

# Factors Associated With Bullying Victimization In Colombian High-School Students

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## Abstract

The study's objective was to establish variables associated with bullying victimization among Colombian high-school students. The authors designed a cross-sectional study with adolescents in the tenth- and eleventh grades. The authors used an item from the Youth Risk Behavior Survey Questionnaire to explore the lifetime prevalence of bullying victimization. A total of 1,462 adolescents participated; they were between 13 and 17 years old ( $M=15.98$ ,  $SD=0.83$ ), 60.33% were females, and 22.98% reported lifetime bullying victimization. The risk of post-traumatic stress disorder ( $OR=1.92$ , 95% CI 1.43-2.56), school weapon carrying ( $OR=1.47$ , 95% CI 1.10-1.97), perception of poor-mediocre health ( $OR=1.47$ , 95% CI 1.11-1.93) and eleventh grade ( $OR=1.36$ , 95% CI 1.06-1.74) were associated with lifetime bullying victimization. In conclusion, bullying victimization is related to the risk of post-traumatic stress, school weapon carrying, and perception of poor-mediocre health. Further studies must explore the past-year and last-month prevalence of bullying victimization.

**Keywords:** Bullying Victimization; Risk Factors; Adolescents.

## Factors Associated with Bullying Victimization in Colombian High-School Students

The study of bullying victimization started in the 1970s by psychologist Dan Olweus (1979). He became interested in bullying victimization after the cases of three young people who decided to kill themselves, possibly due to the anxiety associated with being persecuted and intimidated by some classmates. In the global context, bullying victimization is one of the most frequent phenomena among school adolescents, and due to the negative consequences, it is considered a

public health problem (Matthews et al., 2017; Reyes et al., 2019; United Nations Educational, Scientific and Cultural Organization, 2019).

Bullying refers to a series of hostile behaviours of a recurring nature and prolonged in time of an individual or group, directed at a partner to cause him harm, and in which there is a clear imbalance of power between the protagonists (Hernández & Saravia, 2016; Solberg et al., 2007). The habitual victim of bullying victimization is usually a relatively defenceless student (Sierra, 2010), and the aggressor makes no effort to cover up the

behaviour (Amemiya et al., 2009). Bullying can be physical, sexual, psychological, or interrelational (Armero et al., 2011; United Nations Educational, Scientific, and Cultural Organization, 2019). Although young people usually perceive this type of behaviour as negative (Simon et al., 2017), they typically tolerate them (Cuevas et al., 2009).

#### Prevalence of bullying victimization

Globally, the prevalence of bullying victimization varies between 10% and 35% (Moore et al., 2017). In African countries, the prevalence of bullying victimization can reach 49.8%, and in European countries, 30% (Elgar et al., 2015). While Asian countries, such as China, the prevalence is 26.1% (Han et al., 2017). On the other hand, in Latin American countries, the prevalence of bullying victimization is estimated to be close to 30% (Herrera-López et al., 2018). However, the prevalence changes by country; for example, in Mexico, it is 21% (Vega-Cauich, 2018); in Peru, 19% (Shephard et al., 2015); in Brazil, 48% (Garbin et al., 2016) and Colombia 22% (Cuevas et al., 2009; Cassiani-Miranda et al., 2014; Moratto et al., 2015; Paredes et al., 2008).

**Associated variables with bullying victimization**  
Adolescence is the stage in which fundamental emotional and behavioural habits for people's mental well-being are consolidated (Orben et al., 2020). However, bullying victimization harms mental health and well-being, especially among adolescents (Knaappila et al., 2018).

The presentation of bullying behaviours may be due to the interaction of protective and risk factors, personal and environmental, as proposed by the ecological model (Seoane, 2008). In adolescents, sociodemographic variables such as age, sex, and school grade can be associated with bullying victimization (Moore et al., 2017; Carvalho et al., 2017; Merrill & Hanson, 2016). Similarly, the socioeconomic

stratum or the family member's economic income, family functioning, and other cultural variables can mediate the frequency of bullying in the victim or victimizer (Hernández et al., 2002; Rojas, 2011).

Social interaction between adolescent peers is a determinant of mental health (Orben et al., 2020). Thus, dysfunctional peer interaction, as in the cases of bullying victimization, could explain the presence of mental health problems such as depressive symptoms (Abd et al., 2019), suicidal ideation and planning (Bhatta et al., 2014), suicide attempts (Romo & Kelvin, 2016), symptoms, or risk of post-traumatic stress disorder (Moore et al., 2017) and a reduced perception of general health status (Hidalgo-Rasmussen et al., 2015). Similarly, bullying victimization is related to a higher frequency of disruptive behaviours, such as the consumption of legal and illegal substances (Moore et al., 2017) and school weapon carrying (Nansel et al., 2003).

#### Practical implications

The educational context requires the design of actions to mitigate bullying victimization. It is necessary to timely identify the causes (ethnicity, sexual orientation, religion, etcetera) and factors specific to each setting to create specific strategies and programs to reduce the negative consequences of bullying victimization on academic performance and healthy physical and mental of school adolescents (Hernández & Saravia, 2016; Rojas, 2010).

This study aimed to establish the prevalence and some variables associated with bullying victimization in a probabilistic sample of high-school students in Santa Marta, Colombia.

#### Methods

##### Design and participants

A probabilistic sampling was implemented, by a conglomerate, and in various stages. A cross-sectional study was designed. The sample was calculated based on the students enrolled in

official and private high schools in Santa Marta in 2016. To date, that segment of students reached 10,810. Each cluster was estimated, on average, with 25 students. A 50% prevalence of bullying victimization was expected, with a large sample to allow the study of different outcomes or dependent variables. It was taken as the 5% alpha error and the 2% margin of error. Additionally, a replacement equivalent to 25% was made against the possible loss of participants for different eventualities. All the above considerations led to the sampling size, replacing 1,948 students.

#### Instruments

The information collection booklet asked for age, sex, grade, and socioeconomic status for demographic variables. Likewise, it explored the self-perception of academic performance during the last month, perception of general health status during the previous month, post-traumatic stress disorder risk (PTSDR), depression risk (DER), lifetime cigarette smoking, and school bullying victimization.

#### Self-perception of academic performance

The self-perception of academic performance and the perception of the general state of health were measured with questions taken from the Questionnaire of Epidemiological Surveillance of Psychoactive Substances, VESPA, well known in Colombia (Torres et al., 1994). These questions are answer options: excellent, good, fair, and poor. These were dichotomized into excellent-good and fair-poor.

#### Suicide risk

The suicide risk was estimated with the Center for Epidemiological Study on Depression Scale (CES-D-SI). The CES-D-SI includes four items on suicidal manifestations during the last week, with four response options rated from zero to three. Total possible scores are between zero and twelve; in this study, scores greater than eight were considered high suicide risk (Roberts,

1980). The CES-D-SI has high internal consistency (Cronbach's alpha of .86) in adolescents in Samacá, Colombia (Pineda-Roa et al., 2018).

#### PTSDR

The PTSDR was quantified with Davidson's Brief Trauma Scale (DBTS). The DBTS explores typical manifestations of PTSD: hyper-alertness, physiological arousal, anger, and mental dullness. Each item presents four responses that are rated from one to four. Total possible scores are between 4 and 16. The present study categorized scores higher than 12 as PTSDR (Meltzer-Brody et al., 1999). The extended version of the scale presented high consistency (Cronbach's alpha of 0.97) in a study in which Colombian adults participated (Pineda et al., 2002). In this group of adolescents, the DBTS showed a Cronbach's alpha of .66.

#### DER

The DER was estimated from the Well-Being Index (WBI). It quantifies depressive symptoms during the last two weeks (World Health Organization, 1998). It comprises five questions related to mood, the feeling of tranquillity, energy level, the quality of sleep, and daily enjoyment. The index offers four response options that are rated from one to four. Total scores are between five and twenty. In the present study, scores lower than nine were categorized as DER. The WBI showed Cronbach's alpha of .70 in a previous study that participated in ninth-grade school students in Cartagena, Colombia (Campo-Arias et al., 2015). In the students of the present study, Cronbach's alpha was .82.

#### Lifetime substance use

Lifetime cigarette smoking, school weapon carrying, and bullying victimization were evaluated using items from the United States Center for Disease Control's Youth Risk Behavior Survey Questionnaire. These questions

have dichotomous answers (Kann et al., 2016). The most appropriate version for middle school students was taken for Colombian high school students' demographic, social, and cultural characteristics. The Youth Risk Behavior Survey Questionnaire has high reproducibility (Brener et al., 2002).

#### Analysis of data

The descriptive component established frequencies, percentages, mean (M), and standard deviation (SD). Odds ratios (OR) were calculated with 95% confidence intervals (95%CI) to know the variables associated with bullying victimization. Variables that showed probability values of less than 25% were considered to make a final adjustment, according to the recommendations of Greenland (1989). The Hosmer-Lemeshow test was considered to accept the best model (Hosmer et al., 1991). Significant associations were accepted as those with a lower limit of 95%CI higher than one. The analysis was

performed with the IBM-SPSS program, version 23.0.

#### Ethical issues

A research ethics board of a university in Santa Marta, Colombia (omitted for evaluation) approved the project protocol in an ordinary session on July 12, 2018. Parents signed informed consent, and students consented to participate in the study, following national and international provisions for participation in research projects.

#### Results

A total of 1,462 adolescents participated in the research; they were between 13 and 17 years old (M=15.98, SD=0.83). Most participants were adolescents between 16 and 17 years old, females, tenth-grade students, and low-income. A total of 336 (22.98%) students reported lifetime bullying victimization. The variables investigated are presented dichotomized in Table 1.

**Table 1.** Demographic characteristics of the students.

Variable	n	%
Age (years)		
Between 13 and 15	425	29.07
16 or 17	1,037	70.93
Gender		
Female	882	60.33
Male	580	39.67
Grade		
Tenth	809	55.34
Eleventh	653	44.66
Socioeconomic status		
Low	725	49.59
Middle or high	547	37.41
Not answering	190	13.00
Academic achievement		
Excellent or good	1,101	75.31
Fair or poor	361	24.69
General health condition		
Excellent or good	1,012	69.22
Fair or poor	450	30.78

High suicide risk		
Yes	194	13.27
No	1,268	86.73
Post-traumatic stress disorder risk		
Yes	283	19.36
No	1,179	80.64
Depression risk		
Yes	446	30.51
No	1,016	69.49
School weapon carrying		
Yes	299	20.45
No	1,163	79.55
Last-month cigarette smoking		
Yes	149	10.19
No	1,313	89.81

The bivariate analysis observed that middle or low socioeconomic status, being an eleventh-grade student, perception of fair or poor health, lifetime cigarette smoking, high suicide risk,

PTSDR, DER, and school weapon carrying were associated with bullying victimization. See details of the magnitude of the associations in Table 2.

**Table 2.** Variables associated with bullying victimization.

Variable	OR	CI 95%
Ager 16 or 17 years	1.23	0.93-1.62
Males	1.06	0.83-1.36
Eleventh grade	1.32	1.04-1.69
Middle or high socioeconomic status	1.35	1.04-1.75
Fair or poor academic achievement	1.09	0.84-1.41
Fair or poor general health condition	1.67	1.27-2.18
High suicide risk	1.66	1.19-2.31
Post-traumatic stress disorder risk	2.05	1.55-2.72
Depression risk	1.54	1.19-1.99
School weapon carrying	1.54	1.16-2.05
Last-month cigarette smoking	1.63	1.13-2.36

However, 95%CI in the significant range conserved only PTSDR, school weapon carrying, perception of fair or poor health, and eleventh

grade when adjusting the associations. See details in Table 3.

**Table 3.** Adjusted variables associated with bullying victimization.

Variable	OR	CI 95%
Post-traumatic stress disorder risk	1.92	1.43-2.56
School weapon carrying	1.47	1.10-1.97

Fair or poor general health condition	1.47	1.11-1.93
Eleventh grade	1.36	1.06-1.74

Hosmer-Lemeshow Goodness of Fit,  $X^2=5.72$ ,  $df=6$ ,  $p=.46$ .

## Discussion

The present investigation shows that bullying victimization is associated with the risk of post-traumatic stress, school weapon carrying, health conditions perceived as fair-poor, and taking tenth grade in high school adolescents in Santa Marta, Colombia.

The current study presented no statistically significant association between gender and bullying victimization; the frequency was similar in females and males. This finding is consistent with what Weng et al. (2017), these researchers observed regarding gender; it was independence and bullying victimization in Asian adolescents. However, a statistically significant association between males and bullying victimization was found in adolescents from Brazil (Machado et al., 2015). Nevertheless, in American adolescents, it was observed that females had a higher prevalence of bullying victimization than males (Merril & Hanson, 2016). These inconsistencies in the association between gender and bullying suggest that gender or sex take on relevance according to the context or characteristics of the adolescent population studied (Brunes et al., 2018; Romero et al., 2018).

Regarding age, no significant association was observed in the compared age groups in the present study. This finding differs from previous studies. For example, Analitis et al. (2009) found that adolescents between 16 and 18 are more likely to be victimized by bullying victimization than students between 8 and 11 years old and between 12 and 15 years old. Likewise, in another study with a Brazilian population, Carvalho et al. (2017) observed that adolescents aged 16 had a lower probability of bullying victimization than adolescents younger than 12. Given the heterogeneity of the age-related data, the findings suggest that adolescent behaviours need a broader

view. Therefore, it is necessary to investigate the mediation of personal and contextual development factors and the association with bullying victimization (Armero et al., 2011).

Contrariwise, the present investigation found that eleventh-grade students reported a higher frequency of bullying victimization than ten-grade students. However, in Peruvian adolescents, Romaní et al. (2011) found that taking eighth and ninth grades was associated with higher bullying victimization than studying tenth grades. Likewise, Merrill & Hanson (2016) found that tenth-grade students in the United States showed a higher probability of bullying victimization than eleventh-grade students. In contrast, Salmon et al. (2018) found that the frequency of bullying victimization was similar in Canada's tenth and eleventh grades. The heterogeneity of the findings can be understood if one takes into account that bullying victimization is a complex phenomenon, and the associations can vary according to the socio-cultural context of the participants since the perception of being a victim of bullying is also a cultural and social issue (Salmon et al., 2018).

In the present investigation, it was observed that the socioeconomic stratum was independent of bullying victimization. This observation agrees with García et al. (2010), who observed a similar bullying victimization frequency in adolescents from Barcelona, Spain, according to socioeconomic, low, medium, or high. However, the results diverge from other previous studies; for example, Kim et al. (2016) found in Korean adolescents that the higher the socioeconomic level, the lower the frequency of bullying victimization. In the same sense, Seo et al. (2017) reported that in another group of Korean adolescents, the lower the socioeconomic level, the higher the probability of being a victim

of bullying. The heterogeneity in the association between socioeconomic level, family income, and bullying victimization reflects essential differences in the social health determinants of the analyzed populations (Due et al., 2009).

The present study did not show a relationship between academic performance and bullying victimization. However, Wu et al. (2015) observed that students with poor academic performance reported more bullying victimization in Chinese adolescents. Consistent with this finding, Andersen et al. (2015) observed independence between school performance and bullying victimization in Danish adolescents. The divergence in the findings can be related to the population's social and cultural characteristics and by measuring the variables (Espelage et al., 2014).

Bullying victimization is a stressful experience that triggers a physiological response that affects mental and physical health (Nielsen et al., 2015). It was observed that the perceived state of general fair-poor health was associated with bullying victimization in the present sample of adolescents in school. This finding is consistent with other studies; in Chile, Hidalgo-Rasmussen et al. (2015) concluded that adolescents' exposure to bullying victimization increased the probability that the students perceived their health status as fair-poor. Similarly, in Mexican adolescents, Hidalgo-Rasmussen et al. (2018) documented that bullying victimization was associated with a reduced perception of health.

The present investigation observed that PTSSDR was significantly associated with bullying victimization. The results of the current study coincide with previous investigations. For example, Chen and Elklit (2018), in a sample of adolescents from nine countries, found that students exposed to bullying victimization were more likely to have PTSD symptoms. On the other hand, Ranney et al. (2016) found that school adolescents who attended an emergency department manifested symptoms of PTSD

associated with bullying victimization. Plexousakis et al. (2019) explain that PTSD symptoms can appear after bullying exposure when the event is perceived as threatening enough for physical and emotional integrity. However, it should be noted that insufficient evidence supports that PTSD symptoms from exposure to bullying victimization are consolidated in all cases as PTSD (Nielsen et al., 2015).

The current study observed no significant association between bullying victimization and DER. However, Abd et al. (2019) found, in Malaysian adolescents, a significant association between bullying victimization and depressive symptoms. Similarly, Seo et al. (2017) documented a significant association between bullying victimization and depressive symptoms in Korean students. Moreover, in Colombia, Aguirre-Flórez et al. (2015), adolescents from three schools in Manizales observed a significant association between bullying victimization and depressive symptoms. The apparent differences may be due to the time of exposure and evaluation of symptoms in the different studies. Kaltiala-Heino & Fröjd (2011) found that depressive symptoms can take up to two years to manifest after prolonged exposure to bullying victimization.

The present investigation observed an association between school weapon carrying and bullying victimization. Nansel et al. (2003) described a similar result; this group of researchers found a relationship between bullying victimization and school weapon carrying in American adolescents. Likewise, recent meta-analyses observed an association between school weapon carrying and bullying victimization (Geel et al., 2014; Valdebenito et al., 2017). School weapon carrying can be a reactive, defensive strategy against bullying victimization (Liang et al., 2007). Lee et al. (2007) suggest that adolescents who show sadness or lack the

courage to face the victimizers are likelier to carry school weapons.

The present study found that cigarette smoking was independent of IE. This finding is consistent with other previous studies. Case et al. (2016) reported that bullying victimization was not significantly associated with cigarette smoking in both women and men. Similarly, in Thai adolescents, Pengpid and Peltzer (2013) did not find a relationship between cigarette smoking and bullying victimization. However, Tharp-Taylor et al. (2009) observed that bullying victimization was related to cigarette smoking. The heterogeneity of the data can be explained by the different motivations that provoke consumption in adolescents (Chassin et al., 2000). The theory of self-medication clarifies that victims of bullying present negative emotional stages and resort to cigarette smoking as a form of medication to deal with bullying victimization (Hong et al., 2019; Khantzian, 1997). Conversely, Jankauskiene et al. (2008) stated that cigarette smoking could improve the image, show power or defiance, and prevent or end bullying victimization.

A lack of association between bullying victimization and suicide risk was found in the present investigation. This finding differs from Sandoval-Ato et al. (2018), who found that bullying victimization was associated with increased suicide risk among Peruvian adolescents. Likewise, Yang et al. (2020) found that bullying victimization was related to suicidal ideation and suicide attempts among adolescents in China. Suicide risk is mediated by various variables that act to a greater or lesser extent as risk factors or precipitators, which is why there is so much variability in the observed associations (Borowsky et al., 2013). For example, the association between bullying victimization and suicide ideation is attenuated in students who attend low and middle-income schools, with a high frequency of hostility and physical violence between peers (Kim & Chum, 2020).

### Practical issues

The present study's results should be considered in the planning and designing preventive and remedial strategies for bullying victimization by state entities and secondary education administrators. From the criminal perspective, it should be considered that adolescent victims of bullying victimization more frequently present deviant or criminal behaviour (vandalism, thefts, street assaults, etcetera) than those who have not experienced school bullying victimization (DeCamp & Newby, 2015). Preventive interventions must be transversal and consider different contexts and levels to address the large number of variables that can be associated with bullying victimization, both for those variables that can predispose to be bullied, as well as the physical and emotional consequences in the short and long-term of being a victim of bullying victimization (Rojas, 2010). Preventive interventions must be relevant to the developmental age, bullying victimization causes, and the general socio-cultural context (Guerra et al., 2012). These interventions must have school-, classroom-, individual-, family- and community-level components (Smith, 2016).

### Strengths and limitations

This research contributes to the knowledge of the bullying victimization phenomenon in the Colombian Caribbean context by showing a set of variables associated with bullying victimization in a particular context. However, there are limitations, given that the cross-sectional design cannot clearly show the causal relationships between the bullying victimization phenomenon and the associated variables (Cerda et al., 2013). However, according to each variable, this design suggests plausible associations of bullying victimization as cause or effect and should be verified in longitudinal studies (Grimes & Schulz, 2002).



### Conclusions

It is concluded that 23% of the sample of adolescents from high school in Santa Marta, Colombia, report lifetime bullying victimization. Bullying victimization was significantly associated with PTSD, carrying arms to school, perception of fair-poor health, and eleventh grade. Future studies must consider middle school students and inquire about variables associated with the observers and perpetrators of bullying victimization.

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