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THE RELATIONSHIP AMONG BULLYING, VICTIMIZATION, DEPRESSION, ANXIETY, AND AGGRESSION IN ELEMENTARY SCHOOL CHILDREN*

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Summary—The objective of the study was to examine sex and grade differences among bullies, victims, bully/victims, and comparison children on physical, verbal, and indirect aggression and victimization and on depression and anxiety. 546 children (254 boys and 292 girls) in grades five through eight participated in the study. Children completed the Bully/Victim Questionnaire (Olweus (1989) *Questionnaire for students* (Junior and Senior versions), unpublished manuscript), the Franke and Hymel (1984) Social Anxiety Scale, the Children's Depression Inventory (Kovacs (1985) *Psychopharmacology Bulletin*, 21, 995-998), and the English Version of the Relational Aggression and Victimization Scale (Lagerspetz, Bjorkqvist & Peltonen (1988) *Aggressive Behavior*, 14, 403-414). The results indicated that across both grade levels, male bullies reported more physical aggression than did comparison groups. Male bully/victims in the younger grades reported more physical and verbal aggression than did comparison groups. Male bullies and victims in the older grades reported more verbal aggression. For females, group differences in aggression did not emerge until the older grades. The aggression results were not mirrored in the victimization reports: There were only significant group differences (between the at-risk groups and the comparisons children) on physical, verbal, and indirect victimization. © 1998 Elsevier Science Ltd. All rights reserved

Key-Words: bullying, victimization, aggression, depression, anxiety, children

INTRODUCTION

There is a general consensus in the literature that bullying and victimization is a common and frequent experience (Olweus, 1991; Pepler, Craig, Charach & Zeigler, 1993; Perry, Kusel & Perry, 1988; Rigby & Slee, 1993; Smith, 1991; Tattum & Lane, 1989). Bullying is defined as involving: an imbalance of strength (either physical or psychological); a negative physical or verbal action; a deliberate intention to hurt another; and it is repeated over time. An individual difference or personality perspective relates involvement in bullying to characteristics such as the temperament, gender, and behavioural tendencies of bullies and victims. An example of this research is Olweus (1991) who identified 13 to 16 year old boy bullies as having an antisocial personality combined with physical strength and victims as having an anxious personality pattern combined with physical weakness. Research on bullying and victimization is a relatively new area, and more data are needed on the individual differences in elementary school children's tendencies to become bullies, victims, or bullies and victims.

Research on bullying and victimization has traditionally focused on overt aggression. Recently, researchers have found support for a socially oriented form of aggression and victimization (Crick & Grotpeter, 1995; Lagerspetz, Bjorkqvist & Peltonen, 1988). In contrast to physical aggression, which harms others through physical damage or the threat of such damage, indirect aggression harms others through damage to the peer relationships or threats of such damage (e.g. retaliating against a peer by excluding her from one's peer group; threatening to withdraw a friendship) (Crick, 1995). When indirect aggression has been included, sex differences in aggression are less pronounced in the inclusive construct of aggression. In addition, girls are more likely to use indirect (or relational) aggression than overt aggression, probably because indirect aggression damages goals that are particularly important for girls (Crick & Grotpeter, 1995).

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To date, research has not examined indirect aggression in bullies and victims. Crick, Bigbee and Howes (1996) have found that both boys and girls consider relationally aggressive behaviour to be hostile and relatively frequent events. Thus, one goal of the present research was to examine the frequencies of indirect aggression and victimization among bullies, victims, and bully/victims. Given that research has indicated that this type of aggression is more stressful and more frequently displayed by girls than boys (Cairns, Cairns, Neckerman, Ferguson & Garipey, 1989; Crick & Grotpeter, 1995; Lagerspetz *et al.*, 1988), it was hypothesized that female bullies will report more indirect aggression than male bullies. Furthermore, children's reports indicate that both males and females report victimization by indirect aggression (Crick *et al.*, 1996). Thus, it was hypothesized that male and female victims will report relatively similar levels of indirect victimization.

Finally, depression and anxiety were included in the present study since research has indicated that it is an important indicator of children's emotional adjustment (Franke & Hymel, 1984; Kovacs, 1985; Parker & Asher, 1987). Olweus (1991) found that overt aggression in 13 to 16 year old boys was associated with depression. Similarly, Neary and Joseph (1994) found the same relationship for girls. Slee (1995) found that there was a positive association for both boys and girls among victimization and depression. He concluded that depression was a concomitant of victimization. Neither of the aforementioned studies examined the relationship among indirect victimization, depression, and anxiety.

Because bullying by definition involves a social relationship (albeit negative) and occurs frequently in the presence of others (Craig & Pepler, 1995), social anxiety was specifically assessed. Silverman, La Greca & Wassterin (1995) argue that the critical feature of anxiety is repeated exposure to the stimuli in which an individual learns that there is a probability of danger or harm. It follows that anxiety may result as a function of repeated exposure to bullying which may result in physical or psychological harm. Silverman *et al.* (1995) found that personal harm (i.e. personal harm or attack by others) was the most frequent and intense worry of children in grades two through six. Furthermore, worries concerning their friends and classmates included rejection, exclusion from social activities, being ignored by others, and betrayal. These worries are examples of indirect aggression. Thus, it is hypothesized that victims will report more depression and higher levels of anxiety.

Researchers have found that there are significant grade and gender differences in the prevalence of bullying and victimization (Olweus, 1991; Pepler *et al.*, 1993; Rigby & Slee, 1993; Whitney & Smith, 1993). Specifically, bullying and victimization tends to decline with age. Boys tend to display more overt aggression and less indirect aggression than girls (Crick & Grotpeter, 1995). Finally, older children display less overt aggression than younger children (Crick & Grotpeter, 1995; Olweus, 1991). Consequently, a final goal of this research was to address age and gender differences among bullies, victims, bully/victims, and comparison children on direct and indirect forms of aggression and victimization.

Expanding current definitions of aggression may improve our understanding of bullying and victimization as well as the social-psychological problems associated with bullying and victimization for both males and females. The objectives of the study were as follows: (1) To examine sex and grade differences among bullies, victims, bully/victims, and comparison children on physical, verbal, and indirect aggression and victimization and; (2) to examine sex and grade differences among bullies, victims, bully/victims, and comparison children on depression and anxiety, and (3) to examine the relationship among different types of aggression and victimization and depression and anxiety.

METHOD

Participants comprised 546 children (254 boys and 292 girls) in grades five through eight, with a mean age 11.24 yr old, *S.D.* = 1.60 yr, participated in the study. Participants were from five schools in middle class areas in a small city. The sample was predominantly white (67%), with Asian (16%) and Black ethnic backgrounds also represented (11%). A small proportion of children (6%) did not report their ethnic background. Parental and child consent was obtained.

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Table 1. Frequencies of group membership

	Primary grades		Junior grades	
	Males	Females	Males	Females
Bullies	23 (4.2%)	13 (2.4%)	27 (5.0%)	20 (3.7%)
Victims	28 (5.1%)	39 (7.1%)	16 (2.9%)	31 (5.7%)
Bully/Victims	30 (5.5%)	21 (3.8%)	25 (4.6%)	28 (5.1%)
Comparisons	54 (9.9%)	51 (9.3%)	51 (9.3%)	89 (16.3%)
Total	135 (24.7%)	124 (22.7%)	119 (21.8)	168 (30.8%)

MEASURES

Bully/victim questionnaire

A shortened version of the student questionnaire used by Olweus (1989) was employed to assess children's perceptions of being bullied and about bullying others. Two items were combined to form a bully scale, "How often have you taken part in bullying others since the beginning of the term?" and "How often have you taken part in bullying others in the last five days?". Two items were combined to form a victimization scale, "How often have you been bullied since the beginning of the school term?" and "About how many times have you been bullied in the last five days?". Prior to completing the questionnaires a class discussion was conducted to define bullying. As well, there was a definition from Olweus (1989) at the beginning of the questionnaire. Children answered these questions on a five point scale. Scores were standardized within each class by gender. The reliability of the bully and victim items was assessed using Cronbach's alpha. The alpha for the bully and victim scales were 0.76 and 0.77, respectively.

Anxiety. Self-reported social anxiety was measured using 18 items from the Franke & Hymel (1984) Social Anxiety Scale such as, "I worry about doing something new", "I get nervous talking to new kids", and "It's hard for me to ask others to play". Participants indicated on a five point scale how true each item was for them. A Cronbach's alpha of 0.93 for this scale indicated high internal consistency.

Children' depression inventory. This scale (Kovacs, 1985) is similar to the Beck Depression Inventory for adults but is more developmentally appropriate for the age group of the participants. The scale has strong psychometric properties and the alpha for this sample was 0.73. Participants responded on a three point scale as to how frequently they experienced 26 depressive behaviours (i.e. sadness, crying, loss of appetite).

English version of the relational aggression and victimization scale. (RAVS) (Lagerspetz *et al.*, 1988). This measure consists of six scales assessing physical aggression and victimization (8 items each, such as: hits, kicks, trips), verbal aggression and victimization (5 items each, such as: yells, insults, threatens), and indirect aggression and victimization (11 items each, such as: shuts others out of the group, becomes friends with another as a revenge, gossips about a person they are angry at). Participants responded on a four point scale how frequently they experienced each of the behaviours. The alphas were high for each of these scales 0.88, 0.84, and for physical, verbal and indirect aggression, respectively and 0.80, 0.77, 0.82, and 0.88, for physical, verbal, and indirect victimization, respectively.

Group formation

Children were defined as bullies if they had a standard score higher than 0.75 (above the 67th percentile) on the bully scale and a victim scale score less than 0.25 (below the 20th percentile). Children were defined as victims if they had a standard score on the victim scale above 0.75 and a bully scale score less than 0.25. Bully/victims were children who scored above 0.75 on both the bully and the victim scales. Finally, comparison children scored less than 0.75 on both the bully and the victim scales. See Table 1 for a breakdown of group membership. Children in grades four, five, and six were classified in the primary grades while children in grades seven and eight were classified into the junior grades.

Table 2. Group, sex and grade differences on aggression types

	Physical aggression				Verbal aggression				Indirect aggression			
	Primary		Junior		Primary		Junior		Primary		Junior	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Bullies												
Males	1.51	0.94	1.49	0.92	1.26	0.86	1.60	0.98	0.88	0.73	1.19	0.84
Females	0.64	0.76	1.37	0.81	1.01	0.75	1.90	1.01	0.68	0.60	1.18	0.68
Victims												
Males	0.98	1.02	1.49	0.77	1.10	0.93	1.72	0.81	0.97	0.71	1.36	0.66
Females	1.00	0.81	1.02	0.72	1.30	0.92	1.35	0.82	1.27	0.92	1.29	0.80
Bully/Victims												
Males	1.47	1.12	1.25	0.75	1.77	1.19	1.39	0.73	1.43	1.00	1.08	0.51
Females	0.90	0.93	0.94	0.56	1.21	1.02	1.58	0.79	1.16	0.97	0.88	0.54
Comparisons												
Males	0.78	0.81	0.98	0.60	0.82	0.82	1.05	0.70	0.68	0.76	0.68	0.59
Females	0.82	0.84	0.59	0.63	0.85	0.71	0.96	0.78	0.84	0.72	0.87	0.71

RESULTS

Sex, grade, and group differences on types of aggression

A 2 (sex), 2 (grade level) and 4 (group: bullies, victims, bully/victims, comparison) MANOVA examined differences on physical, verbal, and indirect aggression. There was a significant sex by grade level by group interaction, multivariate $F(9,261)=1.77$, $p<0.05$. The associated univariate effects were for physical aggression, $F(3,541)=3.7$, $p<0.05$ and verbal aggression, $F(3,541)=3.1$, $p<0.05$. *Post hoc* testing indicated that for physical aggression, male bullies and bully/victims in the primary grades reported more physical aggression than did comparison children. For females in the primary grades, there were no significant group differences for physical aggression. For males in the junior grades, bullies reported more physical aggression than did the comparison groups. For females in the junior grades, bullies and victims reported more physical aggression than did the comparison groups. There were no other significant interactions. There was a significant multivariate effect for group, $F(9,261)=7.76$, sex, $F(3,261)=12.87$, and level, $F(3,261)=5.68$.

For verbal aggression, male bully/victims in the primary grades reported more verbal aggression than did comparison children. For females in the primary grades, there were no group differences on verbal aggression. For males in the junior grades, bullies and victims reported more verbal aggression than did the comparison groups. For females in the junior grades, bullies and bully/victims reported more verbal aggression than did the comparison groups. There were no significant two way interactions. There were significant main effects for sex, univariate $F(3,541)=13.32$, $p<0.001$, for physical aggression; grade level for verbal aggression, univariate $F(3,541)=16.99$, $p<0.001$, and group for all three types of aggression, univariate $F(3,541)=10.95$, $p<0.001$. Males scored higher than females on physical aggression. Children in the older grades scored higher on verbal aggression than children in the younger grades. Bullies, victims, and bully/victims scored higher than did the comparison groups on physical and verbal aggression, while victims and bully/victims scored higher than did the comparison groups on relational aggression. Table 2 shows the means and standard deviations for physical, verbal, and indirect aggression and victimization.

Sex, grade, and group differences on types of victimization

A 2 (sex), 2 (grade level) and 4 (group: bullies, victims, bully/victims, comparison) MANOVA examined differences on physical, verbal, and indirect aggression. There were no significant three or two way interactions. There was a significant main effect for group, multivariate $F(3,138)=7.53$, $p<0.001$. The significant associated univariate effects were for physical victimization, $F(3,541)=6.0$, $p<0.001$, verbal victimization, $F(3,541)=13.83$, $p<0.001$, and indirect victimization, $F(3,541)=5.32$, $p<0.001$. *Post hoc* testing indicated for all three types of victimization that bullies,

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Table 3. Group differences on victimization types

	Physical aggression				Verbal Aggression				Indirect aggression			
	Primary		Junior		Primary		Junior		Primary		Junior	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Bullies												
Males	0.82	0.49	1.08	0.79	1.21	0.78	1.54	1.02	0.75	0.47	0.95	0.78
Females	0.62	0.72	1.04	0.92	1.21	0.87	1.62	1.11	0.66	0.72	1.03	0.92
Victims												
Males	0.63	0.55	0.77	0.50	1.36	0.86	1.77	0.82	0.58	0.55	0.74	0.52
Females	0.75	0.79	0.92	0.58	1.62	0.97	1.43	0.76	0.77	0.74	0.95	0.57
Bully/Victims												
Males	1.11	0.74	1.14	0.60	2.20	0.98	1.64	0.69	1.14	0.89	1.05	0.59
Females	0.87	0.67	0.92	0.57	1.64	1.00	1.84	0.79	0.97	0.73	0.95	0.58
Comparisons												
Males	0.47	0.74	0.62	0.51	0.99	0.93	1.04	0.69	0.46	0.68	0.53	0.48
Females	0.48	0.41	0.43	0.50	0.93	0.67	0.95	0.82	0.50	0.42	0.54	0.55

victims, and bully/victims scored significantly higher than comparison children (see Table 3). There were no grade or sex main effects.

Sex, grade, and group differences on depression and anxiety

A 2 (sex), 2 (grade level) and 4 (group: bullies, victims, bully/victims, comparison) MANOVA examined differences on anxiety and depression. There were no significant three way interactions. Only one two way interaction was significant sex by grade, $F(2,524) = 6.71$, $p < 0.001$. The significant associated univariate effect was for anxiety, $F(1,525) = 5.04$, $p < 0.05$. *Post hoc* testing indicated that females in the lower grades ($M = 47.38$, $S.D. = 14.82$) scored significantly higher than males in the lower grades ($M = 41.26$, $S.D. = 16.71$). There were no differences on anxiety score between males and females in the higher grades ($M = 45.06$, $S.D. = 14.62$ and $M = 42.71$, $S.D. = 14.46$, respectively). There was a significant main effect of group, multivariate $F(3,138) = 2.78$, $p < 0.01$. The significant associated univariate effect was for anxiety, $F(3,541) = 4.22$, $p < 0.01$, and depression, $F(3,541) = 6.13$, $p < 0.001$. *Post hoc* testing indicated that victims reported significantly higher anxiety than bullies and comparison children. Victims also reported more depression than comparison children. There were significant main effects of sex and grade for depression. Females reported more depression than males, and older children reported more depression than younger children. Table 4 shows the means and standard deviations for these analyses.

Prediction of depression and anxiety

Two hierarchical regressions were conducted to predict depression and anxiety in children who reported involvement in bullying (either as the bully or the victim). For both regressions, predictor variables were entered into the analyses in three steps. The variables entered in the first block were sex and level. The variables entered in the second block were physical, verbal, and relational aggression. The variables entered in the third block were physical, verbal, and relational victimization.

Table 4. Group differences on anxiety and depression

	Anxiety		Depression	
	M	SD	M	SD
Bullies	41.05	15.44	24.47	10.26
Victims	50.63	16.46	25.76	8.90
Bully/Victims	45.54	16.08	24.31	9.13
Comparisons	41.39	14.01	21.38	7.97

Table 5. Hierarchical regression predicting anxiety

Predictors	Beta	Standard	T	Significance	R Squared Change
Step 1					0.01
Level	-2.54	2.1	-1.17	0.24	
Sex	2.62	2.1	1.27	0.21	
Step 2					0.21
Physical aggression	-1.51	1.95	-0.77	0.44	
Verbal aggression	-6.10	2.45	-2.49	0.01	
Indirect aggression	6.56	2.26	2.99	0.004	
Step 3					0.36
Physical victimization	6.52	2.63	2.49	0.01	
Verbal victimization	5.91	2.07	2.84	0.05	
Indirect victimization	-5.58	2.85	-1.96	0.001	

Depression. None of the blocks were significant. Thus, sex, level, and physical, verbal, and relational aggression and victimization did not significantly contribute to the prediction of depression.

Anxiety. In the first block, sex and level did not significantly contribute to the prediction of anxiety. Results of Step 2 analyses showed that relational and verbal was significantly associated with anxiety, $F(5,298) = 2.34$, $p < 0.05$. Results of Step 3 indicated that verbal aggression, relational aggression, and all three types of victimization were significantly associated with anxiety, $F(8,295) = 4.42$, $p < 0.001$. The final model accounted for 36% of the variance. Sex, level, and physical aggression did not contribute to the prediction. See Table 5 for a summary of the regression.

DISCUSSION

In general, the results of this research support grade and gender differences for bullies, victims, and bully/victims on traditional types of aggression, victimization, depression, and anxiety. Reported use of different types of aggression varied by group membership, sex, and grade level. Across both grade levels, male bullies reported more physical aggression than did the comparison group. Male bully/victims in the younger grades reported more physical and verbal aggression than did the comparison group. Male bullies and victims in the older grades reported more verbal aggression. Thus, for male bullies there is an increased repertoire of aggressive strategies, moving from predominantly physical, to include both physical and verbal aggression. This result may be related to the developing repertoire of verbal skills in boys. For females, group differences in aggression did not emerge until the older grades. In the older grades, female bullies reported more physical and verbal aggression than did the comparison group. In addition, female victims reported more physical aggression and female bully/victims reported more verbal aggression than did the comparison group. Consistent with other research (i.e. Rivers & Smith, 1994), there is a decrease in physical aggression and an increase in verbal aggression with age. There were no age differences in indirect aggression. The aggression results were not mirrored in the victimization reports: There were only significant group differences (between the at-risk groups and the comparison children) on physical, verbal, and indirect victimization. Finally, for children involved in bullying and victimization (as the bully or the victim), anxiety was predicted from indirect and verbal aggression and all three forms of victimization.

One of the goals of this research was to examine indirect aggression and victimization in bullies, victims, and bully/victims. Despite the fact this research did not replicate age and gender differences in indirect aggression (i.e. Lagerspetz *et al.*, 1988; Crick & Grotpeter, 1995), it does provide some evidence to support the validity of indirect aggression and victimization. Bullies and victims reported more indirect aggression than did comparison children. In addition, all risk groups (i.e. bullies, victims, and bully/victims) reported more indirect victimization than did comparison children. Finally, for children involved in bullying indirect aggression was predicted by their anxiety scores.

Bullies tend to have an antisocial personality (Olweus, 1991) which would include a large repertoire

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of aggressive behaviours, including indirect aggression. On the contrary, victims may engage in indirect aggression as it may represent a more anonymous form of retaliation against the bullies than direct aggressive strategies. In other words, indirect aggression may be a means for victims to defend themselves against the bullies without the fear and anxiety associated with direct face-to-face contact (although they still experience higher levels of anxiety). This strategy is effective, as Crick *et al.* (1996) have found that children report indirect aggression and victimization as salient, involving anger and harm to others. In addition, the finding that victims used aggressive strategies suggests that some victims are not passive recipients of abuse from their peers. Future research should examine against whom both bullies and victims are directing their indirect aggression.

Consistent with previous research, victims reported higher levels of anxiety than bullies and comparison children (i.e. Neary & Joseph, 1994; Slee, 1995). In addition, victims reported more depressive symptoms than comparison children. This depression is likely to be a function of the repeated victimization. However, none of the aggressive strategies or types of victimization predicted depression. In this way, depression may be a function of more general overall functioning, not specifically related to bullying and victimization. In contrast to depression (a fairly general type of maladjustment characterized by a range of problems), social anxiety assessed adjustment problems fairly specific to relationships and the social context. This type of anxiety is particularly relevant to the bully/victim relationship, given bullying is a form of social interaction, albeit negative. Troy & Sroufe (1987) have suggested that victims may exhibit an anxious vulnerability that may make them vulnerable to attack. Thus, anxious children are at risk for victimization and repeated victimization may heighten already high levels of social anxiety. Because anxiety in children involved in bullying was predicted by all types of victimization (i.e. physical, verbal, and indirect), as well as indirect and verbal aggression, there is some evidence to support a negative cycle in the development of repeated victimization. As the bullying and victimization continues over time, these children may increase in their feelings of anxiety (i.e. the anticipation of the next bullying interaction). Furthermore, they may come to view themselves as deserving of these peer attacks, which would contribute to the development of depression and sense of helplessness. In other words, for victims, there is a negative cyclic relationship between anxiety and victimization. From the bullies' perspective, this increased anxiety may serve to further reinforce the bullies' negative behaviours and increase the likelihood of future attacks. It is also interesting to note that bullies had significantly lower anxiety levels than victims. Consistent with having antisocial personalities (Olweus, 1991), bullies may feel little or no guilt or anxiety for their negative actions against victims.

Anxiety and depression are emotions that may reflect children's coping styles in bullying interaction. Over time anxiety and depression may increase which may result in these emotional reactions taking on a physical manifestation. Rigby (1996) reports that victimized children reported more health problems than nonvictimized children (i.e. general illness, somatic complaints, anxiety, depression, suicidal ideation). Future research needs to examine children's coping styles in bullying interactions and the long-term psychosocial and physical effects of experiencing this type of stress and physical abuse.

A limitation of the present study was the use of self-report. For measures of internalizing problems such as anxiety and depression, self-report is not as problematic as it is for externalizing problems such as aggression. There is some controversy about the appropriateness of self-report measures of indirect aggression and victimization. Bjorkqvist, Osterman and Kaukiainen (1992) suggest that indirect aggression may be under-reported in self-reports because it is socially undesirable and often unrecognized by the aggressors, and in some cases it may be unconscious. A measure of social desirability would have allowed for an assessment of bias responding on the questionnaires.

In summary, bullies, victims, and bully/victims exhibit and experience all forms of aggression and victimization. Children involved in bullying as engaging in a wide repertoire of aggressive strategies, experience relatively low levels of depression and anxiety, while victims may also engage in different types of aggressive strategies as well as experience high levels of depression and anxiety. Future research needs to address the directionality of the development of these behaviours, as well as the role of the social context such as the peer group.

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