, five questions were used (some were new and some were taken from the Peer Relations Questionnaire; PRQ, Rigby & Slee, 1993b).

2.3. CHILD SELF-REPORT

Children's *group bullying behavior* was assessed through asking students: How often have you been a part of a group that bullied someone during the last year?

Response options ranged from 1 (never) to 5 (several times a week), with high scores indicating high frequency of group bullying incidents ($M = 1.59$; $SD = 0.69$).

Children's *self-initiated bullying behavior* was measured in the same way, but with a change in the wording of the question: 'How often have you, on your own, bullied someone during the last year?'($M = 1.43$; $SD = 0.72$).

Victimization was measured by asking students to indicate how often they had been the victim of bullying during the last year. Responses were made on a 6-point scale ranging from 1 (most days) to 6 (never). This index was reverse scored such that a high score indicated high frequency of experienced victimization ($M = 2.37$; $SD = 1.46$).

2.4. PARENT SELF-REPORT

Bullying was measured by asking parents: 'How often has your child been accused of being a bully?' with 1 representing 'more than once', 2 'it has happened', 3 'never' and 4 'don't know'. This index was reverse scored such that a high score indicated high frequency of bullying ($M = 2.95$; $SD = 0.61$). The 'don't know' category was combined with the 'never' category.

Victimization was measured by asking parents to indicate how often their child had been bullied during the last year. Responses were made on a 7-point scale ranging from 1 (most days) to 6 (never) with an additional category of 'don't know' (7). This index was reverse scored such that a high score indicated high frequency of experiencing victimization ($M = 5.12$; $SD = 1.38$). The 'don't know' category was combined with the 'never' category.

Classification of children into bullying status: For present purposes, 609 students from the original sample were selected whose parents completed questionnaires and who also fitted the criteria set out below for non-bully/non-victim, victim, bully and bully/victim. This sub-sample comprised 47% boys ($n = 290$) and 53% girls ($n = 319$) with a mean age of 10.77 ($SD = 0.89$).

A child was nominated as a *non-bully/non-victim* if

(a) his/her parent responded 'never' to the question 'How often has your child been bullied in the last year?' and
(b) he/she responded 'never' to the question 'How often have you been bullied by another student or group of students in the last year?' and
(c) his/her parent responded 'never' to the question 'How often has your child been accused of being a bully during the last year' and
(d) he/she responded 'never' to the question 'How often have you, on your own, bullied another child during the last year?' and
(e) he/she responded 'never' to the question 'How often have you been part of a group that bullied someone during the last year?'

A child was nominated as a *victim* if

(a) his/her parent responded 'every now and again' or more often to the question 'How often has your child been bullied in the last year?' and

(b) he/she responded 'every now and again' or more often to the question 'How often have you been bullied by another student or group of students in the last year?'

A child was nominated as a *bully* if

(a) his/her parent responded 'more than once' or 'it has happened' to the question 'How often has your child been accused of being a bully during the last year' and

(b) he/she responded 'once or twice'[2] or more often to the question 'How often have you, on your own, bullied another child during the last year?' and

(c) he/she responded 'once or twice' or more often to the question 'How often have you been part of a group that bullied someone during the last year?'

A child was nominated as a *bully/victim* if

(a) his/her parent responded 'every now and again' or more often to the question 'How often has your child been bullied in the last year?' and

(b) he/she responded 'every now and again' or more often to the question 'How often have you been bullied by another student or group of students in the last year?' and

(c) his/her parent responded 'more than once' or 'it has happened' to the question 'How often has your child been accused of being a bully during the last year' and

(d) he/she responded 'once or twice' or more often to the question 'How often have you, on your own, bullied another child during the last year?' and

(e) he/she responded 'once or twice' or more often to the question 'How often have you been part of a group that bullied someone during the last year?'

Following this strategy, of the sub-sample of 610, 18% ($n = 107$) were categorized as non-bully/non-victims, 65% ($n = 396$) as victim, 6% ($n = 36$) as bully, 11% ($n = 71$) as bully/victims. While the percentage of non-bully/non-victims, bullies and bully/victims are comparable to other studies (Yates & Smith, 1989; Smith, 1991; Boulton & Underwood, 1992; Kochenderfer & Ladd, 1996; Rigby, 1996), the prevalence rate of victimization appears high compared to most studies. However, the percentage of victims is comparable to KIDSCAPE – a British national agency working on bullying (http://info.smkb.ac.il/home/home.exe) which reported that 68% of all school children had been bullied at least once. It is also in line with a US

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[2]For the present purpose of grouping children into their bullying status, the frequency for bullying and victimization was set at 'once or twice' or more often. This follows the operational definition of Stephenson and Smith (1991, p. 134) who argue that 'If only a single incident of bullying takes place, it is still important to take action to stop it'.

study in which 75% of adolescents reported some form of victimization (Hoover, Oliver, & Hazler, 1992). Because of variability in questionnaires and methodology across studies (including the cutoff point used for classifying bullies and victims), it is difficult to interpret the similarity/difference in the breakdown of bullies and victims obtained in different studies.

3. Results

Two sets of analyses are presented. The first is a univariate analysis of variance (ANOVA) which gives insight into the ways in which groups, in particular the bully/victim group, are distinctive. Significant ANOVAs were followed up by Scheffés ($p < 0.05$) multiple range test to compare means across four status groups and to assess specific between-group differences. The second analysis is multidimensional and is used to test the hypothesis about the combined effects of family and school. Discriminant Function Analysis was used to classify three groups (non-bully/non-victims, victims, and bullies)[3] using both family and school variables.

3.1. UNIVARIATE ANALYSES OF GROUP DIFFERENCES

3.1.1. *Family-related Variables*
From Table I, the authoritarian child-rearing index and the family disharmony scale were associated with significant F ratios, but no significant differences were found for the authoritative child-rearing index. Hypothesis (2), that non-bully/non-victims and victims would be exposed to more authoritative parenting was therefore not supported, although the differences were in the direction expected.

Parents of bullies and bully/victims were more likely to have an authoritarian child-rearing style ($Ms = 3.45$ and 3.50, respectively) than parents of both non-bully/non-victims and victims ($Ms = 3.05$ and 3.14, respectively) [$F = 8.34$ (3, 601), $p < 0.001$]. Hypothesis (1) was supported at the univariate level.

Children in the victim and bully/victim categories were similar in reporting more family disharmony ($Ms = 1.78$ and 1.91) than the non-bully/non-victims and bullies ($Ms = 1.60$ and 1.72, respectively) [$F = 9.73$ (3, 609), $p < 0.001$]. This finding was the direct opposite to what was hypothesized, that bullies would score more highly than victims on family disharmony. Hypothesis (3) was not supported at the univariate level.

3.1.2. *School-related Variables*
Findings revealed significant F differences among groups for all school-related variables. On both measures of liking for school and perceived control of bullying, non-bully/non-victims scored significantly higher than victims, bullies and bully/

[3]We excluded the bully/victim group from the discriminant function analysis (DFA) on the ground that the groups with multiple problems are known to pose difficulties for DFA (see Cripe, Maxwell, & Hill, 1995).

Table I. Means and SDs for the family factors and school factors among the four groups of children[a]

Variables	Non-bully/ non-victim 1 ($n = 107$)	Victim 2 ($n = 396$)	Bully 3 ($n = 36$)	Bully/victim 4 ($n = 71$)	F
Authoritarian parenting					
Mean	$3.05_{3,4}$	3.14_4	3.45_1	$3.50_{1,2}$	8.34^{***} (df $= 3, 601$)
SD	0.63	0.72	0.75	0.60	
Authoritative parenting					
Mean	5.32	5.32	5.11	5.20	2.35 (ns) (df $= 3, 604$)
SD	0.59	0.52	0.66	0.58	
Family disharmony					
Mean	$1.60_{2,4}$	1.78_1	1.72	1.91_1	9.73^{***} (df $= 3, 609$)
SD	0.42	0.40	0.36	0.41	
Liking for school					
Mean	$4.27_{2,4}$	3.76_1	3.86	3.62_1	13.77^{***} (df $= 3, 609$)
SD	0.57	0.82	0.73	0.89	
Perceived control of bullying					
Mean	$0.43_{2,3,4}$	-0.15_1	-0.13_1	-0.31_1	38.18^{***} (df $= 3, 596$)
SD	0.48	0.55	0.52	0.57	
School hassles					
Mean	$1.62_{2,4}$	$1.86_{1,3}$	1.69_2	1.87_1	18.90^{***} (df $= 3, 609$)
SD	0.28	0.32	0.35	0.33	

[a] Group means with the same numerical subscript are not significantly different at $^*p < 0.05$.
$^{***} p < 0.001$.

victims (see Table I). Hypothesis (4) was therefore supported. Bully/victims reported least liking for school ($M = 3.62$) and interestingly, they were least convinced that school was controlling the bullying problems ($M = -0.31$).

Bully/victims ($M = 1.87$) scored as highly as victims did on experiencing school hassles ($M = 1.86$), although bullies were not significantly higher than the non-bully/non-victims on this variable. Hypothesis (5) was partially supported at the univariate level. As expected, the non-bully/non-victims were least bothered by school issues ($M = 1.62$).

Although we did not have any specific hypotheses for bully/victims, it is noteworthy that this group seemed to have experienced the problems of both groups (bullies and victims). They received highest scores on both authoritarian parent-

ing ($M = 3.50$) and family disharmony ($M = 1.91$) but lowest scores on liking for school ($M = 3.62$) and perceived control of bullying ($M = -0.31$). They were like bullies in receiving authoritarian parenting ($M = 5.20$) but resembled victims in experiencing greater school hassles ($M = 1.87$). Kumpulainen et al. (1998) have pointed out that bully/victims have the highest referral rate for psychiatric consultation. The composite of characteristics apparent from our data explains why these children may be at greater risk of developing psychopathology and of difficulty in establishing and maintaining adaptive relationships.

3.2. DISCRIMINANT FUNCTION ANALYSIS

A direct discriminant analysis was used to determine how family and school-related measures combined to discriminate children into the groups of non-bully/non-victims, victims and bullies. Two discriminant functions were identified. The first function accounted for 86% (eigenvalue $= 0.25$; $\chi^2 = 136.84$, df $= 12$, $p < 0.001$) and the second function accounted for 14% (eigenvalue $= 0.04$; $\chi^2 = 21.31$, df $= 5$, $p < 0.001$) of the between-group variability. The resultant two functions yielded canonical correlation coefficients of 0.45 and 0.20, respectively.

For the first function, school liking and perceived control of bullying loaded positively while school hassles and family disharmony loaded negatively. Thus, this first function discriminated largely on the basis of social adjustment across the family/school domains.

On the second function, authoritarian parenting loaded negatively while the authoritative parenting loaded positively. Thus, this second function discriminated children in terms of their parent's reports of their preferred parenting style (authoritative vs authoritarian).

To understand how these functions differentiate among the groups, group centroids were examined. The resulting group centroids (group means) on the first discriminant function show victim status children as being closer to bully status children on the first discriminant function (difference between group centroids $= 0.25$) and more distant from non-bully/non-victim status children (difference between group centroids $= 1.26$). On the second discriminant function, victims were closer to the non-bully/non-victim status children (difference between group centroids $= 0.01$) than to the bully status children (difference between group centroids $= 0.85$). This suggests that Function 1 (social adjustment across domains) has more explanatory power in differentiating a non-bully/non-victim from a victim, whereas Function 2 (authoritative vs authoritarian parenting) has an important role in distinguishing a non-bully/non-victim and a victim from a bully.

Classification analysis: The discriminant function analysis was used to classify children into the groups of bullies, victims and non-bully/non-victims. Only cases ($n = 517$) that did not have any missing values were included in this classification analysis phase: 15% of the cases ($n = 93$) had missing values on one or another variable. Of the cases available for this part of the analysis, 75% ($n = 391$) were

randomly selected to be used in the initial classification analysis. The remaining 25% of cases ($n = 126$) were reserved for later cross-validation.

Three separate analyses were performed to examine the discriminating ability of the measures, independently for each domain (family related variables and school-related variables) and in combination. An interesting pattern emerged with classifications using the measures separately.

When family related variables were used, they correctly classified 41% of the cases. The strength of this analysis was in its classification of the bully status children (54%). The analysis correctly predicted group membership of the non-bully/non-victims and victims in 45 and 39% of cases, respectively.

When school-related variables were used, they correctly classified 54% of the cases. The strength of this analysis was in its classification of the non-bully/non-victims (73%), followed by victims (50%) and bullies (35%).

Predictive power increased substantially when family and school variables were entered jointly. In combination, the weaknesses of the family variables were compensated for by the strengths of the school variables.

Table II presents the classification results obtained when both discriminant functions were used together with 75% of the sample. Overall, 61% of the children were correctly classified. The non-bully/non-victim children were the most accurately classified (76%). Only 11% of them were incorrectly classified as victims and 13% as bullies. Prediction of the bullies was less accurate (61%), with 17 and 22% misclassified as non-bully/non-victims and bullies, respectively. Finally, classification of victims was least accurate, with 57% of the cases correctly classified and 21 and 22% misclassified as non-bully/non-victims and bullies, respectively. The overall classification rate of 61% suggests that both sets of variables together are able to discriminate and classify the non-bully/non-victim, victims and bullies at a level of accuracy well above the 33% chance correct classification rate.

Finally, in an effort to estimate the stability of the classification results from the discriminant function analysis, a cross-validation with the hold-out sample was employed. Specifically, 25% of the sample was randomly filtered and the discriminant function analysis was re-estimated to assess the stability of the classification rates. This phase of the analysis resulted in an overall 62% correct classification rate, with 78% of non-bully/non-victims, 57% of victims and 60% of bullies being

Table II. Predicted group membership using family and school variables with 75% of the sample ($n = 391$)

Actual group	n	Non-bully/non-victim (%)	Victim (%)	Bully (%)
Non-bully/non-victim	83	76	11	13
Victim	287	21	57	22
Bully	21	17	22	61

correctly classified. The fact that these classification rates were very similar to the original rates suggests that the classification results were relatively robust against sampling fluctuations.

In spite of our having a stable and acceptable classification rate, it was desirable to understand the reasons for misclassification. One possibility is that children who were misclassified were actually more like those in the other groups than those in the group from which they were drawn. In other words, there were problems with their original grouping. Most misclassifications for the bully group came from the victim group suggesting that some victims might have had subtle ways of bullying which they either did not report or were not aware of when they filled out this questionnaire. This, perhaps, suggests that not all victims were 'pure' victims and that some of them simply managed or at least found a way to bully without acknowledging this to themselves or having it noticed by their parents. Alternatively, parents and children 'conspire' to construct a story of bullying that makes children victims rather than bullies.

The misclassification problem is of note given that the cautious allocation strategy adopted in this study was designed to improve the validity of the original classification by requiring parent and child verification of bullying and victimization. In response to this issue, two points should be considered: (a) improvements in misclassification may rely on finding better predictors, or (b) improvements in misclassification may require a reassessment of verification practices regarding bullying and victimization status. Parents may be a poor source of corroboration on victimization. Past research indicates that many victims are very reluctant to tell adults (e.g., parents, teachers) of their being victimized at school (Rigby, 1996). This is also true for bullying. As Ziegler and Rosenstein-Manner (1991) point out, parents are only aware of very frequent and persistent bullying incidents.

4. Discussion

This study contributes to our understanding of the roles of the two important socialization contexts in children's lives: family and school. Although school variables (predicted group membership = 54%), compared to family variables (predicted group membership = 41%), appeared to be more successful in predicting group membership, the utility of both sets in differentiating among victims, bullies and non-bully/non-victims was clearly demonstrated in this study (61%). No single set of variables was able to adequately discriminate among all three groups. Each had difficulty in correctly classifying at least one group. For example, school variables had difficulty in classifying bullies whereas family variables had difficulty in classifying victims. The discriminant function analysis provided insights into the distinctive and common features of the groups. What bullies and victims appear to share are social adjustment problems that extend across domains, that is, family and school. They both report problems at school and home (although probably of different kinds), and they dislike school and see few constraints on bullying in

the school setting. Bullies can be distinguished by their home environments. Their parents are more likely to endorse an authoritarian parenting style.

The univariate analyses provided support for the notion that bully/victims may experience the worst of both worlds. They appear to share the problems at school and home, and in addition, have parents who favor an authoritarian approach to parenting.

In general, the univariate analyses were consistent with the discriminant function analysis. Overall, support was found for the hypothesized relationships with one exception. Family disharmony scores were high among victims when they were expected to be low. The most likely explanation for this finding lies in the nature of the measure used. The family disharmony scale measures a child's perception of family members intruding on each other or ignoring the child, and as such is more a measure of poor social and interpersonal skills than of the physical and verbal abuse often associated with family conflict scales. The discriminant function analysis reported in this paper alerts researchers to the important distinction between exposure to and the acquisition of poor social and interpersonal skills across domains (Function 1) and the experience of punitive disciplinary action by a parent (Function 2). With regard to parenting style, the measure of authoritarian parenting offered considerable discriminatory power whereas the measure of authoritative parenting did not. While we cannot rule out the possibility that the lack of discrimination on authoritativeness was a measurement problem, we can tentatively put forward the idea that the two significant dimensions of socialization are the degree of punitiveness used by significant others to constrain the child and the degree of positive and adaptive social learning acquired by the child across the domains of home and school.

It has been suggested that the child's family experiences before entering school shape the child's capacity to adapt and cope at school. Therefore, if the child has had problems at home, there is greater likelihood of problems at school as well. At this point, an optimistic view may be that regardless of what a child brings to the school (inner competence), school can play an important role in maximizing their potential and minimizing their inadequacies (Ahmed & Braithwaite, submitted; Dishion, Patterson, Stoolmiller, & Skinner, 1991; Jenkins, 1997). Because school consumes the major portion of a child's day, it seems inconceivable that its role is limited to 'reading, writing and arithmetic'. Unintentionally or by design, school will play a significant role as a socializing agent preparing children for how they deal with conflict and shaping the kind of citizen they are likely to become.

While this study advances our understanding of school bullying, it does not provide the answers as to why similar family and school factors result in one child becoming a bully, another a victim. Personality, in particular impulsivity, is known to play a role. Other individual determinants such as shame, empathy, and locus of control have also been implicated as determinants of the bullying roles that children adopt. Equally important as understanding their individual contributions to the analysis of bullying is to understand the ways in which they interact with the family

and school variables examined in this paper. This research highlights the complex nature of bullying behaviors. To understand them, we need to understand the ways in which the various components – family, school, personality and emotion – work together to trigger bullying incidents, and in more serious cases, allow a bullying culture to flourish.

In summary, current findings have important implications for bullying intervention at both the family level and the school level. Interventions solely on a family level will not be sufficient to impact on bullying at school. To maximize the effectiveness of an anti-bullying program, we need to integrate a family level approach to a school level approach. Findings of this study highlight the need for establishing a firm policy in schools to handle the bullying problem. Given that school hassles are predictive of bully/victim behavior, there is also value in introducing special remedial classes for those not meeting basic standards and finding the learning experience alienating and frustrating. Alongside conventional scholastic success ratings, non-academic standards (e.g., appreciation for helping others, being a peace maker or a peace keeper) might be given a boost through a system of rewards and through statements of recognition. An integrative perspective would undoubtedly have far-reaching implications for regulating school bullying.

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