Does bullying cause emotional problems? A prospective study of young teenagers

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Abstract

Objectives To establish the relation between recurrent peer victimisation and onset of self reported symptoms of anxiety or depression in the early teen years.

Design Cohort study over two years.

Setting Secondary schools in Victoria, Australia.

Participants 2680 students surveyed twice in year 8 (aged 13 years) and once in year 9.

Main outcome measures Self reported symptoms of anxiety or depression were assessed by using the computerised version of the revised clinical interview schedule. Incident cases were students scoring ≥12 in year 9 but not previously. Prior victimisation was defined as having been bullied at either or both survey times in year 8.

Results Prevalence of victimisation at the second survey point in year 8 was 51% (95% confidence interval 49% to 54%), and prevalence of self reported symptoms of anxiety or depression was 18% (16% to 20%). The incidence of self reported symptoms of anxiety or depression in year 9 (7%) was significantly associated with victimisation reported either once (odds ratio 1.94, 1.1 to 3.3) or twice (2.30, 1.2 to 4.3) in year 8. After adjustment for availability of social relations and for sociodemographic factors, recurrent victimisation remained predictive of self reported symptoms of anxiety or depression for girls (2.60, 1.2 to 5.5) but not for boys (1.36, 0.6 to 3.0). Newly reported victimisation in year 9 was not significantly associated with prior self report of symptoms of anxiety or depression (1.48, 0.4 to 6.0).

Conclusion A history of victimisation and poor social relationships predicts the onset of emotional problems in adolescents. Previous recurrent emotional problems are not significantly related to future victimisation. These findings have implications for how seriously the occurrence of victimisation is treated and for the focus of interventions aimed at addressing mental health issues in adolescents.

Introduction

Bullying occurs in all schools, but its relevance to health and wellbeing is uncertain.1–3 On the one hand it can be considered a common and normal developmental experience; alternatively, it can be considered an important cause of stress and of physical and emotional problems.4,5 A meta-analysis of studies investigating the relation between victimisation and psychosocial maladjustment found a stronger association with measures of depression than with anxiety, loneliness, or general self esteem.6

Unfortunately, the cross sectional design of most studies precludes inferences about causality. The few available prospective studies have generally focused on primary school children before the early increase in depression in adolescence,7 with the principal outcome being school maladjustment, loneliness, and depression.8–11 One small longitudinally study of adolescents found that high levels of victimisation predicted poor physical health for boys and girls and poor mental health for girls.12 Others found that boys victimised between the ages of 12 and 16 had increased levels of depression as young adults; however, no adjustment was made for previous mental health states in this study.13

We carried out a prospective study of secondary school students. The data derive from three waves of data collected from students involved in a randomised controlled trial of a school based intervention to promote the emotional wellbeing of young people.13 Intervention effects in the trial are not the main focus of this paper. Data were collected at the beginning and end of year 8 (second year of secondary school, mean age 13 years) and 12 months later (end of year 9). Our aim was to use these prospective data to examine the relation between a history of victimisation (in year 8) and the incidence of self reported symptoms of anxiety or depression in year 9.

Methods

A cluster randomised controlled design was used for the allocation of education districts to intervention or control status. In metropolitan Melbourne, 12 districts were sampled with a probability proportional to the number of secondary schools (including government, independent, and Catholic schools) and were randomly allocated to intervention or control status. We used simple random sampling to select 12 schools from the “intervention” districts and 12 from the “control” districts. Six country schools were randomly drawn from two regional districts. Twenty-six (12 intervention and 14 control) schools agreed to participate.

Students completed a self administered questionnaire at school using laptop computers provided by the research team. Questionnaires took approximately 40 minutes to complete. Absent students were surveyed at school at a later date or by telephone.

Ethics approval was granted by the Royal Children’s Hospital ethics in human research committee, the Victorian Department of Education, Employment and Training, and the Catholic Education Office. Student participation was voluntary, with written parental consent required.

Victimisation

Participants were classified as victimised if they answered yes to items addressing four types of recent victimisation: being teased, having rumours spread about them, being deliberately excluded, or experiencing physical threats or violence. Respondents were classified on the basis of self report in year 8 as having experienced recurrent victimisation if they reported having been bullied at both times in year 8 (waves 1 and 2).
Mental health status

Mental health status was evaluated with a computerised version of the revised clinical interview schedule, a structured psychiatric interview for non-clinical populations.\textsuperscript{13,14} The schedule comprises 14 subscales. It has been used as a criterion measure for the definition of caseness in teenagers,\textsuperscript{15} and it has an ease of reading suitable for young adolescents (Flesch reading ease score 12 provides a criterion measure of minor psychiatric morbidity at which a general practitioner might be concerned.\textsuperscript{16}

An incident case with self reported symptoms of anxiety or depression was defined as someone who scored <12 on the interview schedule at both times in year 8 (waves 1 and 2) and scored \geq12 at year 9. Participants scoring \geq12 at both times in year 8 were classified as having “recurrent” self reported symptoms of anxiety or depression.

Social relations

Indicators of perceived availability of attachments and confictual relationships were adapted from the interview schedule for social interaction.\textsuperscript{21} Perceived availability of attachments was assessed in terms of “having someone to talk to or depend on when angry or upset” or “when having a tough time” and “having someone to talk to or depend on when angry or upset” or “when having a tough time” and “having someone who knows one well and can be trusted with private feelings and thoughts.” Participants were categorised as having good availability of attachments at both times in year 8, poor availability reported at either time in year 8, or absent or very poor availability at both times in year 8. The social attachment scale has an internal consistency of 0.69.

For conflictual relationships, participants were categorised as reporting no arguments at baseline, arguments with one person at either time in year 8, or arguments with two or more people at either time.

Family measures

Family measures were family structure (intact family, separated/divorced parents, or other circumstances) and language spoken at home as a marker of ethnicity.

Method of analysis

Results are based on participants for whom information about victimisation and mental health status was available for all waves (2365) who had missing data at either wave 1 or wave 2 only (194). For these 194 students a conservative assumption was made of no bullying and no symptoms of depression for the wave for which the data were missing.

Simple bivariate associations were estimated by using odds ratios and tested with the \(\chi^2\) test. To account for the cluster sampling, robust “sandwich” estimates of

### Table 1

<table>
<thead>
<tr>
<th>Sex</th>
<th>Total (n=2535)</th>
<th>Victimised (n=986)</th>
<th>Symptoms of depression* (n=356)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No (%)</td>
<td>Odds ratio (95% CI)</td>
<td>P value</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>1195</td>
<td>650 (50.2)</td>
<td>1.00</td>
</tr>
<tr>
<td>Female</td>
<td>1364</td>
<td>664 (48.7)</td>
<td>0.94 (0.8 to 1.1)</td>
</tr>
</tbody>
</table>

#### Availability of attachments:

- **Good** | 2008 | 613 (43.7) | 1.00 |
- **Poor** | 224 | 174 (77.8) | 4.51 (3.0 to 6.8) | <0.001 |
- **Other language (including English and other)** | 600 | 285 (47.5) | 0.90 (0.7 to 1.1) | 0.356 |

**Victimised:**

- **Not bullied** | 1295 | 93 (7.2) | 1.00 |
- **Bullied** | 1264 | 317 (25.1) | 4.33 (3.3 to 5.7) | <0.001 |

**Symptoms of depression:**

- **At both times** | 20 | 5 (25) | 1.48 (0.4 to 5.6) | 0.691 |
- **At one time** | 70 | 15 (21.4) | 1.21 (0.7 to 2.2) | 0.510 |
- **At neither time** | 763 | 35 (4.6) | 1.00 |

*Score \(\geq12\) on revised clinical interview schedule.
Table 3 Multivariate logistic regression for incident self reported symptoms of anxiety or depression at year 9. Values are numbers (percentages) unless otherwise stated.

<table>
<thead>
<tr>
<th>Incident symptoms of anxiety or depression at year 9 (n=116)*</th>
<th>Total (n=1746)*</th>
<th>Adjusted odds ratio (95% CI)</th>
<th>( P ) value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Victimised at baseline:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not bullied in year 8</td>
<td>28 (24.1)</td>
<td>680 (38.9)</td>
<td>1.0</td>
</tr>
<tr>
<td>Bullied at one time in year 8</td>
<td>42 (36.2)</td>
<td>575 (32.9)</td>
<td>1.49 (0.88 to 2.54)</td>
</tr>
<tr>
<td>Bullied at both times in year 8</td>
<td>46 (39.7)</td>
<td>491 (28.1)</td>
<td>2.03 (1.14 to 3.64)</td>
</tr>
<tr>
<td>Availability of attachments at baseline:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available at both times in year 8</td>
<td>96 (82.8)</td>
<td>1501 (86.0)</td>
<td>1.00</td>
</tr>
<tr>
<td>Available at one time in year 8</td>
<td>17 (14.7)</td>
<td>217 (12.4)</td>
<td>1.25 (0.53 to 2.96)</td>
</tr>
<tr>
<td>No available attachments in year 8</td>
<td>3 (2.6)</td>
<td>25 (1.4)</td>
<td>1.97 (0.43 to 9.05)</td>
</tr>
<tr>
<td>Arguments with others at baseline:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>None at baseline</td>
<td>31 (26.7)</td>
<td>837 (47.9)</td>
<td>1.0</td>
</tr>
<tr>
<td>With one other at either time</td>
<td>67 (57.8)</td>
<td>798 (45.7)</td>
<td>1.86 (1.05 to 3.30)</td>
</tr>
<tr>
<td>With two or more others at either time</td>
<td>18 (15.5)</td>
<td>194 (11.0)</td>
<td>4.25 (1.82 to 9.94)</td>
</tr>
<tr>
<td>Sex:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>40 (34.5)</td>
<td>868 (49.7)</td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>76 (65.5)</td>
<td>878 (50.3)</td>
<td>1.86 (1.02 to 3.40)</td>
</tr>
<tr>
<td>Family structure:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intact family</td>
<td>86 (74.1)</td>
<td>1422 (81.4)</td>
<td>1.00</td>
</tr>
<tr>
<td>Separated, divorced, other</td>
<td>30 (25.9)</td>
<td>324 (18.6)</td>
<td>1.41 (0.9 to 2.4)</td>
</tr>
</tbody>
</table>

*Numbers reduced owing to missing data for social relationship variables.
†Adjusted also for group.

Table 4 Multivariate logistic regression for incident self reported symptoms of anxiety or depression for boys and girls in year 9.

<table>
<thead>
<tr>
<th></th>
<th>Girls (76/857*)</th>
<th>Boys (40/855*)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Adjusted odds ratio (95% CI)</td>
<td>( P ) value</td>
</tr>
<tr>
<td>Victimised at baseline:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Not bullied in year 8</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Bullied at one time in year 8</td>
<td>1.90 (0.8 to 4.4)</td>
<td>0.123</td>
</tr>
<tr>
<td>Bullied at both times in year 8</td>
<td>2.60 (1.2 to 5.5)</td>
<td>0.015</td>
</tr>
<tr>
<td>Availability of attachments at baseline:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Available at both times in year 8</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Available at one time in year 8</td>
<td>0.93 (0.3 to 2.8)</td>
<td>0.892</td>
</tr>
<tr>
<td>No available attachments in year 8</td>
<td>5.68 (1.2 to 26.6)</td>
<td>0.030</td>
</tr>
<tr>
<td>Arguments with others at baseline:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None at baseline</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>With one other at either time</td>
<td>2.27 (1.3 to 4.2)</td>
<td>0.010</td>
</tr>
<tr>
<td>With two or more others at either time</td>
<td>5.62 (1.6 to 15.4)</td>
<td>0.007</td>
</tr>
<tr>
<td>Family structure:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intact family</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Separated, divorced, other</td>
<td>1.59 (0.9 to 2.6)</td>
<td>0.133</td>
</tr>
</tbody>
</table>

*Numbers reduced owing to missing data for social relationship variables.
†Adjusted also for group—intervention or control.

Results

Of the sample of 3623 students, 2860 (79%) participated in at least one wave of data collection and 2559 (71%) provided data for this analysis. Small but significant differences were found in some sociodemographic factors for the 229 (8%) with missing data at wave 3, with higher proportions of boys and of students with non-intact families and families of non-English speaking background than among students without missing data.

The prevalence of victimisation at each of the three survey periods was 49% (95% confidence interval 48% to 53%), 51% (49% to 54%), and 42% (39% to 45%). Eight hundred and fifty seven (33%) respondents were defined as having experienced recurrent victimisation, 853 (33%) reported being bullied at one time point, and 849 (33%) reported no victimisation at either time point in year 8; 544 (63%) of those students who were victimised recurrently in year 8 reported being victimised in year 9.

The prevalence of self reported symptoms of anxiety or depression for boys and girls in year 9 (n=116)*

<table>
<thead>
<tr>
<th></th>
<th>( \text{Adjusted odds ratio} ) (95% CI)</th>
<th>( P ) value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anxiety</td>
<td>4.25 (1.82 to 9.94)</td>
<td>0.002</td>
</tr>
<tr>
<td>Depression</td>
<td>2.03 (1.14 to 3.60)</td>
<td>0.036</td>
</tr>
</tbody>
</table>

Simple bivariate analyses found significant associations between victimisation, mental health status, and measures of social relationships (table 1).

The association between incident self reported symptoms of anxiety or depression in year 9 and a history of victimisation in year 8 and the impact of mental health status on the incidence of victimisation, with adjustment for sex, are shown in table 2. Any occurrence of victimisation was significantly associated with the incidence of self reported symptoms of anxiety or depression. After adjustment for social relationships and sociodemographic factors, recurrent victimisation remained significantly associated with incident self reported symptoms of anxiety or depression, as did arguments with others, and sex (table 3).

The attributable fraction of students with incident self reported symptoms of anxiety or depression for those exposed to victimisation was 0.50 (0.24 to 0.67). Adjusted for confounders, the population attributable fraction was 0.30 (0.04 to 0.49). The attributable fraction of students experiencing victimisation for the first time in year 9 who had reported symptoms of anxiety or depression previously was 0.21 (−0.29 to 0.49). Adjusted for confounders, the population attributable fraction was 0.003 (−0.05 to 0.05).

Table 4 shows the adjusted odds ratios for boys and girls given the known sex differences in self reported symptoms of anxiety or depression previously was 0.21 (−0.29 to 0.49). The attributable fraction of students experiencing victimisation for the first time in year 9 who had reported symptoms of anxiety or depression previously was 0.21 (−0.29 to 0.49). Adjusted for confounders, the population attributable fraction was 0.003 (−0.05 to 0.05).

Discussion

The prevalence of victimisation was high and relatively stable in this cohort. Two thirds of the students who were bullied recurrently in year 8 also reported being...
bullied in year 9. This study confirmed the strong con-
temproaneous association between victimisation and self reported symptoms of anxiety or depression previously reported.1 9 18 We also found a strong association with social relationships, which has been less well
documented in the adolescent age group. Most impor-
tantly, we found that a history of victimisation is a
strong predictor of the onset of self reported symptoms of anxiety or depression and remains so
after adjustment for other measures of social relations.

The contrary hypothesis that having poor emotional
health in some way invites victimisation or represents a
vicious cycle has not been supported by these data.19-21

Affective disorders become common in adoles-
cence, as symptoms of depression and anxiety increase
after puberty.2 5 A prevalence of 16% of self reported
symptoms of anxiety or depression in young secondary school students, with sex differences in the
prevalence, is therefore consistent with previous
findings.2 2

In this study, in up to 30% of all students with inci-
dent symptoms of depression, the symptoms could be
attributed to a history of victimisation, after adjustment
for other confounders. Although one must bear in
mind the limitations in interpreting population attrib-
utable fractions,22 it remains clear that the impact of
victimisation on incident self reported symptoms of
anxiety or depression in this population is potentially
great.

Furthermore, this effect of bullying on mental
health status is clearest for girls. That is, being
victimised has a significant impact on the future
emotional wellbeing of young adolescent girls inde-
dendent of their social relations but does not for boys.
This finding may be due to a real difference in the boys'
response to victimisation or to the small number of
boys reporting symptoms of depression. However, the
second of these possibilities is a less likely explanation,
as a reduction of variables in the model did not
substantially alter the finding.

The strengths of this study are its prospective
design, the use of two time points to define a baseline
of recurrent victimisation and self reported symptoms
of anxiety or depression, the inclusion of both overt
and covert or relational types of victimisation, and a
comprehensive measure of mental health status. It is,
however, possible that young people who have not
previously reported being victimised in year 8, at a time
when it is relatively common, may be different from
their peers in other respects. Although we cannot
explicitly examine this possibility with these data, we
believe it to be unlikely given the similar relations of
the social and family measures to victimisation and
emotional health found in the cross sectional data and in
previous studies.

The data were collected as part of the assessment of
the effect of a school based intervention.12 The
intervention did not contain activities focusing on vic-
timisation, so it is unlikely to have had an impact on the
reported associations. Furthermore, all analyses were
statistically adjusted for intervention and control
status.

This study has found that victimisation raised levels
of subsequent self reported symptoms of anxiety or
depression regardless of the coexisting levels of social
adversity. This suggests that a reduction in victimisation
in schools is potentially a useful preventive interven-
tion, especially for girls. Further work is needed to
determine if a reduction in victimisation can reduce
the onset of symptoms of anxiety and depression in
young adolescents, but the indications from this study
are that such a reduction could have a substantial
impact on the emotional wellbeing of young people.

We acknowledge the valuable contribution made to this study by
the staff, young people, and parents in the project schools.

Contributors: LB and GP participated in the design and
execution of the study, analysis of the data, and writing the
paper. JBC and LT participated in analysing and interpreting
the data and writing the paper. KR contributed to the analysis
of the cross sectional data and development of the bullying sever-
ity scale. LB will act as guarantor for the paper.

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Promotion Foundation, National Health and Medical Research
Council, and Department of Human Services.

Competing interests: None declared.

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Gatehouse project: a systematic approach to mental health promotion in
The development of a computerised assessment for minor psychiatric
Prescribing of drugs for use outside their licence in palliative care: survey of specialists in the United Kingdom

Hilary Pavis, Andrew Wilcock

A quarter of all prescriptions in palliative medicine are for licensed drugs that are used for unlicensed indications or that are given by an unlicensed route. Such prescriptions may affect two thirds of inpatients in specialist palliative care units.1 2 Doctors have been recommended to record in the patient’s notes the reason for prescribing outside the licence; to explain, where possible, the position to the patient (and carers, if appropriate) in sufficient detail to allow informed consent to be given; and to inform other professionals involved in the care of the patient of such prescribing, so that misunderstandings are avoided.3 Given the widespread use of drugs outside their licence in palliative care, strict adherence to these recommendations may be impractical. In view of the implications of these recommendations for doctors in palliative medicine and other doctors they advise, a position statement endorsed by the specialty would be helpful. We undertook a survey of current practice to inform the debate.

Participants, methods, and results

All 182 palliative care services in the United Kingdom with a medical director or consultant were asked to complete anonymously a postal questionnaire in October 1999 (figure). Informed consent was defined thus: “Patients have been given the information they asked for or need about their treatment in a way they can understand so that whenever possible the patients have understood the nature, purpose and material risks of what is proposed and consent to it before you provide treatment.”

One hundred and seventeen questionnaires (64%) were returned. When unlicensed prescribing was limited to consultants, this was generally in the context of a consultant based service. No respondents always obtained written consent to unlicensed use, and only a minority (<5%) always obtained verbal consent, documented unlicensed use in the patient’s notes, or informed other professionals of it. The drugs for which these recommended practices were sometimes carried out were ketamine (58 reports), octreotide (19), ketorolac (15), midazolam (10), gabapentin (10), and amitriptyline (10). The only unlicensed drug use for which three of the services sometimes obtained written consent was gabapentin for neuropathic pain—an indication for which it became licensed in 2000.

Invited comments covered three main themes. Firstly, respondents said that, given the prevalence of unlicensed use, it is impractical to obtain written consent routinely—and that discussion of unlicensed use could create unnecessary anxiety for the patient or carer. Secondly, some respondents sought consent only when prescribing drugs whose unlicensed use was not established in the specialty. Finally, other respondents made no distinction between licensed and unlicensed use and did not obtain verbal informed consent for use of any drug.