

Peer victimization and subjective health among students reporting disability or chronic illness in 11 Western countries

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Background: To compare the strength of the association between peer victimization at school and subjective health according to the disability or chronic illness (D/CI) status of students across countries. **Methods:** This study used data from 55 030 students aged 11, 13 and 15 years from 11 countries participating in the 2005–06 Health Behaviour in School-aged Children survey. Self-completed questionnaires were administered in classrooms. Multivariate models of logistic regression (controlled for confounding factors and countries) were used to investigate differences in the association between peer victimization and poor subjective health according to the D/CI status. **Results:** Overall, 13.5% of the students reported having been bullied at least two or three times a month. The percentage of victims was significantly higher among those reporting D/CI than among others in all countries studied. Victims of bullying were more likely to report poor self-rated health, low life satisfaction and multiple health complaints. However, there were no differences in the associations between peer victimization and subjective health indicators according to the D/CI status. **Conclusions:** In all countries studied, students reporting D/CI were more likely to report being victims of bullying. Victims of bullying reported more negative subjective health outcomes regardless of their D/CI status. Although inclusive education is currently a major topic of educational policies in most countries, additional efforts should be made to improve the quality of the integration of students with D/CI.

Introduction

Bullying is a relatively common experience among schoolchildren in many countries throughout the world.^{1,2} Bullying refers to negative actions inflicted on a victim, repeatedly and over time, by one or more peers.³ Three elements are important characteristics of bullying: repetition (that the acting occurs repeatedly); intended harm (that the action is intended to be harmful) and unequal power [that the victim is considered to have lower status or power compared with the perpetrator(s)]. These factors allow distinguishing bullying from other forms of school violence.

According to Olweus,³ bullying is an act of gaining power over others; thus, less powerful children may find themselves easy victims, putting children with a disability or chronic illness (D/CI) at increased risk for victimization compared with their peers. Indeed, previous studies have reported that children with different types of disabilities and chronic illnesses, such as autism spectrum disorders,⁴ attention-deficit hyperactivity disorders,⁵ learning disabilities,⁶ cerebral palsy,⁷ diabetes⁸ or language difficulties^{9,10} are at a

significantly increased risk of experiencing peer victimization compared with healthy children. Other studies found a significant association between peer victimization and appearance such as wearing glasses¹¹ or being obese.¹² Some authors who have adopted a generic approach of chronic condition found a consistent increased risk of peer victimization among these children compared with others.^{13–15} Data from France and Ireland reported a 30% higher risk of being bullied among schoolchildren reporting a D/CI compared with others.¹⁴

In recent decades, most countries have officially supported the integration of children with D/CI into the mainstream education system. To guarantee the quality of that integration, attention must be given to their well-being and overall quality of life and to the impact of negative attitudes and behaviours. Consequences of peer victimization on children's health and well-being have been widely explored. Children who are victims of bullying experience a range of negative outcomes including anxiety, poor self-esteem and depression¹⁶ and frequent somatic complaints.¹⁷ In a recent meta-analysis of 11 studies, Gini and Pozzoli¹⁸ reported a pooled

odds ratio (OR) of 2.00 [95% confidence interval (95% CI): 1.70–2.35] among children who are victimized in reporting psychosomatic complaints. Other studies have illustrated that being bullied was associated with poorer health perceptions,¹⁹ leading to health problems later in adolescence^{16,20} that may persist into adulthood.²¹ To date, no study has explicitly focused on the negative effects of peer victimization on student's perceptions of their generic health status or, more specifically, subjective health²² of students with D/CI.

The main objective of this study is to compare the association between peer victimization and subjective health between children with D/CI and those without D/CI. Preliminarily, a comparison of the prevalence of school peer victimization among students with D/CI and among those without D/CI across countries will be presented.

Based on the literature suggesting that victims of bullying are also often bullies themselves^{15,23,24} and that students who are both victims and perpetrators (bully–victims) have a greater risk for psychosomatic problems than victims,²³ analyses for victims and bully–victims are presented separately.

Methods

Sample

This article uses data collected in the 2005–06 World Health Organization collaborative cross-national study, Health Behaviour in School-aged Children (HBSC). Research teams in participating countries followed the same research protocol (question ordering, translation guidelines, comprehensive guidance on sampling and data collection procedures).^{25,26} A national representative sample of schools and classes was obtained in each participating country (cluster sampling design) to reach a minimum sample size of 1536 students per age group per country (target mean ages were 11.5, 13.5 and 15.5 years) to assure a 95% CI of $\pm 3\%$ for prevalence estimates. Participation was anonymous, and voluntary consent was obtained from parents and students. School/class and student level response rates exceeded 70% in most countries.²⁶ Each country obtained ethical approval to conduct the survey from relevant institutional review boards or equivalent regulatory institutions. Data from the 11 countries (table 1) that included the D/CI questions as an optional package for all age groups in addition to the mandatory questionnaire were included for the present analysis.

Measurement

Data were collected using standardized self-completion questionnaires administered in the classroom. The questionnaire was developed by an interdisciplinary research group from the participating countries, and a translation/back-translation procedure was used to guarantee language equivalence.²⁶

Three indicators were used to assess subjective health: self-rated health (SRH) perception, overall life satisfaction and subjective health complaints.²⁷ SRH was assessed by asking respondents 'Would you say your health is...?' with four response options (excellent/good/fair/poor). Responses were dichotomized into poor vs. fair/good/excellent. This item has been proven to work well in large epidemiological survey.²⁸ Students were asked to rate their present life satisfaction using a validated²⁹ ladder, with the bottom (0) representing the worst possible life and the top (10) the best possible life. Respondents with scores between 0 and 6 were classified as reporting low life satisfaction. Our decision to use dichotomized variables was led by our objective to improve the subjective health of these students, focusing on the lowest level of SRH or life satisfaction which is the most relevant issue. Third, a validated checklist³⁰ was used to assess the frequency with which students experienced each of the following psychosomatic complaints during the past 6 months (headache, stomach ache,

Table 1 Percentages of students' characteristics (socio-demographic, personal, social and family factors, subjective health outcomes and peer victimization) by disability and chronic illness (D/CI) status

Variables	Students without D/CI (%)	Students with D/CI (%)	P-value
Socio-demographic factors			
Gender			
Boys	49.0	48.8	NS
Girls	51.0	51.2	
Age (years)			
11	31.2	31.5	NS
13	34.2	33.6	
15	34.6	34.9	
Family affluence			
Low	18.9	19.1	NS
Medium	43.8	42.9	
High	37.3	38.0	
Individual factors			
Body image			
Think being a bit or much too fat	31.3	37.6	<0.001
Think being about the right size or much or a bit too thin	68.7	62.4	
School-related stress			
Not at all/a little/some	90.5	87.5	<0.001
A lot	9.5	12.5	
Social network factors			
Communication with same-sex friends			
Easy or very easy	82.4	80.6	<0.001
Difficult or very difficult	17.6	19.5	
Social support from classmates			
Strong	89.3	87.4	<0.001
Weak	10.7	12.7	
Family factors			
Family structure			
Living with both biological parents	76.0	72.3	<0.001
Others	24.0	27.7	
Communication with mother			
Easy or very easy	83.5	80.5	<0.001
Difficult or very difficult	16.5	19.5	
Communication with father			
Easy or very easy	66.4	61.9	<0.001
Difficult or very difficult	33.6	38.1	
Subjective health indicators			
Poor SRH			
Yes	1.1	3.7	<0.001
No	98.9	96.3	
Low life satisfaction			
Yes	14.9	20.7	<0.001
No	85.1	79.3	
Multiple health complaints			
Yes	27.6	39.8	<0.001
No	72.4	60.2	
Peer victimization			
Not involved	86.5	80.2	<0.001
Victims	10.1	14.7	
Bully–victims	3.4	5.1	

NS, not significant.

backache, feeling low, irritability, feeling nervous, difficulties in getting to sleep, feeling dizzy), with six different answer options (about every day, more than once a week, about every week, about every month, rarely or never). Students were considered to experience multiple health complaints when they reported two or more symptoms more than once a week.

The questions and definition of bullying used in the survey were those developed by Olweus³ ['How often have you been bullied at school in the past couple of months?' and 'How often have you taken part in bullying another student(s) at school in the past couple of months?']. For both questions, the five answer options [I have not

been bullied (or bullied) (an)other student(s) at school in the past couple of months/It has only happened once or twice/two or three times a month/About once a week/Several times a week] were grouped into 'at least two or three times a month' vs. 'not involved', to obtain a valid way to distinguish between victims and bullies.³¹ Thus, three categories of students were defined for the present analyses: not involved, victims and bully–victims.³¹

To identify students with a D/CI, the following question was asked: 'Do you have a long-term illness, disability or medical condition (like diabetes, arthritis, allergy or cerebral palsy) that has been diagnosed by a doctor?'. Answering categories were 'yes' or 'no'. A subsequent question allowed identification of children for whom their D/CI restricted school attendance or participation: 'Does your long-term illness, disability or medical condition affect your attendance and participation at school?'. Students were then classified into three mutually exclusive categories as non-D/CI students, D/CI without restriction in participation and D/CI with restriction in participation at school.

In addition, four groups of confounding variables were considered to be possible determinants of both peer victimization and subjective health: socio-demographic, individual, social and family factors.^{13,24,32} Socio-demographic factors, included age group, gender and family affluence. The latter was assessed by the validated Family Affluence Scale³³ through a composite score used as an ordinal indicator of affluence: high, middle or low. Individual factors included 'body image' to measure general satisfaction/dissatisfaction about body and physical appearance and 'school-related stress' to assess feelings of pressure or stress related to schoolwork. The quality of the social network was investigated by one item on communication with same-sex friends and a three-items scale developed for HBSC study measuring social support from classmates ['The students in my class(es) enjoy being together'/'Most of the students in my class(es) are kind and helpful'/'Other students accept me as I am']. Family structure (living with both biological parents vs. not living with both parents) and communication with mother and father (considered separately) were also included ('How easy is it for you to talk to the following persons about things that really bother you?'). More information on these items is available in Currie *et al.*³⁴ All answer options are indicated in table 1.

Statistical analyses

Multilevel logistic regression analyses (random intercept) were computed to take into account the hierarchical structure of the data (individuals clustered within schools within countries). To estimate the risk for reporting a poor health indicator (i.e. poor

SRH, low life satisfaction, multiple health complaints) associated with peer victimization according to the D/CI status, the interaction terms between these factors were tested in adjusted logistic regression models. The same analyses were repeated for each of the three dichotomized health indicators. All confounding variables showing a significant univariate association at a 20% level were included in the initial models (gender, age, family affluence, body image, family structure, communication with mother, communication with father, social support, communication with same-sex friends, school-related stress), and all were kept in the final models with a $P < 0.05$. Analyses were performed with Stata 9.2. (StataCorp, College Station, TX, USA), and the GLLMM command³⁵ was used to implement the multilevel logistic regression models. CIs were computed at the 95% level, and statistical significance was established at $P < 0.05$.

Results

Prevalence of students reporting D/CI (overall and by country)

The sample consisted of 55 030 students (49.1% boys). Overall, prevalence of students reporting D/CI was 17.7% and varied across countries, from 14.3% in Bulgaria to 27.1% in Germany. Table 1 presents the characteristics of the sample (socio-demographic, individual, social and family factors, frequency of peer victimization and the distribution of subjective health outcomes) for both groups of students according to their D/CI status.

Prevalence of peer victimization and associated risk with D/CI status

Overall, 13.5% (95% CI: 13.2–13.8) of students reported having been bullied at least two or three times a month (of whom 25.6% were bully–victims), with large country variations, from 8.5% in the Netherlands to 21.3% in Latvia (table 2). A higher level of peer victimization was found in students with D/CI compared with those without D/CI in each country, with ORs varying between 1.3 in Germany and Latvia to 2.1 in Poland.

Prevalence of poor SRH, low life satisfaction and multiple health complaints

Overall, 36.9% of the respondents reported at least one of the following three health concerns: poor SRH, low life satisfaction and multiple health complaints. This percentage was significantly higher among students with D/CI compared with others [47.5%

Table 2 Prevalence of peer victimization (victims and bully–victims) among students with and without a D/CI and associations between D/CI and peer victimization according to country

Country	n	Prevalence rate of peer victimization (%)			OR for the relationship between peer victimization and D/CI (95% CI) ^b
		Total sample (95% CI)	Among students without D/CI ^a	Among students with D/CI ^a	
The Netherlands	4278	8.5 (7.7–9.4)	7.8	12.3	1.7 (1.3–2.2)
Ireland	4894	8.7 (7.9–9.5)	8.0	11.4	1.5 (1.2–1.8)
Poland	5489	9.3 (8.5–10.1)	8.2	15.5	2.1 (1.7–2.6)
Wales	4409	11.4 (10.4–12.3)	10.1	18.0	2.0 (1.6–2.5)
France	7154	13.6 (12.8–14.4)	12.6	18.0	1.5 (1.3–1.8)
Canada	5930	14.1 (13.2–15)	12.7	20.8	1.8 (1.5–2.1)
Germany	5010	14.3 (13.3–15.3)	13.3	16.9	1.3 (1.1–1.6)
Portugal	3919	14.5 (13.4–15.6)	13.7	17.7	1.4 (1.1–1.7)
Austria	4848	15.8 (14.8–16.9)	14.4	23.4	1.9 (1.5–2.3)
Bulgaria	4854	18.5 (17.4–19.6)	17.4	23.7	1.5 (1.2–1.8)
Latvia	4245	21.3 (20–22.5)	20.4	24.7	1.3 (1.1–1.6)

a: Including D/CI without and with restriction in participation

b: ORs estimate considered individuals clustered within schools

Table 3 Adjusted OR for reporting negative subjective health for victims of bullying (victims and bully–victims) according to the level of disability

	Poor SRH		Low life satisfaction		Multiple health complaints	
	Adjusted OR ^b (95% CI) or variance (SE)		Adjusted OR ^b (95% CI) or variance (SE)		Adjusted OR ^b (95% CI) or variance (SE)	
	Victims ^a n = 35 965 ^c	Bully–victims ^a n = 33 433 ^c	Victims ^a n = 35 870 ^c	Bully–victims ^a n = 33 347 ^c	Victims ^a n = 35 618 ^c	Bully–victims ^a n = 33 109 ^c
Fixed effects						
Among without D/CI	1.8 (1.3–2.4)	2.1 (1.3–3.4)	2.3 (2.1–2.5)	2.2 (1.9–2.6)	2.3 (2.1–2.5)	2.7 (2.4–3.1)
Among D/CI without restriction	1.3 (0.7–2.4)	2.8 (1.2–6.2)	2.0 (1.6–2.5)	2.2 (1.4–3.2)	2.1 (1.7–2.6)	2.8 (2.0–4.0)
Among D/CI with restriction	1.4 (0.8–2.3)	0.9 (0.4–2.0)	2.2 (1.7–3.0)	1.8 (1.2–2.8)	1.8 (1.3–2.4)	2.4 (1.5–3.7)
Interaction with D/CI without restriction (P-value)	NS	NS	NS	NS	NS	NS
Interaction with D/CI with restriction (P-value)	NS	NS	NS	NS	NS	NS
Random effects						
Variance between countries	0.128 (0.070)	0.167 (0.087)	0.086 (0.033)	0.080 (0.036)	0.131 (0.032)	0.113 (0.049)
Variance between schools	0.197 (0.127)	0.075 (0.141)	0.060 (0.018)	0.066 (0.020)	0.066 (0.013)	0.061 (0.014)

a: The reference category is 'not involved in bullying'

b: Adjusted on gender, age, family affluence, body image, family structure, communication with mother, communication with father, social support, communication with same-sex friends and pressured by school work

c: The numbers consider missing data to all variables included in the related model

Note: ORs significant at 5% level are in bold.

NS, not significant; SE, standard error.

(95% CI: 46.5–48.5) vs. 34.6% (95% CI: 34.1–35.1)] and among victims of bullying (including victims and bully–victims) compared with others [58.0% (95% CI: 56.7–59.2) vs. 33.6% (95% CI: 33.1–34.0)].

Findings of the multilevel regression analyses

Three-level (country/school/student) multilevel logistic models were performed to investigate the association between peer victimization and poor subjective health, controlling for confounding factors and countries. We carried out multilevel logistic models rather than classical logistic regression to take into account variations between countries and schools, even if exploring such differences was not our main objective. The risk for victims of bullying (separately for victims and bully–victims) to report poor subjective health compared with those not involved in any bullying behaviour, among students reporting D/CI (without or with restriction in participation) or not, is presented with ORs in table 3. Overall, our findings indicate that victims of bullying were more likely to report poor SRH, low life satisfaction and multiple health complaints. However, no statistically significant interaction term was found, indicating no difference in the association between peer victimization and subjective health between students with D/CI and others. In addition, a similar risk to report poor SRH, low life satisfaction and multiple health complaints was found for both victims and bully–victims.

Discussion

Regardless of the country, students reporting a D/CI were more often exposed to peer victimization at school. Additionally, peer victimization was significantly associated with negative subjective health for all three health indicators studied, and the strength of that association remained similar for students with and without D/CI.

Our findings confirm that peer victimization is a common experience among students in many countries, that those reporting D/CI are at higher risk of being victimized in all countries studied and this is consistent with previous exploratory research in France and Ireland.¹⁴ Also, other studies have reported higher rates of victimization among children with chronic conditions or special health care needs.^{13,15,36} Thus, our results

confirm that students with a D/CI are potentially a target for bullying.

There are various hypotheses that try to explain why children with a D/CI are victimized more often than their peers. Some authors have suggested external causes of peer victimization, arguing that students with chronic conditions are more likely to be bullied because of a difference in appearance or in behaviours (i.e. mannerisms, speech patterns).^{15,36} It may also be that students with a D/CI have greater difficulty in developing appropriate psychosocial relationships. Due to the concerns that they may be rejected by peers, these adolescents may choose to remain outside or on the sidelines of their peer group (internal cause of peer victimization). Loneliness and fear of rejection or social exclusion may lead them to feel like victims and to be seen as such. Thus, as Saylor and Leach³⁷ reported, it is necessary to create an effective strategy to improve children's ability to handle bullying situations and strengthening their self-confidence.

Our findings concur with previous studies reporting cross-national variations in peer victimization among students.^{1,13} We have observed consistent variations across countries in relative prevalence differences of peer victimization between students with D/CI and others. However, similarities were reported previously between countries in associated factors with being bullied, and victims were more likely to have lower psychological well-being, more sadness and emotional instability in most countries.¹³ Our objective was not to carry out comparisons between countries because of a lack of contextual data within country, but future research should take into account cross-national variations in bullying prevention programs or practices related to inclusive education.

Overall in this study, peer victimization had a similar relationship with health perceptions among students reporting a D/CI and those who do not. Some patterns regarding the subjective health indicators have emerged. Interestingly, stronger associations were found for multiple health complaints than for SRH; hence, we might assume that peer victimization results in the expression of psychosomatic complaints rather than in a lower subjective health. SRH and life satisfaction refer to positive evaluations of life as a whole.²⁷ Such global health perceptions can be used to assess student health as a synthetic measure of integrating different dimensions of health, whereas health complaints are defined as a response to potential

psychosocial stresses²⁷ and are thus conceptually distinct. Finally, our findings showed few differences between victims and bully-victims. However regarding health complaints, the strength of the association tended to be stronger for bully-victims compared with victims. This is consistent with other findings describing bully-victims as particularly at risk for psychological and psychosomatic symptoms.²³ Additionally, it would be interesting to explore this association by type of bullying, given that we know that bully-victims were significantly more likely to be boys,²³ who are more involved in physical bullying.²⁴

The main strength of this article is that, to our knowledge, it is the first to compare the relationship between peer victimization and subjective health, between students reporting D/CI and others, in a large sample. Other strengths are the large representative sample of Western countries, standardized validated research methods, translation quality controls and a common operational definition of bullying. Indeed, the common protocol of the study for all participant countries and the preamble in our questionnaire describing bullying in a complete and clear fashion, which provides a common operational definition, allowed confidence in the findings. Additionally, the generic approach used to define children with D/CI was adopted previously,³⁸ allowing examining the consequences of diverse disorders rather than use diagnoses labels that are not well known by parents, even less by children.

However, this study has some limitations, the main being the self-reported measurement of D/CI. Comparisons with previous studies on disability and chronic conditions among students are difficult because of the diversity in measurements and definitions used. In line with some previous findings,^{15,39} we can assume that asthma and allergies were the most common chronic conditions reported by students and that the most impaired students would be represented in the category of D/CI with restrictions in participation.¹⁴ Notwithstanding, our sample did not include special schools where children usually have more severe conditions. Second, there is a potential bias in the fact that peer victimization is self-reported, even if the Olweus question applied here has been extensively used.⁴⁰ Third, the general measure of bullying cannot distinguish between different forms or types of bullying. Pittet *et al.*³⁶ has shown differences between forms of bullying experienced by students with D/CI and others, and thus, it would be particularly interesting for future research to explore the relationship between types of peer victimization, subjective health and D/CI status. Finally, the cross-sectional design does not allow us to draw any conclusions about causal relations, even if a previous longitudinal study has indicated the reciprocity in the relationship between peer victimization and health-related complaints among schoolchildren.¹⁶ Previous studies have also shown that children with psychological and psychosomatic complaints were at increased risk for peer victimization.¹⁸

Conclusion

The consensus of most Western countries about the importance of an inclusive education system and the higher level of inclusion of students with chronic conditions in mainstream education make it important to pay attention to the quality of this inclusion. Health risk behaviours such as bullying are rarely studied among students with D/CI, and this study should contribute to a better understanding of determinants of well-being and quality of life in this population. A holistic approach, taking into account the contextual determinants of health risk behaviours, is of central importance if we are to more fully understand the health of young people and ultimately to design and implement effective health promotion and public health programs targeted at students with D/CI. In conclusion, our findings raise specific questions related to the schooling of students with D/CI in mainstream schools and

may help guide educational policies at national or local levels to improve their inclusion.

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Key points

- Peer victimization is a common problem among school-aged children.
- Children and adolescents with chronic conditions are at an increased risk of peer victimization.
- The SRH of victims of bullying who also report a disability or chronic illness is similar to that of students without chronic conditions.
- We should pay more attention to the quality of the integration at school of students with a disability or a chronic illness.

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