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Bullying in adolescence: Psychiatric problems in victims and bullies as measured by the Youth Self Report (YSR) and the Depression Self-Rating Scale (DSRS)

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Adolescents in junior high school ($n = 237$), completed a questionnaire on bullying as it relates to victim and to perpetrator status, suicidality and biographical data. Psychological symptoms were assessed by the Youth Self Report (YSR) and the Depression Self-Rating Scale (DSRS) supplemented by school health officers blind assessments. Bullying was common: bully *only* (18%), victim *only* (10%) and victim *and* bully (9%). Bullies had mainly externalizing symptoms (delinquency and aggression) and those of the victim *and* bully group both externalizing and internalizing symptoms as well as high levels of suicidality. Adolescents in the bully *only* group were more likely to be boys and to have attention problems. Moreover, a substantial proportion of the adolescents in the victim *only* group were judged by school health officer to have psychiatric symptoms and to function socially less well.
• *Bullying, Depression, Psychological symptoms, Self-report, Social functioning.*

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Bullying at school represents a severe problem for the victims, in terms of suffering, and for school personnel, as a problem to cope with (1). Olweus has estimated that about 15% of school pupils are affected in one way or another (1). Similar data have been published by Nansel et al. (2). However, as Hawker & Boulton (3) noted in a review, bullying is not a uniform phenomenon. Qualitatively different types of definitions of bullying (e.g. physical, verbal or relational forms of bullying) were utilized in the studies reviewed as well as more undefined "generic" forms. The different definitions used made comparisons across studies difficult. Nevertheless, some basic agreement seems to exist.

Bullying might be of relevance for child psychiatry as bullying, apart from the suffering, might be a cause of future mental and relational problems in the victims and a correlate or an expression of mental problems in the bullies (4–6). Bullies have generally been shown to have aggressive/disruptive symptoms combined with physical strength and victims to have anxious traits in combination with physical weakness (7, 8). Also, it has been noted that victims have increased levels of depressive symptoms and suicidality (9–11; however, see also Craig (4), who found no influence on depression from bullying status) and of anxiety (3, 11, 12).

The dichotomy of bullies and victims is not entirely appropriate. Some youngsters are both bullies and victims, and tend, according to Mynard & Joseph (13), to share personality traits of bullies rather than of victims. They have also been reported to have some specific traits in their family characteristics, such as inconsistent parenting and lack of warmth (14, 15). High levels of both internalizing and externalizing symptoms were found in adolescents who were both victims of bullying and who bullied others, whereas "bullies only" had generally lower levels of these symptoms, and "victims only" had intermediate levels of (mainly) internalizing symptoms (9). These findings are well in accordance with another study using a longitudinal design (16). Clearly, the diverse symptoms found in these subjects, puts specific demands on the measures used in a study of bullying and its sequelae.

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Very little data has of yet been published regarding the association between suicidality and bullying. One study found no differences between bullies and victims, possibly because the study did not differentiate between bullies and those that both are victims and bullies (17), whereas Kaltiala-Heino et al. noted strong association between bullying and suicidal ideation, particularly in those who both bullied and had been bullied (10). Thus, it is important to add this domain, and particularly to go a step further and include suicidal attempts, to the study of bullying. Also, in clinical practise, social skills have often been invoked as an explanation of bullying behaviours and of adolescents being victimized. Yet, little data has to our knowledge yet been produced substantiating the claims.

Aims

In the present study we intended to replicate and extend previous research on bullying by investigating a wide range of psychiatric symptoms (including suicidality and suicide attempts), including social skills in self-reported adolescent bullies, victims of bullying, adolescents who bully and who themselves have been bullied, as well as adolescents who have not been involved in bullying. External validation of the findings was sought through blind, independent measures of psychological health and psychosocial functioning by school health officers (SHOs).

Methods

Procedure

Adolescents attending one junior high school (three grades) in a suburb of Göteborg, Sweden, were asked by the SHOs to complete a questionnaire booklet in the classroom in the presence of their teacher. The teacher had been coached by the SHOs as to what instructions to give. The booklet consisted of two separate questionnaires, the Youth Self Report (YSR; 18) and the Depression Self-Rating Scale (DSRS; 19) and contained questions concerning peer bullying, suicidal ideation and suicide attempts, and information about the study including their right to refuse answering any question including the whole booklet. The teacher collected the booklets but did not have access to the responses. The booklets were kept in the medical records cabinet by the school doctor and school nurse, and were de-identified prior to the research. However, the doctor was blind to these data when he did his ratings in respect of problems and social functioning. The booklet contained a suggestion to contact the school doctor or school nurse if any problem should arise in connection with the study. The study was part of routine school health procedures in the community. Prior to the study, the school doctor informed the parents, and permission to participate in the study was given individually.

Subjects

The total sample consisted of 237 adolescents, 208 of whom (88%) completed both questionnaires. Twenty-seven adolescents did not complete the DSRS. Twenty-four individuals did not complete the YSR, 22 of whom belonged to the DSRS drop-out group. According to our drop-out analysis – greatly aided by the school doctor's and nurse's personal knowledge of many of the pupils – 14 of the 29 non-responders (47%) had marked to moderate behavioural/emotional problems (according to the SHOs – see below in section Measures, subsection Health record). This is indicative of a high prevalence of problems and might have some effect on the results and conclusions to be presented, given that the 14 non-responders constitute 44% of the group with serious psychological symptoms according to the SHOs. Some of the missing DSRS data was reconstructed through the YSR subscales (Withdrawal, somatic complaints and anxious/depressed) with highest correlations with the DSRS, through a linear regression function. Thus DSRS attrition was reduced to 12 cases (and participants increased to 224 participants).

Questions on status as bully were not responded to by 33 participants (14.9%; (40% girls and 60% boys). Five of these were known to have "internalizing behavioural problems", two to have "externalizing behavioural problems" and four to have "social problems" according to the SHOs. However, there were no differences with regard to YSR externalizing, internalizing or total scores, or DSRS scores between responders and non-responders.

Another 36 individuals (16.3%) did not respond to questions on whether they had been victims of bullying. Non-responders did not differ from responders with respect to YSR internalizing, externalizing or total scores nor on DSRS scores.

Complete data were available for a total of 183 pupils (77%; 89 boys and 94 girls).

Gender and age distributions were similar to those of Swedish junior high schools in general. The ages ranged from 13 to 16 years of age [girls mean = 14.0, boys mean = 13.9, n.s.; 13-year-olds (29%): 53.8% boys and 46.2% girls; 14-year-olds (36%): 55% boys and 45% girls; 15-year-olds (35%): 42.3% boys and 57.7% girls, n.s.].

Social class (9-point scaled Hollingshead index of occupational status) was 6.0 for fathers and 5.2 for mothers (i.e. middle class; 20). Most adolescents (77%) lived with both their mother and father, but almost one in five (18%) with their mother only, and 5% lived in other family constellations. Eighty-seven per cent of the adolescents had at least one parent born in Sweden. The largest non-Swedish groups were those from Finland and from Iran (seven individuals each).

The junior high school is in an area of approximately 31,000 inhabitants and contains large rural areas (11.5%

of population) but also an old industrial township and, due to the closeness to Göteborg, areas with new housing, some social problems, but also areas with more wealthy inhabitants. About 19% of the inhabitants were born abroad. Thus, the area is in many way representative of Sweden as a whole, except that a larger proportion is academically educated (36%) or has graduated from senior high school (47%) than in Sweden generally (31% and 49%, respectively).

Measures

STATUS AS VICTIM OR BULLY

The adolescents were asked if they had ever been bullied "never", "sometimes", "often" or "very often". A special Swedish word "mobbning" was used, a word that has come into general usage in the last 20 years to refer to bullying both among school children and among adults. This might ensure that the phenomena tapped are reasonably homogeneous, including aggressive bullying and harsh (but not mild) teasing, and silent exclusion from friendship. Furthermore, the respondents were also queried as to when the bullying had started and ended (if ever), as well as asked for a description as to the kind of bullying that had occurred. Thus, some affirmative responses that were not considered credible could be excluded ($n = 3$). However, this procedure does not address the problem of under-reporting. Adolescents were also asked if they had ever bullied others (with analogous follow-up probes). In the analyses, all affirmative responses were used to indicate presence of the problem in question. The following four groups were used in the study: adolescents who had bullied others but not been victimized ("Bully *only*"; $n = 33$); adolescents who had been victims but not bullied ("Victim *only*"; $n = 19$); adolescents who had been both victims and been bullied ("Victim *and* Bully"; $n = 17$); and finally adolescents who had neither been victimized themselves nor bullied others ("Neither"; $n = 114$).

THE YOUTH SELF REPORT

The Achenbach approach to emotional and behavioural assessment offers a dimensional conceptualization of child psychiatric problems covering a wide range of symptom domains (21). It also contains items assessing social skills, hence adding a theoretically important domain to the study of child psychiatry generally (21) and perhaps, specifically to the study of bullying. With a dimensional approach, problems such as depression or aggression are described along a continuum, which is particularly appropriate for the study of problems in general population samples where attribution of caseness is not needed. The YSR (18) – one of the three "Achenbach modules" – was considered particularly appropriate for the study of psychological/psychiatric symptoms in this domain.

The YSR (18) is a self-report questionnaire divided in two parts: 1) Competencies and 2) Problems. It consists of 112 problem items covering different symptoms/behaviours each to be rated on a three-point scale (2 indicates that the symptom is present most of the time or applies well, 1 indicates that the symptom is present some of the time or applies to some extent, and 0 indicates the absence of symptom or problem behaviour). All ratings refer to symptoms or problems experienced during the preceding 6 months. The YSR has been translated into Swedish and back to English to ensure congruence with the original. It has been used with more than 5000 Swedish adolescents and Swedish norms have been published (22).

The YSR total problem scale can be divided into nine syndrome subscales: "Withdrawn", "Somatic complaints", "Anxious/Depressed", "Social problems", "Thought problems", "Attention problems", "Delinquent behaviour", "Aggressive behaviour" and "Self-destructive/Identity problems". "Withdrawn", "Somatic complaints" and "Anxious/Depressed" together comprise a broad "internalizing" dimension, whereas "Delinquent" and "Aggressive" behaviours together constitute an "externalizing" dimension (18). The items of the subscale "Self-destructive/Identity problems" cover both classical self-destructive behaviours and cognitions, but also items such as "I behave like the opposite sex", "I feel confused" and "I am jealous". The "Thought problems" subscale has items covering obsessions/compulsions, hallucinations, delusions and odd behaviours and thoughts. Some YSR items (e.g. "I do not obey my parents", "I do not eat as well as I should", "I bite my nails") and the YSR tics item are included in an "Other problems" subscale (which is not a subscale in the strict sense although it had adequate internal consistency in a previous study; 23). The social desirability scale contains items like: "I am quite honest", "I like to help others when they need" and "I try to be fair towards others".

Validity and reliability of the YSR. The internal consistency of the Swedish YSR has been found adequate for most syndrome scales and good for the two broadband dimensions (Internalizing/Externalizing; 22) consistent with previous international studies (24, 25). Also, the validity of the Swedish YSR and subscales was found to be good (23) and in line with international studies that have shown adequate discriminant and convergent validity against other measures (24, 26–28).

The social skills section of the YSR contains seven items covering different facets of social skills: involvement in 1) Sports, 2) Hobbies, 3) Clubs, 4) Tasks/Work, 5) Peer relationships and the 6) Qualities of relationships with family and peers, and finally, 7) School capacities.

The Birleson Depression Self-Rating Scale (DSRS)

The DSRS was developed in clinical practice by Birleson (19) for use with children and young adolescents. The DSRS is an 18-item self-report questionnaire in which the child/adolescent is asked to rate him/herself on a 3-point scale with regard to the occurrence of depressive symptoms during the preceding week (2 = most of the time, 1 = sometimes and 0 = never). Criterion and concurrent validity have been demonstrated in child (29, 30) and adolescent (31–34) populations. Charman (31) found the DSRS to have acceptable concurrent validity with the Children's Depression Inventory (35). The Swedish translation of the DSRS (36) has been shown to have adequate concurrent validity with the Beck Depression Inventory (BDI), as well as criterion validity against DSM III diagnoses of depression (37). The DSRS has also been found to have adequate test–retest reliability (38) and internal consistency in school and psychiatric inpatient populations in Sweden (37, 39).

Suicidality

Suicidal ideation was measured through self-report, using a suicide ideation item adapted from the Swedish version of the BDI (40).

Suicide attempt was measured through self-report by inclusion in the questionnaire booklet of an item used in a previous study (39). In brief, the adolescent was asked whether he/she "had ever made a suicide attempt". If responded to in the affirmative, adolescents were asked *when* they had done it, if they had done it *more than once* and *how* they had attempted to commit suicide.

Health record

Each child's physical, psychological/psychiatric, social and school-related problems or symptoms were assessed through scrutiny of the school health records that include data from the participant's entire school period from 7 years of age. The adolescents had had the same school nurse and school doctor (third author) for their entire school period and serious health problems were well known by them. Any kind of problem that were noted in the records, e.g. concentration difficulties, aggressiveness, passivity, anxiety or depressed mood, were classified as externalizing or internalizing (or both) by the first author. The SHOs also rated each adolescent's general psychosocial functioning according to the Social and Occupational Functioning Assessment Scale (SOFAS) scale from DSM IV (41). The SOFAS scale is similar to that of the more widely used Global Assessment of Functioning scale within the DSM system but does not include references to psychiatric symptoms and was thus more suitable for a normal population. Briefly, each individual is assigned a score from 0 to 100 (100 = superior functioning in all domains) with anchor points describing level of functioning. The scores were dichotomized using a score of 80 (representing minor functional deficits) as a cut-off. Systematic demographic data were also collected through the school records. Both the school nurse and the doctor had monitored the pupils' healthcare throughout their school years, and were both blind to the questionnaire data when compiling the health record data for each adolescent. The school doctor was a paediatrician with considerable experience from the diagnosis and treatment of neuropsychiatric symptoms.

Statistics

Analyses of variance (ANOVAs) with Tukey HSD Post Hoc analyses were used for continuous variables and Pearson chi-squares for discontinuous variables. In ANOVAs, effect sizes were calculated using the partial eta-squared statistic. Thus, the effect size contributed by bullying was separated from that contributed by gender.

Stepwise multiple logistic regression with backward elimination procedure was used in the analysis of factors predicting status as "Victim *and* Bully" as compared with status as "Bully *only*". We chose this methodology because we felt that in an exploratory study like the present, one should not be restricted to factors indicated by theory but to leave room for unexpected relationships, keeping in mind the correlational nature of the findings.

Results

Bully–victim status

Eighteen per cent of the adolescents ($n = 33$: girls/boys = 7.4%/29.2%) had bullied others but not been victimized ("Bully *only*"), 10% ($n = 19$: girls/boys = 13.8%/6.7%) had been victims but not bullied ("Victim *only*") and 9% ($n = 17$: girls/boys = 11.7%/6.7%) had both been victims and been bullied ("Victim *and* Bully"). A majority ($n = 117$ (62%) girls/boys = 67%/57.3%), of the adolescents stated that they had neither been victimized nor bullied others ("Neither"). The gender differences across the groups were significant [$\chi^2(3) = 16.69$, $P < 0.001$]. This is mainly due to boys more commonly being bullies ($P = 0.0001$, Fisher's exact test) and the tendency for girls to be "Victim *only*" ($P = 0.091$, Fisher's exact test). For the remaining two groups ("Bully/Victim" and "Neither") gender differences were not statistically significant.

Psychiatric symptoms

There were significant differences between boys and girls on the DSRS as well as on the total YSR score and several of the YSR syndrome scales. Girls reported more symptoms than boys, especially with regard to depressive and other internalizing problems. Consequently, gender was entered as a covariate in the analyses.

ANOVA analysis (Table 1), using gender as covariate (no significant interaction between gender and status as victim and/or bully occurred), revealed that status as victim and/or bully was important as a predictor of DSRS scores [$F(3, 183) = 4.71$, $P < 0.0001$]. Adolescents in the "Victim *and* Bully" group scored significantly higher than those of the "Neither" group.

ANOVA analyses revealed that YSR total scores, the YSR Internalizing dimension and the YSR Externalizing dimension, using gender as a covariate, were significantly related to status as victim and/or bully. Furthermore, status as victim and/or bully, using gender as covariate, was related to scores on several YSR subsyndrome scales.

Generally, "Victim *and* Bully" scored higher on the YRS subscales than those of the other three groups. Adolescents in the "Bully *only*" group scored higher than adolescents in the "Neither" and the "Victim *only*" group on externalizing scales, and higher than the "Neither" group on the attention difficulties subscale. Adolescents in the "Victim *only*" group, on the other hand, scored lower than the other groups on externalizing symptoms (aggression and delinquency). Both the "Victim *and* Bully" and the "Bully *only*" groups scored high on the social desirability items. There was a tendency [$F(1, 183) = 3.68$, $P < 0.057$] for girls generally to score higher (mean = 8.59) than boys (mean = 6.92) on the social desirability scale. However, there were no interaction effects between gender and status as bully and/or victim on this scale.

Generally, effect sizes for the role of bullying were larger for the symptoms included in the "Externalizing" than for the "Internalizing" dimensions and for some subscales like "Self-destructive-Identity problems", "Thought problems" and for "Other problems" (Table 1).

Suicidality

A larger proportion of the adolescents in the "Victim *and* Bully" (47%) and the "Victim *only*" (39%) groups reported suicidal ideation as compared to those of the "Bully *only*" (12%) and the "Neither" (20%) groups [$\chi^2(3) = 10.8$, $P < 0.013$]. However, most of these had less serious suicidal ideation and only 12% of the adolescents in the "Victim *and* Bully" group and 11% in the "Victim *only*" groups had serious levels of suicide ideation. Three out of seven suicide attempts in the whole group were reported by adolescents in the "Victim *and* Bully" group (18%), one each by those of the "Bully *only*" and "Victim *only*" groups, and two by those of the "Neither" group. Suicide attempts were associated with status as being involved in any kind of bullying (i.e. "Bully *only*", "Victim *only*" or "Victim *and* Bully"; Fisher's exact test, $P = 0.048$) (due to small cell sizes statistical analysis could not be computed for the bullying subgroups).

The YSR item on the use of alcohol or drugs was dichotomized to use/no use. Adolescents in the "Victim *and* Bully" group endorsed this item more often (41%) as compared to those of the other three groups ("Bully *only*": 28% and "Victim *only*": 11%). Reported alcohol/drug use was especially uncommon for adolescents in the "Neither" group (6%). Due to small numbers in the subgroups, statistical significance was only computed for collapsed bullying status groups as compared to the "Neither" group (Fisher's $P < 0.0001$).

Social competence

The YSR social competence scales were used to assess the pupils' social skills. There was no relationship between status as bully and/or victim and social skills "Bully *only*" (mean = 11.2); "Victim *only*" (mean = 11.8); "Victim *and* Bully" (mean = 11,4) and the "Neither" group (mean = 12.0) [$F(3, 183) = 0.7$, n.s.]. There were no effects of gender.

External validation

Independent measures of psychological/psychiatric/social problems as judged by the SHOs were also analysed. School officers described relatively more problems among adolescents involved as "Bully *only*" (24%) and as "Victim *only*" (37%), as compared to those of the "Victim *and* Bully" (17%) and the "Neither" group (14%). Collapsing the bullying groups as above there was a tendency (Fisher's exact test, $P = 0.051$) for the "Neither" group to have fewer problems. There was agreement between the SHO ratings globally and the YSR, in that ANOVA analysis revealed that controlling for gender, any psychiatric problem as judged by the SHO was significantly [$F(1, 222) = 4.53$, $P < 0.01$] related to the YSR total score. However, SHO judgments regarding externalizing respectively internalizing symptoms agreed poorly with the adolescents' YSR dimensions scores.

SHO ratings of general psychosocial functioning (SOFAS scale from DSM IV) singled out adolescents of the "Victim *only*" group as functioning more poorly (31%) than the adolescents in the other three groups: as compared with the "Neither" group (4%); the "Bully *only*" group (12%); and the "Victim *and* Bully" group (7%). Using the collapsed bullying groups as compared to the "Neither" group the difference reached statistical significance (Fisher's exact test, $P = 0.012$). Mainly group status as "Victim *only*" (Fisher's exact test, $P = 0.002$) contributed.

Victim and Bully versus Bully only

To summarize, the results indicate that the group "Victim *and* Bully" has a heavy symptom burden, more so than either of the "Victim *only*" or the "Bully *only*" groups. They seem to have a combination of

Table 1. Distribution of DSRS and YSR total score, YSR dimensions scores and subscales scores according to status as bully and/or victim among girls and boys.

	Bully (B)				Victim (V)				Victim/Bully (V/B)				Neither (N)				F		
	Girls		Boys		Girls		Boys		Girls		Boys		Girls		Boys				
	$n=7$		$n=26$		$n=13$		$n=6$		$n=11$		$n=6$		$n=63$		$n=51$		df = 3		
Scale	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	183	Effect size*, Partial eta^2	Post Hoc (Tukey)
DSRS	10.0	5.6	6.9	3.6	8.5	3.5	6.7	7.3	10.5	5.6	8.0	2.3	6.7	4.1	5.4	3.1	4.72, $p<0.0001$	0.08	V/B > N
YSR Total score	57.6	33.0	45.2	26.3	46.7	23.1	34.5	17.3	67.9	38.8	63	15.2	39.0	18.8	29	15.1	12.17, $p<0.001$	0.17	V/B > B, V, N, B > N
YSR Internalizing	15.3	10.1	8.1	8.4	13.2	9.9	9.2	5.1	18.5	13.6	12.0	4.9	9.8	7.6	5.0	4.6	6.33, $p<0.0001$	0.10	V/B > B, N,
YSR Externalizing	18.9	8.8	15.7	8.5	11.8	4.6	7.7	3.7	18.2	10.5	21.2	8.5	11.1	5.3	9.3	4.5	17.04, $p<0.0001$	0.23	V/B, B > V, N
YSR Anx/Depr	8.1	5.3	5.1	5.1	8.4	5.9	5.8	3.3	10.6	7.8	6.5	2.1	5.7	4.8	3.3	3.1	5.88, $p<0.002$	0.08	V/B > N
YSR Withdrawal	3.3	1.6	2.1	2.0	3.2	1.8	2.7	2.2	3.7	2.4	3.5	2.3	2.6	2.3	1.5	1.3	3.69, $p<0.013$	0.06	V/B > N
YSR Somatic	5.0	3.6	2.0	2.1	3.2	3.5	2.0	2.0	5.6	4.2	3.8	3.2	3.1	2.6	1.6	1.5	4.95, $p<0.003$	0.08	V/B > B, V, N
YSR Social	1.3	1.4	2.3	2.4	2.2	1.3	3.8	2.6	3.5	2.8	2.3	1.2	1.9	1.6	1.6	1.4	3.67, $p<0.013$	0.06	V/B > N
YSR Thought	3.4	1.9	2.2	2.3	3.2	2.7	1.8	1.3	4.2	3.8	5.3	4.0	1.9	1.9	1.7	1.8	8.89, $p<0.0001$	0.13	V/B > B, N
YSR Attention	6.7	5.1	5.7	3.1	5.4	3.5	4.0	3.4	6.8	3.9	5.0	2.7	4.8	2.5	3.6	2.5	3.78, $p<0.012$	0.06	B > N
YSR Delinquency	6.0	4.3	4.8	3.6	2.6	1.8	1.8	2.0	5.5	4.3	6.8	3.3	2.5	2.1	2.0	1.5	18.50, $p<0.0001$	0.24	V/B, B > V, N
YSR Aggressive	12.7	5.1	10.9	5.5	9.2	3.7	5.8	2.8	12.7	6.7	14.3	5.8	8.6	4.0	7.3	3.6	11.46, $p<0.0001$	0.16	V/B > V, N, B > N
YSR Self-destr	2.6	2.6	2.3	2.1	2.9	2.0	1.8	1.3	4.6	4.0	4.3	1.2	2.4	2.1	1.6	1.7	6.1, $p<0.001$	0.10	V/B > B, V, N
YSR Other	9.4	5.8	8.8	5.2	8.1	4.5	6.2	4.0	12.2	5.6	12.8	4.2	7.1	3.5	6.1	3.8	10.30, $p<0.0001$	0.15	V/B > B, V, N, B > N
YSR soc. desirab.	10.7	5.9	8.5	3.7	9.2	3.6	6.3	2.9	10.8	5.2	12.2	4.3	7.8	3.5	5.6	3.0	10.28, $p<0.0001$	0.15	V/B, B > V, N

*Effect size refers to effect of Bullying variable, when effect of gender (including any interaction effects gender by bullying) is partialled out.

externalizing and internalizing symptoms as well as more unusual symptom patterns (e.g. thought problems, self-destructive identity problems and problems scored on YSR subscale "Other" problems).

To study the specific psychopathological features of the adolescents in the "Victim *and* Bully" group as compared to those of the "Bully *only*" group, logistic regression analyses were performed with the DSRS, the YSR total score, YSR dimensions and the YSR subsyndrome scales (hierarchically ordered separately) or the presence of suicidal ideation and attempts and gender as independent variables (Table 2). All analyses rejected the DSRS and suicidal ideation. In analyses using the YSR total score respectively the Externalizing and Internalizing dimensions as predictors, these were rejected and gender ($B = -1.95$, $P = 0.005$: odds ratio, OR = 0.14, confidence interval, CI, 0.037–0.55) and lifetime suicide attempt ($B = 2.1$, $P = 0.12$: OR = 7.5, CI 0.59–96.5) were retained.

However, using the YSR syndrome scales as predictors in a logistic regression analysis with stepwise elimination, three subscales "Attention problems", "Self-destructive/Identity problems" and "Other problems" and gender together identified 82% of the adolescents correctly. All other scales and suicidality were rejected. However, whereas "Self-destructive/Identity problems" and "Other problems" were positively associated with being "Victim *and* Bully", YSR "Attention problems" was rather associated with being a "Bully *only*", as was male gender.

Discussion

Summary of data

Bullying or victimization occurred among a large minority of school pupils (38%), among whom the smallest group (9% of the entire population) were both bullies and victims. These figures are higher than those reported by Olweus (7), Roland (17), Kaltiala-Heino et al. (10) and by Nansel et al. (2), but similar to those reported by Duncan (42) and Sourander et al. (6). The differences might be attributed to the use of different screening questions.

In general, adolescents in the "Victim *only*" group had levels of self-reported psychiatric problems statistically indistinguishable from those of the "Neither" group in the ANOVA analyses, although the means on internalizing problems were higher. However, SHOs found them both to have more symptoms (any psychiatric problem), and to function worse (SOFAS) than the other groups. Possibly, it might indicate that it is important for SHOs to assess the social functioning of the pupils more thoroughly, to be able to protect those who are vulnerable to harassment. These findings are partly corroborating those of Hanish & Guerra (43) who, using longitudinal data on the Achenbach Teacher Report form, found both externalizing, internalizing and social problems to be associated with status as victim among school pupils. Also, in general, adolescents in the "Bully *only*" and "Victim *and* Bully" group had more externalizing symptoms than those of the other two groups. In addition to high scores on externalizing symptom scales adolescents in the "Victim *and* Bully" group also had high levels of internalizing symptoms but also on subscales with more unusual or severe symptoms [i.e. "Thought problems" (items covering obsessions/compulsions, hallucinations, delusions and odd behaviours and thoughts), "Social problems" and "Self-destructive identity problems"]. Also, in general, suicide attempts were associated with involvement (any kind) in bullying (but especially "Victim *and* Bully"). Our results support earlier studies concerning a correlation between self-reported psychiatric symptoms and status as Victim and/or Bully (4–6, 9, 10, 17, 42, 44), see also a review by Olweus (1). However, apart from suicidal ideation, the kinds of symptom included in the "Thought problems", "Social problems" and "Self-destructive identity problems") have not been reported previously (4–6, 9, 10, 17, 42, 44).

An interesting question is the difference between adolescents who bully and those who both bully and who have been bullied. We found two YSR subscales, "Self-destructive identity problems" and "Other problems" (see methods for the description) to be positively associated with status as "Victim *and* Bully" rather than "Bully *only*". These findings are in accordance with those of Kumpulainen & Räsänen, who in a careful longitudinal study, found the "Victim *and* Bully" group to have the highest level of psychiatric symptoms (45).

Table 2. Differences between "Bully *only*" and "Victim *and* Bully" on YSR syndrome scales using backwards stepwise logistic regression analysis.

Variable	*B*	SE	*p*	Odds ratio	95% CI
YSR Attention	−0.68	0.24	0.004	0.06	0.01–0.40
YSR Self-destr./ID problems	0.59	0.26	0.02	1.80	1.09–2.96
YSR Other	0.31	0.14	0.03	1.36	1.03–1.79
Gender (boy)	−2.88	0.99	0.004	0.056	0.01–0.39
Constant	−0.29	1.01	n.s.	0.75	

CI, confidence interval.

The "Bully *only*" group was predominantly male, a finding consistent with other studies (9, 16) and at variance with one study detailing gender differences (4). Attention difficulties were associated with status as "Bully" rather than "Victim *and* Bully", even when controlling for gender, a finding at variance with the Kumpulainen & Rasanen study (45). Also, the predominance of males in this group could suggest that adolescents in the "Bully *only*" group might have symptoms shared with people in the AD/HD spectrum, being impulsive and lacking in self-control. This is clearly in contrast to adolescents in the "Victim *and* Bully" group who had a much more complex symptom picture.

The association between the use of alcohol and/or drugs and status as "Bully *only*" or "Victim *and* Bully" was in agreement with findings from a study from Finland 9.

Limitations and strengths

The self-reported data were partly corroborated, and to some extent, extended by the SHO's judgement of the presence of psychological/psychiatric and social problems in the "Victim *only*" and in the "Bully" group, and in respect of the "Victim *only*" group less well functioning on the SOFAS scale as compared to all the other groups. However, on a more detailed level, we had lower levels of compatibility between self-report and SHO's assessments (e.g. in the "Victim *and* Bully" group and between that of SHO- and self-reported externalizing or internalizing symptoms generally). However, there was better agreement between SHO's judgement on the presence of any kind of problem and YSR total scores. Less than perfect agreement between different sources of information have been noted in previous studies (46, 47). Still, it is a strength of the study to incorporate different sources of information.

The present sample had acceptable levels of attrition, albeit the attrition has probably resulted in lower estimates of psychopathology than otherwise should have been the case. Moreover, the attrition in respect to questions on bullying might have had the effect of decreasing the specificity in the associations between bullying and psychopathology and some underestimation of problem levels among those involved in bullying. Also, the effect size for the "Social desirability" subscale indicates that those involved in bullying behaviours might be prone to present a "better" picture of themselves than the real one. However, in spite of this, their symptom load was higher on most scales than that of the other two groups. A more serious limitation is inherent in a methodology where psychiatric symptoms are assessed without the use of a psychiatric interview. Thus, there are decisive limits to the degree inferences can be made from the symptoms assessed to psychiatric disorders. Furthermore, the questions on bullying were not identical, although similar, to those commonly used in studies on bullying (Olweus questionnaire; 7). This decreases how far generalizations can be made from our data. Furthermore, the study was cross-sectional, which makes it hard to gauge what is cause and what is effect. Longitudinal studies, measuring individual differences before and after the subjects have been subjected to bullying (e.g. 5;6), are needed.

Conclusions

A cautious conclusion is that the association between bullying and psychological symptoms is not a spurious finding and that the symptoms might constitute risk factors involved in psychopathology. Our study indicates that adolescents in the "Victim *and* Bully" group had the heaviest symptom load, including aggression, delinquency, depression, confusion, self-destructive/identity problems and suicidality, and that these symptoms might be a pathway to psychopathology.

Adolescents who belong to either the "Victim *only*" or the "Bully *only*" subgroups seem to have a relatively lower symptom load, although the levels were higher than those of the "Neither" group on several YSR subscales were. The finding that the "Victim *only*" subgroup might have more symptoms and worse social functioning according to SHOs than according to themselves merits further study and replication.

Also, our finding that adolescents in the "Bully *only*" group were specifically associated with attention problems – and male gender – together with our speculation that these adolescents might have traits shared with youngsters with AD/HD should be replicated and studied further using more objective methodology.

Finally, our findings underscore the importance for SHOs and authorities to take the issue of bullying seriously and to use those prevention strategies that have been shown to be effective (1,7).

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