Variables of the family, school and social environment context that determine bullying in adolescents in Medellín-Colombia, 2014

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Abstract

This study determines the prevalence of bullying and the variables that explain the phenomenon in adolescents from educational institutions in Medellín. A survey involving school climate, family functionality and bullying was applied in a representative sample of 3,460 adolescents. The information was analyzed with descriptive measures, Z-test, prevalence ratios, Mann-Whitney test and logistic regression. The overall prevalence of bullying was 18.3%, being higher among those who report family dysfunction, delinquent behavior at school, bad relationships with teachers and insecurity in the neighborhood. The bullying is a complex phenomenon that involves the social framework, relationships within the family and the teachers.

Keywords: Bullying; Adolescent; Family relations; Social environment;

Introduction

Education plays a decisive role for new generations to gain access to the culture, moral values, and science and technology that have successfully been built by previous human societies, such that, upon entering adulthood, a balance is maintained in the institutions and rules of coexistence that constitute the social fabric (Pérez, 2009). The mission of contemporary education has been delegated to specialized institutions such as schools, which are charged with, on one hand, the preparation of youth for their future incorporation into the working world and, on the other hand, the formation of citizens involved in public life. With the advent of the information and knowledge society and the shift in business interests from natural and raw materials to value-added services and innovation, education has become a central hub for the economic development of nations. In this scenario, the mission focus of education has been permeated by economic principles, and the role of the school, in some contexts, has been reduced to the training of human capital (Laval, 2004).

With adoption of the human capital model, education has acquired an instrumental value limited to the contribution it makes to indicators such as gross domestic product, industrialization, advances in science and technology, and the training *en masse* of people with the technical skills demanded by industry. This trend reduces the educational scenarios that stimulate the emotional, affective and social development of new generations, limiting the spaces for training citizens who are capable of recognizing others, accepting differences, controlling emotions, and resolving conflicts constructively (Laval, 2004; Nussbaum, 2010).

In addition, the training of attitudes and behaviors is incorporated in school in accordance with requirements of jobs that are characterized by values such as individualism, hedonism, materialism and competitiveness. These values are taken from economic dogma in which

competition is necessary for achieving efficiency, quality, and development. The exaltation of competitiveness in school is promoted by the institutional framework with contests, the honor roll, first-place prizes, and scholarships, ignoring the fact that these scenarios promote frustration, hierarchies, rivalries, and aggressiveness based on the desire to win and vanquish (Pérez, 2009; Adachi &Willoughby, 2011; Sutton & Keogh, 2000).

The background described above converges in a vision of the modern school as a setting that censors spaces for personal development and the humanities, contributing to emergence of episodes of violence and aggression among youth, especially the rise of bullying, a term that has been used to refer to physical, verbal, and psychological aggressions that occur systematically over time in a context of asymmetric power relationships (Chaux & Castellanos, 2014; World Health Organization, 2012). The negative consequences that this phenomenon creates in the development of children and adolescents are widely documented; among the most significant consequences are that individual perpetrators of bullying tend to maintain violent and antisocial behavior into adulthood (Ttofi, Farrington & Lösel, 2012). With respect to victims, prospective studies have shown that those who were subject to bullying in childhood develop emotional disorders, depression, anxiety and suicide in adulthood; they also show poor social relationships, economic difficulties, and a low perceived quality of life (Takizawa, Maughan & Arseneault, 2014).

Considering that the implications of bullying transcend the school context and that what occurs within schools compromises the social capital of countries, many investigators have taken an interest in characterizing the magnitude and distribution of this phenomenon (Eljach, 2011). In this sense, a multicenter study conducted in 37 countries has found that, on average, 27.8% of students have been a victim of violence at school at least once during the past month, with

variations ranging from 70% in Hungary to 10% in Denmark and Singapore (Akiba, LeTendre, Baker & Goesling, 2002). In reference to the predictors of bullying, a study in Chinese population described that the associated factors of victimization and bullying are overlapping and identified the low levels of empathy, prosocial behavior, family attachment and perception of harmony in the school as the most important variables in this topic (Chan & Wong, 2015).

Latin America is no stranger to this situation, where, in Argentina in 2009, it was found that 66.1% of students reported having witnessed frequent situations of humiliation, harassment, or ridicule of students during class. In Brazil, 70% of students surveyed confirm having seen at least one classmate being intimidated at school; in Bolivia, it has been shown that 5 of every 10 students are victims of bullying (Eljach, 2011). Specifically in Colombia, the prevalence of bullying has been studied by cities; in Bogotá, 36% of students have been described as being found in a high level of school bullying (Cepeda-Cuervo, Pacheco-Durán, García-Barco & Piraquive-Peña, 2008); in Cali, the prevalence of bullying was 24.7%, and it manifests as behaviors of intimidation and verbal, physical, and psychological aggression (Paredes, Álvarez, Lega & Vernon, 2008). In Medellín, the second-most important city in Colombia, there are no studies that evaluate the magnitude and distribution of the phenomenon based on population data; only personality data from its 2013 report, which describe that 70% of a group of principals surveyed believe that cases of bullying occur in their institution, are found (Personería de Medellín, 2013).

Considering the magnitude of this problem in Colombia, *Law 1620 of 15 March 2013 was approved, which creates the national system of school life and training for human rights, education for sexuality, and the prevention and mitigation of school violence*, with the main objective of creating a series of committees responsible for monitoring the schools so that under

threat of sanction, they contain the expansion of this problem (Congreso de la República de Colombia, 2013). That is, national politics intend to attack this problem but ignore the causes and disregard the fact that bullying is a multi-causal phenomenon that is linked to the social foundations of the family, the community and the socioeconomic structure of the entire country (Chan & Wong, 2015).

There is consensus among those who study this problem that bullying is a phenomenon for which educational institutions are not solely responsible, and although it is true that its occurrence has been associated with factors inherent to the education institution, such as the school climate (Buckley, Storino & Sebastiani, 2003), the naturalization of episodes of violence in the school lead aggressors to fail to perceive their behaviors as unacceptable, and there are poor communication channels between students and teachers (Wei, Williams, Chen & Chang, 2010). It is also true that external factors have been identified that influence the occurrence of the phenomenon, such as family functionality (Chan & Wong, 2015; Hernández & Gutiérrez, 2013), socioeconomic status, inequality (Piotrowska, Stride, Croft & Rowe, 2015), gender (Chaux & Castellanos, 2014; Ledwell & King, 2015), and residence in violent neighborhoods (Chaux, Molano & Podlesky, 2009; Bowes, Arseneault, Maughan, Taylor, Caspi, & Moffitt, 2009). It has also been reported that adolescents are particularly susceptible to becoming both perpetrators and victims of bullying due to the biological, emotional, and social relationship changes that occur in this stage of life, making this population prone to fall into behaviors related to the phenomenon, such as the consumption of addictive substances, engaging in violent behavior, the early onset of sexual activity, and family conflicts (UNICEF, 2011; World Bank, 2007).

Consistent with the factors above, studies on bullying should include aspects inherent to educational institutions, the socioeconomic context in general, and individual factors in

particular. In this manner, interventions are not limited to the school and are executed based on well planned public programs that use population data to identify at-risk groups to form interdisciplinary teams that perform early diagnosis, timely treatment, and physical, psychological, and social rehabilitation of those already being affected.

A particularly appropriate setting for developing prevention and care programs for bullying is the city of Medellín, given that it has followed the *"Medellín the most educated"* educational model, which is characterized by improvements to the infrastructure of educational institutions, increases in the budget allocated to education, and the celebration of competition between students with events such as *"the Knowledge Olympics"* (Castro, 2012). In this setting, bullying and school violence have become pressing issues for the development of the city (Personería de Medellín, 2013); however, there are no population-based studies that identify the extent of the phenomenon and guide interventions on preventing its expansion. For these reasons, this study was conducted with the aim of determining the prevalence of bullying in adolescent students from public educational institutions in Medellín and identifying the variables that explain the occurrence of the phenomenon.

Materials and methods

Study subjects: A representative sample of students in the 10th and 11th grades was selected from public educational institutions in Medellín. The calculation of sample size was performed based on a population of 200,000 students, 95% confidence, 50% prevalence of bullying, 2% sampling accuracy, and 15% sampling correction. Sampling was conducted in two stages: i) in the first stage, stratified sampling was performed with proportional allocation for which the city was divided into 7 zones that were taken as strata and the number of schools included in each zone was calculated; ii) in the second phase, simple random sampling was

performed to select educational institutions from each zone that joined the study, and in each institution, all students in the 10th and 11th grades between 14 and 20 years old were surveyed. According to the statistical criterion, only one institution would be included in rural zone; however, students from 3 institutions of rural zones different were included to capture the differences between them.

Inclusion criteria were defined as follows: i) adolescents in grade 10 and 11, ii) residents from the urban or rural area, iii) any gender, and iv) any socioeconomic status, understood as a proxy variable of individual's position within social structure. Among adolescents, those who had mental disorders were excluded because they could lead to recall bias; and ii) those under the influence of drugs or alcohol and iii) those who refused to participate in the study were also excluded. Application of these criteria was performed with the support of a psychologist and a teacher belonging to the educational institution by identifying changes in behavior and academic performance.

Data collection: In the selected educational institutions, the project was presented to the principals and/or coordinators, with the purpose of receiving their approval for field work of this Cross-sectional study. Subsequently, the project was presented to the students, and doubts with respect to project objectives, the confidentiality of information, and anonymity were addressed. Once the students' doubts were resolved and the inclusion and exclusion criteria were applied, the survey, which contained sociodemographic information, the California School Climate and Safety Survey (CSCSS), and the family functionality instrument (APGAR), was completed.

California school climate and safety survey (CSCSS): The CSCSS is a 15-item instrument that assesses the perceptions of students in four areas: *delinquent behaviors*, *relationships with teachers*, *unsafe conditions*, and *bullying*. In the *delinquent behaviors* area are

included 4 items, in these at the students are asked about the frequency with which they have witnessed dangerous activities at school, such as fights, theft, intimidation, threats, and the possession of weapons. In the *relationships with teachers* area included 3 items, the relationships with teachers and some school policies are evaluated. *Unsafe conditions* included 3 items with aspects of the cultural context and neighborhood in which the institution is located, such as the degree to which violence in the community affects the school, youth gang activity, and the extent to which the academic community addresses security. *Bullying* contains 5 items that covers the frequency and the discomfort generated over the last month in which the student has been hit, had belongings destroyed with the intention of doing so, or been threatened or felt threatened. In addition to the comprehensive perspective that this instrument uses, previous studies have described the good psychometric properties that each of its areas has, particularly the internal consistency in delinquent behaviors (Cronbach's $\alpha = 0.79$ to 0.87), school climate (Cronbach's $\alpha = 0.78$ to 0.89), unsafe conditions (Cronbach's $\alpha = 0.77$ to 0.84), and bullying (Cronbach's $\alpha = 0.65$ to 0.84) (Rebelez & Furlong, 2013). Additionally, it has been adapted to the Hispanic population, where its usefulness has been shown in that it is easy to apply, periodically monitors the school climate, evaluates needs of educators, identifies students at risk of becoming victims or with a history of abuse, and evaluates the effectiveness of interventions conducted in this matter (Rebelez & Furlong, 2013). The psychometric properties in this population was confirmed and the Cronbach's α in delinquent behaviors was 0.81, in the school climate was 0.84, in the unsafe conditions was 0.83 and the bullying was of 0.92.

Family functionality scale (APGAR): The family functionality scale APGAR (Adaptation, Partnership, Growth, Affection, Resolve) is used as a screening test and allows people to express the degree of satisfaction with the functionality of their family based on 5

items: adaptability, understood as the degree of satisfaction with the help or support received to resolve problems in times in which the family balance is threatened; cooperation, including participation in decision-making and mutual communication, indicating the power relationships within the family; development, which records the satisfaction of family members in relation to the possibilities of emotional, physical, and self-relational maturation; affectivity, or the manner in which emotional experiences and relationships of affection are shared among family members; and response capacity, which refers to satisfaction with the time, space, and money that family members dedicate to sharing among themselves. This instrument generates a score from 0 to 10: results from 0 to 3 indicate serious dysfunctionality, 4 to 6 moderate dysfunction, and 6 to 10 family functionality (Gómez & Ponce, 2010). To ensure the psychometric properties of this instrument was evaluated the reliability with Cronbach's α 0.86, the construct viability was evaluated with lambda coefficients between each item and the construct "family functionality" all were upper than 0.7 and predictive validity with an explained variance of 52.8%.

Analysis plan: In the population description, summary and frequency measures were used. The overall prevalence of bullying and the specific prevalence were estimated according to area of residence, socioeconomic status, type of family, family function, pregnancy, presence of diseases, and areas of the CSCSS scale. To compare the prevalence of bullying with the independent variables, the Z test with Bonferroni correction was used to evaluate the statistical association and confidence intervals for the differences in proportions to estimate the percentage of bullying in the different subgroups analyzed. Comparison of specific prevalence was performed using prevalence ratios with 95% confidence intervals to establish the excessive risk of each group, compared to the subgroup that had the lowest prevalence of the event.

Comparison of bullying with the age of students and that of their parents and with the years of study of both parents was performed with the Mann-Whitney U test, given the failure of the assumption of normality evaluated based on the Kolmogorov-Smirnov Test with Lilliefors significance correction.

To identify predictors of bullying in the population, multiple binary logistic regression was performed to evaluate the simultaneous and reciprocal effects of the independent variables on the study event; the goodness of fit of the model was determined using the Hosmer-Lemeshow statistic. Analyses were performed in SPSS 21.0® at the 0.05 significance level.

Ethical aspects: In the study, the principles of privacy and confidentiality, with approval by an ethics committee (Committee approval report 0800-002), were respected, in addition to other principles mandated in Resolution 8430 of 1993 of the Ministry of Health of Colombia.

Results

The survey was applied to 3,460 adolescents in grades 10 (52.5%) and 11 (47.5%), enrolled in 18 institutions distributed in 6 different areas of the city and in 3 districts (Santa Elena, San Cristóbal, and San Antonio de Prado). Regarding the sociodemographic characteristics of the students included, it was found that the average age was 15.8 with SD = 1.0 years, 39.8% were male and of low and medium socioeconomic strata, 3.5% were or had been pregnant, and 18.5% had some form of illness.

The overall prevalence of bullying was 18.3% (95% CI = 17.0; 19.6), with variations in areas between 12.9% (95% CI = 9.8; 16.1) in the Northeast and 24.1% (95% CI = 18.3; 29.9) in San Cristóbal. To compare the specific prevalence between areas and determine the difference between them, the Southeast area (low prevalence) was taken as a reference, and significant

differences were found compared to the Northeast, Northwest, Western Center, San Cristóbal, and San Antonio de Prado (Table 1).

Regarding the specific prevalence of bullying according to the perception of family functionality, it was found that prevalence is greater among those who report severe family dysfunction, with 22.6% (95% CI = 17.3; 27.9), and moderate dysfunction, with 22.6% (95% CI = 19.6; 25.5), compared to those who have a functional family, with 16.4% (95% CI = 14.9; 17.9) (Table 1).

The prevalence of bullying increases with increasing delinquent behaviors, deterioration of relationships with teachers, and increasing insecurity in the conditions of the areas in which the educational institutions are located; in this order of ideas, in those who report high delinquent behavior, the prevalence of bullying is 2.3 times higher compared to those who report low delinquent behaviors; among students who perceived relationships with teachers as bad, the prevalence of bullying was 81% higher than in students that rated them as good; and in schools that are in areas of high insecurity, bullying was 80% higher than in those in low insecurity areas (Table 1). However, the frequency of bullying did not significantly differ with age and parental education, socioeconomic stratum, grade, gender, the presence of disease, pregnancy, and family type.

In the binary logistic regression model, the following potential predictors of bullying were identified: the area in which the educational institution is located, the perception of family functionality, violent behavior in the institution, the relationship with teachers, and unsafe conditions. Bullying is more likely to be present in subgroups of students living in San Cristóbal (OR 2.204), having dysfunctional families (OR 1.374), and perceiving high insecurity in the

community (OR 1.748); all of these factors were fitted for the other variables in the model (Table 2).

Discussion

The prevalence of bullying in adolescents from public educational institutions in Medellin is high, and its occurrence is associated with factors inherent to the educational institution, such as the frequency of delinquent behaviors at school and the quality of the relationships that students form with their teachers; factors inherent to the family, such as family functionality; and factors inherent to the city, such as conflicts and violence in neighborhoods.

The prevalence of bullying in this study was 18.3 %, a lower result than that described in other countries such as Lithuania (45.2%), Greece (41.3%), Turkey (36.4%) and others 20 countries included in the study of Craig et al 2009; in reference to the prevalence in other Colombian cities, in this study also was lower than other cities such as Bogotá (36 %) (Cepeda-Cuervo, et al., 2008) and Cali (24.7 %) (Paredes, et al., 2008); however, it is considered high to the extent that for those who are systematically exposed to victimization, the school becomes a place that generates suffering and fear and threatens personal and social development (Cepeda-Cuervo, et al., 2008). Differences between the prevalence of bullying in this and others studies may be explained by the use of different instruments of screening; in the cross-national study to the participants were asked about how many times they had been bullied at school in the past 2 months and how often they had taken part in bullying another student(s); in Bogotá the Cisneros scale was used (World Health Organization, 2012); in Cali the Paredes Lega scale was used (Paredes, et al., 2008); and in this study, the CSCSS was used. The CSCSS has the advantage of including areas that go beyond the analysis of violence and/or aggressions and that

comprehensively account for aspects related to school life among students and teachers, school climate, conflicts, and victimization.

Furthermore, populations in which measurements were made are heterogeneous with respect to age; in this study, only adolescents in the 10th and 11th grades were included, whereas in other investigations, 6th-grade students were addressed. In this sense, previous studies have shown that episodes of violence and victimization are more common among middle childhood (Eslea & Rees, 2001).

However, it was found that features of the school context, such as delinquent behaviors within the institution and the relationships formed between students and teachers, determine the frequency of bullying. Delinquent behaviors refer to the observation within schools of students with weapons, fighting, stealing, or threatening others. This result is consistent with that described by Buckley et al., who report that students who experienced more victimization also see their school as very unsafe (Buckley, Storino & Sebastiani, 2003). This finding highlights the erosion of the purposes of an institution dedicated to emancipation, the transmission of culture, and the training of citizens (Laval, 2004), given that it has become a hostile setting that involves suffering for the attacked students, obliging them to constantly look out for themselves. This, in turn, makes them afraid to say or do something and condemns them to submission (Gómez, 2013).

It is common to foist responsibility for this situation on teachers, and empirical evidence supports these facts to the extent that bullying increases in spaces where there are poor communication channels between teachers and students and where teachers do not intervene in incidents of aggression, creating a vicious cycle that favors the emergence and permanence of the problem (Wei et al., 2010; Paredes, et al., 2008). However, holding the teacher of the modern

school responsible is questionable because the training demanded of them is focused on productivity, they are overworked, they must meet multiple demands, they are permanently exposed to ambiguities and conflicts regarding what role to play, they lack economic incentives, they lack autonomy in decision-making, and they suffer aggressions from their students. In addition, their profession has become a stressor, and many of them suffer from diseases related to work such as burnout syndrome (Van Droogenbroeck, Spruyt & Vanroelen, 2014)

Added to this, the school climate is not the only one that affects the occurrence of the phenomenon; other areas such as family functionality have been identified. (Chan & Wong, 2015; Hernández & Gutiérrez, 2013). A functional family is understood as a family whose members together resolve crises that arise inside and outside of it, in which emotions and support are expressed, growth and personal development are promoted, and interaction is generated between members, respecting autonomy and individual space (Muyibi, Ajayi, Irabor & Ladipo, 2010; Gonzalez, Gimeno, Melendez & Córdoba, 2012). Consistent with the results described in previous studies, it was found that the frequency of bullying is higher in adolescents who report moderate to severe family dysfunction. In this sense, it has been reported that a positive family environment is significantly associated with student response to victimization; by contrast, violent behaviors within the family such as physical punishment create problems of self-esteem in adolescents and lack of protective attitudes against aggressions in school. It can also be the case that adolescents who live in violent environments learn such aggressive behaviors and become intimidators or perpetrators of bullying (Bowes et al., 2009; Hernández & Gutiérrez, 2013).

This possibility highlights the significance of the family in the process of socialization and in the establishment of interpersonal relationships and assumes that provided that mothers

and fathers do not take responsibility for the education and care of their children, it will be difficult to educate children and adolescents who are tolerant, respectful of differences, and supportive with regard to the difficulties of their peers (Eljach, 2011).

Another factor external to the educational institution that is considered important in the emergence of bullying is the urban context in which the adolescent grows up because this factor influences the acquisition of the values and attitudes that shape the child's personality. In this respect, it was found that adolescents who report moderate to high unsafe conditions were more likely to be victims of bullying. Unsafe conditions include the degree to which crime and violence in the community affect the school, youth gang activity, and the significance of these events within the educational institution. This result is consistent with other investigations that indicate that adolescents who have been victims of violence in the community are more likely to become victims of bullying at school; furthermore, those who permanently observe violent behavior in their environment are more likely to be aggressive towards their peers (Bowes et al., 2009; Chaux, Molano & Podlesky, 2009). Thus, it is clear that adolescents learn and incorporate information and behaviors not only as a result of the transfer of explicit knowledge in the classroom but also due to the social interactions that occur in the community (Pérez, 2009). Therefore, a comprehensive plan for public policies to contain this problem should include proposals to support families and the community in general in the task of developing the capacities of children and adolescents. Such actions should be consistent with the culture, the macroeconomic model, and political institutions because the latter can undermine the work of the school and the family (Nussbaum, 2010).

Nevertheless, the opposite is occurring; that is, economic pressures generate changes in curricular programs, teaching methods and education funding. In this manner, the demands on

the school are made following the recommendations of institutions such as the Organization of Economic Cooperation and Development (OECD, 2014) that basically focus on increasing literacy, promoting competition between people, acquiring mathematical skills, and encouraging professional technical careers related to engineering, computer science, technology, design, logistics, and economics. This trend comes at the expense of the school's contribution to personal development, limiting the spaces for encouraging skills to recognize others as people with equal rights, to develop the ability to see the world from the perspective of others, to stimulate imagination, and to encourage critical thinking on political issues that affect the world (Nussbaum, 2010).

Results from this study should be understood in light of its limitations, which are as follows: i) the study does not take into account the differentiation of adolescents who are perpetrators of bullying or those who are simultaneously victims and aggressors, so it's not possible to establish whether some of the predictors are overlapping as described Chan & Wong, 2015; ii) the instrument used does not evaluate other forms of aggression such as cyberbullying, in addition to the lack of local studies with similar instruments and the lack of a consensus on the type of instruments used to evaluate and to monitor this phenomenon limited the comparison; iii) due to the study design (cross-sectional), the associations established in the statistical analysis do no imply causality, for example, a causal relationship between bullying perpetration and family dysfunction it could only be established in a longitudinal research design; and iv) the prevalence of bullying in educational institutions in Medellin could to be underestimated because the sampling did not include all age groups of students, in this respect previous studies have shown that episodes of violence and victimization are more common among middle childhood (Eslea & Rees, 2001) implicaciones para estudios posteriores

Conclusion: Despite the limitations described above, this study reveals that bullying in public educational institutions in Medellin is a complex phenomenon that involves multiple factors, including the social context, relationships within the family, and the quality of the interactions that are formed with teachers. In reference to unsafe conditions in the social context or neighborhood, this study refer that adolescent that perceived high unsafe conditions in the social context refer bullying 12 times more than who had good perception of neighborhood and social context; with regard to family relations, adolescents who have presented dysfunctional families refer bullying 5 times more than who have presented functional families, and respect to the quality of the interactions that are formed with teachers, the adolescents that have presented bad relationship with teacher refer bullying 11 times more than the individuals that have presented good relationship with them. There is evidence that it is possible to transform this situation by promoting support networks and prosocial attitudes in aggressors and involving teachers, families, and the peer group in the education of children and adolescents (Chaux, 2005).

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