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CHARACTERISTICS OF AGGRESSORS AND VICTIMS OF BULLYING IN STUDYING IN A PUBLIC ELEMENTARY SCHOOL AND HIGH SCHOOL

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ABSTRACT

Introduction: the study aimed to know the characteristics of bullying in students from a public elementary and high school in a city in northeastern Brazil. **Method:** a descriptive study, with a quantitative approach. The Olweus Bully Victim Questionnaire (OBVQ) was used (victim and aggressor versions). Relative and absolute frequencies of all responses were calculated and the Item Response Theory method was used to discriminate the perpetrators and victims of bullying. The significance level was 5%. **Results:** of the sample (n=276), 6.9% (n=19) presented characteristics for aggressor, with scores above 65 points. Of the sample (n=267) for victims, 1.9% (n=5) presented characteristics for victims. The items that most discriminated the aggressors were "I cursed" and "I put nicknames on others that they did not like", while for the victims, "They cursed at me" and "They laughed and pointed at me". When comparing the two models, there was a positive correlation in the skills of being a victim and becoming an aggressor, of 0.56 (p-value < 0.001). **Conclusion:** it was possible to discriminate the most relevant items in the definition of bully and victim of bullying, observing a strong association between the ability to be a victim and the ability to become a bully with emphasis on the verbal domain.

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INTRODUCTION

The term bullying (intimidation) is used to describe violent acts, psychological or physical, against someone at a power disadvantage and with no apparent motivation for their practice (Knoener, 2018). It can strike young people and children in an almost imperceptible way (Spinosa, 2017). It is usually related to fights, offenses, bad jokes, intimidation, defamatory comments, physical and psychological aggression (Coelho, 2018). At school, bullying is characterized when a child or adolescent suffers for a long period, systematically, knowingly or intentionally, aggression of various forms by third parties with the aim of harming, unbalancing and establishing, in this way, a dominant power relationship (Souza, 2019).

It is present in all social strata and goes beyond the school, assuming, in this way, a public health problem (Giordani *et al*., 2017). It also occurs in virtual form, called cyberbullying, when technologies and social media are used to support violent actions against the other (Freire *et al*., 2020). The issue of bullying, in Brazil, is often considered an element of life at school belonging to the world of natural childhood play, which hinders the identification of the problem (Bandeira & Hutz, 2012). Aggression can occur in any space of the school environment (Calhau, 2008; Catheline & Linlaud-Fougeret, 2015). The practice can bring several consequences and damages to those involved, whether financial, psychological, physical or social. Those who suffer from the problem tend to need multidisciplinary help that encompasses education, health, and law (Lopes Neto, 2005).

Knowledge about the behavioral characteristics of students who are targets of aggression and intimidation can assist in actions aimed at protecting victims of bullying (Olweus & Limber, 2010). Within the context addressed, and in search of contributing to the direction of health education actions in the planning of preventive measures in the school environment to address this problem, this study aimed to know the characteristics of bullying in students from a public school in a city in northeastern Brazil.

METHODOLOGY

A descriptive study, with a quantitative approach, carried out in a state elementary and high school located in the city of Camaragibe, State of Pernambuco, Brazil. The study population was the 471 students regularly enrolled in 2019 in the referred school.

Study participants: All students over 18 years of age who agreed to participate and who signed the Free and Informed Consent Term (FICT) were included in the study, as well as those under 18 years of age who returned the Free and Informed Assent Term (FIAT) signed by parents or guardians, totaling 308 participants. Students with global development disorder were excluded because they had difficulty in understanding the instrument for its completion.

Data collection: A validated instrument was used, the Olweus Bully Victim Questionnaire (OBVQ) (Olweus, 1997), in victim and aggressor versions. This self-report instrument has 23 items that refer to the practice of bullying (bully version) and 23 items about victimization (victim version). The questions in the questionnaire were grouped according to the verbal, physical, psychological, material, and cyberbullying domains (Pigozi & Machado, 2015). The OBVQ responses ranged from (1) "Never," (2) "Once or twice a month," and (3) "Several times a week" (aggressor version) and (1) "Not at all," (2) "Once or twice a month," and (3) "Several times a week" (victim version). Each category investigates an attitude and the frequency in which it occurred, considering the last month (Gonçalves *et al*., 2016).

The questionnaires were applied in the classroom, on previously designated days and times, filled out by the students themselves individually, after signing and returning the signed consent forms. The students were guaranteed the confidentiality of the information and the assurance that they could withdraw their participation at any time, if they so wished. After collection, the data were analyzed by calculating the relative and absolute frequencies of all the questions in the questionnaires. The results of this stage were divided into: registration data; questions directed to the aggressors; and questions directed to the victims. Some measures of dispersion and central tendency were calculated for the age variable (numerical with two categories) using Pearson's test. To test whether there was any relationship between the sociodemographic variables and the score measuring whether the student was a victim of bullying, two different means were used: for gender, the Mann-Whitney test and for race/color the Kruskall-Wallis test.

It was also tested whether there was a linear relationship between the scores of being a victim and a bully, evidenced by Pearson's correlation test. Next, the Item Response Theory (IRT) method was used to estimate two models, which generated the scores that measured how apt students were to be either perpetrators or victims of bullying. The IRT is a multivariate statistical analysis technique that estimates the ability that a certain individual has in relation to a certain subject according to the answers given to a questionnaire (apt to capture the desired information). The degree of uncertainty of reporting a given answer for each question is also measured, according to the generated score, which results in a graph called the Item Characteristic Curve (ICC). Ability is then measured as a score on a scale of standard deviations from the mean of a standard normal distribution.
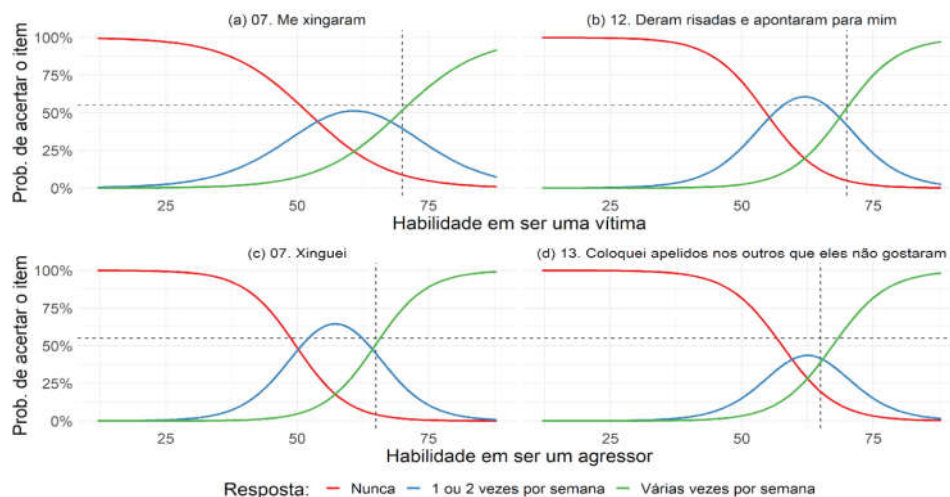
As the questions generate ordinal polytomous categorical variables, we chose to use the gradual response model, which estimates the probability of an individual choosing an answer according to the ability inherent to the subject matter. This model takes into account that as the category grade of a question increases, there tends to be a reduction/growth in the difficulty of answering that item "correctly". We also chose to allow each item to have a distinct discrimination parameter. As for the parameters of the model, each question presented two of difficulty and one of discrimination. The interpretation of the difficulty parameter will demarcate the probability of a question being answered for a minimum skill level and, therefore, the higher this value is, it indicates that the item is more difficult, requiring very high (or low) skill levels. As for the discrimination parameter, it represents the level of increase in the probability of correctly answering a question as ability increases. Low values indicate that the item has little discriminative power (students with quite different abilities have approximately the same probability of answering the item correctly). Very high values indicate items with very "steep" characteristic curves, which discriminate students into basically two groups: those with abilities below the value of the difficulty parameter and those with abilities above that value (Andrade *et al*., 2000). All estimated parameters were considered non-constant and, because of this, the analysis to identify which item is more discriminating is left to its characteristic curves. To facilitate score interpretation, the scale will be rewritten using the following transformation: $Z* = Z * 10 + 50$ where Z is the original score and $Z*$ the score on the proposed new scale. All IRT models were estimated without the presence of the ignored, that is, those who did not answer the questions. Thus, for the model that uses the questions directed to the aggressors, the total sample size was 276, while in the model for the victims, the total sample size was 267. All calculations were performed using the R programming language, version 3.6.1, with emphasis on the ltm package, version 1.1.1, for Item Response Theory. The significance level considered was 5%. The research was approved by the Research Ethics Committee of Oswaldo Cruz University Hospital/Cardiac Emergency of Pernambuco (HUOC/PROCAPE) with CAAE no. 80236517.0.0000.5192.

RESULTS

Of the 308 students analyzed, most were boys (45.1%; n=139), aged from ten to fourteen years (70.8%; n=218), with a mean of 14.3 years and a coefficient of variation of 14.1%. 63.6% (n=196) said they were brown or black. They said they go to school every day 43.2% (n=133) and usually study one day before an exam (48.4%; n=149). They usually do very well on tests 41.6% (n=128). They have four to ten good friends at school 33.1% (n=102) and 60.7% (n=187) study in the same school from one to five years. They have been expelled from any school previously 11% (n=34) and 51.9% (n=160) live with two adults. (Table 1). The Item Response Theory (IRT) model was used to identify the latent abilities and skills for potential bullies and victims of bullying, expressed from the results of the questions in the OBV questionnaire in all domains, interpreting the difficulty parameter to demarcate the probability of a question being answered for a minimum level of ability. As for the discrimination parameter, this represents the level of growth in the probability of answering a question correctly as ability increases, of which the verbal domain stood out (Table 2). The items that most discriminate those who practice bullying are items 07 (I cursed) and 13 (I made fun of others that they did not like) (Table 2) in which, for each skill point, the relative chance of rational practice of such acts increases by, respectively, 7.69% and 6.95% when the answer given was "Several times a week". The model aimed at expressing the latent ability of a student to be a victim of bullying, has items 07 (They called me names) and 12 (They laughed and pointed at me) (Table 2) as those that discriminate the victims of bullying, where each skill point added to items 07 and 12 increases the relative chance of getting the item right by, respectively, 3.67% and 6.82% when the answers given were "Several times a week" (Table 2).

Table 1. Absolute and relative frequencies of sociodemographic variables of students in elementary and high schools, Camaragibe (PE), Brazil, 2019

Question	Possible answers	N	%
Sex	Girl	69	22,4
	Boy	139	45,1
	Not answered	100	32,5
Age group	10 to 14 years	218	70,8
	15 to 19 years	89	28,9
	≥ 20 years	1	0,30
Color/Ethnicity	Brown or Black	196	63,6
	Asian or Indigenous	17	5,50
	White	56	18,2
	Not answered	39	12,7
How many days have you missed school in the last month?	1 to 3 days	88	28,6
	More than 3 days	49	15,9
	I came here everyday	133	43,2
	Not answered	38	12,3
How much do you normally study for an exam?	I study a lot (usually days before the exam)	88	28,6
	I study a little (usually the day before)	149	48,4
	Never or rarely study	34	11,0
	Not answered	37	12,0
Have you ever repeated the school year?	No	197	64,0
	Yes	73	23,7
	Not answered	38	12,3
How do you usually go about your tests and class work?	I usually do very well	128	41,6
	Generally, I'm average	118	38,3
	I always do badly	2	0,60
	Not answered	38	12,3
How many "good friends" do you have in this school?	Over 20 friends	45	14,6
	Between 11 and 20 friends	29	9,40
	Between 1 and 3 friends	68	22,1
	None	12	3,90
	Not answered	52	16,9
How long have you studied at this school? (in years)	6 months to 1 year	43	14,0
	From 1 to 5 years	187	60,7
	More than 5 years	27	8,80
	Not answered	51	16,6
How many schools have you attended since the 1st grade?	Only in one	40	13,0
	In two	63	20,5
	Three or more	148	48,1
	Not answered	57	18,5
Have you ever been suspended or expelled from this school or another school where you studied?	No	237	76,9
	Yes	34	11,0
	Not answered	37	12,0
How many adults do you live with?	Only one	77	25,0
	Two	160	51,9
	Three	17	5,5
	Four or more	14	4,5
	Not answered	40	13,0
How many brothers/sisters do you have?	None	25	8,1
	Between 1 and 2	144	46,8
	Between 3 and 4	53	17,2
	Not answered	54	17,5

Source: Prepared by the authors (2020). Figure 1 (a and b) Characteristic curves of the items 16 and 22 (Table 4) obtained from the TRI model for bullying aggressors' skills.

Figure 1. Characteristic curves of items 07 and 12 (Table 2) and 07 and 13 (Table 2) displaced from the IRT model for the skills of aggressors and victims of bullying in a public school in Northeastern Brazil, Brazil, 2019.

Table 2. Results of the TRI model for the identification of possible aggressors and victims of bullying in a public school in northeastern Brazil (Brazil, 2019)

Aggressors				Victims			
Item	Difficulty		Discrimination	Item	Difficulty		Discrimination
	Once or twice a week	Several times a week			Once or twice a week	Several times a week	
Physical Domain							
01. I punched, kicked or shoved	1,17	2,67	1,43	01. They punched, kicked or shoved me	0,92	2,31	1,77
02. I pulled their hair and scratched them	1,70	2,54	1,78	02. They have pulled my hair or scratched me	1,61	3,39	1,23
Psychological Domain							
03. I made threats	1,44	2,22	2,19	03. I was threatened	1,11	2,76	1,52
14. I cornered or put against the wall	2,04	3,07	1,80	14. I was cornered or put against the wall	2,21	3,42	1,42
15. I chased them into and out of school	2,03	3,68	1,80	15. I was chased into and out of school	1,60	2,55	2,12
16. I harassed sexually	2,31	3,21	1,66	16.I was sexually harassed	2,18	3,07	1,58
17. I do not let them be part of a classmates' group	1,61	2,86	1,23	17. They didn't let me be part of a classmates' group	1,33	2,94	1,45
18.I ignored them completely, gave them a freeze	0,68	2,95	0,88	18 I was ignored completely, they gave me a freeze	0,89	2,30	1,43
19.I invented that they took classmates' things	1,33	2,37	1,79	19. They invented that I took classmates' things	0,87	2,33	2,03
20. I said evil things about them and their families	1,66	2,72	1,74	20. They said evil things about me and my family	1,04	2,23	2,28
21. I made or tried to make other people don't like them	1,88	3,24	1,78	21 They made or tried to make other people do not like me	1,04	2,08	1,94
22. I forced them to attack other classmate	1,80	2,34	3,30	22. I was forced to attack other classmate	1,88	2,62	2,95
Material Domain (Attack to property)							
04. I forced them to hand me money or things	1,60	2,44	2,55	04. I was forced to hand them money or things	1,92	2,48	2,41
05. I took, without their consent, their money or things	2,06	3,66	1,47	05. They took, without my consent, my money and things	0,90	2,39	2,06
06. I spoiled people's things	1,45	3,38	1,15	06. They spoiled my stuff	0,71	2,28	2,00
Verbal Domain							
07. I cursed them	-0,03	1,48	2,04	07. I was cursed by them	0,21	1,95	1,30
08. I insulted them because of color or race	2,08	3,15	1,54	08. I was insulted because of my color or race	1,59	3,27	1,37
09. I insulted them because of some physical characteristics	1,60	3,03	1,71	09. I was insulted because of some physical characteristics	1,09	2,34	1,48
10. I humiliated them because of their sexual orientation or gestures	2,07	2,75	2,77	10. I was humiliated because of my sexual orientation and gestures	2,11	3,06	1,8
11. I made mockery of them because of their accent at speaking	1,76	3,42	1,25	11. They made mockery of my accent at speaking	1,59	3,07	1,57
12. I laughed and pointed my finger at them	0,54	2,38	1,44	12. They laughed and pointed their fingers at me	0,46	1,93	1,92
13. I put nicknames at them that they didn't like at all	0,77	1,73	1,94	13. They put nicknames on me that I didn't like at all.	0,39	2,39	1,20
Cyberbullying							
23. I used the internet or mobile phone to attack them	1,98	2,59	2,71	23. They used the internet or mobile phone to attack me	1,55	2,95	1,96

Source: Prepared by the authors. Note: The questions enumeration is in the order of the used form

Regarding items 07 and 12 (Figure 1 (a and b) the skill required to be considered a victim of bullying is from 70, which is the level at which the curve of items 07 and 12 becomes relevant. Hence, of the sample used (n=267) for generating the model, 1.9% (n=5) of the students are considered victims of bullying. Of the five who had an ability to be a victim of bullying above 70 points, 40% (n=2) were cursed at and 80% (n=4) had nicknames placed on them that they did not like, several times a week. Figure 1 (d and e) shows the characteristic curves of items 07 and 13.

Item 07, from 65 skill points on, already starts to show relevant hit probabilities, while item 13, from 70 skill points on. From the sample (n=276) used to estimate the model, there is 6.9% (N=19) with scores above 65 points, that is, with the possibility of being an aggressor. Of these students, the following characteristics stand out: (n=18) cussed several times per week; (n=13) put nicknames on others that they did not like several times per week. Comparing the two I.R.T. models, something notable is how quickly the characteristic curve (for the "several times a week" responses) for item 07 increases.
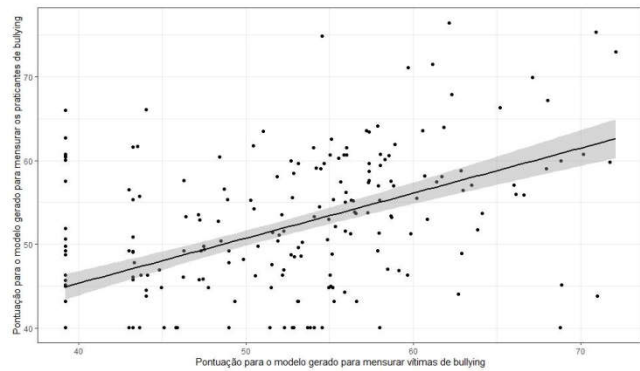
Source: Elaborated by the authors (2020). Source: Elaborated by the authors (2020).

Figure 2. Scatter plot between the scores generated by the T.R.I. estimated for the skills of aggressors and victims of bullying in a public school in Northeastern Brazil, Brazil, 2019

In the offender model it is more than double when compared to the victim model. Furthermore, there is a positive correlation (between the pairs found in each model) of the victim and aggressor ability scores of 0.565 (p-value < 0.001, (Figure 2). An attempt was made to find relationships between the socio-demographic variables and the score on being a victim of bullying, where no significant findings were obtained. The results of the tests were: - Age x Score: Pearson's Correlation = 0.04 (p-value = 0.50); Sex x Score: Wilcoxon Test, W = 3842 (p-value = 0.52); Race/color x Score: Kruskal-Wallis Test, X^2 = 4.8436 (p-value = 0.089).

DISCUSSION

The students who participated in the study had a mean age of 14.3 years (CV=14.1%), were mostly boys, brown or black, studied at this school from one to five years, and lived with two adults. Of the sample to discriminate the perpetrators of bullying, 6.9% (n = 19) presented characteristics for bully, and of the sample to discriminate the victims, 1.9% (n = 5) presented characteristics for victim. The National School Health Survey, conducted in Brazil with 9th grade students, found 7.2% with characteristics of bullying victims and 21.8% with characteristics for aggressors (Oliveira *et al*., 2016). In other studies, the figures for student victims ranged from 5.4% to 67.5%, while, for aggressors, they ranged from 10.2% to 54.7% (Bandeira & Hutz, 2012; Marcolino *et al*., 2018), results, therefore, higher than those found in this study. In this study there was no statistical significance regarding the practice of bullying and the variables gender and age, a fact also observed in other studies (Bandeira *et al*., 2009; Melin & Pereira, 2016). However, the contact of adolescents with bullying has been increasingly earlier (Moreno *et al*., 2012). There is an expectation that the frequency of bullying will decrease as victims get older. Regarding gender, a study (Maltoni *et al*., 2019) highlights that girls represent the majority of the perpetrators of bullying, while boys suffer more aggression when compared to them (Maltoni *et al*., 2019).

As for ethnicity, a greater predominance of browns and blacks was observed. The Brazilian population in 2019 was 42.7% white, 9.4% black, and browns corresponded to 46.8%. However, in the Northeast, the region where the school studied is located, the percentage of browns represented 62.5% of the total general population (Brasil, 2019), a fact similar to the results found in this study. Most students did not inform how many adults they lived with, representing more than 40%, and only 17% said they lived with two other adults. It is known that the presence of adults in the adolescents' upbringing will directly influence their way of acting, that is, if they witness violent practices they will possibly repeat the same model. A study found an association between parental practices reported by adolescents and their involvement in bullying, either cyber-bullying or traditional bullying (Pascual-Sanchez *et al*., 2021). The abilities and skills for potential bullies were identified from the items that most discriminated those who practice bullying through the IRT model. The items "I cursed" and "I put nicknames on others that they did not like" stood out for the response "Several times a week". Nicknames that belittle the victim and cursing were the predominant items in the verbal domain, which is also verified by studies that found the same characteristics (Gonçalves *et al*., 2016; Oliboni *et al*., 2019; Santos & Grossi, 2014; Wang *et al*., 2009). When analyzing the latent abilities that consider possible victims of bullying, using the same model, the items "They called me names" and "They laughed and pointed at me" were the ones that stood out as discriminators, which is corroborated by other studies (Alavi *et al*., 2017; Bandeira & Hutz, 2012; Oliboni *et al*., 2019; Pimentel *et al*., 2020; Santos & Grossi, 2014). A possible explanation for the predominance of the verbal domain in the practice of bullying can be justified by the fact that this practice is linked to the false sense that this type of aggression can be the result of an apparent friendly exchange between adolescents, when, in fact, it is an aggressive initiative that aims solely to cause damage or humiliate the other, which can stimulate the increase of this violence, as well as its perpetration (Barros, 2015; Gonçalves *et al*., 2016; Santos & Faro, 2018; Silva *et al*., 2019; Volk *et al*., 2012). Both the results in the IRT model for the bullies and the victims showed the relevance of the responses for the verbal domain. These results demonstrate the ability necessary for the individual to be considered a victim or a bully, according to the chance of being able to give a response according to the truth, in line with what they are feeling.

As an important finding of this study, there is a positive correlation between the ability to be a bully and the ability to be a victim (p-value <0.001). These findings highlight the need for prevention of bullying in schools, given the seriousness brought about by the harmful effects of acts resulting from this problem among those involved (Pimentel *et al*., 2020), that is, it highlights the importance of early identification of victims to prevent future aggressors. Since bullying brings negative consequences to those involved, such as psychological suffering, low self-esteem, consequent social isolation, learning deficits, distortions regarding the view of oneself, among other consequences (Alves, 2020). From the results it can be seen that new studies on the subject are essential in order to seek strategies to better identify early the presence of bullying in students, since it is not conditioned to adolescence. Knowing the aspects that lead to the generation of violence can be a strategy for the prevention of aggressive behavior among students, besides favoring social monitoring (Guilhardi, 2002). The limitations of the study may be related to the organization of the school spaces during the face-to-face application of the questionnaires, which may have intimidated the participants at the time of filling out the questionnaire, besides the fact that the questionnaire was self-reported, which may not correspond to the picture of other populations.

FINAL CONSIDERATIONS

It was possible to discriminate the most relevant items in the definition of bully and victim of bullying, observing a strong association between the ability to be a victim and the ability to become a bully with emphasis on the verbal domain. There is a need for further studies that widely evaluate the characteristics of children and adolescents who show signs of bullying victimization, in order to support a better understanding of the categories that interfere in the context of these populations and how they interact in these environments to minimize the possible transformation of these victims into bullies. The study can also help in discussions on the theme for the elaboration of proposals aimed at a peaceful environment in schools and the prevention of this violence.

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