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Original article

Prevalence of school bullying among school children in urban Rohtak, State Haryana, India

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Abstract

Background: School bullying has been recognized worldwide as the most common form of school violence. School bullying has frequently been associated with adverse behavioral, emotional and social consequences. This study aimed to assess the prevalence and demographic characteristics of school children involved in bullying in urban Rohtak, Haryana.

Methods: This is a cross-sectional study wherein 370 middle school children were evaluated for school bullying. Socio-demographic information was collected using a separate performa and all the children completed the Korean–Peer Nomination Inventory.

Results: The results of this study showed that 43% of school children were involved in bullying, with further categorization of victims, perpetrators and victim-perpetrators being 19%, 18% and 6% respectively. Boys outnumbered girls in all the three categories. Most of the perpetrators belonged to high-income families.

Conclusions: School bullying is highly prevalent in middle school children and demographic characteristics can help to identify such children.

Key words: bullying, school children, prevalence.

Introduction

School bullying is the most common type of violence seen amongst school children. Most of the work on bullying comes from Europe and Australia, with estimated rates ranging from 15% to 25% [1]. Bullying is defined as a repeated aggression in which one or more persons intend to harm or disturb another person physically, verbally or psychologically [2-4]. School bullying comprises of a spectrum of aggressive behaviours that involve both perpetrators and victims. Common examples of physical bullying include kicking, hitting and pushing; examples of verbal bullying are threatening, name-calling, and examples of psychological bullying are isolating, excluding and gossiping. Bullying can also occur through technology and is called electronic aggression or cyber-bullying [5].

Bullying has been considered a benign or a normal character building behaviour [6, 7]. A study done earlier by us revealed that the knowledge of teachers and parents regarding bullying was quite low and bullying was considered as a normal developmental phenomenon [8]. But contrary to these assertions many studies show that school bullying is associated with emotional, behavioural and social problems [9-11].

Self-report and peer nomination are the two widely used methods in school bullying research. Self-report method provides first hand experiences of children involved in bullying. But the variation in the abilities to report these emotional experiences and subjective bias limit the usefulness of this method. Peer nomination method allows the assessment of bullying behaviour by the peers who either witness or participate in bullying. Further, the aggregation of peer judgement about bullies and victims controls the biases of a particular person while retaining the richness of individual reports at the level of the child [12, 13].

We used the peer nomination method to investigate the prevalence of bullying behaviours among school children in urban Rohtak, State Haryana, India.

Materials and Methods

At any given absolute error (say 6% as in the current study), sample size is maximum for a probability of 0.5 for the positive outcome (or we can say a prevalence of 50%). Hence to have the maximum sample size for survey, sample size has been calculated assuming the prevalence of involvement in bullying as 50%. Thus assuming the prevalence of bullying behavior as 50%*, confidence interval (CI) of 95%, and acceptable absolute error of 6%, sample size was calculated to be 278. Calculations are shown below:

$$Sample\ size, N = (2)^2 \times \frac{pq}{L^2} = 4 \times \frac{0.5 \times 0.5}{0.06^2} = \sim \mathbf{278}$$

Where,

$$p = assumed\ prevalence\ of\ bullying\ behavior$$

$$q = 1 - p$$

$$L = absolute\ error$$

To cover the assumed risk of non-response of up to 10% among the selected study subjects, the final sample size was arrived at 308. Hence a rounded figure of 310 was chosen as the final minimum sample size for selecting study subjects.

To select this sample, for the feasibility reasons, three middle schools (two public/government-run and one private) of city Rohtak, India were selected randomly from the list of all the public and private schools by the draw of lots. Public middle schools in this part of India are unisex schools and also the classroom strength is much

lower in these schools as compared to private schools. Thus choosing two public schools and only one private (coeducational) school helped to match the number and gender ratio. All the students of 7thand 8th grades of selected schools constituted the study sample. Administration and parents in these schools agreed to participate in the cross-sectional study.

Local Ethics and Review Board approved the study. Written consent from parents and assent of students were obtained. Each student completed a peer nomination inventory and socio-demographic details were collected from records and parents of students.

Tools

Korean–Peer Nomination Inventory(K-PNI) [12] (Hindi Version)

Korean–Peer Nomination Inventory (K-PNI) (Hindi Version) was used to identify the school bullying. The K-PNI is based on the Peer Nomination Inventory (PNI) developed by Wiggins and Winder [13] and modified by Perry et al [14]. The K-PNI is an expansion of the modified PNI that not only identifies victims and perpetrators but also allows for subtyping of victimization. The K-PNI has 28 items: 11 for victims, 6 for perpetrators, and 11 filter items. It has 5 subscales out of which 4 subscales with 11 items are for victims and one subscale with 6 items is for perpetrators. The subscales for victims include: exclusion (3 items), verbal abuse (3 items), physical abuse (2 items) and coercion (3 items).

Procedure

Each student was asked to name classmates of same gender who fit the behavioural type described in each item of K-PNI (Hindi Version). The nomination of multiple individuals for each item was allowed. For each student, victim and perpetrator scales of the K-PNI

were expressed as standardized percentage nomination (SPN) score. The SPN score was calculated as described by Kim et al (15) i.e. by (i) summing the frequencies of nomination in all items of a scale, (ii) dividing the summed frequencies by the total number of items in a scale, and (iii) dividing this number by the number of same gender students in a classroom.

An SPN score of 1 meant that a student had been nominated more than once on either the victim or perpetrator scale. An SPN score greater than 1 on either scale alone categorized the student as a victim or a perpetrator while an SPN score greater than 1 on both scales indicated victim-perpetrator. An SPN score of 1 or less on both scales indicated no involvement in bullying.

Statistical Analysis

Descriptive statistics and Chi-square test were used to determine the prevalence of school bullying and the relationship between bullying and demographic variables. Direct logistic regression was performed to assess the impact of socio-demographic variables of interest on the likelihood that the students would be involved in bullying (as victim or perpetrator).

Results

Socio-demographic characteristics

A total of 370 students participated in the study. Table 1 illustrates various demographic details of the sample. Most of students were from urban area and were from middle or low socioeconomic strata (SES). Boys outnumbered girls in both types of schools. But the domicile, gender and family type were uniformly distributed in both categories. Majority of the students from public schools belonged to low SES.

Table 1: Sociodemographic characteristics

Parameters		Govt. (n=185)	Private (n=185)	Total (%)
Class / Grade	7	98(52.9%)	100(54%)	198(53.5%)
	8	87(47.1%)	85 (46%)	172 (46.5%)
Age (in years)	12	55 (29.7%)	64 (34.6%)	119 (53.5%)
	13	79 (42.7%)	102 (55.1%)	181 (48.9%)
	14	45 (24.3%)	19 (10.3%)	64 (17.3%)
	15	6 (3.2%)	0	6 (1.6%)
Gender	Male	109 (58.9%)	151 (81.6%)	224 (60.5%)
	Female	76 (41.1%)	70 (37.8%)	146 (39.5%)
Domicile	Urban	144 (77.8%)	151 (81.6%)	295 (79.7%)
	Rural	41 (22.2%)	34 (18.4%)	75 (20.3%)
Family Type	Nuclear	99 (53.5%)	107 (57.8%)	206(55.7%)
	Joint	86 (46.5%)	78 (42.2%)	164 (44.3%)
Family Income (Rupees/month)	>2000	0	22(11.9%)	22(5.9%)
	10000-20000	0	33(17.8%)	33(8.9%)
	4000-10000	7(3.81%)	128(69.2%)	135 (136.5%)
	2000-4000	50(27.0%)	2(1.1%)	52(11.1%)
	<2000	128(69.2%)	0	28(34.6%)
Father Education (grades)	>12	3(1.6%)	71(38.4%)	74(20.0%)
	<12	182(98.4%)	114(61.6%)	296(80.0%)
Mother Education (grades)	>12	0	44 (23.8%)	44 (11.9%)
	<12	185 (100%)	141 (76.2%)	362 (88.1%)

About 58% of students in private school and 53.5% of students in public school came from nuclear families. Parents of students from private school were more likely than those from public schools to have completed college.

Prevalence of bullying and its correlates

A total of 43% of all students were involved in bullying. Bullying was further classified as follows: victims only 19%, perpetrators only 18 % and victim-perpetrators 6%. The mean SPN-V and SPN-P scores of victim-perpetrators were 14.9630 and 23.6096 respectively. This showed that victim-perpetrators were themselves victimized to the greatest extent as well as they bullied other students maximally.

There were no significant differences in the socio-demographic characteristics of victims and perpetrators except in the family income and parental education of perpetrators. Most of the perpetrators belonged to high-income group. As many as 15 perpetrators out of a total of 22 (68%) belonged to high-income group. The difference was statistically highly significant ($p<0.001$). Another significant difference noted was the educational qualification of the fathers of perpetrators. Fathers of perpetrators were more likely to have completed college than those of non-perpetrators ($p=0.043$).

Boys were more often involved in bullying than girls (Table 2). Victimization subtypes ranged from 15% to 21%, with physical abuse the most frequent (21%) and coercion the least frequent (15%). Gender differences were seen across all the four subtypes of victimization subscale, but this difference was statistically highly significant for physical and verbal abuse.

Table 2: Frequency of School Bullying

	Boys	Girls	Total	p
School bullying				
Victim	45	25	70	0.843
Perpetrator	44	24	68	
Victim-perpetrator	16	7	23	
None	119	90	209	
Victimization				
Physical abuse	57	21	90	0.001
Verbal abuse	54	19	97	0.002
Expulsion	49	20	74	0.062
Coercion	36	20	68	0.744

The prevalence was same in both types of schools, but the percentage of pure bullies (only perpetrators) was in fact higher in private school as compared to public school (20% versus 19.3%). The difference however, was statistically not significant.

Table 3 shows the results of logistic regression analysis predicting involvement of students in bullying either as victim or perpetrator and showing regression coefficients and adjusted odds ratios associated with each variable. The model contained 11 independent variables. Age was a quantitative variable. As the variables "SES category based on monthly family income" and "caste" had 5 and 4 categories respectively, 4 and 3 dichotomous coded dummy variables respectively were created for each category. The full model containing all the predictors was statistically significant, χ^2 (11, N=370) = 57.48, $p<0.001$), indicating that the model was able to distinguish between the students who were involved in bullying either as victim or perpetrator and those who were not.

The model as a whole explained between .153 (Cox & Snell R squared) and .215 (Nagelkerke R squared) (i.e., ~21%) of the variance in involvement in bullying. As shown in the table, only two of the independent variables made a unique statistically significant contribution to the model (SES and caste). The strongest predictor of

involvement in bullying was found to be the SES category with monthly family income < 2000 INR, recording an odds ratio of 0.06. This indicated that those who belonged to families of SES category with monthly family income < 2000INR (4) were 0.06 times less likely to be involved in bullying than those who belonged to the families enjoying a higher SES, controlling for the other factors in the model.

Table 3: Logistic regression analysis predicting involvement in bullying either as victim or perpetrator

Variable	B (S.E.)	95% C.I. for EXP (B)/ Adjusted Odds Ratio		
		Lower bound	Adjusted Odds Ratio/ Exp (B)	Upper bound
Class (1)	-.147 (.374)	.415	.863	1.798
School (1)	-.412 (.824)	.132	.662	3.328
Age (in years)	.067 (.246)	.660	1.069	1.733
Locality (1)	.333 (.319)	.746	1.395	2.608
Sex (1)	-.365 (.268)	.410	.694	1.175
Religion (1)	21.179 (28396.369)	.000	1576942831.9	.
Type of family (1)	-.183 (.265)	.495	.833	1.402
Father's education (1)	.012 (.465)	.407	1.012	2.515
Mother's education (1)	-.421 (.565)	.217	.656	1.985
SES categories (based on monthly family income)				
> Rs. 20000	-2.737 (.697)**	.017	.065	.254
Rs. 10000-20000	-2.262 (.549)**	.036	.104	.305
Rs. 4000-20000	-2.500 (.989)*	.012	.082	.570
Rs. 2000-4000	-2.844 (.989)*	.008	.058	.404
Caste				
Caste (1)	-.688 (.521)	.181	.503	1.395
Caste (2)	-2.005 (.598)**	.042	.135	.435
Caste (3)	-1.487 (.325)**	.119	.226	.428
Constant	2.263 (3.155)		9.612	

B = Regression coefficient of each variable in the logistic regression; S.E.=Standard Error; Exp (B) = Adjusted odds ratio associated with each variable, based on the exponent of the regression coefficient; CI = Confidence intervals for the odds ratios; R^2 = .153 (Cox & Snell), .215 (Nagelkerke); *p< .05, **p< .001; SES = Socioeconomic status

Discussion

School bullying, the most common type of school violence, is an aggressive behavior perpetrated by students who hold and/or try to maintain a dominant position over others [15]. Despite assertion that bullying is a benign or normal character building behaviour, school bullying is a common form of violence directed at youth. Research in this area however remains scarce, especially in Asia. Most of the work on bullying comes from Europe and Australia.

Our study sought to identify the prevalence of bullying behaviours among school children in Rohtak city. The study further differentiated between various types of bullying behaviour i.e. those who bully and are themselves bulled (victim perpetrators), those who only bully (perpetrators), those who are only bullied (victims) and those who are neither bullies nor bullied.

The overall prevalence of school bullying was similar in the two schools (43%). The prevalence of bullying was expected to be lower in private school as compared to public school because of better discipline and supposedly better vigilance by the school staff. But though the overall prevalence of bullying was similar, the percentage of pure bullies (only perpetrators) was in fact higher in private school as compared to public school. The difference however, was statistically not significant.

The prevalence rate of our study is quite comparable to the one done by Kim et al [15] wherein the overall prevalence of bullying in Korean middle school children was reported to be around 40% and by Malhi et al [16] who reported prevalence as high as 53% in school children in North India. Patet et al [17] also reported prevalence of bullying as high as 49% in school-going adolescents in Gujrat.

However, these rates are much higher than the ones reported by other studies wherein the prevalence rate varied from 9% to 35% [18-20]. A study by Salmon et al found the overall prevalence of bullying to be even lower (about 4.2%) [21]. But it must be pointed out that the prevalence studies of bullying have been primarily done in Europe, America and Australia. The low prevalence of bullying might reflect the effectiveness of bullying interventions already in place in these countries.

The prevalence of victim-perpetrators in our study was about 6%. The results of other studies investigating the prevalence of victim-perpetrators have been quite variable. Canadian surveys had found that very few children (2%) reported being both bullies and victims [22]. Juvonen et al reported a 6% prevalence of victim-perpetrators in a community sample of 1985 sixth graders from 11 schools [21]. Kim et al reported a 9% prevalence of victim perpetrators [15]. Malhi et al [16] however, report very high rates of 28%. This could be because of the nature of the tool used.

Our results showed that boys were more often involved in bullying than girls. Other studies have reported similar results. Malhi et al [16] and Patel et al [17] from India report similar results. A study done by Salmon et al found that boys were three times more likely to be perpetrators than girls [21]. Nolin et al reported that 14% of boys and 9% of girls in United States were likely to be involved either as bullies or victims [24]. In Norway too, boys bullied more often than the girls. Girls more often are the victims of passive, indirect bullying such as gossip and social isolation. Boys on the other hand are the victims as well as perpetrators of aggressive and physical bullying. However, Canadian surveys reported that both boys and girls were equally likely to be victimized [22, 25].

Very few other studies in the past have studied the demographic correlates of students involved in school bullying. Malhi et al [16] did not find any relationship with socioeconomic status. But study by Kim et al [15] found that bullying was disproportionately represented in high and low SES groups, wherein 72.4% of bullies were from high SES and 81.2% from low SES. In our study though prevalence of bullying was not high in low income group, higher prevalence of bullying in high income group is quite similar and comparable to the above mentioned study (68% vs. 72.4%). But this is in contrast with the findings of study by Verlinden et al wherein lower household income was related to more bullying and victimisation [26]. Another significant difference noted was the educational qualification of the fathers of perpetrators. Fathers of perpetrators were more likely to have completed college than those of non-perpetrators (p=0.043). However, Verlinden et al reported the same correlation with lower maternal education [26].

Whether this finding is a reflection of socio-cultural advantage of belonging to a more educated and financially well off family often expressed as “being in dominant position”, remains to be explored further. This finding might further explain the higher prevalence of pure bullies in private schools with the fact that parents who are educated and in better economic conditions can afford to send their wards to private schools wherein the fee structure is much higher than that in public schools.

Though ours is not a study on large scale but in the total absence of data from India our study adds important information to the literature on school bullying. First and the foremost, this study confirms that school bullying is a hazard threatening nearly half of our youth with a prevalence of 43%. Secondly, it allows investigators and physicians to

examine school bullying through the eyes of the youth. By using the peer nominations, it was possible to see that children are well aware of who is a bully and who is a victim. On the basis of reports of these children we learn that 43% of children are involved in school bullying with 19% being as victims, 18% as perpetrators and 6% as victim-perpetrators. Also, children from high income families are more likely to be perpetrators. The reasons for this remain unclear. Although one could speculate about the causal effects of family income on school bullying but the size and constitution of this sample makes it impossible to arrive at any firm conclusions.

Despite its limitations in terms of small sample size the study provides more than ample evidence that school bullying is ubiquitous. Our selection of students from two different types of schools was with an aim to select a diverse population with different socio-demographic characteristics. The prevalence rates of bullying came out to be quite similar in the two schools, confirming the notion that bullying is widespread among schools.

Conflict of interest: None declared

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