







Suffering from bullying and associated factors in Brazilian students aged 13 to 17 years old: a population study

Vitimização por bullying e fatores associados em estudantes brasileiros com idade de 13 a 17 anos: estudo populacional

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ABSTRACT: *Objective:* To analyze sociodemographic, school, nutritional, and behavioral factors and body perception associated with being bullied in Brazilian students aged 13 to 17 years old. *Methods:* This was a cross-sectional study based on data from sample 2 of the 2015 Brazilian School Health Survey. The sample for this study was composed of 10,699 teenagers from schools in each of the largest regions of Brazil. *Results:* The prevalence of being bullied was 6.2%, with the highest chance of in teens who bully others (OR = 1.91 95%CI 1.48 – 2.45), who are 13 years old (OR = 1.76, 95%CI 1.04 – 2.97), who consider themselves fat (OR = 1.45, 95%CI 1.06 – 1.98) and who are not treated well by their schoolmates (OR = 2.78, 95%CI 2.17 – 3.45). *Conclusion:* Preventive efforts that include programs to encourage greater social support among students, as well as the implementation of practices that encourage respect for students' differences and singularities can contribute to reducing bullying practices.

Keywords: Bullying. Violence. Victimization. Adolescents.

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RESUMO: *Objetivo:* Analisar fatores escolares, sociodemográficos, nutricionais e de percepção corporal e comportamental associados à vitimização por *bullying* entre estudantes brasileiros com idade de 13 a 17 anos. *Métodos:* Trata-se de um estudo transversal com base nos dados da amostra 2 da Pesquisa Nacional de Saúde do Escolar 2015. A amostra do presente estudo é composta de 10.699 adolescentes de escolas de cada grande região do país. *Resultados:* A prevalência de vitimização por *bullying* foi de 6,2%, com maiores chances de vitimização em adolescentes que praticam *bullying* (razão de chances — OR = 1,91, intervalo de confiança de 95% — IC95% 1,48 – 2,45), com idade de 13 anos (OR = 1,76, IC95% 1,04 – 2,97), que se consideram gordos (OR = 1,45, IC95% 1,06 – 1,98) e não são bem tratados na escola pelos colegas (OR = 2,78, IC95% 2,17 – 3,45). *Conclusão:* Esforços preventivos que incluam programas de incentivo ao maior suporte social entre os estudantes e a implementação de práticas que reforcem o respeito às diferenças e peculiaridades dos alunos podem contribuir para a redução da vitimização por *bullying*.

Palavras-chave: Bullying. Violência. Vitimização. Adolescentes.

INTRODUCTION

Nowadays, bullying is considered a serious public health problem that affects mainly children and adolescents, and is a common phenomenon in schools¹⁻³. It is characterized by repeated, intentional actions based on imbalances of power⁴.

Bullying can occur directly and include physical and verbal aggressions, or indirectly, through socially isolating a victim⁵. This generates consequences that can be observed in the short, medium and long term, and there are serious implications for the victims of this type of violence with regard to their ability to socialize⁶. Bullying also causes a negative psychological impact, such as feelings of anger, depression, low self-esteem and stress^{7,8}, with suicide^{8,9} and homicide¹⁰ as possible outcomes.

However, social and cultural nuances that impact bullying must be considered, in addition to individualistic aspects, such as socially constructed hegemonic patterns.^{11,12} Furthermore, school and family contexts must be considered, as they are usually marked by the presence of parental abuse and parenting styles that do not impose boundaries¹³.

Studies carried out in several countries indicate a high prevalence of bullying¹⁴⁻¹⁶, which demonstrates that it is a public health problem worldwide^{6,14,17}. The 2014 United Nations Children's Fund Report found, in the 190 countries surveyed, that more than 1/3 of students suffer or have suffered at least one experience of being bullied¹⁴. High prevalence of school bullying was also found in a survey involving 79 countries, in which about 30% of students reported being bullied¹⁵. In the United States, data from the 2017 Youth Risk Behavior Survey (YRBS), involving more than 15,000 high school teenagers from public and private schools, showed a 19% prevalence of being bullied at school in the 12 months prior to the survey¹⁶.

It is worth mentioning that these studies¹⁴⁻¹⁶ did not use the same characterization for bullying in their methodology, overestimating its prevalence by considering it in one or more

occurrences of being bullied in the last 30 days or two months. On the other hand, some risk factors for bullying have been verified in national and international surveys. Factors such as sex², age, color, feelings of depression and loneliness, administrative affiliation, mother's education^{8,18} and being overweight¹⁹ have been shown to be significantly associated with bullying.

In Brazil, primary studies have pointed out victimization rates for bullying that vary from approximately 10 to 30%^{9,20-24}, while other studies, based on secondary data from the National School Health Survey (*Pesquisa Nacional de Saúde do Escolar* - PeNSE), have demonstrated the prevalence of being bullied ranging from 5.4% to 7.4%^{3,8,17,18,25}. Although PeNSE data have been properly explored by the surveys, they have only been concentrated on sample 1 of the referred survey, in which the participants are teenage students in the 9th grade. As of 2015, under the argument of allowing comparability with international studies, a new sample (sample 2) of adolescent students aged 13 to 17 was included, but it still has been used infrequently in national studies. However, there are also few national studies on the risk factors associated with being bullied.

The identification of such factors and their implications for public health and the quality of life of adolescents is indispensable for the design and implementation of multidisciplinary and intersectoral actions to prevent bullying. In addition, it is important for health promotion in the school environment, as the negative outcomes for the physical and mental health of school adolescents are well-known, not to mention the damage on students' learning processes⁷⁻⁹.

Thus, this study aimed to analyze school, sociodemographic, nutritional, and body and behavioral perceptions associated with being bullied, among Brazilian students aged 13 to 17 years old.

METHODS

This was a descriptive study with a quantitative approach.

SAMPLE

The study sample consisted of adolescent students who were part of the PeNSE sampling plan 2 (sample 2), conducted in 2015 by the Brazilian Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística* - IBGE), in partnership with the Ministry of Health. Sample 2, which is only present in the 2015²⁶ version, represents the 13 to 17 age group and includes students from the 6th to the 9th grade of elementary and high school in public and private schools throughout Brazil. With it, it is possible to monitor changes resulting from social, behavioral and biological factors of the study population.

The sample of this study was composed of 10,699 adolescents aged 13 to 17 years old. For the PeNSE, data from the 2015 School Census record were used and schools were

selected in each of the country's major regions (North, Northeast, Southeast, South and Center West). They are called geographic strata. In each stratum, schools that had students with the characteristics of interest were grouped, and all students were asked to answer the survey questionnaires²⁶.

PENSE DATA COLLECTION PROCEDURES

Data collection took place from April to September 2015, through the application of an electronic questionnaire, using smartphones. It was structured and self-applicable to all students in the selected classes. Data were collected in schools during students' class time.

STUDY VARIABLES

The study's dependent variable was "being bullied", which was obtained based on the question: "in the last 30 days, how often did any of your colleagues at your school abuse, mock, sneer, intimidate or tease you so much that you were hurt/annoyed/upset/offended/humiliated?". The answers were categorized as "no" (never, rarely, sometimes) and "yes" (most of the time, always).

The independent variables were categorized as follows:

- sociodemographic aspects: sex (male and female); age (13, 14, 15, 16 or 17 years old); skin color (white, dark-skinned black, light-skinned black, yellow or indigenous); administrative affiliation at the school (public or private);
- nutritional status: adequate weight, overweight, underweight. In this variable, in order to assess the nutritional profile of the adolescents, the body mass index (BMI) for age, expressed in score z , was used, and the recommendations of the Nutritional Food Surveillance System (*Sistema de Vigilância Alimentar Nutricional - SISVAN*) were followed;
- body perception: how do you feel about your body (dissatisfied, satisfied, indifferent); how do you consider your body image (important, unimportant) and what do you consider your body (fat, thin, normal);
- behavioral aspect: bullies others (yes, no);
- school aspects: was treated well at school by their colleagues (yes, no); full time (yes, no); grade (6th, 7th, 8th or 9th grade, 1st, 2nd or 3rd year of high school).

ANALYSIS PROCEDURES

Initially, the prevalence of being bullied was calculated. In order to check for associated factors, analyzes of the bivariate relationships of the referred tables were performed using

odds ratios (OR), 95% confidence intervals (95%CI) and p values. These analyzes were only for the purpose of selecting variables for the adjusted (multivariate) model. Then, the multivariate analysis was conducted with the variables that were significant at the level of 0.20, in a bivariate manner. The statistical level of significance adopted was 0.05. All the estimated results of the tests were analyzed, including the test of multicollinearity for the logistic regression. All of the bivariate and multivariate analyses were performed using the statistical program SPSS, version 18.0, using the Complex Samples Module procedure, adjusted for the analysis of the data from the complex sample plan.

ETHICAL CONSIDERATIONS OF THE STUDY AND PENSE

Because this study used a secondary database in the public domain, it was exempted from approval by the Ethics Committee (Resolution No. 466/2012 of the National Health Council). With regard to the ethical and legal aspects of PeNSE 2015, the research was approved by the National Research Ethics Commission (CONEP) of the National Health Council²⁶.

RESULTS

The participants had an average age of 14.8 (\pm 1.3) years old. A total of 50.2% were male and 49.8% were female. The prevalence of schoolchildren who suffered from bullying was 6.2%. Light-skinned black color/race was most reported by the sample (41.8%), followed by white (39.5%).

Most adolescents stated that they did not attend school on a full-time basis (74.4%). The eighth year of elementary school and the 1st and 2nd years of high school had the highest prevalence of students, and only 2.7% were in 6th grade. Practically two thirds of the students (64.9%) reported being treated well at school by their peers, while 19% reported bullying others. A feeling of dissatisfaction in relation to their body was reported by 20.2% of the adolescents. A total of 24.9% were overweight, 83% considered their body image important, and 20.8% considered themselves fat.

The bivariate analysis of being bullied with the independent variables (Table 1) was performed to verify the magnitude of the associations and their significance. Being bullied was significantly associated ($p < 0.20$) with independent variables related to sociodemographic, behavioral, school and body perception characteristics, such as grade, sex, age, time of day when studying, if they bullied others, if they are well treated at school by colleagues, nutritional status, feelings about the body, body image and consideration about their own body.

The data reveal that younger adolescents, 13 and 14 years old, were more likely to report being bullied (OR=2.29, 95%CI 1.53 – 3.40 and (OR = 1.67, 95%CI 1.06 – 2.61, respectively) when compared to adolescents aged 17 years old. The association of being bullied was also significant with adolescents in the first three grades of elementary school who reported studying full-time.

Table 1. Bivariate analysis of sociodemographic, behavioral, body perception and nutritional status factors associated with bullying in Brazilian adolescents. Brazil, 2015.

Variables	Suffering from bullying		OR n.a.	95%CI	p-value
	Yes	No			
	n (%)	n (%)			
Sex					
Male	352 (6.6)	4,998 (93.4)	1.17	0.96 – 1.43	0.107*
Female	312 (5.9)	5,002 (94.1)	1		
Color/Race					
Indigenous	19 (6.2)	289 (93.8)	1.12	0.60 – 2.10	0.647*
Dark-skinned black	82 (6.7)	1,151 (93.3)	1.19	0.88 – 1.62	
Yellow	29 (6.5)	420 (93.5)	1.23	0.73 – 2.09	
Light-skinned black	282 (6.3)	4,178 (93.7)	1.18	0.92 – 1.51	
White	251 (6.0)	3,957 (94.0)	1		
Age (years old)					
13	212 (8.6)	2,259 (91.4)	2.29	1.53 – 3.40	< 0.001*
14	141 (6.8)	1,925 (93.2)	1.67	1.06 – 2.61	
15	126 (5.3)	2,252 (94.7)	1.28	0.84 – 1.96	
16	119 (5.3)	2,114 (94.7)	1.30	0.87 – 1.95	
17	66 (4.4)	1,450 (95.6)	1		
Série					
6 th grade	31 (10.9)	253 (89.1)	2.83	1.54 – 5.20	< 0.001*
7 th grade	79 (7.7)	945 (92.3)	1.81	1.05 – 3.15	
8 th grade	173 (8.4)	1,898 (91.6)	2.11	1.26 – 3.53	
9 th grade	107 (6.4)	1,566 (93.6)	1.43	0.81 – 2.53	
1st year of high school	115 (5.2)	2,097 (94.8)	1.43	0.67 – 1.80	
2st year of high school	112 (5.1)	2,072 (94.9)	1.13	0.66 – 1.95	
3st year of high school	47 (3.9)	1,165 (96.1)	1		
Full Time					
Yes	185 (6.8)	2,522 (93.2)	1.28	1.00 – 1.65	0.049*
No	476 (6.0)	7,456 (94.0)	1		

Continue...

Table 1. Continuation.

Variables	Suffering from bullying		OR n.a.	95%CI	p-value
	Yes	No			
	n (%)	n (%)			
Well treated at school by peers					
Yes	230 (3.3)	6,700 (96.7)	1		< 0.001*
No	430 (11.6)	3,291 (88.4)	3.03	2.50 – 3.85	
Nutritional status					
Overweight	191 (7.2)	2,465 (92.8)	1.38	1.10 – 1.74	0.022*
Underweight	29 (8.7)	305 (91.3)	1.17	0.67 – 2.04	
Adequate weight	444 (5.8)	7,230 (94.2)	1		
Administrative Affiliation					
Public	524 (6.5)	7,537 (93.5)	1.19	0.88 – 1.60	0.260*
Private	140 (5.4)	2,463 (94.6)	1		
Bullies others					
Yes	213 (10.6)	1,797 (89.4)	2.16	1.70 – 2.75	< 0.001*
No	451 (5.2)	8,194 (94.8)	1		
Feelings regarding their body					
Unsatisfied	202 (9.4)	1,952 (90.6)	1.12	0.79 – 1.58	< 0.001*
Satisfied	358 (5.0)	6,848 (95.0)	0.61	0.43 – 0.86	
Indifferent	99 (8.0)	1,135 (92.0)	1		
Body image					
Important	524 (5.9)	8,335 (94.1)	0.77	0.59 – 0.99	0.049*
Unimportant	136 (7.8)	1,610 (92.2)	1		
Consideration of their body					
Fat	199 (30.2)	2,008 (20.2)	1.83	1.46 – 2.30	< 0.001*
Thin	180 (27.4)	2,642 (26.6)	1.13	0.89 – 1.44	
Normal	279 (42.4)	5,281 (53.2)	1		

na: not adjusted; OR: *odds ratio*; 95%CI: 95% confidence interval; *significance level of Pearson's χ^2 .

Overweight adolescents were more likely to report being bullied when compared to those of adequate weight (OR = 1.38, 95% CI 1.10 – 1.74). Those who indicated a feeling of satisfaction in relation to their body were less likely to report being bullied compared to those who said they were indifferent about this feeling (OR = 0.61, 95%CI 0.43 – 0.86). Adolescents who admitted to bullying others were twice as likely to suffer from bullying (OR = 2.16, 95%CI 1.70 – 2.75), while those who reported not being treated well at school had three times more chances of suffering from bullying (OR = 3.03, 95%CI 2.50 – 3.85).

In the multivariate model (Table 2), adolescents who reported being 13 years old (OR = 1.76, 95%CI 1.04 – 2.97), practicing bullying (OR = 1.91, 95%CI 1.48 – 2.46), not being treated well at school by peers (OR = 2.78, 95%CI 2.17 – 3.45) and considering themselves fat (OR = 1.45, 95%CI 1.06 – 1.98) had a higher chance of suffering from bullying.

DISCUSSION

This study identified that 6.2% of students had already been bullied, with a prevalence of 6.6% in males and 5.9% in females. The bivariate analysis showed significant associations of being bullied with the following variables: age, full-time school, being treated well at school by colleagues, practicing bullying, nutritional status, consideration of one's own body, body image and satisfaction with their body. However, in the adjusted model, only the variables age (only 13 years old), consideration of one's own body (only the fat category), bullying others, and the treatment received at school remained as statistically significant.

Significant differences in the prevalence of being bullied were found in research conducted in Brazil and in other countries. A national study with data from PeNSE 2012 indicated a prevalence of being bullied of 7.2%¹⁸. A study based on data from an international report similar to PeNSE, called Health Behavior in School-aged Children (HBSC) and involving adolescents from 33 countries in Europe and North America, showed that in the 2009/2010 cycle, 29.2% of students reported one or more experiences of being bullied in the past few months²⁷. Victimization rates for bullying from 23 to 32% were also obtained in the HBSC's Global School Health Survey, in the 2013/2014 cycle, conducted with adolescents from different countries in Europe²⁸.

The discrepancy in the prevalence of being bullied in several studies can be attributed to the variation in sample size and the victim criterion. In this study, being a bully victim was defined as when it occurred "most of the time" or "always" in the past 30 days. This characterization, however, does not follow the same pattern as other studies²⁷⁻³¹.

After the adjusted analysis, it was observed that students aged 13 were almost twice as likely to be victims of *bullying* compared to students aged 17 years old. A survey of 11 to 15-year-old Scottish teenagers showed an increase in being bullied over a period of two decades, except for 13-year-old boys, with a significant decrease in older adolescents³¹. The finding regarding the age of 13-year-olds is in disagreement with the present study, however, the relationship between age and being bullied was similar to the results of this study.

Table 2. Multivariate analysis of sociodemographic, behavioral, body perception and nutritional status factors associated with *bullying* in Brazilian adolescents. Brazil, 2015.

Variable	Odds Ratio adjusted, OR:	95%CI
Sex		
Male	1.08	0.86 – 1.34
Female	1	-
Age (years old)		
13	1.76*	1.04 – 2.97
14	1.42	0.86 – 2.33
15	1.25	0.80 – 1.95
16	1.32	0.85 – 2.06
17	1	-
Série		
6 th grade	1.36	0.67 – 2.74
7 th grade	1.00	0.50 – 1.99
8 th grade	1.31	0.73 – 2.37
9 th grade	1.02	0.56 – 1.85
1st year of high school	0.90	0.53 – 1.54
2st year of high school	1.01	0.58 – 1.76
3st year of high school	1	-
Full Time		
Yes	1.24	0.96 – 1.61
No	1	-
Well treated at school by peers		
Yes	1	-
No	2.78*	2.17 – 3.45
Nutritional status		
Overweight	1.04	0.79 – 1.38
Underweight	1.18	0.65 – 2.14
Adequate weight	1	-
Bullies others		
Yes	1.91*	1.48 – 2.46
No	1	-
Feelings regarding their body		
Unsatisfied	1.12	0.76 – 1.65
Satisfied	0.71	0.50 – 1.01
Indifferent	1	-
Body image		
Important	0.95	0.725 – 1.24
Unimportant	1	-
Consideration of their body		
Fat	1.45*	1.06 – 1.98
Thin	1.01	0.79 – 1.30
Normal	1	-

*Statistical significance $p < 0.05$; 95%CI: 95% confidence interval.

Previous investigations have shown a higher prevalence of being bullied in younger adolescents^{31,32} and with lower levels of schooling³³⁻³⁵. Thirteen-year-olds were more likely to become targets of bullying when they were under academic pressure³⁵. Although the literature shows similarities with our study in terms of more bullying in the youngest group, it did not find a significant association between schooling level and being bullied.

Data from an epidemiological-based survey (PeNSE 2012) showed age as a protective factor as a student becomes older (16 years or older)¹⁸. A study carried out in Malawi (South Africa), based on the Global School-based Health Survey (GSHS), 2009, found that 14-year-old students are more likely to be bullied compared to 16-year-olds³⁶. A systematic revision study showed that being bullied is associated with anxiety disorders in adolescents over 13 years old³⁷.

The higher prevalence of younger schoolchildren in lower grades being bullied is probably explained by the greater memory of episodes of bullying in the 11 to 13 age group³⁸. Furthermore, older students might consider bullying to be a joke or something funny³⁹. The decline in bullying rates with increasing age can also be explained by greater social adaptation and greater effectiveness in inhibiting bullying, linked to the physical development of adolescents³².

The present study also indicated that considering oneself fat is associated with a greater propensity to suffer from bullying, a result that is in agreement with the literature. A survey of Slovak teenagers aged 11 to 15 years old found a significant association between self-reported body image and involvement in bullying, and adolescents who considered themselves overweight were more likely to suffer from bullying⁴⁰.

An investigation carried out based on data from PeNSE 2012 pointed to a higher prevalence of those who considered themselves very thin and very fat being bullied¹⁷. A study carried out in 39 countries in Europe and North America showed that adolescents who self-reported themselves as very fat were three times more likely to be chronically bullied than those who perceived themselves as having a normal weight²⁹.

In this sense, the difficulty in accepting one's own physical characteristics and dealing with the difference indicates the need to work on psychosocial aspects with adolescents, in order to create a school climate that is more favorable to their health⁴¹. In addition, those who did not conform to the aesthetic standards of normality imposed by the media and disseminated by society are largely rejected, especially individuals of the female gender, for whom higher relative weight is a factor of discontent¹⁹.

Thus, for a better understanding of bullying, it is necessary to analyze it from a historical-cultural perspective and consider the repetitive persecutions of one student towards another as a reflection of socially and culturally constructed patterns, which provoke humiliations, insults, and verbal and physical aggressions against those who are said to be different¹¹⁻¹³.

Another finding of this research showed that the practice of bullying increases the chances of the individual suffering from bullying by almost twice. Studies indicate situations in which students are victims and producers of this type of violence, with prevalences from 7.4 to 19.63%, the highest being among male students^{33,42,43}. Although the study developed here does not focus on the existence of abusive victims, we observed in our results that the fact of perpetrating bullying significantly increases the chances of suffering from it.

Similar to our results, a survey of Hong Kong high school students revealed that different types of perpetration of and suffering from bullying are positively correlated, pointing out that the chances of an adolescent being the target of bullying at school increases 236% when he practices bullying, and the opposite is also valid⁴⁴. Another study involving adolescents, carried out in the Macau region, in China, also found a positive correlation between practicing bullying and suffering from bullying⁴⁵. And a study carried out in municipal schools in Campina Grande found that a victim of bullying had a 1.92 more chance of becoming a producer of violence⁴⁶.

It appears that, from these studies⁴⁴⁻⁴⁶, being bullied does not occur in isolation, and it cannot be predicted, with the current research, which phenomenon precedes the other. However, regardless of the role of adolescents in bullying, they are equally exposed to situations of vulnerability that affect their well-being and quality of life^{47,48}.

Among the results obtained in this study, it is worth noting that adolescents who are not treated well at school by their peers were almost three times more likely to suffer from bullying compared to those who were well treated at school. Findings in agreement with the study were obtained in research carried out in several European countries, which revealed that the low social support of classmates increased the propensity for being bullied, as it was slightly stronger than the support from teachers and friends⁴⁹. A study conducted in Iceland found that peer support is a protective factor against being bullied⁵⁰. Another investigation involving adolescents aged 13 to 17 from public and private schools in Spain showed a greater propensity to suffer from bullying among students who perceived they had less support in the school environment⁵¹.

The literature highlights the importance of social support perceived by adolescents at school, where the quality of peer relationships plays an essential role in situations of bullying^{49,50,51}. It is suggested that intervention projects be implemented that include family, educators and students, so that all actors in the school context feel responsible for ensuring a constructive climate, where there is acceptance of differences and mutual respect between students, thus producing better interpersonal relationships at school^{11,13,41,50,52}.

Although the analysis of the risk factors associated with being bullied is based on data from a national survey, this article has limits, including: the cross-sectional nature of the study, which did not allow for the investigation into the causes of bullying; the self-reported responses to the questionnaire, which may be subject to specific biases and student understandings; the possibility that explanatory variables of the phenomenon of bullying have not been included, requiring other approaches that allow for a deeper understanding of the risk factors associated with it.

Although this work has limitations, its results need to be taken into account when thinking about intervention alternatives to minimize bullying. In addition, the phenomenon must be analyzed as something complex, which is influenced by values and beliefs that are socially and culturally constructed, and which are reproduced in the school environment. Therefore, preventive efforts that include programs to encourage greater social support among students, the implementation of practices that reinforce respect for students' differences and peculiarities, as well as the promotion of interventions that involve all actors at school, can contribute to the reduction of bullying.

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