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## Bullying, depression, and suicidal ideation in Finnish adolescents: school survey

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### Abstract

**Objective** To assess the relation between being bullied or being a bully at school, depression, and severe suicidal ideation.

**Design** A school based survey of health, health behaviour, and behaviour in school which included questions about bullying and the Beck depression inventory, which includes items asking about suicidal ideation.

**Setting** Secondary schools in two regions of Finland.

**Participants** 16 410 adolescents aged 14-16.

**Results** There was an increased prevalence of depression and severe suicidal ideation among both those who were bullied and those who were bullies. Depression was equally likely to occur among those who were bullied and those who were bullies. It was most common among those students who were both bullied by others and who were also bullies themselves. When symptoms of depression were controlled for, suicidal ideation occurred most often among adolescents who were bullies.

**Conclusion** Adolescents who are being bullied and those who are bullies are at an increased risk of depression and suicide. The need for psychiatric intervention should be considered not only for victims of bullying but also for bullies.

### Introduction

About 1 in 10 schoolchildren report being bullied weekly at school.<sup>1-4</sup> Boys are involved in bullying, both as victims and as bullies, more often than girls. Primary school children are more likely to be victims of bullying than adolescents, but the number of bullies tends to remain constant between primary school and secondary school.<sup>2,3</sup>

The possible association between being bullied and the risk of suicide has been recognised by adolescent psychiatrists,<sup>5</sup> but epidemiological studies have not assessed the correlation. Salmon et al found an association between being bullied and being depressed.<sup>6</sup> In children, being bullied has been associated with an increase in psychological and psychosomatic symptoms. Williams et al found that children who were frequently bullied at school were more likely to wet their beds, have difficulty sleeping, and have headaches and

abdominal pain.<sup>7</sup> Kumpulainen et al found an association between involvement in bullying (being bullied or being a bully) and a number of behavioural and psychological symptoms including depression in children in primary school.<sup>8</sup> Anxiety, a fear of going to school, feelings of being unsafe and unhappy at school, and low self esteem have all been reported to be consequences of repeatedly being bullied.<sup>2,9</sup> Depression has also been linked to being bullied.<sup>10</sup>

Being a bully in childhood and adolescence has been associated with delinquency in adulthood. Being bullied has been associated with poorer perceived health, depression, and with mental disorders in adulthood.<sup>11</sup>

The aim of this study was to investigate the association between bullying, depression, and severe suicidal ideation among adolescents aged 14-16 in Finland.

### Participants and methods

The school health promotion study is a classroom survey focusing on adolescent health, health behaviour, and behaviour in school; it has been carried out annually in Finland every April since 1995. The health promotion study has been approved by the ethical committee of Tampere University Hospital.

In 1997, students in the 8th and 9th grades of secondary school (ages 14-16 years) in two regions in Finland (Vaasa and Pirkanmaa) participated in the study. Out of a total of 20 213 pupils in these schools, 2570 (13%) were absent on the day of the survey. Altogether, 17 643 pupils (87%) returned the questionnaire (8695 girls, 8948 boys). A total of 1179 students (6.7%) gave incomplete responses on the Beck inventory and their questionnaires were excluded from the analysis. An additional 54 respondents did not answer the questions about bullying and were also excluded from the analysis. We were thus able to analyse the responses of 16 410 students (81% of the target population, 93% of those present at school).

Involvement in bullying either as a bully or as the person being bullied was evaluated using two questions derived from a World Health Organisation study on youth health.<sup>12</sup> The subject was introduced as follows:

The next questions are about bullying. We say a pupil is being bullied when another pupil, or a group of pupils, says or does nasty and unpleasant things to him or her. It is also bullying when a pupil is teased repeatedly in a way he or she

**Table 1** Involvement in bullying by sex. Values are numbers (percentages)

	Girls	Boys
No participation	4418 (54)	2395 (29)
Bully or bullied less than weekly	3159 (39)	4480 (55)
Frequently acts as bully	196 (2)	705 (9)
Frequently bullied	373 (5)	464 (6)
Frequently both bully and bullied	50 (1)	170 (2)
Total	8196	8214

doesn't like. But it is not bullying when two pupils of about the same strength quarrel or fight.

The students were asked how frequently they had been bullied during the current school term (from the beginning of January until the end of May) and how frequently they had bullied others. They were asked to indicate whether these actions had occurred many times a week, about once a week, less frequently, or not at all. Those who bullied others at least once a week were classed as frequently being bullies; those who were bullied at least once a week were classed as frequently being bullied. Respondents were classed as not participating in bullying or being bullied, as being bullied or being a bully less than weekly, as frequently acting as a bully and not being bullied, as frequently being bullied and not a bully, or as frequently being both bullied and a bully.

Depression was measured using a modified, 13 item version of the Beck depression inventory<sup>13 14</sup> which had been validated in Finnish.<sup>15</sup> The Beck inventory has been shown to be a valid measure for detecting depression among adolescents.<sup>16</sup> It has good psychometric properties in this population.<sup>17</sup> Students who scored from 0 to 7 were classed as having no depression or mild depression, and those who had scores of 8 to 39 were classed as having moderate to severe depression.<sup>13</sup>

One of the items on the inventory asks about thoughts of self harm. We classed the students as having severe suicidal ideation if they chose either "I have definite plans about committing suicide" or "I would kill myself if I had the chance."

The sociodemographic variables evaluated were age, sex, years since moving to current area, educational level attained by parents, whether one or both parents had been unemployed during the past 12 months, and family structure (whether the adolescent was living with both parents, with one parent, with a step-parent, or apart from the parents). School performance was measured using the child's grade point average; perceived lack of social support from parents, friends, and teachers were used as independent variables. Grade point average and perceived social support have been shown to be determinants of depression in the sample studied (unpublished data). Age and grade point average were analysed as continuous variables, others were dichotomised.

Incomplete responses to the Beck inventory occurred more often among boys (7.8% (698/8948) *v* 5.5% (481/8695),  $P < 0.0001$ ). The item most frequently unanswered was the item about suicidal ideation which was omitted by 4.9% (438/8948) of boys and 3.7% (322/8695) of girls.

Associations between bullying and depression (dichotomous variables) and severe suicidal ideation were tested using  $\chi^2$ . Multivariate associations were tested with logistic regression using depression and severe suicidal ideation as dependent variables. The

models were fitted using a stepwise forward method starting from an empty model. When using depression as a dependent variable, sex, age, and involvement in bullying (being bullied or being a bully) were tested first. Other variables were added later. When severe suicidal ideation was used as a dependent variable, logistic regression was carried out in three steps. Firstly, sex, age, and involvement in bullying were analysed. Secondly, depressive symptoms (defined as the total score of items on the Beck inventory excluding those on suicidal ideation) were added to the analysis. Finally, the other independent variables were included.

## Results

Five per cent (373/8196) of the girls and 6% (464/8214) of the boys had been bullied weekly during the current school term. Two per cent (196/8196) of the girls and 9% (705/8214) of the boys reported that they had bullied others at least weekly (table 1).

Eleven per cent (915/8196) of the girls and 6% (508/8214) of the boys were classed as being moderately to severely depressed. Severe suicidal ideation was reported by 2% (197/8196) of girls and 2% (170/8214) of boys.

Depression and severe suicidal ideation were more common among those respondents who were being bullied or who were bullies. Depression occurred equally frequently among those who were bullied and those who were bullies, and it was most common among those who were both bullied by others and were also bullies themselves. Among girls, severe suicidal ideation was associated with frequently being bullied or being a bully, and for boys it was associated with being a bully (table 2).

The association between depression and involvement in bullying (being bullied or being a bully) persisted in multivariate analyses. After adjusting for age and sex, the highest risk of depression was seen among those students who were both bullied and were also bullies (odds ratio 9.4); the next highest risk was seen among those who were bullied (odds ratio 5.1). The odds ratio among bullies was 4.5 (table 3). Fitting other demographic and social variables that correlate with depression into the model confirmed the association.

Involvement in bullying persisted as a risk for severe suicidal ideation in the multivariate analysis. After adjusting for age and sex, the highest risk of severe suicidal ideation was seen among students who were both bullied and were also bullies (odds ratio 12.1). The next highest risk was among those who were bullies (odds ratio 8.7). The odds ratio for those who

**Table 2** Prevalence of moderate to severe depression and severe suicidal ideation as measured by Beck depression inventory among 16 410 adolescents who were involved in bullying (being bullied or being a bully) in Finland. Values are percentages (proportions)

	Involvement in bullying					P value
	No participation	Bully or bullied less than weekly	Frequently acts as bully	Frequently bullied	Frequently both bully and bullied	
<b>Depression</b>						
Girls	8 (333/4418)	13 (412/3159)	26 (50/196)	26 (98/373)	44 (22/50)	<0.001
Boys	3 (72/2395)	5 (232/4480)	13 (92/705)	16 (73/464)	23 (39/170)	<0.001
<b>Suicidal ideation</b>						
Girls	1 (55/4418)	3 (93/3159)	8 (16/196)	8 (29/373)	8 (4/50)	<0.001
Boys	1 (23/2395)	1 (56/4480)	8 (55/705)	4 (18/464)	11 (18/170)	<0.001

**Table 3** Odds ratios for the final models of association between involvement in bullying (being bullied or being a bully) and risk of depression and severe suicidal ideation

	Odds ratio (95% CI)	
	Depression	Severe suicidal ideation
Involvement in bullying:		
No participation	1.0	1.0
Bully or bullied less than weekly	1.5 (1.3 to 1.8)	1.4 (1.0 to 1.9)
Frequently acts as bully	2.8 (2.2 to 3.7)	4.0 (2.6 to 6.4)
Frequently bullied	4.2 (3.3 to 5.3)	2.1 (1.3 to 3.4)
Frequently both bully and bullied	6.3 (4.2 to 9.5)	2.5 (1.0 to 6.2)
Female sex	4.0 (3.4 to 4.6)	P>0.05
Family structure:		
Lives with both parents	1.0	1.0
Has a step-parent	1.0	1.5 (1.0 to 2.2)
Lives with one parent	1.3 (1.1 to 1.7)	0.9 (0.5 to 1.4)
Lives apart from parents	1.8 (1.0 to 7.4)	2.5 (1.0 to 6.3)
Years since moving to area:		
≥10	1.0	
≥5-9	1.2 (0.8 to 1.3)	P>0.05
1-4	1.2 (1.0 to 1.5)	
<1	1.6 (1.1 to 2.3)	
Lacking social support from:		
Parents	3.0 (2.6 to 3.4)	1.7 (1.3 to 2.3)
Teachers	2.0 (1.7 to 2.4)	P>0.05
Peers	2.2 (1.9 to 2.7)	0.7 (0.4 to 1.0)
Depressive symptoms	Not tested	1.2 (1.2 to 1.2)

were bullied was 5.7. When depressive symptoms were added to the analysis, the highest risk of severe suicidal ideation was, however, seen among those who were bullies (odds ratio 4.4); the next highest risk was among those who were both bullied and were also bullies (odds ratio 3.1). The odds ratio for those who were bullied was 2.5. After other determinants of depression were added to the final model, the greatest risk of severe suicidal ideation was detected among bullies, followed by those who were both bullied and were also bullies, and then by those who were bullied (table 3).

## Discussion

### Methodological considerations

This study provides a good opportunity to assess cross sectional relations between being bullied or being a bully, self reported depression, and severe suicidal ideation. The sample is large and representative of the mid-adolescent population in Finland. More than 99% of children and adolescents aged 7 to 16 attend primary and secondary school. The participation rate for the survey was high. However, psychological problems, depression, and experiences of being a bully or being bullied may be more common among those pupils who were absent. Therefore, the prevalences of bullying, depression, and severe suicidal ideation detected in this study are likely to be underestimates.

The 13 item Beck inventory measures the respondent's own perception of her or his depressive symptoms but it is not a diagnostic instrument for depressive disorders. Because the inventory measures a psychological state we could not assess the duration of depressive symptoms. However, severe depressive symptoms in adolescents are likely to be comparatively persistent.<sup>18</sup> To avoid bias due to normal mood changes in adolescence, we dichotomised the depression score to moderately or severely depressed versus no depression or mildly depressed. In the multivariate analyses that studied the association between bullying and severe suicidal

ideation, we used depressive symptoms as a total score but we excluded the item on suicidal ideation.

Transient death wishes and non-specific suicidal ideation have been reported to be comparatively common during adolescence.<sup>19</sup> Therefore, only responses indicating severe suicidal ideation with an intent were included in the analyses.

### Bullying and mental health

Depression and severe suicidal ideation are strongly linked to being bullied or to acting as a bully. Even an infrequent involvement in bullying (being bullied or being a bully) increases the likelihood of severe suicidal ideation, independent of depression.

Being bullied frequently is likely to be a considerable source of stress. Depression among those who were frequently bullied might be expected. However, adolescents who are depressed may also attract negative attention from their peers. Previous research suggests that compared with their peers, those who are bullied are more introverted, less assertive, and are overinvolved in their families.<sup>20</sup> Victims also tend to be rejected by peers.<sup>9 21</sup> Depression could thus be both a result of and a reason for being bullied. A longitudinal design is necessary to study causality. However, in this study severe suicidal ideation was increased among those who were bullied regardless of whether they were depressed. This emphasises the stressful nature of being bullied and highlights the importance of taking action to stop bullying.

Although the association between being a bully and depression has not received attention in previous research, bullies have been shown to have certain mental health problems. Being a bully has been associated with juvenile delinquency, alcohol misuse, violence in adulthood, and criminal behaviour.<sup>20 22</sup> The social background of bullies also suggests that they are vulnerable to psychiatric morbidity. Being a bully has been associated with rejection by peers and social isolation.<sup>1 9</sup> In bullies' families, more emotional distance between family members, a lack of warmth, and inconsistent discipline for children has been noted.<sup>20</sup> Bullies thus need support for normal development to proceed, and any interventions should also recognise the role of depressive disorders in the background of their behaviour.

The role of the adolescent remains constant in the long process of being bullied or being a bully.<sup>23</sup> The

### Key messages

- About 1 in 10 schoolchildren report being bullied weekly at school
- Adolescents who are bullied or who are bullies have an increased risk of depression and suicidal ideation
- Bullies are often as depressed as those who are bullied, and suicidal ideation is even more common among bullies
- Interventions aimed at reducing bullying in schools, as well as psychiatric assessment and treatment of bullies and those who are bullied, might also prevent depression and suicidal ideation

strong association between being a bully or being bullied, depression, and severe suicidal ideation highlights the importance of further investigations into the social, psychological, and environmental factors associated with bullying.

### Conclusion

Teachers and clinicians should recognise that being bullied or being a bully are signs of an increased risk of depression and suicidal behaviour among adolescents. Adolescents should be asked if they are involved in bullying either as a victim or as a bully. Whether an intervention is needed to treat depression should be assessed among both bullies and those who are being bullied. A cross disciplinary approach is needed to identify effective interventions to prevent bullying and depression and to reduce the risk of suicide while keeping in mind the close association between these phenomena.

Contributors: RK-H developed and coordinated the formulation of the primary study hypothesis, discussed the core ideas, and participated in planning the collection of data, analysing the data, and writing the paper. MR initiated the school health promotion study and the inclusion of mental health questions in the survey, he discussed the core ideas, and participated in analysing the data and writing the paper. MM brought to the discussion about the core ideas of the study his expertise as a researcher on adolescent suicide and depression, and participated in designing the study, analysing the data, and writing the paper. AR discussed the core ideas of the school health promotion study as well as of this present report, and brought to the process her expertise as an epidemiologist; she also helped analyse the data and write the paper. PR discussed the core ideas of the study and supported the formulation of the hypothesis from the point of view of a clinical adolescent psychiatrist, and participated in writing the paper. MR will act as guarantor for the paper.

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## Ethnic and sex differences in selection for admission to Nottingham University Medical School

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McManus's study of applications to medical school by students in the United Kingdom and the rest of the European Union<sup>1</sup> refuelled the debate about discrimination.<sup>2,3</sup> McManus showed that 18 measures were independently associated with receiving an offer.<sup>1</sup> Applicants disadvantaged in selection included those from ethnic minority groups and men.<sup>1</sup>

We analysed applications to Nottingham Medical School by students from the United Kingdom and the rest of the European Union for 1997, looking at sex and ethnic group.

### Methods and results

The admissions process for applicants to University of Nottingham Medical School is detailed in the school's admissions policy document, which is reviewed annually.

Copies are available to all applicants on request and obtainable from us. The process comprises four stages.

*Academic stage* examines whether the applicant meets the medical school's minimum academic requirement.

*Questionnaire stage*—Those passing the academic stage complete a questionnaire about work experience, extracurricular activities, and positions of responsibility. These responses are scored.

*Statement review*—The two statements (applicant's and referee's) on the application form of the applicants with the top 960 questionnaire scores are reviewed by two assessors. Insight, motivation, personality, and communication skills are scored. The 480 candidates with the top scores are selected for interview.

*Interview*—In an interview of 15 minutes knowledge of Nottingham and the course, insight, motivation, per-

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