Appendix IV

Paper II:

Bullying: Risk factors becoming 'Bullies'

Bullying: Risk Factors Becoming 'Bullies'

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Abstract

The primary purpose of this study was to analyze the internal consistency and construct validity of a classification of bullying outcomes, and to investigate the risk factors associated with bullying behaviour at Pattani primary schools, southern Thailand. A cross-sectional study was conducted with a sample of 1,440 students. Factor analysis, descriptive statistics, Pearson's chi-squared test, and logistic regression were used for data analysis. The results showed that 20.9% of students in Pattani primary schools reported having bullied others. A four factors structure of bullying was clearly shown; serious, general physical, psychological-maligning parent and psychological-maligning student. Witnessing parental physical abuse was clearly the most strongly associated determinants, and much more strongly linked to bullying others than was the group who had never witnessed parental physical abuse (OR 7.60, 95% CI 5.60-10.31). The students who preferred action cartoons were more often bullies than were those who preferred comedy cartoons (OR 2.87, 95% CI 1.91-430).

Keywords: Bullying, Factor analysis, Cartoon, Parental physical abuse

1. Introduction

Many students in the primary school have been commonly classified as 'bullies'; who over time repeatedly perform negative actions towards one or more students with the aim to hurt, in a variety of ways, including physical assaults (kicking, hitting, biting, pushing, beating, and pinching), and psychological or emotional or verbal harassment (name calling, teasing, insulting, threatening, and taunting) (Gini, 2004).

The major risk factors of bullying are multiple and are associated with the individual, but also linked to the socio-family environment; parental physical abuse has been found in some studies to be clearly the most strongly associated risk factor linked to bullying others (Singer et al, 1998; Baldry, 2003). The children living with domestic violence were found to be at increased risk of experiencing emotional or physical abuse. This is consistent with some other studies (Pepler & Sedighdeilami, 1998; Rossman, Hughes & Rosenburg, 2000). Parental modeling of aggression and frequent parental conflict can result in their children performing bullying behaviour (Bandura, 1975; Jaffe, Wolfe & Wilson, 1990).

Some studies have provided evidence of a strong association between exposures to domestic violence and bullying behaviour; the students who had witnessed parental physical abuse were more likely to bully others than were those

who had not witnessed parental physical abuse (National Research Council, 1993; Dauvergne & Johnson, 2001). The children witnessing family physical abuse copy the parent's physical actions that are coercive. With this modeling, the child might then become a bully to gain success in his or her own social interactions (Edleson, 1999; Herrera & McCloskey, 2001).

Several studies tried to develop an instrument that can measure bullying outcome by means of factor analysis. Some studies used a 7-point Likert-type response format ranging from 1 (never) to 7 (always), which found three factors (Melamed et al, 2001). Some studies used a 5-point Likert-type response format ranging from 1 (never) to 5 (daily), which found two factors (Einarsen & Hoel, 2001). Another study used a 4-point Likert-type response format ranging from 1 (never) to 4 (frequently), which found four factors (Rospenda & Richman, 2004). To minimize the recall bias, this study used a binary type response format; 0 (never) and 1 (ever) that was adapted from Besag (1992).

The purpose of this study was to use a binary factor analysis (Woods, 2002; Keprt & Snasel, 2004) to analyze the internal consistency and construct validity of a classification of bullying outcome, and to find an appropriate statistical model that includes the risk factors associated with the outcome variable 'bullying others'. These risk factors were based on demographics (age, gender, religion), schools (school's rural/urban location, school's private/public type), family (parental physical abuse), entertainment (preference for cartoon types), and friends (number of close friends). If the model can identify students who are at high risk of particular bullying, such a model would be useful for further planning to introduce better strategies for preventing the problem.

2. Method

2.1 Participant

Calculation of required sample size was based on the main outcome of bullying, for exposure to parental violence and non exposure to parental violence. The prevalence of bullying of Italian primary school students in a 'not exposed to parental violence' group was found to be 45.7% (Baldry, 2003). This study's estimate was obtained by substituting $\alpha=0.05$ (type I error), $1-\beta=0.2$ (power), OR=1.344 so $Z_{\alpha/2}$ and Z_β are 1.96 and 0.84 respectively, r=1 (ratio of non bully to bully subjects), $p_2=0.46$ (prevalence of bullying in non exposure to parental violence group), p=0.50 $p_1=0.53$, into a formula for sample size given by the following (McNeil, 1996), namely

$$n_1 = \frac{\left(Z_{\alpha/2}\sqrt{\left(1+\frac{1}{r}\right)\frac{1}{p(1-p)}} + Z_\beta \sqrt{\frac{1}{p_1(1-p_1)} + \frac{1}{rp_2(1-p_2)}} \right)^2}{(\ln OR)^2}$$

Where $p_1 = \dfrac{p_2}{p_2 + (1-p_2)/OR}$, and $p = \dfrac{p_1 + rp_2}{1+r}$

This gives $n_1=n_2=719$. It was concluded that a minimum sample size of 1,438 was required for this study.

The study was conducted with 1,440 students attending school between November 1, 2005 and March 31, 2006. The study included 14 primary schools, three public schools of Basic Education Office (B.E.O.), two public schools of municipalities (Thesabans), one Islamic private school and one Chinese private school, in each of the districts Saiburi and Pattani City, within Pattani province, southern Thailand.

The participants were selected by using a multi-stage sampling method. The first stage, Pattani City and Saiburi were selected by using purposive sampling with the criterion being a cluster of four types of school (public school of Basic Education Office (B.E.O.), public school of municipalities (Thesabans), Islamic private school, and Chinese private school). Pattani City was represented the urban location and Saiburi district as the rural one, because these were the only two districts that met the school-type cluster criterion. In the second stage, public schools were selected by simple random sampling and private schools were selected by purposive sampling (there was only one of each such school in each district). Finally, participants in each school grade (grade 1 to grade 6) were selected by using a systematic sampling technique which was done proportionate to population size.

2.2 Data collection

A cross-sectional study design was employed. The collection assistants were teachers in target schools, who were studying for a Graduate Diploma in Teaching at Yala Islamic University. These teachers were trained in the details of the questionnaire (see Table 1) and the interviewing techniques. They were asked to take care not to rush through the questionnaire and also to record accurately and authentically.

The teachers interviewed students in the classroom after permission was granted by the school principal. Each individual interview, face-to-face, with a grade 1 to 3 students were for approximately 20 to 30 minutes. Group administered surveys of grades 4 to 6 students took approximately 40 to 60 minutes, with individual students writing

their own responses after the interviewer read the instructions.

2.3 Data Analysis

In this study, factor analysis was first conducted to classify the outcome (bullying behaviour). Descriptive analysis was conducted for measuring the prevalence of bullying. Pearson's chi-squared test was used to assess the associations between the outcome and the various categorical determinants. Logistic regression was used to estimate the relative odds of having bullied others and the predictor variables, and backward method was used to eliminate variables from the model.

3. Results

3.1 Outcome

Given the exploratory nature of this study, we conducted an exploratory factor analysis of types of bullying to identify possible factors for future analyses. A maximum likelihood analysis with varimax rotation was performed on the same responses (1,440 students). The factor structure was determined utilizing two criteria (Prasith-rathsint, 2006): (a) eigenvalues greater than one, and (b) item loadings equal to or greater than 0.30. A score test or sedimentation test was visualized to determine the number of factors.

A four factors structure was clearly shown: a serious physical bullying factor comprising 'kicked', 'hit', and 'bit' (eigenvalue 1.85; 15.4% of variance explained), a general physical bullying factor comprising 'pushed', 'threw something at', 'beat', 'pinched' and 'scolded' (eigenvalue 1.77; 14.7% of variance explained), a psychological bullying by maligning a parent factor comprising 'insulting parent's occupation', and 'insulting parent's name' (eigenvalue 1.21; 10.1% of variance explained), and a psychological bullying by maligning the student factor comprising 'insulting appearance' and 'insulting economic status' (eigenvalue 1.01; 8.4% of variance explained), (see Table 2). Then, the new scores for four types of bullying were calculated by using discrete scores to compare with the criteria that were adapted from a Likert rating scale; loadings 0.00-0.25 scored as 0, 0.26-0.50 scored as 1, 0.51-0.75 scored as 2, and 0.76-1.00 scored as 3.

The resulting scores were as follows: serious physical bullying (scores 0-7): (3*hit) + (3*kicked) + bit; general physical bullying (scores 0-9): (3*pinched) + (2*beat) + (2*throw something at) + pushed + scolding; psychological bulling by maligning a parent (scores 0-4): (3*insulting parent's occupations) + insulting parent's names; and psychological bulling by maligning the student (scores 0-4): (3*insulting economic status) + insulting appearance.

Finally, by combining new scores of four types of bullying and transforming these into Z-scores (standardized to a mean of 0 and a standard deviation of 1), students were classified into two categories for bullying; 'bullied' or 'not bullied'. The students who have a standardized score greater than 1 were classified as a bully (Scholte et al, 2007; Gini, 2008).

3.2 Descriptive statistics of bullying and risk factors

In this study, bullying outcome was classified as a dichotomous variable; 'not bullied others' (1,139 students) and 'bullied others' (301 students). The percentage of students reporting that they had bullied others in school was 20.9%. There were eight determinants; school location, school type, gender, religion, age, parental physical abuse, preference of cartoon type, and number of close friends. Student participants were same proportions across urban and rural school locations. The majority of the students were from public schools (72.2%). There were similar proportions across two genders, two religions and three age groups. The majority of the students had not witnessed physical abuse between parents (79.7%). Approximately half of the students preferred mystery cartoons (48.2%), and had 3-5 close friends (41.4%) (see Table 3).

3.3 Associations between bullying others and determinants

School type, gender, religion, age, parental physical abuse and preference of cartoon types were associated with bullying others. So the proportion of students who had been bullied others were height among public school students, boys, non-Muslim, aged 11 years old or more, had witnessed parental physical abuse, and preferred action cartoons (see Table 3).

3.4 Logistic Regression Analysis of bullying others

There were statistically significant associations between bullying others and gender, religion, age, parental physical abuse and the preference of cartoon type. The residual deviance of 1202.6 on 1432 degrees of freedom (p=0.000).

Boys were bullied others more than girls (OR 1.82, 95% CI 1.27-2.28). Non-Muslim students were 1.69 times (95% CI 1.26-2.25) more likely to bully others than Muslim students. Bullied others were more likely to be increase with the students' aged. Moreover, students who had suffered from parental physical abuse were 7.60 times (95% CI 5.60-10.31) more likely to bully others than those who never witnessed parental physical abuse. The students who preferred action cartoons more frequently reported that they had bullied others than did those who preferred comedy cartoons (OR 2.87, 95% CI 1.91-430) (see Table 4).

Figure 1 shows the prevalence of bullying others, by risk factors, after fitting a logistic regression model. The highest prevalence of bullying others was among the students who had suffered from parental physical abuse. Students who preferred action cartoons had high prevalence of bullying others.

4. Discussion and conclusion

The study show that witnessing parental physical abuse, gender, age, religion, and school type were the risk factors for bullying. Furthermore, witnessing parental physical abuse and preference the action cartoons were the majority risk factors for bullying. One possible explanation for this association might be that children witnessing physical abuse between parents might copy the parent's physical actions that are coercive, aimed at making the other parent do something in particular. The children might then become a bully to gain success in his or her own social interactions. This explanation is in line with findings by Pepler and Sedigheilami (1998) who reported that children living with domestic violence are at risk of increased emotional and behavioural problems. Children living with domestic violence were found to be at increased risk of experiencing emotional or physical abuse (Daro & Cohn Donnelly, 2000; Kuning, 2004). Frequent parental conflict can result in their children performing bullying behaviour (Espelage & Swearer, 2003).

In addition, student preference for action cartoons leads to more cartoon violence and so indirectly has a negative impact on the child's behaviour (Kirsch, 2006; Blumberg, Bierwirth & Schwartz, 2008). The impact of exposure to cartoon violence and violence in the media may remain regardless of whether children choose to copy or imitate it in the short-term (Bushman & Huesmann, 2006). Violent characters in cartoon aggression offer to children many models of aggressive behaviour (Larson, 2003).

Social learning theorists argue that children are not actually born with the ability to act violently but that they learn to be aggressive through their life experiences. These experiences include personally observing others acting aggressively to achieve some goal. Children learn to act aggressively when they model their behaviour on the violent acts of adults. This is consistent with the study of Bandura (1975) who found that most human behaviour is learned observationally through copying: from observing others one forms an idea of how new behaviours are performed, and on later occasions this coded information serves as a guide for action. Bandura and Ribes-Inesta (1976) showed that aggression reinforced by family members was the most prominent source of behaviour imitation. Children use the same aggressive tactics that their parents display when dealing with others. They learn to act aggressively when they model the behaviour of violent acts by adults, especially family members (Siegel, 1998). They attend to what the aggressor is doing and saying in order to reproduce the model's behaviour (Allen & Santrock, 1993). People are more likely to copy someone they are looking at. Individuals in close intimate contact with one another imitate each other's behaviour, and people have a greater tendency to imitate the fashions and customs of those with whom they have the most contact (Williams & McShane, 1999).

Findings from this study could assist educational authorities in the development of preventative strategies in both private and public primary schools for reducing bullying problems. School administrators, school advisors counselors, teachers, and parents should work together to create an intervention and prevention plan that aims to prevent and reduce the rates of bullying.

Acknowledgement

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Table 1. Bullying questions

Bullying questions
1. In a past year, have you ever harmed anyone bodily?
☐ Yes ☐ No
2. If "yes", In what way? (Can choose more than 1 choice)
☐ Kicked ☐ Hit
☐ Bit ☐ Pushed
☐ Throwing something at ☐ Beat
☐ Pinched
3. In a past year, have you ever hurt someone feelings verbally?
☐ Yes ☐ No
4. If "yes", In what way? (Can choose more than 1 choice)
☐ Revile/ scolding/ name calling ☐ Insulting parents' occupations
☐ Insulting parents' names ☐ Insulting appearance
☐ Insulting economic status

Table 2. Factor analysis of type of bullying

	Factor loadings			
	Serious physical bullying	General physical bullying	Psychological bulling (Maligning parent)	Psychological bulling (Maligning student)
Kicked	0.822			
Hit	0.825			
Bit	0.380			
Pushed		0.458		
Throwing something at		0.507		
Beat		0.587		
Pinched		0.783		
Scolding/ name-calling		0.366		
Insulting parent's occupation			0.878	
Insulting parent's name			0.399	
Insulting appearance				0.448
Insulting economic status				0.765

Table 3. Associations between 'those who had bullied others' and determinants

	Bullied others			
	Not bullied (1,139)	Had bullied (301)	Total (1,440)	p value
School location				0.399
Urban	49.4	52.2	50.0	
Rural	50.6	47.8	50.0	
School type				0.049*
Private	29.0	23.3	27.8	
Public	71.0	76.7	72.2	
Gender				0.000**
Girl	59.2	41.2	55.4	
Boy	40.8	58.8	44.6	
Religion				0.000**
Muslim	56.4	44.9	54.0	
Non-Muslim	43.6	55.1	46.0	
Age				0.006**
8 yrs or less	36.2	28.2	34.5	
9-10 yrs	34.3	33.3	34.0	
11 yrs or more	29.7	38.5	31.5	
Parental physical abuse				0.000**
No	87.6	49.5	79.7	
Yes	12.4	50.5	20.3	
Preference of cartoon type				0.000**
Comedy	28.2	16.6	25.8	
Action	21.2	44.2	26.0	
Mystery	50.6	39.2	48.2	
Number of close friends				0.051
2 persons or less	32.8	29.9	32.2	
3-5 persons	42.3	38.2	41.4	
6 persons or more	24.9	31.9	26.4	

* p-value < 0.05   ** p-value < 0.01

Table 4. Reduced model of association between determinants and the outcome of bullying, final model.

Factors	Odds Ratio	95% Confidence Interval	p-value
Gender			0.000
Girl	1		
Boy	1.82	1.36-2.44	0.000
Religion			0.000
Muslim	1		
Non-Muslim	1.69	1.26-2.25	0.001
Age			0.002
8 yrs or less	1		
9-10 yrs	1.24	0.87-1.78	0.238
11 yrs or more	1.81	1.27-2.58	0.001
Parental physical abuse			0.000
No	1		
Yes	7.60	5.60-10.31	0.000
Preference of cartoon type			0.000
Comedy	1		
Action	2.87	1.91-4.30	0.000
Mystery	1.30	0.88-1.92	0.181

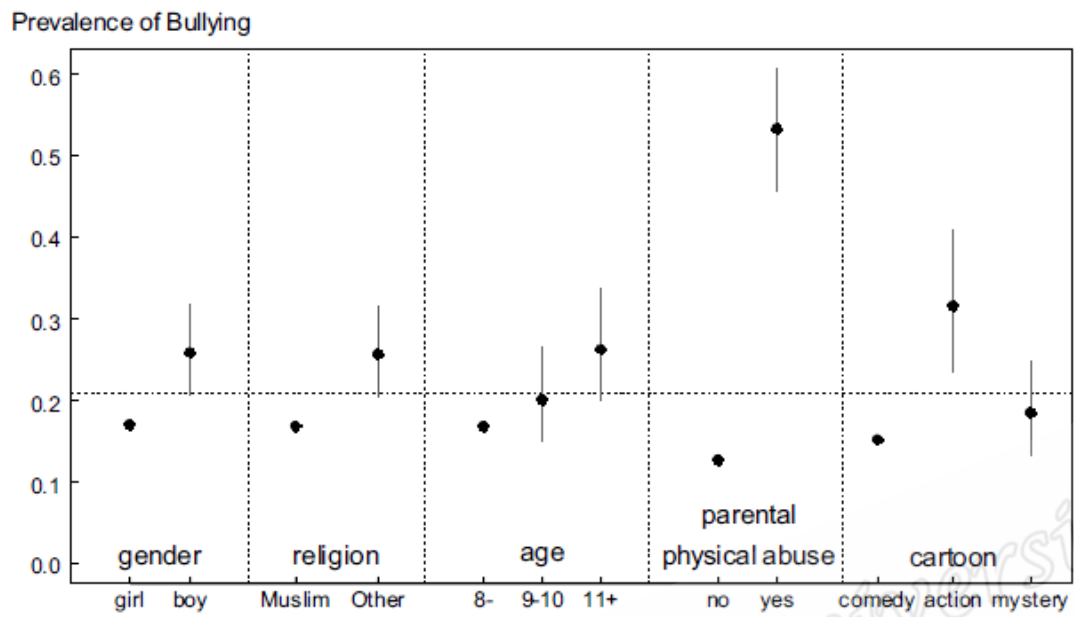Prevalence of Bullying

Figure 1. Prevalence of bullying others by risk factors