

REGULAR ARTICLE

National data study showed that adolescents living in poorer households and with one parent were more likely to be bullied

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ABSTRACT**Aim:** The aim of this study was to assess whether sociodemographic household characteristics were associated with which Swedish adolescents were more likely to be bullied.**Methods:** The data were derived from the Swedish Living Conditions Survey and its child supplements from the survey years 2008–2011. The analyses included information on 3951 adolescents aged 10–18 years. Exposure to bullying was reported by adolescents, and information on sociodemographic household characteristics was reported by parents and obtained from official registers. Binary logistic regression was used to analyse the data.**Results:** Adolescents were more likely to be bullied if they lived in households with no cash margin, defined as the ability to pay an unexpected bill of 8000 Swedish Kronor or about 800 Euros, and if they lived with just one custodial parent. In the unadjusted analyses, elevated risks were identified if adolescents lived in working class households and had unemployed and foreign-born parents. However, these associations were at least partly accounted for by other sociodemographic household characteristics, in particular the lack of a cash margin.**Conclusion:** This study showed that Swedish adolescents living in households with more limited financial resources had an increased risk of being bullied, supporting results from previous international research.**INTRODUCTION**

Bullying is a serious problem among school children, although victimisation rates differ substantially between countries and international comparisons show that Swedish adolescents report relatively low rates (1). The most common definition of bullying is that the victim is repeatedly subjected to negative actions from peers and that a perceived, or actual, imbalance of power exists between the perpetrator, or perpetrators, and the victim (2,3). Being subjected to bullying at school is strongly linked with adverse health at that point in time (4), as well as later in life (3,5,6). However, increased risks of poor health outcomes have also been demonstrated among those who bully others and those who are both bullies and victims (4). The occurrence of bullying may also indirectly affect other students who are not involved in the bullying, as having a concentration of bullied students in a classroom has been found to adversely affect the health of all the children in the class (7).

Risk factors associated with being exposed to bullying include psychological and behavioural problems, such as conduct disorders and hyperactivity (8) and anxiety and depression, which have been demonstrated to both precede and follow victimisation (5). In addition, sociodemographic and socio-economic characteristics

appear to be linked to the risk of being bullied. A meta-analysis by Tippett and Wolke (9) showed that low socio-economic status was a risk factor, although the overall association was relatively weak. However, socio-economic status has been used in many ways to explore bullying, both as a single indicator and as a composite measure that includes different dimensions, such as parental education, parental occupations and wealth (9). Furthermore, certain sociodemographic characteristics are of relevance when exploring bullying, notably

Key notes

- The study analysed associations between household sociodemographic characteristics and exposure to bullying among 3951 adolescents in Sweden aged 10–18 years.
- Survey data from 2008 to 2011 were used, combining information on bullying reported by adolescents with information on household characteristics collected from parents and official registers.
- The results showed that adolescents in households that lacked a cash margin and those living with just one parent had a higher risk of being bullied.

family structure and foreign background, particularly because children living with a single parent and children with foreign-born parents are overrepresented in those households that are subjected to absolute poverty (10). Accordingly, children living with a single parent have been reported to have a greater risk of being bullied than those in two-parent families (11). Studies on bullying and immigrant status or ethnicity have reported inconsistent results (12,13).

The aim of this study was to assess whether sociodemographic household characteristics were related to the risk of becoming a victim of bullying among adolescents in Sweden. While several earlier studies that reported on sociodemographic characteristics and bullying victimisation used data from either children or parents and, or, teachers, an advantage of the present study was that it combined information from adolescents on exposure to bullying with sociodemographic data collected from their parents.

METHODS

The data were obtained from the Swedish Living Conditions Survey and its child supplements, from the survey years 2008–2011. The design of the data made it possible to link information collected from parents to information collected from children. Both of these national surveys were conducted by telephone and carried out by Statistics Sweden. The adult survey was based on a representative sample of Swedish residents aged 16–84 years who were interviewed about their living conditions. The nonresponse rate from 2008 to 2011 varied between 27% and 41% (14). The sampling frame of the child survey was made up of all children between 10 and 18 years who lived in the responding adult participant's household for at least half of their time. During the 2008–2011 study period, the sampling frame included 4083 adolescents, defined as individuals aged between 10 and 18 years. In line with the adult interviews, the child supplement included questions related to a broad range of living conditions, including exposure to bullying. The nonresponse rate varied from 34% to 37% (15). In common with other surveys, the adult and child surveys were subject to systematic nonresponses. The inclination to participate in the adult survey was positively associated with education and income. Higher response rates were also observed among parents who lived with a partner compared to single parents, for those born in Sweden rather than outside Sweden and for those who had not received social assistance than those who had (16). While this response bias evidently affected the sampling frame of the child survey, the child survey itself was also likely to have been affected by response bias. A similar survey of children aged 10–18 years in Sweden demonstrated that those not living with two custodial parents and those with foreign-born parents were less inclined to participate (17). Thus, considering the two-step sampling procedure of the data used in this study, it is most likely that there was an overrepresentation of children

whose parents lived together, were born in Sweden and had a higher education and a better overall economic situation. However, as our focus was on the differences between groups, the problems associated with the systematic bias of nonresponders were unlikely to be substantial. Furthermore, if exposure to bullying was higher among nonrespondents, the results presented in this study are likely to have been underestimated rather than the other way around.

Ethics

Ethical permission for the study was provided by the Regional Ethical Review Board of Stockholm (dnr 2012/1184-31/5; 2015/1691-32/5).

Variables

Being bullied at school was based on responses by the adolescents to questions about four common types of bullying situations: whether the child had been repeatedly socially excluded, subjected to disapproval, unjustly accused, and, or, been physically hit or hurt. Adolescents were asked how often the following things happened at school: (i) no one wanted to be with them, (ii) other students showed that they did not like them, for example by teasing, whispering or joking about them, (iii) other students accused them of things they had not done or could not help and (iv) one or more students had hit or hurt them in some way. The possible responses were almost every day, at least once a week, at least once a month, once in a while and never. The four items did not fully overlap but still seemed to reflect an underlying dimension (Cronbach's $\alpha = 0.65$), and the same set of items had been used in earlier publications (6,18–20). For this study, adolescents who had experienced at least one type of harassment weekly were classified as being bullied at school. As the national Swedish child survey did not contain specific information about bullying perpetration after the 2008 survey, our focus was confined to the category bullied at school, which covered both victims and people who were both bullied and bullied others.

Household social class was based on information from the adult respondent about their occupation as well the occupation of any partner. These were classified according to the Swedish socio-economic classification (21) and coded into four groups: upper nonmanual, intermediate and lower nonmanual, self-employed and farmers and skilled and unskilled manual workers.

The lack of a cash margin was based on a question that asked whether the person or their household would be able to manage to pay an unexpected cost of 8000 Swedish Kronor (approximately 800 Euros) within a month without having to borrow money or ask for help. The possible responses were yes and no.

Parental unemployment was determined by the adults' responses about their current main activity and that of any partners. If they stated that they and, or, their partner was currently unemployed, the variable was coded as at least

one unemployed, and the rest were coded as no one unemployed.

Living arrangements were based on information in the parental survey about the child's residency. The categories were children living with both parents in one home, dividing their time equally between the homes of two separated custodial parents and living with just one custodial parent. A small percentage of children (1.8%) spent most of their time with one custodial parent, but still spent time with the other parent. We disregarded the presence of step-parents in the last three categories, as this study related to the time the children spent living with their birth parents.

The Swedish population register provided information on foreign-born parents and any partners. Adolescents who lived with two foreign-born adults or with a single parent who was foreign-born were coded as having a foreign background. In 28 cases, the information was missing on one of the two adults in the household, and the measure was based on the remaining adult.

Gender was split into boy and girl, and the age group was based on the child's age at the time of the survey and split into: 10–12, 13–15 and 16–18 years.

Statistics

The analytical sample comprised the 3951/4083 (96.8%) adolescents with valid information on all the included variables. The sampling design, with children being sampled through the adult respondents participating in the adult survey, implied that the sampling probability differed between children, depending on their living arrangements. This ranged from one chance of being sampled through one adult study participant if they lived with a single parent to up to four adults if they spent time living with birth parents who lived apart and had new partners. To adjust for this, a sampling weight was used in the descriptive analyses.

Sociodemographic differences in exposure to bullying were analysed using binary logistic regression controlled for study year, and odds ratios (OR) with 95% confidence intervals (95% CI) were reported. As it is problematic to compare ORs across models with different independent variables (22), we also estimated average marginal effects, using the margins, `dydx(*)` command in Stata, version 14 (StataCorp LP, College Station, TX, USA) which provided information about the average percentage differences in exposure to bullying in relation to the reference category (Table S1). Possible interactions with gender and age group were evaluated by including product terms with each of the other independent variables, using Stata's factorial variable notation “#”, as well as by Wald tests comparing models without and with interaction terms. Potential multicollinearity between the independent variables was also explored. As not all of the observations in our sample were independent, given that siblings or step-siblings lived in the same households, robust standard errors were estimated. The number of independent observations was 2806. Descriptive statistics of the data are presented in Table 1.

Table 1 Descriptive statistics

	n	%
Household social class		
Upper nonmanual	1065	27.0
Intermediate/lower nonmanual	1344	34.0
Self-employed, farmers	557	14.1
Manual worker	985	24.9
Household cash margin		
Yes	3326	84.2
No	625	15.8
Parental unemployment		
No one unemployed	3752	95.0
At least one unemployed	199	5.0
Living arrangement		
Two custodial parents in one home	2867	72.6
Equally in two parental homes	389	9.9
Mostly with one custodial parent	73	1.8
Just with one custodial parent	622	15.7
Foreign background		
No	3589	90.8
Yes	362	9.2
Gender		
Boys	1946	49.3
Girls	2005	50.7
Age group		
10–12	1220	30.9
13–15	1359	34.4
16–18	1372	34.7
Bullied (at least weekly)		
Socially excluded	75	1.9
Subjected to disapproval	148	3.8
Unjustly accused	157	4.0
Physically hit or hurt	54	1.4
At least one type of harassment	315	8.0

Numbers and unweighted percentages (n = 3951).

RESULTS

Exposure to various forms of harassment at least weekly is presented by household social class and cash margin, parental unemployment, living arrangements and foreign background and the child's gender and age group (Table 2). About 8.1% of the adolescents were exposed to at least one type of harassment. The weighted percentages also demonstrated several statistically significant differences between the groups in both the specific types of harassment and in the composite measure capturing at least one type of harassment. Household cash margins and age groups were consistently related to all forms of harassment.

Results from the binary logistic regression analyses of the composite measure showed that adolescents with parents who were manual workers were more likely to be bullied than peers from other social class backgrounds as the category manual worker differed significantly from the other categories (data not shown). However, the estimate became weaker and nonsignificant in the adjusted model, at least partly due to the inclusion of the household cash margin, suggesting that this had a mediating effect in the

Table 2 Exposure to bullying (at least weekly) by sociodemographic characteristics

	Socially excluded	Subjected to disapproval	Unjustly accused	Physically hit or hurt	At least one type of harassment	At least one type of harassment			
						Crude [†]		Adjusted [‡]	
						%	%	OR	95% CI
All	2.0	3.9	4.0	1.4	8.1				
Household social class									
Upper nonmanual (reference)	1.9	3.3	3.6	1.5	7.0	1.00	-	1.00	-
Intermediate/lower nonmanual	1.6	2.6	3.2	1.0	6.6	1.01	0.72–1.40	0.93	0.67–1.30
Self-employed, farmers	1.4	3.1	3.4	1.1	7.2	1.11	0.73–1.66	1.06	0.70–1.59
Manual worker	2.7	6.7**	5.7*	2.0	11.6**	1.81***	1.31–2.50	1.41	0.99–2.01
Household cash margin									
Yes (reference)	1.6	3.1	3.6	1.1	7.0	1.00	-	1.00	-
No	3.5**	7.7***	6.1**	2.9**	13.4***	1.97***	1.50–2.60	1.45*	1.04–2.03
Parental unemployment									
No one unemployed (reference)	1.8	3.5	4.0	1.3	7.7	1.00	-	1.00	-
At least one unemployed	4.5*	12.1***	4.4	3.0	15.2**	1.92**	1.24–2.97	1.41	0.90–2.22
Living arrangement									
Two custodial parents (reference)	1.8	3.1	3.7	1.2	7.1	1.00	-	1.00	-
Equally in two parental homes	1.4	3.5	4.4	2.1	9.4	1.35	0.93–1.97	1.27	0.86–1.88
Mostly with one custodial parent	2.8	6.5	3.7	1.9	9.4	1.44	0.66–3.15	1.41	0.64–3.10
Just with one custodial parent	2.6	6.3**	4.9	1.9	11.1**	1.83***	1.36–2.47	1.51*	1.10–2.09
Foreign background									
No (reference)	1.8	3.7	4.0	1.3	7.8	1.00	-	1.00	-
Yes	3.4	6.3*	4.4	2.5	11.4*	1.48*	1.04–2.10	1.16	0.79–1.70
Gender									
Boys (reference)	1.6	3.4	4.9	1.7	8.1	1.00	-	1.00	-
Girls	2.3	4.5	3.2*	1.1	8.2	0.99	0.78–1.25	0.97	0.77–1.23
Age group									
10–12 (reference)	3.7	4.8	4.5	2.6	10.2	1.00	-	1.00	-
13–15	1.7**	4.3	5.5	1.3*	9.7	0.87	0.67–1.14	0.86	0.66–1.12
16–18	0.7***	2.8*	2.1**	0.5***	4.9***	0.45***	0.33–0.61	0.43****	0.32–0.59

Weighted percentages and odds ratios with 95% confidence intervals from binary logistic regressions (n = 3951).

[†]Adjusted for gender, age group and study year.

[‡]Adjusted for study year and all independent variables simultaneously.

*p < 0.05.

**p < 0.01.

***p < 0.001.

association between social class background and exposure to bullying (OR 1.41, 95% CI 0.99–2.01). Despite this, a statistically significant difference remained between the categories intermediate and lower nonmanual worker and manual worker (data not shown). Adolescents living in households without a cash margin were more likely to report being bullied than those in households with a cash margin in both the crude (OR 1.97, 95% CI 1.50–2.60) and adjusted models (OR 1.45, 95% CI 1.04–2.03). Parental unemployment was linked to an increased risk of being bullied in the crude model (OR 1.92, 95% CI 1.24–2.97), but the association was attenuated and nonsignificant in the adjusted model (OR 1.41, 95% CI 0.90–2.22). Again, this was to some extent accounted for by the inclusion of the household cash margin (data not shown). Adolescents who lived with just one custodial parent had a higher risk of being bullied than those living with two custodial parents both in the crude (OR 1.83, 95% CI 1.36–2.47) and in the

adjusted model (OR 1.51, 95% CI 1.10–2.09). Foreign background was associated with an increased risk of being bullied in the crude model (OR 1.48, 95% CI 1.04–2.10), although the estimate became weaker and was nonsignificant in the adjusted model (OR 1.16, 95% CI 0.79–1.70). This was largely accounted for by the inclusion of social class and of the household cash margin (data not shown). Finally, there was no statistically significant difference between boys and girls, but adolescents in the oldest age group (16–18 years) were less likely to report having been bullied than those in the younger age groups in the crude as well as in the adjusted model (OR 0.43, 95% CI 0.32–0.59). Additional analyses (not shown), including school grade group instead of age group, demonstrated a gradient: that bullying was significantly more common in grades 3–6, which covered the approximate age range of 9–12 years, than in grades 7–9 (13–15 years) and more common in grades 7–9 than in upper secondary school (16–19 years).

Interactions between gender and age group and the other independent variables were tested for. The only statistically significant single interaction term was between age group and foreign background. Further analyses demonstrated that in the two youngest age groups, 10–12 and 13–15 years, adolescents with a foreign background were more likely to report being bullied than those with a nonforeign background, while the opposite pattern was found in the oldest age category of 16–18 years. However, these differences were only significant at the 10% level (data not shown). Furthermore, none of the Wald tests, which compared the model without interaction terms with models that each included one interaction term, were statistically significant. In all, the analyses presenting average marginal effects showed a pattern that was very similar to the one demonstrated by the ORs (Table S1). The adjusted average marginal effects estimates demonstrated that adolescents in households that lacked a cash margin were more likely to be bullied than adolescents in households with a cash margin, with an average difference of about 3 percentage points. A similar effect size was seen for living arrangements, with a higher risk among adolescents who lived with just one custodial parent compared with the reference category of living in the same household with two parents, again with an average difference of about 3 percentage points. Finally, the largest difference was observed for age, with adolescents in the oldest age group of 16–18 years being less likely to be bullied than those in the youngest age group of 10–12 years, with an average difference of about 6 percentage points.

DISCUSSION

This study used large-scale Swedish survey data from 2008 to 2011 that included reports by adolescents on their exposure to bullying merged with sociodemographic characteristics provided by their parents. The results showed differences in exposure to bullying and revealed that bullying was more likely to affect adolescents from households with fewer financial resources and those living with just one custodial parent. While the unadjusted analyses demonstrated differences in exposure to bullying for all the studied sociodemographic aspects except gender, the adjusted analysis revealed that differences by social class, parental unemployment and foreign background were at least partly accounted for by the lack of a cash margin. Adolescents in households with fewer financial resources had an excess risk of being bullied, with a non-negligible effect size. The association with limited finances echoed the findings of an international meta-analysis on socio-economic status and bullying by Tippett and Wolke (9) and our findings confirm that this overall empirical pattern also applies to Sweden even though it has shown lower rates of bullying in international comparisons (1). Our findings can be interpreted in several ways. One possible explanation is that economic inequalities mean that adolescents who lack the material assets their peers have, including certain visible lifestyle goods and opportunities to participate in leisure

time activities, run a higher risk of being excluded or even bullied (9,23). Another possibility is that adolescents in socioeconomically disadvantaged households face more adverse experiences in their family environments due to the stress caused by financial or other problems, which in turn could be related to difficult relationships with peers (9). Poor social relations, such as a lack of social support, can contribute to the power imbalance that makes bullying possible (6). The finding that adolescents living with only one custodial parent were bullied more often than those living with two custodial parents, even when other sociodemographic characteristics were adjusted for, suggests that social disadvantage, in a broader sense, could be a potential mechanism. Once again, the effect size was nontrivial. Correspondingly, previous research in Sweden has identified that children living with a single parent tend to present with a cluster of welfare problems. However, it should be underlined that in the present study, adolescents who were classified as living with only one custodial parent may have also had a step-parent. Earlier research has shown that children living with a single parent had fewer economic resources than those in two-parent households and they also suffered from poorer social relations. Furthermore, these children were more likely to struggle with the pace at school, perceive a lack of order in the classroom and feel unsafe in their neighbourhood – a feeling shared by their parents – than peers who lived with two custodial parents (24).

In this study of sociodemographic differences in bullying, we argue that adolescents are the best informants with regard to their own experiences of bullying and that parents are the best informants regarding parental and household characteristics, such as parental occupations and financial situations. Adolescents who are bullied do not always tell parents or teachers about their situation (12,25), which means that many parents may know little about their children's experiences of bullying. Indeed, studies have shown only limited agreement between child and parental reports on children's involvement in bullying (26). With regard to socio-economic characteristics, such as parents' education and occupation, adolescents' reports are not always accurate and nonresponse rates can be relatively high (27). Despite this, not all previous research on sociodemographic differences in bullying has treated children and parents as two separate sources of information. In several studies, information on household characteristics and bullying was gathered from adolescents (28,29), while in other studies information was collected through parent and, or, teacher reports (11,30). Thus, the main contribution of the present study was that we analysed sociodemographic differences in exposure to bullying by combining indicators of bullying reported by adolescents and indicators of sociodemographic characteristics reported by their parents.

While we did not have information about the socio-economic profile of the school that the participants attended, it is possible that associations between sociodemographic characteristics and bullying varied by classroom

or school composition. For instance, the association between household financial strain and exposure to bullying may have been stronger in school classes where the majority of pupils came from households that were well off than in classes where experiences of economic hardship were more prominent. Investigating this question using school survey data would be a promising avenue for future research. Future studies should also consider sociodemographic differences among perpetrators of bullying and among bully-victims, ideally incorporating aspects of cyberbullying in the analyses as well.

A limitation of the data was the high, but not fully determinable, level of nonresponse caused by the two-stage sampling design, which made generalisations to the population less feasible. But although the attrition was systematic in that adolescents with fewer socio-economic resources were less well represented in the data, we do not suspect that this affected our overall findings to any substantial degree. If anything, it was likely that the associations were underestimated.

The present study demonstrated structural differences in exposure to bullying, an aspect of the school environment that has been shown to be strongly related to both short-term and long-term adverse health outcomes (3–7,18–20). Our findings imply that efficient school-based initiatives against bullying, together with an awareness of the existing social differences in exposure, are important to create a safe and healthy school environment for all children. These initiatives may also, tentatively, contribute to reducing health inequalities.

CONCLUSION

Bullying is a severe problem for those who are exposed to it. In the present study, which combined data collected from adolescents and their parents, adolescents who lived in households with great financial pressure and those living with just one custodial parent were more likely to be bullied. The unadjusted analyses also revealed an elevated risk among adolescents in working class households and those with unemployed and foreign-born parents. However, these associations were at least partly accounted for by other sociodemographic characteristics, in particular the lack of a cash margin. We conclude that initiatives that tackle bullying are essential so that all adolescents, irrespective of their background, can experience a safe school environment.

CONFLICT OF INTERESTS

The authors declare no conflict of interests.

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SUPPORTING INFORMATION

Additional Supporting Information may be found in the online version of this article:

Table S1 Exposure to bullying (at least weekly) by sociodemographic characteristics. Average marginal effects (AME) with 95% confidence intervals from binary logistic regression models (n = 3951).