



ORIGINAL ARTICLE

Prevalence and characteristics of victims and perpetrators of bullying[☆]

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KEYWORDS

Bullying;
Body image;
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Abstract

Objective: To determine the prevalence of bullying (victims and perpetrators) in a representative sample of sixth graders from schools located in the city of Caxias do Sul, RS, Brazil and to determine possible associations with maternal education, socioeconomic level, sedentary habits, nutritional status, dissatisfaction with body image, gender, and age.

Methods: This was a school-based epidemiological study. The target population consisted of sixth graders (11-14 years). A self-administered questionnaire and anthropometric measurements of weight and height were used for the assessment of nutritional status. Bullying was assessed through the Kidscape questionnaire, and body image through the Body Shape Questionnaire. Descriptive statistics and bivariate and multivariate analyses were used.

Results: 1,230 schoolchildren were evaluated, and the prevalences of victims and perpetrators of bullying were 10.2% and 7.1%, respectively. Those dissatisfied with their body image were three times more likely to be victims of bullying (PR = 3.24; CI = 1.99-5.28), and almost twice as likely to be aggressors (PR = 1.98; CI = 1.53-3.73) than those who were satisfied. Schoolchildren with sedentary habits (more than three hours a day) were 55% more likely to be victims of bullying (PR = 1.55; CI = 1.01- 2.36) and more than twice as likely (PR = 2.42; CI = 1.47-3.97) to be aggressors. Boys were more than twice as likely (PR = 2.45; CI = 1.42-4.24) to be aggressors.

Conclusions: Body image and sedentary habits were associated with victims and perpetrators, and male gender was more prevalent among the perpetrators of bullying.

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PALAVRAS-CHAVE

Agressão;
Imagem corporal;
Estilo de vida
sedentário

Prevalência e características de vítimas e agressores de bullying**Resumo**

Objetivo: Verificar a prevalência de *bullying* (vítimas e agressores) em uma amostra representativa de escolares do sexto ano da cidade de Caxias do Sul, RS, e verificar as possíveis associações do desfecho com escolaridade da mãe, nível socioeconômico, hábitos sedentários, estado nutricional, insatisfação com a imagem corporal, sexo e idade.

Métodos: Estudo epidemiológico transversal de base escolar. A população-alvo foram os escolares do sexto ano (de 11 a 14 anos). Foi utilizado um questionário autoaplicável e medidas antropométricas de peso e altura para avaliação do estado nutricional. A prática de *bullying* foi avaliada com o questionário *Kidscape* e a imagem corporal com o *Body Shape Questionnaire*. Foi utilizada estatística descritiva e análises bivariada e multivariada.

Resultados: No total, 1.230 escolares foram avaliados e as prevalências de vítimas e agressores de *bullying* foram de 10,2% e 7,1%, respectivamente. Os insatisfeitos com a imagem corporal apresentaram mais do que o triplo de chances de serem vítimas (RP = 3,24 - IC = 1,99-5,28) e quase o dobro de chances de serem agressores (RP = 1,98 - IC = 1,53-3,73) em relação aos satisfeitos. Os escolares com hábitos sedentários (mais de três horas por dia) apresentaram 55% mais chances de serem vítimas (RP = 1,55 - IC = 1,01-2,36) e mais do que o dobro (RP = 2,42 - IC = 1,47-3,97) de serem agressores. Os meninos apresentaram mais do que o dobro de chances (RP = 2,45 - IC=1,42-4,24) de serem agressores em relação às meninas.

Conclusões: Imagem corporal e hábitos sedentários apresentaram associação com vítimas e agressores, e pertencer ao sexo masculino foi mais presente entre os agressores de *bullying*.

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Introduction

The practice of verbal or physical violence in the school environment has occurred for a long time, and in recent years its importance has been discussed in relation to public health issues.^{1,2} The Department of Public Health in Massachusetts has reported that, among high school students, 15.6% are victims and 8.4% are bullies.³

Prolonged exposure to the media can be a factor associated with physical aggression, as the portrayal of violence in the media has increased.⁴ During adolescence, individuals suffer with several body changes, and dissatisfaction with body image can also appear as a factor associated with bullying.⁵

The consequences for victims range from depression, anxiety, low self-esteem, stress, school truancy, attitudes of self-harm, and suicide. The offenders may adopt risky behaviors, delinquent attitudes, or become even more violent.⁶ The interest in the study of bullying in Brazil is recent, requiring efforts to be understood, so that interventions that are more adequate for the reality of the country can be proposed.⁷

The present study aimed to determine the prevalence of bullying (victims and perpetrators) in a representative sample of sixth graders from the city of Caxias do Sul, state of Rio Grande do Sul, Brazil, and to determine possible associations of the outcome with maternal educational level, socioeconomic status, sedentary habits, nutritional status, dissatisfaction with body image, gender, and age.

Methods

This was an epidemiological cross-sectional school-based study, which is the first phase of a larger project, called "Obesity, body image dissatisfaction, and eating disorder symptoms in a cohort of school children from Rio Grande do Sul." The target population consisted of sixth graders (11-14 years) enrolled in the day shift of municipal public schools in the city of Caxias do Sul, RS in 2011. The school population comprised 4,300 students (aged 11 to 14 years).

A prevalence of 10% was used to calculate the sample size, with a confidence interval of 95% and a 2% error, thus the minimum sample size was 720 children. Anticipating possible losses and refusals and to control for confounding factors, a design effect of 1.7 was used; thus, 1,224 schoolchildren should be evaluated. To calculate the sample size, the statistical software Epi Info 6.0 was used (Atlanta, USA).

The sampling criterion was carried out by clusters, where each school was considered a conglomerate. All schools entered the draw and had the same chance to participate in the study according to the number of students from sixth grade that the school had at the drawing date. A total of 22 schools were randomly selected to complete the minimum number of students to be assessed (total n = 1,417).

The following inclusion criteria were used: age between 11 and 14 years, with no special needs, informed consent signed by parents or legal guardians, and voluntary participation. A self-administered questionnaire was employed for the

assessment of the variables: maternal educational level, socioeconomic class,⁸ gender, age, sedentary habits, dissatisfaction with body image, and bullying.

For the assessment of body image dissatisfaction, the Body Shape Questionnaire (BSQ) was used, validated for adolescents in its Brazilian version,⁹ which measures the degree of concern about physical shape and self-loathing due to one's physical appearance and the feeling of being unfit.

To evaluate bullying, the Kidscape questionnaire was used, from the English institution called Kidscape, which was used in the study performed in Pelotas, RS,¹⁰ and in a study in the state of Minas Gerais.¹¹ The questionnaire assesses victims and perpetrators of bullying, as well as their characteristics. Victims were asked when they had last suffered bullying, how often it occurred, where it occurred, what were the feelings and consequences, the kind of intimidation, and who was to blame for the occurrence. The aggressors were asked about the post-aggression feeling and how many times they had practiced the aggressions.

In addition to the self-administered questionnaire, total body mass and height were measured in the schoolchildren. For the measurement of total body mass, a Plenna portable digital scale was used, with a precision of 100 g. To measure the height, a wall-mounted stadiometer was used together with a set square. The nutritional status of the schoolchildren was defined by the cutoffs of body mass index (BMI) for age and gender developed by Conde and Monteiro.¹² Children were classified as underweight, normal weight, overweight, and obese.

The entire assessment team (15 evaluators) underwent training, when an evaluation handbook was made and distributed. A pilot study was carried out with 15 children from a school that did not participate in the final sample, when logistic issues were verified, such as the language of the questionnaire and standardization of anthropometric measurements.

After data collection, data were double entered into a formatted EpiData database, release 3.1. After checking the consistency of data, they were exported to the Statistical Package for Social Sciences (SPSS) program, release 19, for analysis. Initially, a descriptive analysis was performed and afterwards, a bivariate (Pearson's chi-squared test) and multivariate analysis (logistic regression) between the independent variables and the outcome.

Regarding the ethical aspects, informed consents were distributed to all children who were part of the sample. In addition to parental consent, students who were part of the sample agreed to participate voluntarily in the study, and the research project was approved by the Research Ethics Committee of UFCSPA, under protocol No. 1312/11 and register No. 741/11.

Results

Of the 1,417 children selected for the study (between 11 and 14 years), 1,230 comprised the final sample. One child was excluded from the final sample for not complying with the inclusion criteria, 16 children refused to participate in

the study, and 170 did not return the informed consent. The sample was equally distributed by gender with 606 girls and 624 (50.7%) boys. The mean age of the schoolchildren was 11.85 years (SD = 0.82). Regarding maternal education, 62% of the mothers were classified as having complete or incomplete elementary school education, 28% of mothers had high school education, and 9.3% had college/university education.

Regarding sedentary habits, 64.6% of the schoolchildren reported staying up to three hours a day in front of the television, computer, or video game and, 35.4% stayed more than 3 hours a day. 18% of the students were dissatisfied with their body image. Regarding the nutritional status, 0.9% were underweight, 22.8% were overweight, and 7.3% were obese. According to the Brazilian Economic Indicator, 4.2%, 42.9%, and 52.8% belonged to low, intermediate, and high socioeconomic classes, respectively.

The prevalences of victims and perpetrators of bullying were 10.2% and 7.1%, respectively. Tables 1 and 2, respectively, show the characteristics of victims and perpetrators of bullying. The data refer to the 126 victims and 87 perpetrators who were characterized with their respective outcomes, according to the Kidscape questionnaire.

When the variable "how did you feel after being bullied" was dichotomized, the boys had better feelings (feeling bad, scared, or not wanting to go to school anymore) when compared to girls (PR = 0.40; 95% CI = 0.23-0.71) in the bivariate analysis. Those dissatisfied with their body image had an almost three-fold higher chance (PR = 2.91; 95% CI = 1.42-5.95) of having bad feelings after being bullied. Regarding the consequences, those dissatisfied with their body image showed a two-fold higher risk for bad consequences or change of schools when compared to the satisfied ones (PR = 2.03; 95% CI = 1.14-3.62).

Tables 3 and 4 show the bivariate and multivariate analyses between victims and perpetrators of bullying, respectively, with the independent variables. For the bivariate and multivariate analyses, theoretical model variables were grouped into dichotomous variables.

For the bivariate and multivariate analyses, the age variables were used in two groups: adolescents aged 11 to 12 years and adolescents aged 13 to 14 years. The reason for this grouping is due to the fact that in the first group, the morphological and functional changes that occur and can influence performance are markedly different from those in later periods of adolescence, characterized by puberty. At the ages where this process is already well-established, body changes, physical strength, and development of secondary sexual characteristics may influence behavior.^{13,14}

Those dissatisfied with their body image were more than three times as likely to be victims (PR = 3.24; 95% CI = 1.99-5.28), and almost twice as likely to be aggressors (PR = 1.98; 95% CI = 1.53-3.73) than the satisfied ones.

The schoolchildren who reported sedentary habits for more than three hours a day were 55% more likely to be victims (PR = 1.55; 95% CI = 1.01-2.36) and more than twice as likely to be aggressors (RP = 2.42; 95% CI = 1.47-3.97) than students who spent less than three hours a day with sedentary habits.

Table 1 Prevalence of the “victim” outcome and victims’ characteristics.

	n	%
<i>Bullying victim</i>		
No	1,104	89.8
Yes	126	10.2
<i>When was the last time you were bullied?</i>		
Today	12	9.8
Last 30 days	41	33.6
Last six months	23	18.9
A year or more ago	46	37.7
<i>How many times were you a victim of bullying?</i>		
Several times	80	63.5
Almost everyday	26	20.6
Several times a day	20	15.9
<i>Where did the bullying happen?</i>		
Going to or coming from school	15	13.4
At the schoolyard	31	27.7
In the school bathrooms	6	5.4
In the classroom	22	19.6
In the cafeteria	4	3.6
In another location	34	30.4
<i>How did you feel when it happened</i>		
Was not scared	33	26.4
Was afraid	17	13.6
Was startled	13	10.4
Felt bad	50	40.0
Did not want to go to school anymore	12	9.6
<i>What were the consequences</i>		
There were no consequences	60	48.0
Bad consequences	45	36.0
Terrible consequences	10	8.0
Made you change schools	10	8.0
<i>Type of intimidation</i>		
Physical	43	38.7
Verbal	27	24.3
Emotional	16	14.4
Sexual	5	4.5
Racial	20	18.0
<i>In the victim’s opinion, whose fault is it?</i>		
The perpetrator’s	24	19.2
The perpetrator’s parents	44	35.2
The teachers’	53	42.4
The school administration’s	4	3.2
The victim’s	24	19.2

Boys were also more than twice as likely (PR = 2.45; CI = 1.42-4.24) to be aggressive towards girls; older students (13 and 14 years) were 86% more likely (PR = 1.86; 95% CI = 1.06-3.26) to be aggressive towards younger students (11 and 12 years).

Discussion

The present study found prevalences of 10.2% for victims and 7.1% for perpetrators of bullying; 31 children (2.52%

Table 2 Prevalence of the “perpetrator” outcome and perpetrators’ characteristics.

	n	%
<i>Bullying perpetrator</i>		
No	1,143	92.9
Yes	87	7.1
<i>How did you feel after the bullying episode?</i>		
Very well	28	32.6
Very badly	38	44.2
Ashamed	14	16.3
Scared	6	7.0
<i>How many times have you bullied someone?</i>		
Several times	69	79.3
Everyday	8	9.2
Several times a day	10	11.5

of total sample) were both victims and perpetrators. A study carried out in two schools in the city of Pelotas, RS,¹⁰ showed a prevalence of students who experienced bullying of 17.6%. In the city of Canoas, RS, Calbo et al.¹⁵ found prevalence of 26.57% of individuals involved in bullying situations, whether as victims or perpetrators. A study carried out in the state of São Paulo¹⁶ showed that 100% of the participants admitted having been victims and perpetrators of bullying at least once in the previous year.

The different methodologies used in the studies^{10,15,16} may partly explain the differences in prevalence. Despite the differences found, the prevalence rates shown in this study are significant, considering that students involved in bullying are more likely to skip school, feel insecure, have difficulty making new friends,¹⁷ and present a depressive mood.¹⁸

This study showed that the boys were more than twice as likely (PR = 2.45) to be bullies when compared to girls. Similar results were found in Canoas, RS,¹⁵ in a city in the countryside of São Paulo,¹⁶ and the city of Pelotas, RS.¹⁰ A possible explanation for the differences between genders is that boys are at a phase in which status competition and the search for status among the girls increases considerably, causing them to assume risk behaviors.¹⁵ One can also mention the fact that boys presented a greater prevalence of some mental disorders, such as oppositional-defiant disorder and conduct disorder.^{19,20} The higher prevalence in boys may also be partly explained by the fact that boys engage in more physical bullying (which is more evident), whereas girls engage in more verbal abuse and exclusion behaviors.¹⁰

The model of physical attribute appraisal in males may also be reproduced at school, where boys experience the expression of aggression in a more pronounced way, whereas girls use more subtle forms of humiliation or intimidation.²¹ It should also be mentioned that the current study found that physical (38.7%) and verbal (24.3%) aggression were the most prevalent, in agreement with studies conducted in the United States²² (20.8% for physical aggression and 53.6% for verbal aggression) and in Canada¹⁸ (35.8% for physical aggression and 59.3% for verbal aggression). Physical and

Table 3 Bivariate and multivariate analysis among victims of bullying and independent variables.

	Crude OR (bivariate)	CI	Adjusted OR (multivariate)	CI
<i>Maternal education (first level)</i>				
Elementary school	1.00		1.00	
High school or college/university	1.03	0.6-1.53	1.11	0.70-1.75
<i>Socioeconomic level (second level)</i>				
Low and intermediate	1.00		1.00	
High	1.10	0.73-1.63	1.03	0.66-1.61
<i>Sedentary habits (third level)</i>				
Up to three hours a day	1.00		1.00	
More than three hours a day	1.47*	1.01-2.14	1.55*	1.01-2.36
<i>Nutritional status (fourth level)</i>				
Adequate weight	1.00		1.00	
Excess weight	1.18	0.79-1.76	1.03	0.65-1.64
<i>Body Image (fourth level)</i>				
Satisfied	1.00		1.00	
Dissatisfied	2.46*	1.64-3.69	3.24*	1.99-5.28
<i>Gender (fifth level)</i>				
Female	1.00		1.00	
Male	1.29	0.89-1.86	1.30	0.84-2.00
<i>Age (fifth level)</i>				
11 to 12 years	1.00		1.00	
13 to 14 years	1.39	0.89-2.18	1.17	0.69-2.00

CI, confidence interval; OR, odds ratio.

* p < 0.05.

Table 4 Bivariate and multivariate analysis between perpetrators of bullying and independent variables.

	Crude OR (bivariate)	CI	Adjusted OR (multivariate)	CI
<i>Maternal education (first level)</i>				
Elementary school	1.00		1.00	
High school or college/university	0.90	0.56-1.45	0.97	0.56-1.67
<i>Socioeconomic level (second level)</i>				
Low and intermediate	1.00		1.00	
High	1.10	0.69-1.75	1.20	0.71-2.04
<i>Sedentary habits (third level)</i>				
Up to three hours a day	1.00		1.00	
More than three hours a day	2.60*	1.67-4.05	2.42*	1.47-3.97
<i>Nutritional status (fourth level)</i>				
Adequate weight	1.00		1.00	
Excess weight	0.81	0.49-1.34	0.80	0.45-1.42
<i>Body image (fourth level)</i>				
Satisfied	1.00		1.00	
Dissatisfied	1.29	0.76-2.20	1.98*	1.53-3.73
<i>Gender (fifth level)</i>				
Female	1.00		1.00	
Male	2.72*	1.68-4.42	2.45*	1.42-4.24
<i>Age (fifth level)</i>				
11 to 12 years	1.00		1.00	
13 to 14 years	1.89*	1.15-3.10	1.86*	1.06-3.26

CI, confidence interval; OR, odds ratio.

* p < 0.05.

verbal violence are the most often depicted by studies; physical aggression is more often practiced by boys, and verbal aggression is more often practiced by girls.

Older schoolchildren (13 and 14 years) were 86% more likely (PR = 1.86) to be bullies, when compared to younger schoolchildren (11 and 12 years). A study conducted

in Massachusetts, United States,³ also showed higher prevalence of aggressors among students aged 13-16 years, when compared to those aged 11 and 12 years. Alikasifoglu et al.,¹⁷ in a study carried out in Turkey, found a greater number of aggressors among older schoolchildren. Magklara et al.² found a higher prevalence of bullies among older schoolchildren, but without statistically significant difference. This is possibly due to the fact that over the years, the younger individuals become victims of the older ones, increasing the number of aggressors with advancing age.¹⁵

The schoolchildren indicate that teachers are those deserving the most blame regarding the bullying events; the schoolyard and the classroom were the most prevalent places of bullying. Francisco and Liborio⁷ also found the classroom and the schoolyard as the places with the higher occurrence of bullying. Lopes Neto⁶ states that the classroom is the place with the highest number of occurrence of bullying acts, but with a decreasing trend of events at the site. Nikoden and Piber,²³ in a study in the city of Santo Angelo, RS, also found these places as the most favorable for the occurrence of bullying acts. Possibly, the aggressions that occur in the schoolyard occur most often during physical education classes or during recess²⁴ (a teacher is always present in the schoolyard at recess in the municipal schools assessed). Probably the blame attributed to teachers is related to the location of event (classroom and schoolyard), places where teachers are present; students may not see teachers as active agents for prevention or reduction of bullying practices.^{6,7}

Regarding aggressors, 32.6% and 44.2% of them reported feeling very well and very badly, respectively, after the aggressions and 79.3% reported practicing acts of aggression repeatedly. The problem-solving model through violence tends to produce similar response behavior, perpetuating the cycle of problems.²⁵ Students should express their opinions and reveal the reasons why they engage in acts of bullying, so the events can be properly assessed.²⁶

This study showed 18% of students dissatisfied with their body image and this was associated with bullying perpetrators (PR = 1.98) in the bivariate analysis, and with the victims in the multivariate analysis, where schoolchildren dissatisfied with their body image were three times as likely to be victims (PR = 3.24). Moreover, it was observed that 30.1% of children were overweight or obese. Excess weight had no statistically significant association with bullying. Brixval et al.⁵ found an association between body image, excess weight, and bullying in Danish schoolchildren. Another survey, conducted in Canada,²⁷ also showed an association between bullying and nutritional status. The different methodologies used for both the evaluation of bullying and assessment of the nutritional status of the studies^{5,27} in relation to the present study may perhaps partly explain the differences in results. Body image can also act as a mediating factor between exposure to bullying and excess weight, considering that physical appearance is also associated with aggression and concern about fitness, which is quite pronounced at this phase of life.⁵

The habit of spending more than three hours a day in front of the television, computer, and video games

showed to be a factor associated with outcome for both victims (PR = 1.55) and aggressors (PR = 2.42). A study conducted in eight countries⁴ (Canada, Estonia, Israel, Latvia, Macedonia, Poland, Portugal, and the United States) also showed an association of the number of hours watching television and bullying in the bivariate analysis and verbal aggression in the multivariate analysis. A longitudinal study in Illinois²⁸ showed that children's exposure to media violence is related to aggression in adulthood. Perhaps the fact of spending several hours in front of the television is creating a trend of reaction in children and adolescents, making them adopt aggressive behaviors, mainly in those who concentrate their viewing hours on the weekend.⁴

Limiting the time in front of the television in the early years of life can reduce the risk of becoming abusers in children and adolescents.²⁹ In the case of the victims, the search for sedentary activities may be rooted in the difficulty establishing relationships, rejection, and anxiety that children who suffer humiliations have and, instead of seeking activities that require relationships, they prefer solitary activities more such as watching television, playing video games, or staying for hours at the computer.^{30,4}

The variables maternal education and socioeconomic status showed no statistically significant association with the aggressor and victim outcomes ($p > 0.05$), in accordance with the results of a study conducted in Canada.¹⁸ Malta et al.,²¹ evaluating schoolchildren from 26 Brazilian state capitals and the Federal District, found that not suffering bullying is more frequent among adolescents who are children of mothers with no education or incomplete elementary school education. Opposite results were found in Greece² and Denmark,⁵ where low socioeconomic status was associated with victims and perpetrators of bullying, respectively. The results show that the problem of bullying affects different social classes indistinctively, although sometimes with different determinants.^{2,18,21}

As the present study had a cross-sectional design, it may have reverse causality as one of its limitations. In addition, memory bias may have occurred in some of the questions related to bullying and body image questionnaires.

Considering the limitations of the study, it can be concluded that the prevalences of bullying (victims and perpetrators) are considerable and should be a warning to the community in general. Dissatisfaction with body image was the variable most strongly associated with the victims, and also significantly associated with the aggressors. Sedentary habits were associated with perpetrators and victims of bullying. Boys showed to be potential aggressors towards girls, as well as older schoolchildren towards the younger ones.

Raising the awareness of the perpetrators about the wrongness of their actions is recommended, and they must be provided structure to develop friendly behaviors, so the school environment can be safe and healthy.

Conflicts of interest

The authors have no conflicts of interest to declare.

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