Article

Hierarchy, Violence and Bullying Among Students of Public Middle Schools[1]

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Abstract: Hierarchies established in schools can lead to violence among students, particularly bullying, and this relationship is investigated in this study. A School Hierarchies Scale and a Peer Perception of Aggression Scale were applied to 274 9th grade students, both sexes, aged 14.08 years ($SD = 0.81$) old on average, attending four public schools in the state of São Paulo, Brazil. The students more frequently perceived to be popular, were among the best in physical education and/or among the worst in academic subjects were also more frequently perceived to be bullies, while those more frequently perceived to be unpopular and having the worst performance in physical education were also more frequently perceived to be victims. Therefore, teachers should reflect upon the issue and fight school violence that may arise from these hierarchies.

Keywords: school violence, academic achievement, bullying

Hierarquia, Violência e Bullying Entre Estudantes da Rede Pública do Ensino Fundamental

Resumo: Na escola, existem hierarquias formadas entre alunos que podem ocasionar violência entre eles, especialmente o bullying; este estudo pesquisou a relação entre essas hierarquias e a violência escolar. Foram aplicadas a Escala de Hierarquias Escolares e a Escala de Avaliação de Agressão pelos Colegas a 274 alunos do nono ano do Ensino Fundamental de quatro escolas públicas paulistas de ambos os sexos; idade média 14,08 anos ($DP = 0,81$). Os alunos mais indicados como populares, melhores em educação física e piores nas disciplinas de sala de aula foram mais associados à autoria da agressão escolar, e os impopulares e com piores desempenhos em educação física como os alvos dessa agressão. Assim, é importante que os educadores reflitam e atuem de modo a combater a violência escolar proveniente dessas hierarquias.

Palavras-chave: violência escolar, rendimento escolar, bullying

Jerarquía, Violencia y Intimidación Entre los Estudiantes de la Escuela Primaria Pública

Resumen: En la escuela, existen jerarquías establecidas entre los estudiantes que pueden generar violencia, particularmente la intimidación; este estudio intentó verificar esa relación. Fueron aplicadas la escala de jerarquías de escuela y la escala de evaluación de agresión por parte de colegas a 274 estudiantes del noveno grado de cuatro escuelas primarias públicas en el estado de São Paulo, Brasil, de ambos sexos; promedio de edad de 14,08 años ($DE = 0,81$). Los estudiantes más populares, mejores en educación física y peores en las disciplinas de la clase eran más asociados con la autoría de la intimidación, y los impopulares y con peores actuaciones en la educación física como las víctimas de la agresión. Es importante que los educadores reflejen y actúen para combatir la violencia en las escuelas a partir de estas jerarquías.

Palabras clave: violencia escolar, rendimiento escolar, bullying

School violence is expressed in many ways and presents different causes and consequences. Martins (2005) defines school violence as antisocial behavior that causes physical or psychological damage to an individual or property. Such behavior can be considered reactive – impulses that break through an individual's control – or proactive – the rational use of one's domination over others. Violent behavior can be distinguished as being undisciplined, part of juvenile delinquency, conduct disorder, or bullying, but according to Martins (2005), the term school violence should refer only to severe behaviors, that is, those involving the submission of another individual and which may lead to the total destruction of another's will.

According to Galvão, Gomes, Capanema, Caliman and Câmara (2010), the attitudes of the teachers in the institution itself are sometimes laden with school violence, some of which contribute to the establishment of school hierarchies among students: public comparison among students' performances, kicking students out of the classroom, using sarcasm, or yelling at students. The studies by Juvonen, Wang and Espinoza (2011), Mehta, Cornell, Fan and Gregory (2013), and Strøm,

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Thoresen, Wentzel-Larsen and Dyb (2013) show that school violence decreases the engagement of students in schools and is an obstacle to good academic performance.

Salmivalli, Kärnä and Poskiparta (2011) assert that studies addressing school violence, especially bullying, should not ignore the context in which relationships are established among peers. In this sense, Strøm et al. (2013) argue that further studies investigating bullying as a group phenomenon are needed, given that the unsafe atmosphere caused by it affects all students. Nonetheless, as put by Garandeau, Lee and Salmivalli (2014a), few studies address the relationship between hierarchical status and bullying. According to these authors, while hierarchical status can promote social order and harmony and contribute to the improved organization of activities when division of work is appropriate to the individuals' capabilities and individuals complement each other, Ahn, Garandeau and Rodkin (2010) draw attention to a type of hierarchical structure with the potential to generate violence: violence among peers is more likely to occur when there is a hierarchy with fixed roles, compared to more equalitarian groups. Zwaan, Dijkstra and Veenstra (2013) note that the need to maintain a hierarchical status is a matter of survival and reproduction, so that physical skills and attractiveness are important.

Among the types of school violence, according to Crochík (2012), phenomena such as bullying or prejudice seem to more directly reflect school hierarchies among students, because according to Adorno (1965/1995a), these are directed to targets considered to be fragile, deprived of the power to fight back. School bullying has been an object of analysis in many studies and, even if with some distinctions among those studies, it is generally defined as physical, symbolic, or sexual aggression that a student or a group of students perpetrates for a prolonged period of time against those who cannot properly defend themselves or stop the aggression (Antunes & Zuin, 2008). Victims are usually individuals with a fragile appearance who have difficulty defending themselves (Albuquerque, Williams, & D'Affonseca, 2013; Crochík, 2014; Fante, 2005; Mehta et al., 2013; Pinheiro & Willliams, 2009). Albuquerque et al. (2013) mention a study that indicates the prevalence of bullying in 40 countries: 26% among students at schools, 10.7% of whom are bullies, 12.6% are victims, and 3.6% are simultaneously bullies and victims.

A factor related to school violence, and consequently to bullying as a type of violence, and to school hierarchy, is popularity. Studies (Ahn et al., 2010; de Bruyn, Cillessen, & Wissink, 2010; Li & Wright, 2014; Zwaan et al., 2013) propose two ways to study popularity and its relationship with being a bully or a victim: perceived popularity in general, verified by the nominal indication by peers as a response to "who is popular?" and preference among peers, or sociometric popularity, which is obtained when peers indicate whom they would like to have as friends or participate with in activities such as studying or working. Peer acceptance refers to the extent individuals want to interact with each student; perceived popularity is a measure of visibility, prestige, and dominance. Some studies (Ahn et al., 2010; Li & Wright, 2014; Zwaan et al., 2013) show the relationship between school violence and a search for popularity among adolescents, so they rank well in the hierarchy established by students. Ahn et al. (2010), and Li and Wright (2014) state that adolescents who want to be perceived by peers as being popular tend to be violent, while those who want to have the preference of peers tend to be considered less violent.

Bullies in general experience low social preference but are perceived as highly popular (Garandeau et al., 2014b). According to Bruyn et al. (2010), bullies and victims have low acceptance among peers: the former enjoy good perceived popularity, while victims score low in terms of peer preference and popularity. These authors also note an interaction between the two forms of popularity: popular adolescents who are also more frequently preferred by peers are less aggressive than those who are popular but not accepted by peers. Additionally, experiencing low acceptance among peers and being unpopular predisposes individuals to be victims, while being accepted and popular does not. Caravita and Cillesen (2012) argue that perceived popularity is positively related to being a bully and acceptance among peers is negatively related to being a bully.

Levandoski and Cardoso (2013) conducted a study in a school in Florianópolis, SC, Brazil with 337 6th grade students and verified the participants tended to consider bullies as being better looking. According to these female students, bullies are more popular in classrooms and stand out in activities involving physical skills, while Levandoski and Cardoso verified that victims performed better in the Portuguese language as an academic subject. This last result reveals that, if there is school hierarchy and a relevant criterion is popularity, it may be related to physical performance and attractiveness, but students are also distinguished by their performance in academic subjects, and according to the results, good students tend to be targets of violence. Strøm et al. (2013) state that few studies in the field address the relationship between school violence and academic performance and, as Juvonen et al. (2011) and Mehta et al. (2013), Strøm et al. (2013) also report, there is an inverse relationship between these two variables: the greater the violence, the worse the academic performance of students.

Adorno (1965/1995b) asserts that this distinction between students' performance in academic subjects is part of an official hierarchy. The other school hierarchy, the one that compares the students' good and poor performance in activities related to physical skills, that is, the one that involves athletic performance and physical strength, and perceived popularity among peers, is called by this author an "unofficial hierarchy". In both hierarchies, competition is guided by valorization of those who perform better in the activities considered. If school education has, among its functions, the duty to civilize individuals for social life, this competition may be seen as a dispute in which rules are socially established and accepted. In general, these rules are not discussed (Galvão et al., 2010), nor are the values assigned to winners and losers, so that something that comes out of the school walls is reproduced: school hierarchies strengthen social hierarchies. Individual competition is,

therefore, socially encouraged and strengthened in school life. Because school education is supposed to prepare individuals to contribute to society by playing a solidary role, a contradiction between collaboration and competition is evident. In this sense, the study conducted by Caravita and Cillessen (2012) shows that perceived popularity is associated with personal objectives, while peer acceptance is related to common objectives. Because, in society, individual self-preservation is part of the development of personal autonomy and, as the economic system is defined by competition, competition supersedes solidarity.

The official hierarchy values knowledge and cognitive skills, which are necessary for social development, while the unofficial hierarchy values physical strength and skills, bodily beauty, and cleverness, which according to Zwaan et al. (2013), are also necessary for species preservation and reproduction. As previously noted, Adorno (1965/1995a) shows that violence, which expresses a repressed nature, still persists in civilization, leading to an assumption, in relation to the official hierarchy, that those at the top can despise those at the base, as well as that those at the base can resent and, for this reason, tend to be aggressive toward those at the top, as indicated by the aforementioned study conducted by Levandoski and Cardoso (2013). Because physical strength is valued in our culture, Adorno (1965/1995b) highlights the ambiguity that teachers – and we can infer, good students – raise in those they intend to teach: respect and contempt; respect for knowledge but contempt for one's bodily weakness. Hence, it is expected that students who stand out in academic subjects will be targets of school violence, but not targets only, as they may themselves become the perpetrators of school violence.

As the aforementioned studies indicate that perceived popularity is associated with being a bully and, as Levandoski and Cardoso (2013) show, good academic performance is associated with being a victim, we can assume that those at the top of the unofficial hierarchy are popular, while those at its base and who are discriminated against, are unpopular. In the official hierarchy, unpopularity is supposed to be related to those at the top, though popularity is not necessarily associated with those at the base.

Considering the discussion presented so far, this study's objective is to verify whether there is a relationship between the rank a student occupies in school hierarchies – both official and unofficial – and school violence; and in the latter category, to analyze bullying, especially the roles a student can perform: none, bully, both bully and victim, or victim. Four hypotheses are proposed: 1 – Students at the top, or who consider themselves, to be at the top of the unofficial hierarchy (that is, who perform well in physical education and/or are popular) tend to be perceived as perpetrators of school violence in general and of bullying specifically; 2 – Students considered, or who consider themselves, to be at the base of the unofficial hierarchy (that is, who perform poorly in Physical Education and/or are not popular) tend to be perceived as victims of school violence in general and of bullying specific; 3 – Students considered, or who considered themselves, to be at the top of the official hierarchy (who

perform well in academic subjects) may be perceived as perpetrators of school violence or be victims of school violence, in general, and of bullying specifically; and 4 – Students considered, or who consider themselves, to be at the base of the official hierarchy (that is, perform poorly in academic subjects) may be perceived either as perpetrators of school violence or victims of school violence or both, in general, or of bullying specifically.

Method

Participants

This study's sample was composed of 274 9th grade students attending four public schools located in São Paulo, SP, Brazil; more than half (55.5%) the students were boys, aged 14.08 ($SD = 0.81$) years old, on average. Their socioeconomic level was established in accordance with the Brazilian Criteria of Economic Classification, version 2008, proposed by ABEP (Brazilian Association of Market Research Companies) and distributed according to the following: A2 = 3.3%; B1 = 11.7%; B2 = 28.2%; C1 = 37.0%; C2 = 17.9%; D = 1.5%; and E = 0.4%.

Instruments

The instruments used in this study and described below were developed by the study's author.

Personal Data Questionnaire. Questionnaire addresses information regarding sex, age, time in school, and socioeconomic status according to the aforementioned classification.

School Hierarchies Scale. The participants were asked to indicate the three best and the three worst students in their classrooms according to their performance in academic subjects and physical education; they were asked the same for the three most popular and the three most unpopular students. The participants could nominate themselves, if that was the case. This instrument is intended to measure performance and perceived popularity and was developed in the same way other instruments were developed for studies verifying the variable perceived popularity (Ahn et al., 2010; Caravita & Cillessen, 2012; de Bruyn et al., 2010; Garandeau et al., 2014b). Based on Levandoski and Cardoso (2013) and Zwaan et al. (2013), popularity was considered one of the indicators of the unofficial hierarchy and, based on Adorno (1965/1995a) and Levandoski and Cardoso, performance in physical education was considered another indicator of this hierarchy because it is related to the body and collective sports, in general, are associated with disputes in which one's physical performance, rather than intellectual performance related to knowledge and reflection, stands out. Perceived performance in the official hierarchy was considered the performance achieved in academic subjects. These subjects, however, were not listed separately as doing so could scatter responses since students may stand out in distinct subjects. We opted to verify perceived popularity and perceived unpopularity because being perceived less popular does not necessarily imply the lowest level of popularity.

To verify whether the scale enables discriminating between both hierarchies – official and unofficial – factor analysis, using the principal component method and Varimax rotation, was performed. The following results were obtained: KMO = 0.567 and Bartlett's test (15) = 329.339; $p = .000$; three factors were extracted with an explanatory variance of 76.47%. Factor loadings higher than .40 were considered significant so that being perceived as being among the best in physical education (factor loading of .82) and being popular (.88) composed a factor related to those at the top of the unofficial hierarchy, the Cronbach alpha of which was .74. Being perceived as being among the worst in physical education (.86) and being unpopular (.80) composed the second factor associated with students at the base of the unofficial hierarchy ($\alpha = .69$). The fact that popularity was in one factor and unpopularity was in another indicates these variables are effectively distinct. In regard to the official hierarchy, the contrast between good and poor performance is apparent because being perceived as being among the best (.83) and worst performers (-.78) in academic subjects present high loadings, but with opposite signs, in the third factor ($\alpha = .85$). An analysis of partial correlations was performed among the indicators of this scale, controlled for sex, age and socioeconomic status. As we report later on, many of this study's measures present distinctions or are related to these variables. Thus, we can verify that: 1 – being perceived to be popular is associated with being perceived to be among the best performers in physical education, $r(272) = .608$; $p = .000$; 2 – being perceived to be unpopular is associated with being perceived to be among the worst performers in physical education, $r(272) = .532$; $p = .000$, and with being perceived to be among the best performers in academic subjects, $r(272) = .170$, $p = .005$. These results are coherent with those obtained in the factor analysis and confirm the existence of a double hierarchy based on the performance of students and with their level of popularity. There is also a relationship between being perceived to be among the students with the best academic performance and among those with the worst performance in physical education, $r(272) = .128$; $p = .035$. To check the reliability of the participants' answers, significant and negative correlations were obtained between the nominations for the best and worst students in academic performance, $r(272) = -.250$; $p = .000$; between the nominations for the best and worst students in physical education, $r(272) = -.39$; $p = .000$; and between those perceived to be popular and unpopular, $r(272) = -.343$; $p = .000$.

Self-report Scale of School Aggression, as Abuser and/ or Victim. The participants should report the frequency of nine types of aggression listed in two tables – one addressing potential aggressions committed against peers and another addressing aggressions experienced, namely: threat of physical aggression; physical aggression; swearing; gossiping; damage to peers' property; taking peers' property without consent; touching without consent; excluding/ rejecting; and offensive nicknames. There were five alternatives for the frequency with which a given aggression was perpetrated and/or were experienced in the last quarter before data were collected: did not practice and/or experience

any type of violence; once or twice in the last quarter; one to three times every month; one to four times a week; every day. Because bullying involves an imbalance of power or strength between bully and victim along with constant abuse (Garandeau et al., 2014b), in order to characterize whether bullying actually happened or not, considering the participants' answers to both lists, three other questions were asked after each of the tables: (a) whether the bully and/or victim was stronger or weaker than the victim and/or bully; (b) whether the abuse was performed in the context of a group; and (c) whether the victim was always the same when considering the period under study. Affirmative answers to at least one of the first two questions, which indicate the bully's strength was greater than that of the victim, and to the third question, which indicates repetition of the victim of violence, characterized bullying.

Peer Perception of Aggression Scale. In this case, as bystanders, the participants were asked to nominate four students in their classrooms who most frequently practiced the sorts of aggression presented in a list similar to those presented in the previous instrument and four students who most frequently were victims of such aggressions. The responders could nominate themselves, if that was the case. The same rationale used in the instrument concerning school hierarchies was used in this instrument, that is, students report perceived aggression, perpetrated or experienced by peers.

Procedure

Data collection. In 2013, the instruments were applied to students attending four public schools selected by convenience. Two researchers applied the instruments collectively in the classrooms. They provided instructions after the instruments were distributed, clarified doubts during the application, and after completion, verified whether all questions had been answered. The applications lasted approximately 30 minutes.

Data analysis. The formula used to calculate the scores for the instruments that involved the nomination of peers was $I = (n/N) * 100$, in which 'I' represents the index of nominations of the student with the best academic performance, worst academic performance, best performance in physical education, worst performance in physical education, most popular student, most unpopular student, most frequently perceived as a bully, or as a victim; 'n' represents how many times the student was nominated and 'N' the number of students who completed the instruments (students who were absent on the day data were collected were not included). Scores range from zero to 100.

Scores for the self-reporting of students as victims or abusers were obtained by multiplying the number of types of aggression perpetrated/experienced by the frequency of aggressions, which ranged from zero (no aggression in the period) to four points (every day in the period under study); total score ranged from zero to 36 points because nine types of aggression were listed.

The answers to the questions asked at the end of the self-report instrument regarding school aggression were

used to classify the participants' involvement with bullying. A participant was considered a victim if s/he responded that a group was the author of aggression and/or that the bully was stronger than s/he, and that it happened frequently. If the student answered that s/he was part of a group perpetrating the aggression and/or s/he was stronger than the victim and the victim was always the same, s/he was considered a bully. Whenever the participant met criteria for both victim and bully, s/he was then considered both. Calculations were conducted using PASW Statistics 17.

Ethical Considerations

The study project was approved by the Institutional Review Board at Pontifícia Universidade Católica de São Paulo, on March 28, 2011 (Report n. 066/2011). Anonymity was ensured to the participants, as well as that they could withdraw from the study at anytime. They also received clarification that data could be published and the respective legal guardians signed free and informed consent forms. No student failed to complete to the instruments, while the researchers provided help whenever needed; no problems were reported by any of the participants.

Results

Before reporting the results regarding the study's variables, comparisons between sexes and significant correlations with age and socioeconomic status are presented.

The 122 female participants were more frequently perceived as being among the best in academic subjects, compared to the 152 male participants, $t(272) = 3.498$; $p = .001$; less frequently perceived as being among the best in physical education, $t(272) = 5.002$; $p = .000$; and less frequently perceived as being among the worst in academic subjects, $t(272) = 7.464$; $p = .000$. Female students were significantly less frequently perceived as bullies, $t(272) = 7.347$; $p = .000$; and less frequently perceived as victims, $t(272) = 4.320$; $p = .000$. Male students more frequently considered themselves to be bullies compared to female students, $t(272) = 4.280$; $p = .000$. No differences were found between sexes in regard to self-reporting of school violence, $t(272) = 1.645$; $p = .101$ and no significant relationship was found between sexes in regard to type of involvement in bullying, $\chi^2(3, N = 274) = 7.251$; $p = .064$.

Pearson's correlations revealed that the older the individual, the more popular, $r(272) = .186$; $p = .002$, the higher the number of nominations as a bully, $r(272) = .134$; $p = .026$, and the more frequently peers nominate them as the worst in academic subjects, $r(272) = .158$; $p = .009$. Additionally, the higher one's socioeconomic status, the more popular one is, $r(272) = .173$; $p = .004$, the higher the number of nominations as a bully, $r(272) = .137$; $p = .024$, and the lower the number of nominations as unpopular, $r(272) = -.132$; $p = .029$. No significant differences were found between type of involvement in bullying when considering age and socioeconomic status. Given these

results, partial correlations were calculated controlling for sex, age, and socioeconomic status.

Correlations between indications according to school hierarchies and self-reports as bully and/or victim are presented below. Table 1 presents partial correlations.

Table 1
Partial Correlations Among Peer Nominations According to School Violence and Self-Report of School Aggression and Peer Nominations According to School Hierarchies

Peer nominations	Peer Nominations		Self-report	
	Abuser	Victim	Abuser	Victim
Best in academic subjects	-.144*	.080	.001	-.078
Best in physical education	.400**	-.246**	.044	-.101
Most popular	.421**	-.202**	.078	-.091
Worst in academic subjects	.490**	.234**	.042	.024
Worst in physical education	-.177*	.412**	-.088	.108
Most unpopular	-.271**	.475**	-.045	.123*

*$p < .05$. **$p < .01$.

According to data presented in Table 1, the more frequently a student is perceived to be a bully, the more frequently s/he is considered to be among the best in physical education, to be popular, among the worst in academic subjects and the less frequently s/he is perceived to be among the best in academic subjects, among the worst in physical education, and to be unpopular. Table 1 also shows that the more frequently a student is nominated as a victim of school violence, the more frequently s/he is perceived to be among the worst in academic subjects, as well as in physical education, and unpopular, and the less frequently s/he is considered to be among the best performers in physical education and popular.

Table 1 also shows that only one significant correlation was found when school performance nominations were related to self-reporting of participants as bullies or victims: a correlation between being perceived to be unpopular and self-report of victim. No significant correlation was found between self-reporting as a bully and being perceived to be a bully, $r(272) = .115$; $p = .058$, even though there is correlation between self-reporting of victim and being perceived as a victim, $r(272) = .268$; $p = .000$. No significant correlation was found between being perceived by peers to be a victim or bully, $r(272) = -.096$; $p = .115$, though there was significant correlation between self-reporting of being a bully or victim, $r(272) = .452$; $p = .000$. Finally, self-reporting and being perceived by peers as playing any role in school violence seem to be distinct variables.

Table 2 present the means and deviations concerning indexes obtained in regard to peer perceptions according to school hierarchies and type of involvement in bullying.

Table 2

Mean and Standard Deviation of Peer Nominations, Type of Involvement With Bullying and Comparison Between Them According to Variance Analysis

Indicators	Involvement	Freq. (%)	*M*	*SD*	F(3 and 271)	*p*
	None	199 (72.6)	11.64	18.97		
	Victims	39 (14.2)	13.29	22.52		
Best in academic subjects	Victim and abuser	20 (7.3)	8.59	19.14	0.269	.848
	Abuser	16 (5.8)	13.04	22.52		
	Total	274	11.73	19.90		
	None	199 (72.6)	13.02	21.30		
	Victims	39 (14.2)	3.18	6.96		
Best in Physical Education	Victim and abuser	20 (7.3)	12.31	18.17	3.003	.031*
	Abuser	16 (5.8)	7.37	17.75		
	Total	274	11.24	19.71		
	None	199 (72.6)	10.84	15.90		
	Victims	39 (14.2)	6.92	9.86		
Most popular	Victim and abuser	20 (7.3)	9.11	18.71	0.801	.494
	Abuser	16 (5.8)	11.67	16.98		
	Total	274	10.21	15.23		
	None	199(72.6)	9.73	15.81		
	Victims	39(14.2)	10.41	16.49		
Worst in academic subjects	Victim and abuser	20(7.3)	11.61	15.19	0.121	.948
	Abuser	16(5.8)	11.04	12.96		
	Total	274	10.04	15.65		
	None	199(72.6)	9.75	15.16		
	Victims	39(14.2)	16.01	19.73		
Worst in Physical Education	Victim and abuser	20(7.3)	9.08	12.83	1.955	.121
	Abuser	16(5.8)	8.21	11.11		
	Total	274	10.50	15.63		
	None	199(72.6)	9.74	14.29		
	Victims	39(14.2)	13.70	15.05		
Most unpopular	Victim and abuser	20(7.3)	9.21	12.39	1.700	.167
	Abuser	16(5.8)	4.82	5.23		
	Total	274	9.98	13.98		

*$p < .05$.

According to Table 2, a significant difference in regard to one's involvement in bullying was only found in terms of being perceived to be among the best in physical education; those who considered themselves to play no role in bullying were significantly more frequently considered to be among the best in physical education compared to those perceived to be victims, according to the results obtained using Tukey's test ($p = .022$). Since few individuals were perceived to be bullies (5.8%), considering data presented by Albuquerque et al. (2013), a comparison was performed between those who consider themselves to be either bullies or victims and a significant difference between these two groups was found only in regard to being perceived as unpopular, $t(53) = 2.029$; $p = .026$; those more frequently considered to be unpopular tended to consider themselves to be victims and vice versa.

Discussion

School violence *per se* has to be given critical attention given its destructive, anti-civilizational nature, but also because it is an important obstacle to school engagement. The performance of students involved with school violence can be harmed, as some studies reveal (Juvonen et al., 2011; Mehta et al., 2013; Strøm et al., 2013). This study's contributions include the discussion of school violence in light of school hierarchies as described by Adorno (1965/1995a), Ahn et al. (2010), Garandeau et al. (2014a), Levandoski and Cardoso (2013), Li and Wright (2014), and Zwaan et al. (2013). If, considering the survival of the species, it is reasonable to distinguish among individuals given their capabilities, as

noted by Zwaan et al. (2013), when this differentiation is conducive to hierarchical classification and the depreciation of those at its base, conflicts may emerge that put at risk the survival of species, as stressed by Ahn et al. (2010).

The two first hypotheses proposed in this study – that students who stand out in the unofficial hierarchy tend to perpetrate violence and those at its base tend to be victims – were confirmed in regard to school violence in general, but not in regard to bullying specifically. Significant correlations were found between being considered by peers to be a perpetrator of school violence and being perceived to be among the best in physical education and popularity, which were considered in this study to be signs that one ranks well in the unofficial hierarchy. In regard to perceived popularity, the same tendency is reported in the studies conducted by Ahn et al. (2010), Caravita & Cillessen (2012), Bruyn et al. (2010), and Garandeau et al. (2014a), in which this variable is associated with bullying, while perceived unpopularity is associated with being a victim. This study's results confirmed the findings reported by Levandoski and Cardoso (2013), Melim and Pereira (2015), and Zwaan et al. (2013) that those perceived by their peers to be among the best in physical education are more frequently associated with being bullies, while those perceived to be among the worst in physical education are associated with being victims. In this sense, one of the potential explanations for popularity is one's outstanding performance in physical activities, so that students who stood out in these activities are popular, while those who do not perform as well are considered unpopular.

The third hypothesis, which refers to students perceived as being at the top of the official hierarchy being both abusers and victims, was not confirmed. Even though these students tend to be considered unpopular, as observed in this study, they do not tend to be considered or consider themselves either as abusers or victims, which is in contrast with the results obtained by Levandoski and Cardoso (2013), who verified that students with good performance in the subject of Portuguese tended to be victims of bullying.

We can assume that students who perform well in this academic subject are not abusers because they form a separate group, valued by teachers and by themselves, so they would not need to maintain their rank in hierarchy through aggression. Another hypothesis is that the acquisition of content transmitted in school and the development of skills enabled them to defend themselves against aggression. In this sense, as suggested by Adorno (1965/1995b), the cultural development of students would replace a need to abuse others. Perhaps, these students are protected against aggression because of the respect they inspire due to their academic performance; after all, they are at the top of one of the hierarchies.

The fourth hypothesis was confirmed for school violence in general, but for bullying specifically. Students at the base of the official hierarchy tend to be either perpetrators or victims of school violence, but especially perpetrators. The studies conducted by Juvonen et al. (2011), Mehta et al. (2013), and Strøm et al. (2013) confirm this study's results, that academic performance is inversely related to school

violence. As these students are considered unpopular, they perhaps perceive aggression directed to their equals and to those with a poor performance in physical education to be an opportunity to stand out and become popular. In regard to those considered victims, this may be due to the fact they are considered "losers" at school, as suggested Patto (1990). In fact, it is worth noting that this result indicates the need for teachers to pay greater attention to these students so that can they improve their academic performance to the point they no longer need to abuse or be abused, as they start perceiving themselves to be involved with school learning and feel appreciated. A question, however, remains for which no answer was obtained in this study: to establish whether school violence generates hierarchy or the opposite, or if one strengthens the other. The studies conducted by Bruyn et al. (2010), Garandeau et al. (2014a), and Strøm et al. (2013) also take into account this important issue.

The near absence of significant results concerning bullying, in contrast with what was verified in terms of violence in general, is perhaps explained by the fact that an insufficient number of abusers were identified in this study to express differences in the roles under study and their relationships with school hierarchies, even though the total number of participants involved with bullying was similar to what was presented by Albuquerque et al. (2013). The results strengthen this hypothesis. Even though significant differences are not revealed, the results express what was found with the relationships between peer perceptions in regard to school violence and academic performance; perhaps the difference would be considered significant if a larger number of bullies were identified.

Perhaps the significant relationship found between self-report of abuser or victim indicates there is a distinction in what students consider being aggression: some would have a broader conception of it, while others would hold a more restricted concept of aggression. The first group would more frequently consider themselves and others to be abusers than those who see aggression as a joke or game. The fact that there is a relationship between being perceived by peers to be a victim and considering oneself as such, but there is no relationship between being considered by peers or considering oneself to be an abuser, may suggest that victims are more sensitive to aggression that they experience than abusers are to aggression they practice; perhaps, abusers consider aggression to be just a joke while victims do not. The study conducted by Juvonen et al. (2011) also found a low correlation between peer perception and self-reporting of abuser or victim. These results suggest that studies addressing school violence do not only employ the individuals' self-report since peer perception seems to be more accurate: various students provide their perceptions. In any case, distinct aspects of the phenomena may be in question in self-reporting: some may believe they perpetrate aggression when they do not, while others may believe they are victims when in reality they are not, and vice versa.

Considering the results obtained in this study, especially those regarding the position which students are ranked in school hierarchies and their role in school violence, the role

of teachers includes understanding how these hierarchies contribute to violence in order to devise measures to dissolve them or neutralize their destructive effect; one of the main factors to be understood is social determination over school that reproduces it in the generation of hierarchies and, therefore, favors the domination of some individuals over others. It is also pertinent to propose that, regardless of the pedagogical line adopted by the physical education teacher, this professional should prepare classes that encourage reflection upon competition and the concomitant depreciation of losers and consequent valorization of winners in the competitive sports in which students take part. Such sports, according to Adorno (1965/1995a), can encourage students to identify themselves with losers and, therefore, respect human limitations. That is, physical education is a key discipline in the fight against school violence, as Melim and Pereira (2015) appropriately defend. The concept of performance can also be worked into academic subjects, not by comparing among students but by comparing different points within an individual's performance. That is, each student should be evaluated according to content s/he previously knew and that s/he has acquired; learning difficulties should be respected; and students should be encouraged whenever learning takes place, even if the student is not a top student.

Bullying, as it is defined, was much less frequent than school violence, which is recurrent in the literature (Centro de Empreendedorismo Social e Administração em Terceiro Setor & Fundação Instituto de Administração [CEATS & FIA], 2010; Fante, 2005). Bullying is a type of intense and extensive aggression that often leads to very severe consequences. Future studies should include a larger number of students directly involved with this phenomenon to verify whether the relationships found in this study can be considered significant. It would be interesting to replicate this study in private schools with younger students, in addition to using a more representative sample. Finally, the scales used can be improved in order to acquire more accurate data, as significant correlations obtained in regard to school violence were of low or moderate magnitude.

It is worth noting, however, that despite these limitations, while studies have shown the importance of the family and of the individuals' personalities as determinants of school violence in general, and of bullying specifically, the school structure that enables the establishment of hierarchies among students is also associated with the manifestation of aggression. For this reason, school structure should receive reflection and be changed to restrain violence.

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