2008

Predictors of bullying among 10 to 11 year old school students in Australia

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10.1080/1754730X.2008.9715728
Burns, S. K., Cross, D. S., Alfonso, H., & Maycock, B. (2008). Predictors of Bullying among 10 to 11 Year Old School Students in Australia. Advances in School Mental Health Promotion, 1(2), 49-60. https://doi.org/10.1080/1754730X.2008.9715728

Date: 2009-03-10

ILL NO. : 6621825 TGQ : 437200 **Service type :** Copy **Service Level :** Core

Call no. : Vol. 1- : 2008- Expiry Date : 20/03/2009

Author : Clifford Beers Foundation.;University of Maryland. Center for School Mental Health.

Title : Advances in school mental health promotion

Subtitle : training and practice, research and policy.

Publisher : Clifford Beers Foundation in collaboration with the University of Maryland School of Medicine, Center for School Mental Health

Place of Publication : Stafford

Volume/Issue : 1(2)

Date of part publication : 2008

Pagination : 49-60

Author of Chapter/Article/Paper : Burns, S., Cross, D., Alfonso, H., & Maycock, B.

Title of Chapter/Article/Paper : Predictors of bullying among 11-12 year old school children in Australia

ISSN : 1754-730X

Notes : Could not find online through ECU library. Thanks. Key Title: Advances in school mental health promotion

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Predictors of Bullying among 10 to 11 Year Old School Students in Australia

Key words: bullying; primary school students; attitudes to bullying; social and emotional health; peer support

ABSTRACT

Cross-sectional data collected at baseline from the Grade 6 cohort of the Friendly Schools, Friendly Families Project (n = 1,257) were analysed to investigate differences in self-reported attitudes and behaviours of students who reported bullying regularly and occasionally compared with those who reported never bullying others. This study found some similarities and some differences between students who reported bullying regularly and those who reported bullying occasionally, supporting the need to consider both groups when developing school-based bullying interventions. Attitudes to bullying, social and emotional health, peer support and being bullied were predictors of both regular and occasional bullying. The findings of this study support the need for universal bullying prevention interventions targeting the whole school community, including specific selective and indicated strategies, to effect a change in bullying behaviours.

Introduction

There is a plethora of information suggesting that bullying others and being bullied are common and frequent events in childhood and early adolescence, particularly in developed countries (Cross *et al*, 2006; Kaltiala-Heino *et al*, 1999; Limber *et al*, 2004; Menesini *et al*, 1997; Olweus, 1991; Rigby, 1997a; Smith *et al*, 2004; Wolke *et al*, 2001; Yang *et al*, 2006). Baseline data for the Friendly Schools Project, implemented in Perth, Western Australia, found that 14% (n = 274) of Grade 4 students (aged approximately 8–9 years) had bullied others at least once during the last term at school (Cross *et al*, 2006).

A range of moderating, mediating and contextual factors have been associated with students who bully others. Moderating variables such as gender, age and socio-economic status have been found to be associated with bullying behaviours. Self-reported prevalence of bullying has been found to be higher among boys than girls (Baldry, 2004; Kaltiala-Heino *et al*, 1999; Kumpulainen *et al*, 1998; Olafsen & Viemero, 2000; Roland & Idsoe, 2001; Scheithauer *et al*, 2006; Veenstra *et al*, 2005; Wolke *et al*, 2001). Age is also a factor in the likelihood that students will bully others. Bullying typically begins during the middle primary school years (9–10 years), and there is a notable increase in reports of bullying during the first year of secondary school (Rigby, 1997).

Mediating factors such as beliefs and attitudes are thought to play a crucial role in influencing not only bullying by individuals, but also the general level of bullying in the whole school; condoning bullying by inaction can in effect influence the ethos of the school. While most students are opposed to bullying and tend to be supportive of students who are victimised (Randall, 1995; Rigby & Slee, 1991), there is a group of students with a tendency to dislike those who are victimised, to have a general admiration for students who bully others and to have little consideration for the feelings of the student being bullied (Rigby & Slee, 1991).

It is now recognised that bullying is not restricted to the conflictual dyadic relationship between those who bully and those who are bullied, but is also part of a group process (Gini, 2006a, 2006b; Sutton & Smith, 1999). The peer group becomes a particularly salient influence around middle primary school (Stauffacher & DeHart, 2006) and continues to be very influential through secondary school (Owens *et al*, 2000). The need to be recognised by peers and to be part of a social group is significant when considering why children bully others. A number of studies have found that some children bully others, or approve of bullying behaviour, to enhance their status with peers and to demonstrate their social position (Gini, 2006; Karatzias *et al*, 2002), and that bullying may be a means of achieving dominance and enhanced peer status (Espelage *et al*, 2003; Scheithauer *et al*, 2006) and power (Burns *et al*, 2008; Gini, 2006; Karatzias *et al*, 2002).

Students who bully, and especially those who bully and who are themselves bullied are more likely to suffer a range of mental, social, emotional and physical health problems than non-involved students. For example, students who bully others have been found to have greater prevalence of depression and severe suicidal ideation than non-involved students (Austin & Joseph, 1996; Dake *et al*, 2003; Fekkes *et al*, 2004; Hazler & Carney, 2000; Kaltiala-Heino *et al*, 1999; Kumpulainen *et al*, 1998; Slee, 1995; van der Wal *et al*, 2003). However, students who report that they bully others and are bullied (bully/are bullied) have been found to have higher levels of depression than those who only bully or are victimised (Espelage & Swearer, 2003; Kaltiala-Heino *et al*, 1999). Others have found that adolescents who reported that they bully/are bullied report the greatest psychological difficulty (Duncan, 1999).

The contextual variables used in this study focused on how students felt at school. It is evident that students who are unhappy at school and who dislike school are more likely to bully than those who are happy and like school (Slee & Rigby, 1993). Children who bully have also been found to have more negative attitudes to school than students who are victimised and non-involved children (Olweus, 1993). Similarly, others have found that those who bully/are bullied report the highest level of school disengagement, followed by students (mean age 11.5 years) who bully (Juvonen *et al*, 2003).

This paper aims to describe the association of key moderating, mediating and contextual predictors among 10 to 11-year-old Western Australian students who report that they bully others regularly or occasionally, compared with students who report that they never bully others. The main hypotheses are:

- that there is a significant difference in key predictors of bullying between students who report that they bully others regularly and those who report that they never bully others
- that there is a significant difference in key predictors of bullying between students who report bullying others occasionally and those who report that they never bully others.

Method

Study population

Grade 6 students (n = 1,257) from 20 Western Australian government schools in the Perth metropolitan area completed a questionnaire during the fourth month of the school year. The participants were students involved in the three-year Friendly Schools, Friendly Families (FSFF) Project, which aimed to reduce the prevalence of bullying. The FSFF Project was a group-randomised control trial where schools were randomly sampled and randomly assigned to intervention and comparison conditions (Cross *et al*, 2008). The data presented in this paper are baseline measures taken before the implementation of the intervention, and address the research question 'What are the predictors of bullying among upper primary school aged children?'

Procedure

Self-completion questionnaires were administered by trained research assistants during class time. Administration of the questionnaires took approximately 40 minutes. Teachers were asked to administer questionnaires to students who were absent on the day of administration, and were provided with a reply-paid envelope to return them to the university. This study was granted ethical approval by the Curtin University Human Ethics Committee.

Measures

The questionnaire used a number of previously validated items. Most items were based on those used in the Friendly Schools Project (Cross *et al*, 2006), a bullying prevention intervention which followed students from Grade 4 to Grade 9 (ages 9 to 12 years). Some items

were based on other instruments used to measure bullying-related issues in primary schools. A scale of attitudes towards bullying (Rigby & Slee, 1991), a scale of perceived peer social support (Kochenderfer & Ladd, 1996a, 1996b), and a scale of social competency were included. A psychological measure, the Strengths and Difficulties Questionnaire, which measures emotional symptoms, conduct problems, hyperactivity, peer problems, pro-social behaviour and a 'total difficulties score', was also used. Demographics including gender, school size and socio-economic status measured by postcode were also included. Items were structured to enable comparison with other bullying-related studies.

The questionnaire was subjected to face validity using an expert panel including epidemiologists, psychologists, health promotion professionals and teachers (n = 7). Reliability was tested using a test-retest procedure using students (n = 898) from schools in the Perth metropolitan area not involved in the study. The re-test was conducted two weeks after the test. Results of the test-retest are described in ***Table 1***, overleaf.

Dependent variable: bullying others

The item from the Olweus Bully/Victim Questionnaire (Olweus, 1996), 'This term, how often did you, on your own or in a group, bully another student or students?', was used to measure bullying prevalence. The reliability score for this dependent variable was $\kappa_w = 0.50$, which is similar to that in another Western Australian study ($\kappa_w = 0.45$) (Cross *et al*, 2008). Students who reported bullying regularly responded 'almost every day', 'most days', 'once a week' or 'every few weeks' when asked how often they had bullied other students during this term. Those who reported bullying occasionally responded with 'once or twice' to this question. The authors determined these categories after a review of the literature. Others have found significant differences in aggressive and pro-social behaviours between the following categories: 'no bullying' and 'once or twice', '2 or 3 times a month', and 'once or twice', suggesting that comparison of 'regular' and 'occasional' student bullying warrants investigation. Rigby classified an 'occasional bully' as someone who reported engaging in bullying 'sometimes' or 'more often' (Rigby, 1997a).

To maximise the likelihood of a true representation of prevalence, students were provided with a definition of bullying before completing the questions (Rigby, 1994; Solberg & Olweus, 2003; Theriot *et al*, 2005). To avoid misunderstanding among students and to ensure the most accurate response, students were provided with a slightly adapted version of the popular definition of bullying developed by Olweus (Olweus, 1996; Solberg & Olweus, 2003), which is the most accepted definition in the world (Theriot *et al*, 2005). This definition includes reference to different types of physical, verbal and relational bullying, and reinforces the fact that bullying includes a power imbalance. The definition used text and pictures to reinforce the message, and was read aloud to students by the administrator before the students attempted questions about being bullied or bullying others. In addition, students were provided with their own illustrated version of the definition as part of the questionnaire.

Student attitudes to bullying

A modified version of the 20 item Pro-victim scale developed by Rigby and Slee (1991) was used to measure student attitudes. A previous Western Australian study used a similar version using nine of these questions ($\alpha = 0.62$) (Cross *et al*, 2008). In this study 10 items were used ($\alpha = 0.41$). In addition, an attitudes to bullying scale developed by Rigby was modified and was used to measure perceptions of what might happen to someone if he/she bullied another child. Rigby's scale measured both the likelihood of the outcome as perceived by students, and the extent to which students found the outcomes to be personally desirable (Rigby, 1997b). To reduce the length of the question, this study used 11 items and measured the likelihood of the outcome ($\alpha = 0.64$). In this study the bully attitudes scale was subjected to a *post hoc* factor analysis. Using an Eigenvalue cut-off point of 1.00, factor analysis resulted in two factors. These factors accounted for 49.96% of the variance in the data. Two factors were subsequently developed for analysis:

- Factor 1: feel good about bullying (other kids would be scared of me; other kids would like me; other kids would think I was tough; I would feel good about myself; other kids wouldn't bully me)
- Factor 2: feel bad about bullying (my parents would find out and talk to me about it; I would feel bad about myself; I would get into trouble; I would feel bad for the kid I bullied; other kids would not want to be my friend; my parents would be unhappy with me)

Peer support

Student perceptions of peer support were measured using two questions. The first question asked students

TABLE 1 *Test-Retest Reliability for the Student Questionnaire*

Part of questionnaire	Concept measured	Reliability test	Changes to question
Bullying behaviour			
Q24	Did you bully others? *(Olweus 1996, Rigby 1998a)*	$\kappa_w = 0.501$	No change
Q23	Bullying behaviours (bully others) *(Olweus 1996, Rigby 1998a)*		Not included in test-retest
Mediators			
Interpersonal			
Q8	Have you been bullied? *(Olweus 1996, Rigby 1998a)*	$\kappa_w = 0.282$ $\kappa_w = 0.463$ $\kappa_w = 0.378$ $\kappa_w = 0.558$	4 questions reduced to 1 (see below)
Attitudinal			
Q5	Pro victim score *(Rigby & Slee 1991)* attitudes to bullying 9 items	$\alpha = 0.523$ $n = 109$	Modifications to wording 2 statements altered 1 statement added Response options changed
Q25	Bully attitudes score	$\alpha = 0.780$ $n = 108$	Modifications to wording 1 statement removed 2 statements added
Peer			
Q26	Peer support score (Ladd *et al* 1996)	$\alpha = 0.734$ $n = 102$	2 statements removed 3 statements added 'most of the time' changed to 'lots of the time'
Q3	How many good friends do you have in your year at school?		Not included in test-retest
Social and emotional health			
Q35	Social and emotional health: total difficulties score (Goodman 1999, Goodman *et al* 1998)	$\alpha = 0.710$	No changes
Contextual predictors			
School factors			
Q1	Happiness at school		Not included in test-retest
Q2	Happiness during play times	$\kappa_w = 0.464$ $n = 133$	No change
Q6	Safety at school		Not included in test-retest

'How many good friends (that you see and talk to most days) do you have in Year 6?', which was adapted using slight word changes from the Peer Relations Questionnaire (Olweus, 1996; Rigby, 1998a; Rigby & Slee, 1998). This modified question achieved good reliability in another Western Australian study ($n = 144$, $\kappa_w = 0.74$) (Cross *et al*, 2008).

The second question measuring peer support used a modified version of the Perceptions of Peer Social Support Scale (PPSSS) (Ladd *et al*, 1996). The original PPSSS asked students 16 questions which asked them to estimate the extent to which classmates would help them with a range of emotional and instrumental problems. Children were asked to respond with 'yes' or 'no' to each item and, if they answered in the affirmative, were then asked to respond with 'just sometimes' or a 'lot of the time'. For this study 13 of these questions were used and students were asked to respond with either 'lots of the time', 'sometimes' or 'never'. Responses were scored (lots of time = 2, sometimes = 1, never = 0) and subsequently summed to form a perceived peer support score ($\alpha = 0.90$).

Social and emotional health

The Strength and Difficulties Questionnaire (SDQ) (Goodman *et al*, 1998) is a behavioural screening

questionnaire that asks students about 25 attributes relating to conduct problems, hyperactivity, emotional symptoms, peer problems and pro-social behaviour. The SDQ was used to measure social and emotional health, and a 'total difficulties' score was computed and used in this study (25 items, n = 1,115 $\alpha = 0.71$).

Contextual factors – school

Three key questions were used to determine the influence of school factors on bullying behaviours. Two questions were adapted using slight word changes from items developed by Andrews and Withey (1976) and used in other Australian studies (Slee, 1995) to determine happiness at school and during playtimes. The question 'Do you feel safe at school?' was also included in the baseline questionnaire.

Data analysis

Children were classified into three groups according to the outcome variable 'bully others': those who bully regularly, occasionally and never. The moderating, mediating and contextual factors were compared between the three groups, using the students who never bully as a comparison group. Proportions were compared for categorical factors, testing statistical significance using a Chi Square test. Odds ratios were used to estimate the relative risk of level of bullying and key variables (Portney & Watkins, 1993). Means were compared for continuous factors. Analysis of Variance (ANOVA) was used to evaluate statistical differences. A p-value of $p < 0.05$ was used to represent significant differences and $p < 0.001$ to represent highly significant differences.

Logistic regression analyses were conducted for the dependent variable (bully others) to assess the relative association between moderating, mediating and contextual variables on bullying behaviour. The dependent variable 'did you bully others' was adjusted for gender, socioeconomic status and school size. Key predictor variables were entered into the regression models in a backwards step process. As the dependent variable, bully others, had more than two levels, polytomous logistic regression was applied. The group who reported that they never bully was taken as the comparison group. All relevant variables (described in ***Table 1***) were initially entered into the model. Non-significant variables were removed, one at a time, to create a more parsimonious model. The variables 'feel safe at school', 'school size', 'SES', 'number of good friends' and 'feel at school' were sequentially removed from the equation.

Results

Of the Grade 6 cohort who responded to the question which measured bullying prevalence (n = 1,248), 76 (6.1%) reported bullying others regularly, 358 (28.7%) bullying others occasionally and 814 (65.2%) never bullying others.

Table 2, overleaf, shows the results of an initial analysis comparing levels of bullying according to key moderating, mediating and contextual predictors. Boys were more than three times (OR 3.32; 95% CI 1.94 – 5.68; $p < 0.001$) as likely to bully regularly and 1.35 times (OR 1.35; 95% CI 1.05 – 1.73; $p = 0.02$) as likely to bully occasionally than girls. Students who were bullied regularly were more than five times as likely also to bully others regularly than those who never bully (OR = 5.13; 95% CI 2.95 – 8.93, $p < 0.001$). Those who were bullied occasionally were about twice as likely to bully others occasionally (OR = 2.15; 95% CI 1.62 – 2.85, $p < 0.001$) as those who never bully.

Students who bully regularly scored slightly lower on the pro-victim score (M 24.05; SD 3.55,) than those who bully occasionally (M 26.07; SD 2.50) or never (M 26.5; SD 2.20;). Similarly, those who bully regularly were more likely to feel good about bullying (M 5.19; SD 2.36;) and less likely to feel bad (M 6.27; SD 3.11,) than students who bully occasionally (Factor A: M 6.73; SD 1.96; Factor B: M 8.86; SD 2.30) or never (Factor A: M 7.76; SD 1.92; Factor B: M 9.66; SD 2.87).

Students who bully regularly reported higher means for the social and emotional health total difficulties score (M 13.64; SD 4.71) than those who bully occasionally (M 12.19; SD 5.72) or never (M 10.45; SD 5.82). Despite these differences, these means reflect 'normal' scores for the total difficulties score (Goodman *et al*, 1998).

Students who bully regularly were more than three times (OR 3.04; 95% CI 1.86 – 4.98; $p < 0.001$) as likely to feel okay than happy as students who never bully. In contrast, students who bully occasionally were only slightly more likely to feel okay than happy (OR 1.65; 95% CI 1.25 – 2.18; $p < 0.001$) than students who never bully. Students who bully regularly were more than twice as likely to feel 'mostly unsafe' at school rather than 'mostly safe' as students who never bully (OR 2.22; 95% CI 1.26 – 3.92; $p < 0.005$). In contrast, there was little difference between feelings of safety at school when students who bully occasionally

TABLE 2 ***Predictors of Bullying Using Univariate Analyses***

Dependent	Regular N (%)	Occasional N (%)	Never N (%)	Total	P value
Moderators					
Gender					0.000**
Boy	57 (8.9)	196 (30.7)	386 (60.4)	639	
Girl	19 (3.1)	161 (26.5)	427 (70.3)	607	
Total	76 (6.1)	357 (28.7)	813 (65.2)	1246	
Socio-economic status					0.409
High	20 (5.0)	122 (30.5)	258 (64.5)	400	
Middle	34 (5.9)	155 (27.1)	383 (67.0)	572	
Low	22 (8.0)	81 (29.3)	173 (62.7)	276	
Total	76 (6.1)	358 (28.7)	814 (65.2)	1248	
School size					0.745
Small	45 (6.6)	196 (28.6)	445 (66.0)	686	
Large	31 (5.5)	162 (28.8)	369 (65.7)	562	
Total	76 (6.1)	358 (28.7)	814 (65.2)	1248	
Mediating variables					
Been bullied					0.000**
Bullied regularly	31 (14.8)	76 (36.4)	102 (48.8)	209	
Bullied occasionally	17 (4.3)	145 (36.4)	236 (59.3)	398	
Never been bullied	28 (4.4)	135 (21.2)	473 (74.4)	636	
Total	76 (6.1)	356 (28.6)	811 (65.2)	1243	
Attitudinal mediators					
Pro-victim score	M 24.05 SD 3.55	M 26.07 SD 2.50	M 26.25 SD 2.20	M 26.065 SD 2.451	0.000**
Bully attitudes score	M 11.35 SD 4.02	M 15.6 SD 3.84	M 16.4 SD 3.39	M 15.889 SD 3.762	0.000**
Bully attitudes feel good about bullying score	M 5.1918 SD 2.355	M 6.729 SD 1.956	M 6.760 SD 1.925	M 6.656 SD 1.995	0.000**
Bully attitudes feel bad about bullying score	M 6.270 SD 3.107	M 8.856 SD 2.999	M 9.657 SD 2.868	M 9.216 SD 3.037	0.000**
Peer support mediators					
Number of good friends					0.307
No or one good friend	2 (2.9)	24 (35.3)	42 (61.8)	68	
2 or 3 or many good friends	73 (6.2)	333 (28.3)	770 (65.5)	1176	
Total	75 (6)	357 (28.7)	812 (65.3)	1244	
Peer support score	M 19.7 SD 4.88	M 18.8 SD 5.48	M 18.9 SD 5.72	M 18.951 SD 5.604	0.448
Social and emotional health					
Total difficulties score	M 13.64 SD 4.71	M 12.19 SD 5.72	M 10.45 SD 5.82	M 10.878 SD 5.852	0.000**
Contextual mediators					
Feel at school					0.000**
Happy	38 (4.3)	233 (26.5)	609 (69.2)	880	
Okay	34 (10.4)	113 (34.7)	179 (54.9)	326	
Sad	3 (9.1)	6 (18.2)	24 (72.7)	33	
Total	75 (6.1)	352 (28.4)	812 (65.5)	1239	
Feel at playtime					0.400
Happy	64 (6)	296 (27.6)	711 (66.4)	1071	
Okay	10 (6.9)	50 (34.7)	84 (58.3)	144	
Sad	1 (4.2)	6 (25.0)	17 (70.8)	24	
Total	75 (6.1)	352 (28.4)	812 (65.5)	1239	
Safe at school					0.019*
Mostly unsafe	18 (10.8)	47 (28.3)	101 (60.8)	166	
Mostly safe	57 (5.3)	308 (28.7)	710 (66)	1075	
Total	75 (6)	355 (28.6)	811 (65.4)	1241	

** Significant at 0.05*
*** Significant at 0.001*
P = Level of Significance
SD = Standard deviation
M = Mean

were compared with those who never bully (OR 1.07; 95% CI 0.74 – 1.56; p = 0.71).

Having good peer support, being less likely to feel bad about bullying and being bullied regularly were all highly significant predictors of regular bullying compared with never bullying ($p < 0.001$) when all factors were considered (***Table 3***, overleaf). Lower levels of support for victims, being more likely to feel good about potential bullying and reporting greater social and emotional difficulties were also significant predictors of regular bullying at baseline ($p < 0.05$).

Highly significant predictors of occasional bullying included good peer support and being less likely to feel bad about bullying than those who did not bully (***Table 3***). Being bullied regularly or occasionally was also a predictor of occasional bullying. Being a boy and feeling okay rather than happy at school were significant predictors ($p < 0.05$) of occasional bullying.

Discussion

This study found some key differences between students who reported bullying others regularly, occasionally and never. The use of these categories confirms the decision to analyse these groups separately. This study was subject to a number of limitations. The cross-sectional data presented in this paper preclude causal assumptions being made (Bryman, 2004). The internal and external validity of this study may have been affected by sample selection procedures and instrumentation (Windsor *et al*, 1994).

Moderating variables

Consistent with the findings of others who have found that boys report bullying others more often than girls. (Baldry, 2004; Rigby, 1997a; Roland & Idsoe, 2001; Scheithauer *et al*, 2006; Veenstra *et al*, 2005; Wolke *et al*, 2001), univariate analyses found that boys were more likely to bully, particularly to bully regularly, than girls. However, gender was not a significant predictor for regular bullying when an overall explanatory model was created, although being a boy was a significant predictor for occasional bullying. These findings suggest that when other factors, such as being bullied, attitudes, social and emotional health and perceptions of peer support, are also considered, gender differences are not as great.

Evidence from this study did not support findings that bullying occurs more frequently among students of lower socio-economic status (Karatzias *et al*, 2002; Kumpulainen *et al*, 1999a; Randall, 1995). Socio-economic status was not a predictor of bullying when univariate or multivariate analyses were conducted. This may be because no relationship between socioeconomic status and bullying exists, or it may be because of the high measurement error in use of postcode as a proxy measure of socioeconomic status (Holman *et al*, 1995). While others have found bullying to be more frequent in larger schools (Karatzias *et al*, 2002), this study found that school size was not a predictor of bullying. This may be because this study used a reasonably high cut-off for small schools (n <451).

Mediating variables

The mediating variable, been bullied, regularly or occasionally, was a significant predictor of bullying others regularly or occasionally at baseline. This study found 21.6% (n = 269) of the Grade 6 cohort reported both to have been bullied and to bully others. This represented 62.3% of those students who reported bullying others regularly or occasionally (n = 432). These data were similar to those of another Western Australian study which found that 64.7% of Grade 4 students reported both bullying others and being bullied themselves. Being bullied regularly was also a significant predictor of bullying regularly, while being bullied regularly or occasionally was a significant predictor of bullying occasionally ($p < 0.001$). The proportion of students who both bully and are bullied reinforces the need to recognise these students as a group which may require selected and indicated strategies, and supports the findings of others, that bullying others and being bullied are not necessarily mutually exclusive (Cross *et al*, 2008; Espelage & Swearer, 2003; Veenstra *et al*, 2005).

This study confirmed the findings of others, that attitude to bullying is a predictor of bullying behaviours. While students were generally supportive of students who are bullied, those who bully others, especially regularly, were less supportive of students who are bullied than other students. Similarly, others have found, although the majority of students are opposed to bullying and were supportive of those who were bullied, some students had little or no empathy for these students. Motivation to support those who were bullied was not closely related to personal experiences of being bullied, or of being afraid of those who bully (Rigby & Slee, 1991).

Students who bully either regularly or occasionally

TABLE 3 ***Effect of Predictors on Bullying Regularly and Occasionally at Baseline***

Predictor variables	Odds ratio	95% CI	df	P value
Regular bully				
Pro-victim score (attitudes)	0.844	0.759 – 0.938	1	0.002*
Peer support score	1.149	1.077 – 1.226	1	0.000**
Bully attitudes – feel good about bullying score	0.845	0.736 – 0.971	1	0.017*
Bully attitudes – feel bad about bullying score	0.746	0.678 – 0.822	1	0.000**
Total difficulties score	1.071	1.008 – 1.137	1	0.025*
Gender – boy	1.772	0.863 – 3.437	1	0.123
Feel at school				
Happy	1.317	0.271 – 6.403	1	0.733
Okay	2.349	0.503 – 10.963	1	0.277
Sad				
Been bullied				
Regularly	9.680	4.324 – 21.667	1	0.000**
Occasionally	2.176	0.972 – 4.869	1	0.059
Never				
Occasional bully				
Pro-victim score (attitudes)	0.977	0.915 – 1.044	1	0.492
Peer support score	1.052	1.021 – 1.084	1	0.001**
Bully attitudes – feel good about bullying score	1.038	0.961 – 1.121	1	0.345
Bully attitudes – feel bad about bullying score	0.892	0.846 – 0.940	1	0.000**
Total difficulties score	1.060	1.031 – 1.091	1	0.000**
Gender – boy	1.443	1.068 – 1.949	1	0.017*
Feel at school				
Happy	2.339	0.854 – 6.411	1	0.098
Okay	2.815	1.040 – 7.616	1	0.042*
Sad				
Been bullied				
Regularly	3.221	2.041 – 5.084	1	0.000**
Occasionally	2.334	1.684 – 3.234	1	0.000**
Never				

Reference category for dependent variable: regular and occasional bully compared to never bully
* *Significant at 0.05*
** *Significant at 0.001*

were more likely to feel good about their bullying behaviour than those who never bully. This may be associated with justifying their bullying behaviour in order to maintain their sense of self (Charon, 2001; Mead, 1934). Justifying their behaviour may also be a means of achieving feelings of consonance for an action they initially felt bad about (Festinger, 1962).

The literature highlights a range of motivators for some students who bully others. For some students, feelings of positive self-concept may be reinforced by bullying behaviours (Olweus, 1995). Others suggest that the need for proactively aggressive children to enhance their perceived positive self-view and feelings of power over others may motivate them to bully others (Salmivalli, 2001). Bullying behaviour in many situations is rewarded with a sense of prestige and power (Olweus, 1995). In addition, it is possible that the high correlation between bullying behaviour and self-concept found in some studies indicates that children may be unaware of, or do not care about, the effect of their behaviour, or that they enjoy the power bullying affords them (Johnson & Lewis, 1999). Similarly, others have found that those who bully report that they like being a bully and consider their actions to be justified. Their behaviours are reinforced by positive (goal attainment) and negative (removal of threat) reinforcement. When students who bully are in control, they are likely to feel more secure and less anxious (Batsche & Knoff, 1994).

Number of good friends was not a predictor of bullying others. Almost all students in this study, regardless of bullying level, reported having several or many good friends. These findings are supported by others, who suggest that some anti-social, aggressive children and adolescents develop friendship networks that include positive features including support, compliments, laughter and mutual enjoyment. These students may be popular within their own social groups (Pakaslahti & Keltikangas-Jarvinen, 1998). Olweus suggests that children who bully are often surrounded by a small group of two or three friends who support them (Olweus, 1993).

Good peer support was found to predict bullying

regularly ($p < 0.05$) and occasionally ($p < 0.001$). Perceptions of good peer support may be associated with perceptions of perceived popularity. While all students reported respectable levels of peer support, students who bully regularly were significantly more likely to suggest that someone would 'choose them on their team' 'lots of times' than those who bully occasionally or never. In contrast, these students were significantly less likely to suggest they would have 'someone help them if they were hurt'. These findings suggest that students who bully are likely to have group support but may not be liked. This finding supports other research which finds that being liked occurs at the dyadic level, while the perception that someone is popular occurs at the group level (Prinstein & Cillessen, 2003). These data may also vary if students who bully/are bullied were analysed separately. This group have been found to have lower perceived social support (Kilpatrick Demaray & Kerres Malecki, 2003) and to be more likely to be segregated from mainstream peer ecology (Rodkin, 2004).

Although there is evidence to suggest that students who bully, and especially those who are bullied, are at risk of social and emotional health problems, the limited longitudinal research makes it difficult to determine causal effects (Rigby, 1998b). This study found the Strengths and Difficulties Questionnaire (SDQ) total difficulties score to be a significant predictor of bullying at baseline, students who bully regularly reporting higher mean scores than those who bully occasionally or not at all. While the majority of students in this study reported 'normal' scores for the total difficulties score, those who bully regularly or occasionally were proportionally more likely to report borderline or abnormal scores than those who never bully. Similarly, others who have used the SDQ have found children who bully others to have higher scores on the total difficulties score than those who never bully (Wolke & Samara, 2004; Yang *et al*, 2006).

When other factors were considered, having a higher total difficulties score was a predictor of bullying others regularly ($p < 0.05$) and occasionally ($p < 0.001$) compared with never. Inclusion of bully/are bullied into the regular and occasional bully categories may have influenced these data, as students who bully/are bullied have been found to have the highest levels of depression (Espelage & Swearer, 2003; Kaltiala-Heino *et al*, 1999) and psychological difficulty (Duncan, 1999).

Contextual variables

Proportionally, students who bully regularly and occasionally were more likely to feel 'okay' rather than 'good' at school than those who never bully. Similarly, others have found that students who were unhappy at school were more likely to bully others than those who were happy (Rigby & Slee, 1992; Slee & Rigby, 1993). In contrast, how students feel at playtime at school was not a significant predictor of regular or occasional bullying. How safe students feel at school was a significant predictor of bullying when univariate analyses were computed ($p < 0.05$). As in another Australian study that found 15% of students to report feeling 'not at all safe or only safe sometimes' (Slee, 1993), 13.4% of students in this study reported feeling 'mostly unsafe'. Proportionally, students who bully regularly were most likely to feel 'mostly unsafe'. However when these data were included in the explanatory model, only feeling 'okay' at school was a predictor of occasional bullying ($p < 0.05$), suggesting that when other factors are considered the majority of students who bully regularly or occasionally were happy at school and in the playground, and felt safe at school.

When all variables were considered, students who bully regularly were more likely to report good peer support, to be less likely to feel bad about bullying, to be bullied regularly, to be less likely to show support for victims, to be more likely to feel good about potential bullying and to report greater social and emotional difficulties than those students who never bully others.

Students who bully occasionally were also likely to report good peer support and to be less likely to feel bad about bullying than those who never bully. These students were more likely to have been bullied regularly or occasionally. They were also more likely to be a boy and to feel okay rather than happy at school than those who never bully others.

Recommendations

The results of this study reinforce the need for comprehensive, whole-school, universal bullying prevention programs which are nested within a Health Promoting School approach (World Health Organisation, 1996). A universal approach is required to work to shift the attitudes of all the members of the school community, to ensure that bullying is not tolerated and to enhance levels of empathy towards others. A supportive and

safe school environment and ethos is required.

Strategies to enhance sound communication and socialisation skills are needed to ensure that students have the skills to make friends. The significance of being bullied as a predictor of bullying others needs immediate attention, and when school programs are being planned specific strategies to help these students should be included. School-based interventions need to consider the different characteristics of students who bully and those who bully/are bullied, and implement classroom strategies to foster assertiveness, communication, decision making and problem-solving skills appropriate for these students. Many of these strategies could be imbedded within universal classroom interventions, which would avoid marginalisation.

The influence of school social dynamics should not be ignored when developing interventions. While it is important for some students to undergo behavioural and/or social cognitive skills training, the influence of others, the individual's social role or status and interaction patterns need to be considered. While socially marginalised students may be willing to develop new social skills, they are likely to experience adversity in the school social environment which may be difficult to overcome. It is recommended that behavioural support plans be developed to address these issues (Farmer & Xie, 2007). In some cases some students may be best targeted by selective or indicated programs offered through the broader community. Schools need to be made aware of the availability of such programs and services in their community and to ensure community involvement in school-based programs.

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Acknowledgements

The authors thank Stacey Waters and Erin Erceg for their contributions to the management and data collection for this project, and to the other members of the management committee for the Friendly Schools, Friendly Families (FSFF) Project. Thanks to the 20 FSFF study schools, and their staff, parents and students. The FSFF Project was funded by the Western Australian Health Promotion Foundation (Healthway).

References

Andrews FM & Withey SB (1976) *Social Indicators of Well-Being*. New York: Plenum.

Austin S & Joseph S (1996) Assessment of bully/victim problems in 8 to 11 year-olds. *British Journal of Educational Psychology* **66** 447–56.

Baldry AC & Farrington DP (2004) Evaluation of an intervention program for the reduction of bullying and victimization in schools. *Aggressive Behavior* **30** 1–15.

Batsche GM & Knoff HM (1994) Bullies and their victims: understanding a pervasive problem in the schools. *School Psychology Review* **23** (2) 165–74.

Bryman A (2004) *Social Research Methods*. New York: Oxford University Press.

Burns S, Maycock B, Brown G & Cross D (2008, in preparation) 'Woodpushers are gay': the role of provocation in bullying.

Charon J (2001) *Symbolic Interaction: An introduction, an interpretation, an integration*. New Jersey: Prentice Hall.

Cross D, Shaw T, Pearce N, Erceg E & Waters S (2006) 'School-based intervention research to reduce bullying in Australia 1999–2006: what works, what doesn't and what's promising?' Key note paper, presented at the PreNet Conference, Canada.

Cross D, Waters S, Pearce N, Shaw T, Hall M, Erceg E, Hamilton G, Roberts C & Burns S (2008, in preparation) The Friendly Schools Friendly Families program: three-year bullying behavior outcomes in primary school children.

Dake JA, Price JH & Telljohann SK (2003) The nature and extent of bullying at school. *The Journal of School Health* **73** (5) 173–180.

Duncan RD (1999) Peer and sibling aggression: an investigation of intra- and extra-familial bullying. *Journal of Interpersonal Violence* **14** (8) 871-886.

Espelage DL, Holt MK & Henkel RR (2003) Examination of peer-group contextual effects on aggression during early adolescence. *Child Development* **74** (1) 205–20.

Espelage DL & Swearer SM (2003) Research on school bullying and victimization: what have we learned and where do we go from here? *School Psychology Review* **32** (3) 365–83.

Farmer TW & Xie H (2007) Aggression and school social dynamics: the good, the bad, and the ordinary. *Journal of School Psychology* **45** (5) 459–586.

Fekkes M, Pipers FIM & Verloove-Vanhorick SP (2004) Bullying behavior and associations with psychosomatic complaints and depression in victims. *The Journal of Pediatrics* **144** (1)17–22.

Festinger L (1962) Cognitive dissonance. *Scientific American* **207** (4) 93–102.

Gini G (2006) Bullying as a social process: the role of group membership in students' perception of inter-group aggression at school. *Journal of School Psychology* **44** 51–65.

Gini G (2006) Social cognition and moral cognition in bullying: What's wrong? *Aggressive Behavior* **32** 528–39.

Goodman R (1999) The extended version of the strengths and difficulties questionnaire as a guide to child psychiatric caseness and consequent burden. *Journal of Child Psychology and Psychiatry* **40** (5) 791–99.

Goodman R, Meltzer H & Bailey V (1998) The Strengths and Difficulties Questionnaire: a pilot study on the validity of the self-report version. *European Child and Adolescent Psychiatry* **7** 125–30.

Hazler RJ & Carney JLV (2000) When victims turn aggressors: factors in the development of deadly school victims. *Professional School Counselling* **4** (2) 105–12.

Holman CDJ, Hockey RL, Donovan RJ, Corti B & Rivera J (1995) Misclassification of social disadvantage based on geographical areas: comparison of postcodes and collector's district analyses. *International Journal of Epidemiology* **24** 165–75.

Johnson D & Lewis G (1999) Do you like what you see? Self-perceptions of adolescent bullies. *British Educational Research Association* 665–77.

Juvonen J, Graham S & Schuster MA (2003) Bullying among young adolescents: the strong, the weak and the troubled. *Pediatrics* **112** (6) 1231–7.

Kaltiala-Heino R, Rimpela M, Marttunen M, Rimpali A & Rantanen P (1999) Bullying, depression, and suicidal ideation in Finnish adolescents: school survey. *British Medical Journal* **319** (348–51).

Karatzias A, Power KG & Swanson V (2002) Bullying and victimisation in Scottish secondary schools: same or separate entities? *Aggressive Behavior* **28** 45–61.

Kilpatrick Demaray M & Kerres Malecki C (2003) Perceptions of the frequency and importance of social support by students classified as victims, bullies, and bully/victims in an urban middle school. *School Psychology Review* **32** (3) 471–89.

Kochenderfer BJ & Ladd GW (1996a) Peer victimization: cause or consequence of school maladjustment. *Child Development* **67** 1305–17.

Kochenderfer BJ & Ladd GW (1996b) Peer victimization: manifestations and relations to school adjustment in kindergarten. *Journal of School Psychology* **34** (3) 267–83.

Kumpulainen K, Rasanen E, Henttonen I, Almqvist F, Kresanov K, Linna S *et al* (1998) Bullying and psychiatric symptoms among elementary school-age children. *Child Abuse and Neglect* **22** (7) 705–17.

Ladd GW, Kochenderfer BJ & Coleman CC (1996) Friendship quality as a predictor of young children's early school adjustment. *Child Development* **67** 1103–18.

Limber SP, Nation M, Tracy AJ, Melton GB & Flerx V (2004) Implementation of the Olweus Bullying Prevention program in the Southeastern United States. In: PK Smith, D Pepler & K Rigby (Eds) *Bullying in Schools: How Successful can Interventions be?* Cambridge: Cambridge University Press.

Mead GH (1934) *Mind, Self and Society*. Chicago: The University of Chicago Press.

Menesini E, Eslea M, Smith PK, Genta ML, Giannetti E, Fonzi A *et al* (1997) Cross-national comparison of children's attitudes towards bully/victim problems in school. *Aggressive Behavior* **23** 245–57.

Olafsen RN & Viemero V (2000) Bully/victim problems and coping with stress in school among 10- to 12-Year-Old pupils in Aland, Finland. *Aggressive Behavior* **26** 57–65.

Olweus D (1991) Bully/victim problems among schoolchildren: basic facts and effects of a school based intervention program. In: DJ Pepler & KH Rubin (Eds) *The Development and Treatment of Childhood Aggression*. Hillsdale, NJ: Erlbaum.

Olweus D (1993) *Bullying at School: What we know and what we can do*. Oxford: Blackwell.

Olweus D (1995) Bullying or peer abuse at school: facts and intervention. *Current Directions in Psychological Science* **4** (6) 196–200.

Olweus D (1996) *The Revised Olweus Bully/Victim Questionnaire, Mimeo*. Bergen, Norway: Research Centre for Health Promotion (HEMIL Centre, University of Bergen).

Owens LD, Shute R & Slee P (2000) I'm in and you're out... explanations for teenage girls' indirect aggression. *Psychology, Evolution and Gender* **2** (1) 19–46.

Pakaslahti L & Keltikangas-Jarvinen L (1998) Types of aggressive behaviour among aggressive-preferred, aggressive non-preferred, non-aggressive preferred and non-aggressive non-preferred 14 year old adolescents. *Personality and Individual Differences* **24** (6) 821–8.

Portney LG & Watkins MP (1993) *Foundations of Clinical Research: Applications to Practice*. Stamford, Connecticut, USA: Appleton and Lange.

Prinstein MJ & Cillessen AHN (2003) Forms and functions

of adolescent peer aggression associated with high levels of peer status. *Merrill-Palmer Quarterly* **49** (3) 310–42.

Randall P (1995) A factor study on the attitudes of children to bullying. *Educational Psychology in Practice* **11** (3) 22–6.

Rigby K (1994) Psychosocial functioning in families of Australian adolescent schoolchildren involved in bully/victim problems. *Journal of Family Therapy* **16** 173–87.

Rigby K (1997a) Attitudes and beliefs about bullying among Australian school children. *The Irish Journal of Psychology* **18** (2) 202–20.

Rigby K (1997b) What children tell us about bullying in schools. *Children Australia* **22** (2) 28–34.

Rigby K (1998a) *The Peer Relations Questionnaire Technical Manual.* Point Lonsdale, VIC: The Professional Reading Guide.

Rigby K (1998b) The relationship between reported health and involvement in bully/victim problems among male and female secondary schoolchildren. *Journal of Health Psychology* **3** (4) 465–76.

Rigby K & Slee PT (1991) Bullying among Australian school children: reported behavior and attitudes toward victims. *Journal of Social Psychology* **131** (5) 615–27.

Rigby K & Slee PT (1992) Dimensions of interpersonal relation among Australian children and implications for psychological well-being. *Journal of Social Psychology* **133** (1) 33–42.

Rigby K & Slee PT (1998) *The Peer Relations Questionnaire (PRQ).* Point Lonsdale, VIC: The Professional Reading Guide.

Rodkin PC (2004) Peer ecologies of aggression and bullying. In: DL Espelage & SM Swearer (Eds) *Bullying in American Schools: A Social-Ecological Perspective on Prevention and Intervention.* New Jersey: Lawrence Erlbaum Associates.

Roland E & Idsoe T (2001) Aggression and bullying. *Aggressive Behavior* **27** 446–62.

Salmivalli C (2001) Feeling good about oneself, being bad to others? Remarks on self-esteem, hostility, and aggressive behavior. *Aggression and Violent Behavior* **6** 375–93.

Scheithauer H, Hayer T, Petermann F & Jugert G (2006) Physical, verbal, and relational forms of bullying among German students: age trends, gender differences, and correlates. *Aggressive Behavior* **32** 261–75.

Slee PT (1993) Bullying: a preliminary investigation of its nature and the effects of social cognition. *Early Child Development and Care* **87** 47–57.

Slee PT (1995) Peer victimization and its relationship to depression among Australian primary school students. *Personality and Individual Differences* **18** (1) 57–62.

Slee PT & Rigby K (1993) Australian school children's self appraisal of interpersonal relations: the bullying experience. *Child Psychiatry and Human Development* **23** (4) 273–81.

Solberg M & Olweus D (2003) Prevalence estimation of school bullying with the Olweus Bully/Victim Questionnaire. *Aggressive Behaviour* **29** 239–68.

Stauffacher K & DeHart GB (2006) Crossing social contexts: relational aggression between siblings and friends during early and middle childhood. *Applied Developmental Psychology.*

Sutton J, Smith PK & Swettenham J (1999) Bullying and 'theory of mind': A critique of the 'social skills deficit' view of anti-social behaviour. *Social Development* **8** (1) 117–27.

Theriot MT, Dulmus CN, Sowers KM & Johnson TK (2005) Factors relating to self-identification among bullying victims. *Children and Youth Services Review* **27** 979–94.

van der Wal MF, de Wit CAM & Hirasing RA (2003) Psychosocial health among young victims and offenders of direct and indirect bullying. *Pediatrics* **111** (6) 1312–17.

Veenstra R, Lindenberg S, Oldenhinkel AJ, De Winter A F, Verhulst FC & Ormel J (2005) Bullying and victimization in elementary schools: A comparison of bullies, victims, bully/victims, and uninvolved preadolescents. *Developmental Psychology* **41** (4) 672–82.

Windsor R, Baranowski T, Clark N & Cutter G (1994) *Evaluation of Health Promotion, Health Education and Disease Prevention Programs.* Mountain View: Mayfield Publishing Company.

Wolke S & Samara MM (2004) Bullied by siblings: association with peer victimisation and behaviour problems in Israeli lower secondary school children. *Journal of Child Psychology and Psychiatry* **45** (5) 1015–29.

Wolke D, Woods S, Stanford K & Schulz K (2001) Bullying and victimization of primary school children in England and Germany: Prevalence and school factors. *British Journal of Psychology* **92** 673–96.

World Health Organisation (1996) *Promoting Health through Schools – The World Health Organisation's Global School Health Initiative.* Geneva: World Health Organisation.

Yang SJ, Kim JM, Kim SW, Shin IS & Yoon JS (2006) Bullying and victimization behaviors in boys and girls at South Korean primary schools. *Journal of the American Academy of Child and Adolescent Psychiatry* **45** (1) 69–77.