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Prevalence of bullying and associated factors among Brazilian schoolchildren in 2015

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Abstract *This study analyzed the prevalence of bullying and associated factors among Brazilian schoolchildren using data produced by the 2015 National School Health Survey (PeNSE, acronym in Portuguese) consisting of a national sample of 102,301 eighth grade students. The prevalence of bullying was calculated and bivariate analysis was performed using a 95% confidence level to determine the association between victimization and socio-demographic variables and other variables relating to family background, mental health, and risk behaviors. Multivariate analysis was then conducted using the biologically plausible variables of interest. For the final model, variables that obtained p-values of < 0.05 were maintained. The prevalence of bullying was found to be 7.4%. The results of the multivariate analysis showed that boys aged 13 years studying in public schools who worked and whose mother did not have any schooling were more likely to be bullied, as were schoolchildren who felt lonely, had no friends, suffered from insomnia, skipped lessons without parental permission, and who smoked. Victims of bullying were predominantly 13-year-olds from an unfavorable social and family background, painting a picture of vulnerability that calls for support from social protection networks, schools and families alike.*

Key words *Bullying, Adolescents, Violence, Vulnerability, Survey*

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Introduction

Adolescence is a period of transition from childhood to adult life and a time of biological, cognitive, emotional, and social changes[1,2]. It is also a phase marked by increased autonomy and independence in relation to the family and experimentation with new behaviors and experiences, which may often involve risk and have long-term health effects[1,2]. This stage of life is also associated with increased opportunities for social interaction, new circles of friends, and increased exposure to risks and acts of violence[1,3].

Bullying is considered a systematic act of aggression characterized by physical or psychological violence through acts of intimidation, humiliation, or discrimination[4]. It consists of repetitive aggressive behavior, generally over a long period of time, directed toward other people and typically including some form of power asymmetry between peers[7-10]. Numerous studies have addressed school bullying. However, bullying also takes place in other settings, including the workplace, sports teams, and other spaces in the community[5,9,10].

Bullying is a group phenomenon that involves the majority of schoolchildren, directly or indirectly, either as a victim, bully or observer[11]. There are different forms of bullying, including name-calling, physical aggression, threats, stealing, verbal abuse, and causing humiliation[12].

Bullying is a global problem documented in numerous countries. A study of schoolchildren from over 40 different countries conducted by the World Health Organization (WHO) showed that 14% of 13-year-olds reported that they had been bullied over the two months prior to the study[13].

Studies have also documented the health consequences of childhood bullying, including academic difficulties[14], sleep problems[15], greater propensity to early school leaving[16], relationship problems, as well as low self-esteem[17], mental disorders in adulthood[17], and suicide[18,19].

There is a growing body of national and international literature[18,19] on bullying and associated factors. Studies highlight that younger socially withdrawn schoolchildren who have few friends[20,21] and suffer from depression and anxiety[22] and of those who have poor relationships with their peers[22] tend to be more prone to bullying. Other factors that place children at risk of bullying are physical and mental disabilities[23], sexual orientation and gender identity, which can often lead to suicidal thoughts[19]. In Brazil, a study conducted by Malta et al.[24] using data from the 2012 National School Health Survey (*Pesquisa Nacional de Saúde do Escolar* - PeNSE) showed that bullying is linked to many negative outcomes, including impacts on mental health, such as insomnia and loneliness, and smoking, and that there was often a lack emotional support provided by the family of victims. However, a number of grey areas remain, particularly in relation to work/paid work, family relationship issues, substance use, etc.

The WHO has conducted surveys across a number of countries to explore trends and provide quality evidence to inform policies and programs to tackle this problem[13]. The first PeNSE, conducted in 2009 based on a sample of eighth grade students across Brazil's state capitals, showed that 5.4% of students reported that they had been bullied over the 30-day period prior to the interview[25]. The second edition, conducted in 2012 showed that this proportion had grown to 6.8%, which is equivalent to a 25% increase[24]. This apparent growth in the prevalence of bullying drew even greater attention to the issue, highlighting the need for periodic monitoring and resulting in the third edition of the PeNSE in 2015, thus allowing for a comparison of behaviors over the period. The inclusion of additional questions in the survey questionnaire also allows for the observation of changes in relation to factors associated with bullying and the examination of new aspects of the problem, such as work/paid work and victimization[2].

Based on the findings of the 2015 PeNSE, the present study aims to determine the prevalence of bullying and identify the factors associated with victimization of Brazilian schoolchildren.

Methodology

This study analyzed the data generated by the 2015 PeNSE, a cross-sectional study conducted by the Brazilian Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística* - IBGE) in partnership with the Ministry of Health of eighth grade students studying in public and private schools across the country. The sample is representative of the school student population across Brazil[2].

The sample was selected in three stages: stage one, in which the municipalities or groups of municipalities were selected (primary sampling unit - PSU); stage two, in which schools were selected (secondary sampling unit - SSU); and stage three, in which classes were selected (tertiary sampling

unit - TSU). All students from the randomly selected classes present on data collection day were invited to participate in the study[2]. A total of 102,301 students from 3,040 schools and 4,159 classes took part in the survey. The sample loss rate due to students who did not wish to participate in the study was 8.5%. The survey considered all students enrolled in the eighth grade studying during the day in schools with over 15 students. A 50% proportion estimate and 95% margin of error and confidence level were used to estimate sample size. A more detailed description of the sample can be found elsewhere[2].

The present study expanded on the conceptual model put forward by Malta et al.[24] that proposes the following factors associated with bullying: I) demographic factors; II) mental health-related factors (loneliness, insomnia, having no friends); III) family situation (living with parents, family supervision, suffering violence within the family, truancy); and IV) risk behaviors (psychoactive substance use and having had sexual relations)[24]. The present study included additional variables relating to socioeconomic and family situation: maternal level of schooling, whether the student worked/had paid work, and living with parents.

The outcome bullying was determined using the following question: "over the last 30 days, how often have any of your classmates ridiculed, mocked, made fun of, intimidated, or teased you to such an extent that you felt hurt/uncomfortable/upset/offended/humiliated?" Answers were categorized as "No" (never, rarely, sometimes) and "Yes" (most of the time, always).

Associations were tested using the following variables:

I) *Sociodemographic characteristics* were analyzed using the following independent variables: a) sex (male or female); b) age (≤ 13 years, 13 years, 14 years, 15 years, and 16 years and over); c) skin color/race (white, black, brown, yellow, and indigenous); d) school (public or private); e) maternal schooling (without schooling, primary (not completed/completed), secondary (not completed/completed), higher education (not completed/completed); f) currently working (yes/no); g) paid work (yes/no).

II) *Family background*: a) living with mother and/or father, categorized as yes (living with mother and father, living with mother, or living with father) or no (living without mother and father); b) family supervision, categorized as yes (most of the time, parents or guardians always know what the adolescent is doing) or no (never, rarely, sometimes); c) skipping lessons without parental permission, categorized as no (never) or yes (once or twice, three or more times in the last 30 days).

III) Mental health was analyzed using the following independent variables: a) feeling lonely, categorized as no (never, sometimes in the last 12 months) or yes (most of the time, always in the last 12 months); b) insomnia, categorized as no (never, sometimes in the last 12 months) or yes (most of the time, always in the last 12 months); c) friends, categorized as no (none) or yes (one, two, three, or more friends).

IV) Risk behaviors – smoking in the last 30 days or regular smoking (yes or no), regular alcohol use or use in the last 30 days (yes or no), having tried an illicit drug at some time (yes or no), and having had sexual relations (yes or no).

Prevalence of bullying was initially calculated using the sociodemographic variables and those relating to family background, family violence, mental health, and risk behaviors. Binary logistic regression analysis was performed to determine the factors associated with the outcome (having been bullied) based on crude odds ratios (OR) and respective confidence intervals. Subsequently, multiple logistic regression analysis was performed using variables that had p-values of < 0.20. For the final model (ORa), statistically significant variables with p-values of < 0.05 were maintained. The data set was then tested for the presence of multicollinearity and interaction between variables.

The analyses took into account the sample structure and weights assigned to produce population estimates. The analyses were performed using SPSS Statistics 20, and used complex sampling designs.

The students were informed about the study and advised that their participation was voluntary and that they may quit at any time if they did not feel comfortable answering the questions. Students who gave their consent answered an individual questionnaire using a smartphone under the supervision of IBGE researchers[2]. The PeNSE was conducted in accordance with the National Health Council resolution Guidelines and Regulations for Research Involving Human Beings and was approved by the National Research Ethics Committee of the Ministry of Health (*Comissão Nacional de Ética em Pesquisas do Ministério da Saúde* - CONEP/MS) (approval March 30, 2015).

Results

The sample had the following characteristics: 48.7% were males and 51.3% females; 85.5% of the sample studied in public schools and 14.5% in private schools; 0.4% were aged under 13 years, 88.6% between 13 and 15 years, and 11% 16 years and over; 36.1% were white, 13.4% black, 43.1% brown, 4.1% yellow, and 3.3% indigenous (Table 1).

Seven point four percent of students reported having been bullied in the last 30 days prior to the study (CI95% 7. 2-7.6). Prevalence of bullying was highest among students aged under 13 years (8.8%; CI95% 8.1-9.5) and decreased after age 14, reaching as low as 6.8% in the 16 years and over age group (CI95% 6.3-7.3). Prevalence of bullying among black schoolchildren was 8.2% (CI95% 7.2-9.3), while no statistically significant difference was found for the other skin colors. Bullying was more common among students studying in public schools and among those whose mothers did not have any schooling (9.3%; CI95% 8.5-10.3). The prevalence of bullying was higher among students who worked (9.8%; CI95% 9.3-10.3) and those who had paid work (9.3%; CI95% 8.8-9.8). With respect to mental health-related factors, bullying was more prevalent among students who reported feeling lonely (16.6%; CI95% 16.1-17.2), followed by insomnia (15.2%; CI95% 14,5-15,8), and having no friends (14.1%; CI95% 13.0-15.1).

With regard to family situation, prevalence was highest among students who were hit on a regular basis in the family environment (15.4%; CI95% 14,8-16,0), followed by those who skipped lessons without parental permission (9.9%; CI95% 9,5-10,3), and those who were supervised by their parents (6.7%; CI95% 6,5-6,9).

With respect to risk behaviors, the prevalence of bullying was highest among students who smoked (12.7%; CI95% 11.4-14.0), followed by those who used alcohol (8.8%; CI95% 8,5-9,2), those who had used drugs (8.9%; CI95% 8.3-9.5), and those who had had sexual relations (8.1%; CI95% 7.8-8.5). Table 2 shows the crude ORs.

The results of the multivariate analysis showed that aged 13-year-old students were more likely to be bullied. In contrast, the following age groups were less likely to be bullied: students aged under 13 years (ORa = 0.58; CI95% 0.35– 0.95), older students (14-year-olds, ORa = 0.72; CI95% 0.67– 0.77; 15-year-olds, ORa = 0.63; CI95% 0.58 – 0.69), and students aged 16 years and over (ORa = 0.51; CI95% 0.46 – 0.57)). Female students (ORa = 0.69; CI95% 0.65 – 0.73) and students studying in private schools (ORa = 0.84; CI95% 0.77– 0.92) were less likely to be bullied. With regard to sociodemographic variables, children whose mothers did not have any schooling and those who worked were more likely be bullied (ORa = 1.30; CI95% 1.15– 1.47 and ORa = 1.33; CI95% 1.23-1.43, respectively), while the variable paid work lost its statistical significance (Table 3).

With respect to mental health-related factors, students who reported feeling lonely, having insomnia, and having no friends were more likely be bullied (ORa 2.88; CI95% 2.69-3.08; ORa 1.50; CI95% 1.39-1.62; and ORa 1.67; CI95% 1.49-1.86, respectively).

With regard to family situation, schoolchildren who were hit on a regular basis in the family environment and who skipped lessons without parental permission were more likely to be bullied (ORa 2.35 CI95% 2.2-2.5 and ORa 1.40 CI95% 1.31-1.49. respectively).

With respect to risk behaviors, students who smoked on a regular basis were more likely to be bullied (ORa 1.16; CI95% 1.03-1.31). The relationship detected in the first model between drug use and bullying was inverted in the multivariate model, which showed that students who had used drugs were less likely to be bullied (ORa 0.82;

Table 1. Sex, type of school, age and skin color/race of the students interviewed under the National School Health Survey. Brazil, 2015.

		Confidence Interval CI (95%)	
Sex	%	Lower	Upper
Male	48.7	48,1	49,3
Female	51.3	50,7	51,9
Type of School			
Public	85.5	83,5	87,6
Private	14.5	12,4	16,5
Age			
Under 13 years	0.4	0,3	0,5
13 years	17.8	16,9	18,8
14 years	51.0	50,1	51,9
15 years	19.8	19,1	20,5
16 years and over	11.0	10,4	11,5
Color/race			
White	36.1	35,2	37,1
Black	13.4	12,9	13,9
Brown	43.1	42,2	43,9
yellow	4.1	3,9	4,4
indigenous	3.3	3,1	3,5

Table 2. Frequency of occurrence of bullying among eighth grade students, prevalence and crude OR by sociodemographic factors and variable related to family background, mental health, and risk behaviors. Brazil, 2015.

Variable	Bullying						
	%	CI (95%)		OR	CI (95%)		p-value
		Lower	Upper		Lower	Upper	
Total	7.41	7.25	7.58				
Age							
< 13	8.1	5.8	11.3	0.92	0.64	1.31	0.629
13	8.8	8.1	9.5	1.00			
14	7.0	6.5	7.6	0.78	0.74	0.83	< 0.001
15	7.5	6.9	8.1	0.84	0.78	0.90	< 0.001
16 and over	6.8	6.3	7.3	0.76	0.69	0.83	< 0.001
Sex							
Male	7.6	7.3	8.0	1.07	1.02	1.12	0.005
Female	7.2	7.0	7.4	1.00			
Color/race							
White	7.4	6.6	8.3	1.00			
Black	8.2	7.2	9.3	1.11	1.03	1.20	0.004
Yellow	7.9	6.8	9.2	1.07	0.95	1.21	0.244
Brown	7.1	6.3	8.0	0.95	0.90	1.01	0.073
Indigenous	8.2	7.3	9.2	1.11	0.98	1.27	0.105
School							
Public	7.6	7.1	8.1	1.00			
Private	6.5	6.1	6.9	0.84	0.79	0.91	< 0.001
Maternal schooling							
Without schooling	9.3	8.5	10.3	1.37	1.23	1.53	< 0.001
Primary (not completed/completed)	7.3	6.8	7.8	1.05	0.98	1.13	0.197
Secondary(not completed/completed)	7.5	7.0	8.0	1.07	1.00	1.16	0.064
Higher education (not completed/ completed)	7.0	6.6	7.4	1.00			
Living with mother or father							
No	7.7	7.0	8.4	1.00			
Yes	7.4	7.2	7.6	0.96	0.87	1.06	0.404
Currently working							
No	7.1	6.7	7.5	1.00			
Yes	9.8	9.3	10.3	1.42	1.34	1.52	< 0.001
Paid work							
No	7.1	6.7	7.6	1.00			
Yes	9.3	8.8	9.8	1.34	1.25	1.43	< 0.001
Feeling lonely							
No	5.6	5.3	5.8	1.00			
Yes	16.6	16.1	17.2	3.38	3.22	3.56	< 0.001
Insomnia							
No	6.4	6.1	6.8	1.00			
Yes	15.2	14.5	15.8	2.61	2.46	2.77	< 0.001
Friends							
1 or more	7.1	6.5	7.7	1.00			
None	14.1	13.0	15.1	2.14	1.96	2.34	< 0.001
Hit on a regular basis (family)							
No	6.1	5.8	6.4	1.00			
Yes	15.4	14.8	16.0	2.82	2.68	2.98	< 0.001

it continues

Table 2. Frequency of occurrence of bullying among eighth grade students, prevalence and crude OR by sociodemographic factors and variable related to family background, mental health, and risk behaviors. Brazil, 2015.

Variable	Bullying						p-value
	%	CI (95%)		OR	CI (95%)		
		Lower	Upper		Lower	Upper	
Family supervision							
No	8.8	8.4	9.2	1.00			
Yes	6.7	6.5	6.9	0.75	0.72	0.79	< 0.001
Skips lessons							
No	6.7	6.4	7.0	1.00			
Yes	9.9	9.5	10.3	1.54	1.46	1.62	< 0.001
Regular smoker							
No	7.3	6.5	8.1	1.00			
Yes	12.7	11.4	14.0	1.85	1.64	2.08	< 0.001
Drinks alcohol regularly							
No	7.0	6.6	7.3	1.00			
Yes	8.8	8.5	9.2	1.29	1.23	1.36	< 0.001
Has used drugs							
No	7.3	6.8	7.8	1.00			
Yes	8.9	8.3	9.5	1.44	1.29	1.61	< 0.001
Has had sexual relations							
No	7.1	6.8	7.5	1.00			
Yes	8.1	7.8	8.5	1.25	1.16	1.35	< 0.001

CI95% 0.74-0.91). The other variables were not maintained in the multivariate model (Table 3).

Discussion

The findings show that 7.4% of the study sample reported that they had been bullied in the last 30 days prior to the interview. The multivariate analysis showed that male students aged 13 years studying in public schools who worked and whose mothers did not have any schooling were more likely to be bullied. Furthermore, the results show that students who felt lonely, had insomnia, smoked, suffered physical aggression at the hands of family members, and skipped lessons without parental permission were also more likely to be bullied, while drug use was shown to be a protective factor.

There is a growing body of literature on bullying[1,26,27], which shows that the prevalence of victimization varies from country to country. In Europe and North America, studies have documented prevalence rates ranging between 5 and 20%[28,29], while in Africa rates have been shown to be between 21 and 40%[30]. In Brazil, a cross-sectional study conducted in Pelotas with a sample of 1,075 first to eighth grades students studying at public schools showed that 17.6% had been bullied[31], while another study undertaken in Caxias do Sul in the State of Rio Grande do Sul in 2011 with 1,230 sixth grade students (aged between 11 and 14 years) showed that 10.2% were victims of bullying and 7.1% had bullied[32].

These differences in prevalence rates may be explained by differences in methodology, study design, sampling, age groups studied, questionnaires and the questions used, the period and frequency used to characterize a bullying event, as well as the types of bullying considered (verbal, physical, psychological, sexual, etc.)[10] and cultural characteristics[26].

Most studies show that bullying is more prevalent among boys[31-34]. However, a study conducted by Costa et al.[26] in Belo Horizonte did not show any statistically significant gender difference, while Ybarra et al.[35] found that internet bullying was more prevalent among girls. The results of the multivariate analysis confirm that males are more likely to be bullied. This result is particularly important since the crude data did not reveal this difference.

The results of the present study also show that 13-year-olds are more likely to be bullied than

Table 3. Risk factors associated with bullying among eighth grade students. Brazil, 2015.

Variable	OR	CI (95%)		p-value
		Lower	Upper	
Age				
< 13	0.58	0.35	0.95	0.032
13	1.00			
14	0.72	0.67	0.77	< 0.001
15	0.63	0.58	0.69	< 0.001
16 and over	0.51	0.46	0.57	< 0.001
Sex				
Male	1.00			
Female	0.69	0.65	0.73	< 0.001
School				
Public	1.00			
Private	0.84	0.77	0.92	< 0.001
Maternal schooling				
Without schooling	1.30	1.15	1.47	< 0.001
Primary (not completed/completed)	1.03	0.95	1.12	0.484
Secondary(not completed/completed)	1.00	0.92	1.08	0.936
Higher education (not completed completed)	1.00			
Living with mother or father				
No	1.00			
Yes	1.11	0.98	1.27	0.108
Currently working				
No	1.00			
Yes	1.33	1.23	1.43	< 0.001
Feeling lonely				
No	1.00			
Yes	2.88	2.69	3.08	< 0.001
Insomnia				
No	1.00			
Yes	1.50	1.39	1.62	< 0.001
Friends				
1 or more	1.00			
None	1.67	1.49	1.86	< 0.001
Hit on a regular basis (family)				
No	1.00			
Yes	2.35	2.20	2.51	< 0.001
Skips lessons				
No	1.00			
Yes	1.40	1.31	1.49	< 0.001
Tabaco regular				
No	1.00			
Yes	1.16	1.03	1.31	0.013
Has used drugs				
No	1.00			
Yes	0.82	0.74	0.91	< 0.001

other ages. This is consistent with the findings of the majority of studies, which show that the prevalence of bullying tends to be greater among younger students[27,29,35]. It is important to note, however, that the sample used for the PeNSE comprises students from the eighth grade, where the majority of students are aged between 13 and 15 years, and thus is not sufficiently representa-

tive of students under the age of 13. It should be noted, however, that the IBGE includes a subsample of students by age (13 to 17 years), which confirms the assumption that the prevalence of bullying is lower among students aged 13[2].

The 2015 PeNSE showed that there is an association between being bullied and mental health-related factors such as feeling lonely, insomnia, and not having friends. This finding is particularly relevant and this situation should be monitored given that other studies have also found an association between bullying and loneliness, anxiety, insomnia, sadness, depression, post-traumatic stress disorder and suicidal thoughts[18,35,36], showing the extent of this problem and its grave immediate and long-term health consequences[37]. The 2015 PeNSE allowed us to determine associations between these variables at the national level and is therefore an important tool for monitoring factors that may result in depression and grave mental health consequences.

Different studies around the world have shown that there is an association between victimization and risk behaviors such as smoking and alcohol and drug use[34,35,37,38]. Moreover, a study realized in Belo Horizonte in Brazil found that the prevalence of bullying among adolescents was greater among those who reported involvement in fighting, drug use, episodes of drunkenness, and smoking[26]. In a national study in Brazil, Malta et al. also documented an association between bullying and smoking in the last 30 days prior to the study[24], while a multivariate analysis of 2012 PeNSE data for the Southeast Region conducted by Mello et al.[27] showed that alcohol was a protective factor for bullying. The latter finding was attributed to the fact that teenagers generally consume alcohol in groups of friends, making it a factor that favors socialization and interaction among peers. The results of the present study showed that only smoking was associated with bullying.

Carvalhosa et al.[22] found that drug use was lower among victims of bullying. The bivariate analysis performed in the present study showed that drug use was associated with a greater likelihood of victimization. However, this relationship was inverted by the multivariate analysis, which showed drug use to be a protective factor. The test for presence of multicollinearity and interaction between variables related to risk behaviors (data not shown) showed that there was a negative interaction between having had sexual relations and drug use. Both types of risk behavior are more common among older students (aged 15 years and over). Thus, the fact that bullying was more common among younger students (13-year-olds) may explain the change in direction in the variable "drug use", since it is associated with older students who tend to be less vulnerable to bullying. In the same way, the loss of significance of the relationship between having had sexual relations and bullying may also be explained by the negative interaction identified above. Thus, the results of our study differ from those documented in the international literature that show there is an association between sexual activity and bullying[39].

Our findings also show that there was an association between skipping lessons without parental permission and suffering physical aggression at the hands of family members. These variables are indicators of lack of family cohesion and violent and insecure family environments, which in turn have a negative effect on physical and mental health[40,41].

Studies exploring the factors that make teenagers more vulnerable to bullying have shown that aspects such as poor physical, academic, emotional or social self-concept and low self-esteem result in an increased risk of victimization over time and can trigger aggressive behaviors[11].

The above emphasizes the importance of paying special attention to both victims and perpetrator-victims. This group is particularly vulnerable and having a greater propensity toward violent behavior outside school, substance use, depression, and anxiety and obtaining and achieving particularly low psychosocial adjustment scores[42].

In the adolescent stage of human development, social relations are the driving force behind the development of personal values and ways of thinking and acting. By entering the labor market, children and adolescents can interrupt this process and suffer discrimination, which might explain higher levels of victimization among schoolchildren who work found by this study[43]. Having paid work was not maintained in the final model, probably because of the fact that work is a marker of the same phenomenon.

The PeNSE is the most wide-ranging survey of Brazilian school students to date, covering both public and private schools in all of Brazil's states and state capitals. Given that the survey relies on self-reported information. The associations identified by this study should be viewed with some caution given that a cross-sectional design was used and that bullying and associated factors were measured simultaneously, thus limiting the ability to establish temporality. Furthermore, feelings of abandonment, loneliness and sadness may lead victims of bullying to adopt risk behaviors[22]. Fi-

nally, other variables associated with the outcome may not have been included in the present study.

Conclusion

The findings of this study show that there is an association between school bullying and sociodemographic variables such as being male, being younger, and having a lower socioeconomic status, for example children studying in public schools who work and whose mothers do not have any schooling. Lack of family cohesion and a violent and insecure family environment and smoking are also contributing factors. These findings can help inform bullying prevention and youth protection policies and programs. Bullying affects the physical and mental health of victims and thus calls an integrated approach to tackling this problem that involves educators, health professionals, parents, and the community in general. These initiatives should focus on health promotion and protection, comprehensiveness, and intersectorality.

Collaborations

DC Malta participated in the study conception and design, data analysis and interpretation, prepared the first version of this manuscript and contributed to the critical revision of this manuscript and final approval of the version to be published. RR Prado participated in statistical analysis and contributed to the critical revision of this manuscript and final approval of the version to be published. FCM Mello, MA Iossi Silva contributed to study conception, data analysis, and to the critical revision of the final version of this manuscript. MMA Silva, ACMG Nogueira de Sá, IV Pinto, MFM Souza contributed to the critical revision of the final version of this manuscript. All authors approved the final revision of this manuscript.

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