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ORIGINAL

Impact of School Violence and School Climate on Victimization and Perpetration in Adolescent Bullying and Cyberbullying

Impacto de la Violencia Escolar y el Clima Escolar en la Victimización y la Perpetración del Acoso y el Ciberacoso en Adolescentes

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ABSTRACT

Introduction: bullying and cyberbullying are systematic forms of school violence that significantly impact students' psychosocial well-being and the overall institutional climate. Beyond individual-level factors, certain contextual dynamics—such as low-intensity recurrent violence and a deteriorated school climate—may facilitate the emergence and persistence of these behaviors.
Objective: to examine the complex interactions among school violence, school climate, and the roles of victimization and aggression involved in bullying and cyberbullying among adolescents.
Method: a sample of 200 adolescents from a public school in Medellín, Colombia, was assessed to examine behaviors related to bullying and cyberbullying, as well as perceptions of school climate and institutional violence. Four validated questionnaires were administered to measure victimization, aggression, school climate, and school violence across multiple dimensions. Data analysis involved exploratory factor analysis and structural equation modeling with corrections for non-normality. Model validity and reliability were evaluated using multiple goodness-of-fit indices.
Results: school violence showed a weak negative effect on school climate and a weak positive effect on both aggression and victimization roles in bullying and cyberbullying; school climate had a significant effect only on the aggression role in traditional bullying; and school climate did not mediate the relationship between school violence and the aggression or victimization roles in either bullying or cyberbullying.
Conclusion: the findings suggest that while school climate is modestly linked to aggression in traditional bullying, it does not act as a mediating factor in the broader relationship between school violence and the dynamics of bullying and cyberbullying. These results underscore the importance of addressing contextual risk factors in comprehensive violence prevention strategies within school settings.

Keywords: Bullying; Cyberbullying; School Violence; School Climate.

RESUMEN

Introducción: el acoso y el ciberacoso escolar son formas sistemáticas de violencia escolar que afectan el bienestar psicosocial de los estudiantes y el clima institucional. Más allá de los factores individuales, dinámicas contextuales como la violencia recurrente de baja intensidad y un clima escolar deteriorado pueden favorecer la aparición y persistencia de estas conductas. Objetivo: Analizar las interacciones entre violencia escolar, clima escolar y los roles de victimización y agresión en el acoso y el ciberacoso escolar en adolescentes.
Método: se evaluó una muestra de 200 adolescentes de una institución pública de Medellín, Colombia. Se aplicaron cuatro cuestionarios validados para medir victimización, agresión, clima escolar y violencia escolar

en distintas dimensiones. Los datos se analizaron mediante análisis factorial exploratorio y modelamiento de ecuaciones estructurales con correcciones por no normalidad. La validez y confiabilidad del modelo se establecieron a partir de índices de bondad de ajuste.
Resultados: la violencia escolar tuvo un efecto negativo débil sobre el clima escolar y un efecto positivo débil sobre los roles de agresión y victimización en el acoso y el ciberacoso escolar. El clima escolar solo se relacionó significativamente con la agresión en el acoso tradicional y no medió la relación entre violencia escolar y los roles de agresión o victimización en el acoso y el ciberacoso escolar.
Conclusión: aunque el clima escolar incide en la agresión del acoso tradicional, no desempeña un papel mediador en la relación entre violencia escolar y las dinámicas de acoso. Estos hallazgos destacan la necesidad de intervenciones que aborden los factores contextuales como parte de estrategias integrales de prevención de la violencia escolar.

Palabras clave: Acoso Escolar; Ciberacoso Escolar; Violencia Escolar; Clima Escolar.

INTRODUCTION

School bullying and cyberbullying are persistent phenomena within educational environments, exerting a detrimental influence on school coexistence and the psychosocial well-being of students. Teachers and school staff are frequently confronted with situations in which certain students inflict physical or psychological harm on their peers, either through direct interpersonal interactions or via digital means such as the Internet and social networking platforms. These aggressive behaviors do not constitute isolated events but are defined by their systematic and repeated nature over time. They occur within asymmetrical power dynamics, wherein the victim is typically in a position of structural or perceived vulnerability in relation to the perpetrator.[1,2]

Bullying and cyberbullying are frequently expressed through a range of aggressive behaviors, including physical assaults (e.g., hitting, pushing), misappropriation or destruction of personal property, and various forms of verbal harassment such as insults, derogatory labeling, ridicule, and threats. These manifestations of interpersonal violence not only inflict physical and psychological harm but also exacerbate the social marginalization of victims by reinforcing asymmetrical power relations and perceived inferiority within peer networks.[1,2]

Beyond their direct impact on targeted individuals, such behaviors compromise the quality of the school climate and disrupt normative patterns of social interaction within educational settings.[3,4] Children and adolescents exposed to bullying or cyberbullying are at significantly elevated risk for a broad spectrum of adverse outcomes, encompassing intrafamilial conflict, internalizing psychopathology (e.g., anxiety, depressive symptomatology), suicidal ideation, non-suicidal self-injury, suicide attempts, academic disengagement, chronic absenteeism, school dropout, and pervasive social withdrawal.[5,6,7]

Not all instances of school violence qualify as bullying. Bullying constitutes a distinct form of aggressive behavior within educational settings, characterized by its intentional, systematic, and asymmetrical nature. For a violent act to be classified as bullying, it must meet specific criteria: (a) a deliberate intent to dominate or subjugate the victim through acts of humiliation, marginalization, or devaluation; (b) the presence of a structural power imbalance—whether actual or perceived—that grants the aggressor a position of advantage; and (c) the recurrent and sustained enactment of such behaviors over time, forming a pattern of coercive interaction from which the victim finds it difficult to disengage. Both bullying and cyberbullying often occur within complex peer ecologies, where bystanders may assume passive, approving, or facilitative roles, thereby contributing to the social reinforcement and maintenance of the aggressive dynamic.[1,2]

In the school environment, aggressive behaviors—both physical and verbal—can occur not only among students but also between students and teaching staff. These manifestations of violence are often linked to specific situational factors and institutional dynamics, such as disputes arising from isolated disagreements during classroom activities or recess. Verbal aggression, including insults, derogatory language, and hostile exchanges, frequently emerges in contexts marked by emotional dysregulation, interpersonal tension, or unresolved conflict.[8,9,10]

School violence also encompasses forms of social exclusion perpetrated by educators, particularly when students' needs, concerns, or contributions are dismissed or systematically minimized. Disrespect directed toward teachers by students—through insults, ridicule, or confrontational behavior—constitutes another facet of this phenomenon. Additionally, punitive practices lacking pedagogical justification on the part of school personnel may reflect underlying institutional dysfunctions. Lastly, student behaviors that disrupt the learning environment and compromise instructional processes are also recognized as forms of school violence, given their deleterious impact on the educational climate and collective well-being.[11,12,13,14]

Individual-level factors constitute only one dimension within the broader constellation of determinants

implicated in the emergence and perpetuation of bullying and cyberbullying in school contexts. Although these factors are relevant, they are insufficient to fully account for the complexity of the phenomenon. Adolescents spend a significant portion of their developmental trajectory within educational settings, which not only structure their daily routines but also function as primary arenas for the formation of peer networks, the negotiation of social roles, and the internalization of norms governing interpersonal behavior.

The school environment is further shaped by dynamics of social stratification, peer competition, and public visibility, all of which contribute to a multifactorial and relational context. Accordingly, a comprehensive analysis of bullying and cyberbullying must consider the quality of interpersonal interactions within the school—particularly between students and teachers—as well as the overarching institutional climate that mediates and reinforces these dynamics.[15,16,17]

The present study aimed to analyze the interactions among school violence, school climate, and the processes of victimization and aggression associated with bullying and cyberbullying in adolescents by applying Structural Equation Modeling (SEM), in order to test direct and indirect effects and identify the underlying mechanisms linking these variables. Based on an extensive review of the literature and established theoretical frameworks, the study hypothesized that both school violence and school climate function as causal factors in the development of victimization and aggressive behaviors within bullying and cyberbullying contexts.

School violence is conceptualized as a phenomenon that may be relatively normative within educational settings, provided its intensity, frequency, and duration remain below critical thresholds. In environments characterized by a positive and supportive school climate, low-intensity violent behaviors are hypothesized to be regulated and contained, thereby preventing their escalation into more severe conflicts or the emergence of bullying and cyberbullying behaviors. Consequently, school climate is posited as a key contextual factor that helps explain divergent developmental pathways, whereby some instances of school violence evolve into bullying, while others do not.

The identification of extrapsychological and non-psychopathological determinants implicated in the dynamics of school bullying and cyberbullying constitutes a fundamental prerequisite for the design and implementation of comprehensive psychosocial and psychoeducational interventions that incorporate ecological variables of the educational milieu, thereby facilitating more timely and efficacious responses. Bullying and cyberbullying are multifactorial phenomena that transcend purely individual etiologies, arising from complex interplay among relational and contextual dimensions.

Whereas intrapsychic and psychopathological factors typically necessitate specialized, intensive, and longitudinal clinical interventions, contextual determinants can be addressed by diverse stakeholders through targeted, pragmatic modifications capable of producing more robust and sustained impacts. A predominant focus on victims and perpetrators risks occluding critical structural and cultural attributes of the school environment that sustain and perpetuate these maladaptive behaviors.

METHOD

Type of study

An observational, quantitative, cross-sectional study with a correlational-explanatory scope was conducted. The research was carried out in a public school in Medellín (Colombia), involving adolescents from families predominantly classified within low and lower-middle socioeconomic strata. Data were collected during the second semester of 2024.

Participants

The target population consisted of approximately 800 adolescent students enrolled in a public educational institution. From this population, a non-probabilistic sample of 200 students was drawn using convenience sampling. Eligibility criteria required participants to be formally enrolled in the institution during the data collection period, to fall within the age range of adolescence, and to demonstrate sufficient language comprehension to adequately complete the study instruments. Participation was voluntary, with informed assent obtained from students and informed consent secured from their legal guardians in the case of minors.

Exclusion criteria included: (a) documented cognitive or language difficulties reported by teachers or institutional staff that could hinder comprehension or the ability to adequately respond to the instruments; (b) prolonged absence or irregular attendance during the data collection period; (c) lack of informed consent from the legal guardian or lack of assent from the student; and (d) incomplete participation in the assessment process, such as abandoning the survey before completion.

Measures

European Bullying Intervention Project Questionnaire (EBIP-Q): this self-report is specifically designed to quantitatively assess victimization and aggression behaviors within the context of school bullying.[18] It comprises 14 items, evenly divided into two subscales measuring victimization and aggression, respectively. Responses are

recorded on a five-point Likert scale ranging from 0 (never) to 4 (more than once per week), with intermediate anchors at 1 (once or twice), 2 (once or twice per month), and 3 (approximately once per week). The items capture a range of behaviors including physical aggression (e.g., hitting), verbal abuse (e.g., insults, threats), property-related offenses (e.g., theft), social exclusion, and dissemination of rumors. Participants report the frequency with which they have experienced or perpetrated these behaviors within the preceding two months.

In the Spanish validation, item distributions showed marked non-normality (Mardia's coefficient = 472,76), and analyses therefore used robust maximum likelihood with polychoric correlations, appropriate for ordinal indicators. Inter-item polychoric correlations ranged from 0,21 to 0,72. Confirmatory factor analysis supported a correlated two-factor structure (Victimization, Aggression) with optimal fit: SB-X^2 = 270,11, NNFI = 0,95, CFI = 0,96, IFI = 0,96, RMSEA = 0,05, SRMR = 0,06. Overall, the scale demonstrated optimal fit indices comparable to prior European versions, supporting construct adequacy for assessing involvement in bullying. Reliability was examined via Cronbach's alpha for the subscales and total model.[19]

European Cyberbullying Intervention Project Questionnaire (ECIP-Q): this self-report is designed to quantitatively assess behaviors of victimization and aggression within the context of cyberbullying.[18] The scale consists of 22 items, equally divided into two subscales comprising 11 items each, corresponding to victimization and perpetration dimensions. Responses are captured on a five-point Likert scale ranging from 0 (never) to 4 (more than once per week), with intermediate response options defined as 1 (once or twice), 2 (once or twice per month), and 3 (approximately once per week). Items encompass a range of behaviors including physical aggression (e.g., hitting), verbal abuse (e.g., insults, threats, offensive language), property theft, social exclusion, and dissemination of rumors conducted through digital communication channels such as email, text messaging, social media platforms, and other internet-based modalities. Participants report the frequency of their exposure to or engagement in these behaviors over the preceding two-month period.

In the Spanish validation, confirmatory factor analysis supported a correlated two-factor structure (Cybervictimization and Cyberaggression) with excellent fit indices (SB-x^2 = 495,93, NNFI = 0,98, CFI = 0,98, IFI = 0,98, RMSEA = 0,042, SRMR = 0,065). Item distributions showed marked non-normality, and analyses employed robust maximum likelihood estimation with polychoric correlations, with inter-item correlations ranging from 0,31 to 0,89. Reliability analyses indicated satisfactory internal consistency (α total = 0,87; α cybervictimization = 0,80; α cyberaggression = 0,88). These results provide strong evidence of the ECIPQ's validity and reliability, supporting its use as a psychometrically sound instrument for assessing involvement in cyberbullying among adolescents.[19]

School Climate Scale: constitutes an adaptation of the California School Climate Inventory originally developed by Khoury-Kassabri et al.[20], implemented as a self-administered questionnaire. The present study employs the version validated by López et al.[21], which enables a robust and reliable assessment of school climate across four latent constructs: Clear norms, Norms against violence, Participation and Social support. The scale consists of 18 items and has demonstrated adequate psychometric properties, including construct validity and internal consistency, in the original validation study.

The School Climate Scale showed adequate psychometric properties in Chilean adolescents. Exploratory factor analysis revealed a four-factor structure explaining 54 % of the variance. Confirmatory analyses supported this model (CFI = 0,946, RMSEA = 0,049) and a second-order global factor (CFI = 0,927, RMSEA = 0,056), with an alternative three-factor structure also yielding good fit (CFI = 0,957, RMSEA = 0,048). Internal consistency was satisfactory (α total = 0,89; subscales between 0,62 and 0,86), and convergent validity was confirmed through negative correlations with peer aggression and victimization.[21]

School Violence Questionnaire – Revised (CUVE-R): this is a 31-item self-report measure utilizing a five-point Likert scale (1 = never; 5 = always) designed to comprehensively assess eight dimensions of school violence: teacher-to-student violence, physical violence perpetrated by students, verbal violence perpetrated by students, social exclusion, classroom disruption and violence via information and communication technologies (ICT). The instrument was rigorously developed and psychometrically validated by Álvarez-García et al.[22], evidencing strong construct validity, internal consistency, and reliability across diverse samples.

The revised CUVE-R demonstrated adequate psychometric properties in a sample of 646 secondary school students. Confirmatory factor analyses supported both a six-factor (M6F) and an eight-factor (M8F) structure, with cross-validation confirming replicability. Although both models showed acceptable fit, the eight-factor solution yielded slightly superior indices (e.g., CFI = 0,947, RMSEA = 0,037 in the validation sample), supporting the inclusion of dimensions such as social exclusion, classroom disruption, and violence through ICTs. Internal consistency was satisfactory across factors, and the results overall confirm the construct validity and reliability of the CUVE-R as a multidimensional measure of school violence. [22]

Data Analysis

Data were systematically organized and analyzed utilizing SPSS version 28. Initial procedures included the computation of descriptive statistics and assessment of univariate normality for all variable dimensions. To

evaluate the factorial validity of the employed instruments, exploratory factor analysis (EFA) was conducted. Subsequently, structural equation modeling (SEM) was performed using AMOS software to specify, estimate, and refine the hypothesized path model.

Multivariate normality was examined through Mardia's coefficient of multivariate kurtosis. Given that the computed value exceeded the critical threshold of p(p + 2), the analysis employed maximum likelihood estimation with a bias-corrected bootstrapping procedure to mitigate non-normality effects. Standardized total, direct, and indirect effects were estimated via bootstrap resampling with 5,000 iterations and 95 % bias-corrected confidence intervals.[23] Model fit evaluation incorporated the chi-square test statistic (x^2) and the chi-square to degrees of freedom ratio (x^2/df). A non-significant chi-square value ($p \geq 0,05$) was considered indicative of good model fit, with an acceptable x^2/df ratio set below 3.[24,25] Complementary fit indices assessed included the Incremental Fit Index (IFI), Comparative Fit Index (CFI), Goodness-of-Fit Index (GFI), Adjusted Goodness-of-Fit Index (AGFI), Normed Fit Index (NFI), and Tucker-Lewis Index (TLI), each with a recommended threshold of ≥ 0,90. The Root Mean Square Error of Approximation (RMSEA) was also examined, with values ≤ 0,08 considered indicative of an acceptable approximation error. Collectively, these indices provided a comprehensive evaluation of model adequacy.[26,27,28]

RESULTS

The cohort consisted of 100 male adolescents (50,0 %), 98 female adolescents (49,0 %), and 2 participants (1,0 %) who did not identify within the binary gender categories. Most participants (62,5 %) were aged between 13 and 14 years and were predominantly enrolled in eighth grade. Socioeconomic status was primarily classified as low to middle strata, and most participants resided in nuclear family units (56,0 %). Table 1 summarizes the sociodemographic characteristics of the participants.

Table 1. Sociodemographic Characteristics of the Participants

	Frequency (n = 200)	Percentage
Sex		
Male	100	50,0 %
Female	98	49,0 %
Other	2	1,0 %
Age		
12-14	126	63,0 %
15-18	74	37,0 %
Grade Level		
Eighth Grade	139	69,5 %
Tenth Grade	29	14,5 %
Eleventh Grade	32	16,0 %
Socioeconomic Stratum		
1-2 (low income)	142	71,4 %
3-4 (middle income)	57	28,6 %
Living Arrangements		
Siblings only or siblings and father	3	1,5 %
Mother only or, mother and siblings or mother and father	27	13,5 %
Mother, father, and siblings	112	56,0 %
Mother, father, siblings, and other relatives	19	9,5 %
Other relatives only	35	17,5 %

Table 2 presents the descriptive statistics alongside the results of the Kolmogorov-Smirnov (K-S) normality test for all variable dimensions. The K-S test results indicated that the distributions of all dimensions significantly deviated from normality, thus confirming the presence of non-parametric data across the measured constructs.

Table 2. Descriptive Statistics and Normality Test Results for Variable Dimensions

	M	SD	*p* value of K-S
Bullying			
Victimization	6,57	5,195	< 0,001
Aggression	3,45	3,988	< 0,001
Cyberbullying			
Victimization	3,93	5,918	< 0,001
Aggression	2,96	5,494	< 0,001
School climate			
Clear norms	13,66	3,478	< 0,001
Norms against violence	11,09	2,886	< 0,001
Participation	9,80	2,724	< 0,001
Social support	28,22	6,116	< 0,001
School violence			
Teacher-to-student violence	15,22	5,834	< 0,001
Physical violence perpetrated by students	16,21	5,536	< 0,001
Verbal violence perpetrated by students	17,58	5,324	< 0,001
Social exclusion	7,88	3,240	< 0,001
Classroom disruption	8,86	3,179	< 0,001
Violence via ICT	14,93	5,784	< 0,001

Table 3 presents zero-order correlation coefficients and their statistical significance values calculated using Spearman's rank correlation test. There is a moderate correlation (r = 0,570; p < 0,01) between victimization and aggression in bullying. However, this relationship is much stronger for cyberbullying (r = 0,806; p < 0,01).

Regarding the association between bullying, cyberbullying, and school climate, only one statistically significant correlation was found, between cyber-aggression and clear rules (r = -0,184; p < 0,01). This correlation was weak and negative, indicating an inverse relationship between these dimensions. That is, as one increases, the other decreases—for example, as school rules become clearer, cyber-aggression decreases.

Concerning the association between bullying, cyberbullying, and school violence, five out of six dimensions of school violence showed statistically significant correlations with victimization from bullying. Victimization from cyberbullying correlated with four of the six dimensions of school violence; bullying aggression correlated with three; and cyber-aggression correlated with only one. The dimension "Teacher-to-student violence" was the only dimension of school violence that had statistically significant correlations with all four dimensions of bullying and cyberbullying. All these correlations were positive and weak, indicating a direct association between these variable combinations.

Finally, regarding the association between school climate and school violence, only the dimensions "Teacher-to-student violence" and "Violence via ICTs" (from school violence) showed statistically significant correlations with all dimensions of school climate. All these correlations were negative, indicating an inverse relationship. According to these findings, teacher violence towards students and violence through ICTs are the dimensions of school violence that contribute most to the deterioration of school climate.

The SEM (figure 1), derived from the data analysis, identified a configuration of dependency and independence relationships among the variables and their respective dimensions. School violence exerted significant direct effects on school climate as well as on the victimization and aggression dimensions of both bullying and cyberbullying. Additionally, school climate demonstrated a statistically significant direct effect solely on the aggression dimension of bullying. No direct effects of school climate were found on the other dimensions of bullying and cyberbullying. The model exhibited satisfactory fit indices, with values of CMIN/DF = 1,913, RMR = 2,017, GFI = 0,907, AGFI = 0,864, CFI = 0,952, FMIN = 0,692, and RMSEA = 0,068, indicating an adequate fit between the proposed model and the observed data.

Table 3. Zero-order correlations among the dimensions of the variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	1													
2	0,57*	1												
3	0,34*	0,26*	1											
4	0,22*	0,31*	0,80*	1										
5	-0,07	-0,21*	-0,13	-0,18*	1									
6	-0,07	-0,13	-0,08	-0,13	0,56*	1								
7	-0,06	-0,09	-0,10	-0,07	0,53*	0,50*	1							
8	-0,06	-0,13	-0,09	-0,12	0,61*	0,57*	0,62*	1						
9	0,25*	0,33*	0,24*	0,28*	-0,25*	-0,25*	-0,22*	-0,28*	1					
10	0,22*	0,11	0,16*	0,13	-0,09	-0,08	-0,17*	-0,09	0,53*	1				
11	0,19*	0,15*	0,08	0,07	-0,04	-0,00	-0,10	0,00	0,45*	0,73*	1			
12	0,24*	0,13	0,19*	0,12	-0,11	-0,07	-0,12	-0,05	0,38*	0,63*	0,63*	1		
13	0,13	0,10	0,09	0,09	-0,03	0,00	-0,11	0,04	0,41*	0,64*	0,70*	,511*	1	
14	0,22*	0,17*	0,15*	0,12	-0,15*	-0,16*	-0,22*	-0,15*	0,54*	0,75*	0,64*	,677*	,541*	1

Note: * p < 0,01; 1 = Bullying victimization, 2 = Bullying aggression, 3 = Cyberbullying victimization, 4 = Cyberbullying aggression, 5 = Clear norms, 6 = Norms against violence, 7 = Participation, 8 = Social support, 9 = Teacher-to-student violence, 10 = Physical violence perpetrated by students, 11 = Verbal violence perpetrated by students, 12 = Social exclusion, 13 = Classroom disruption, 14 = Violence via ICT

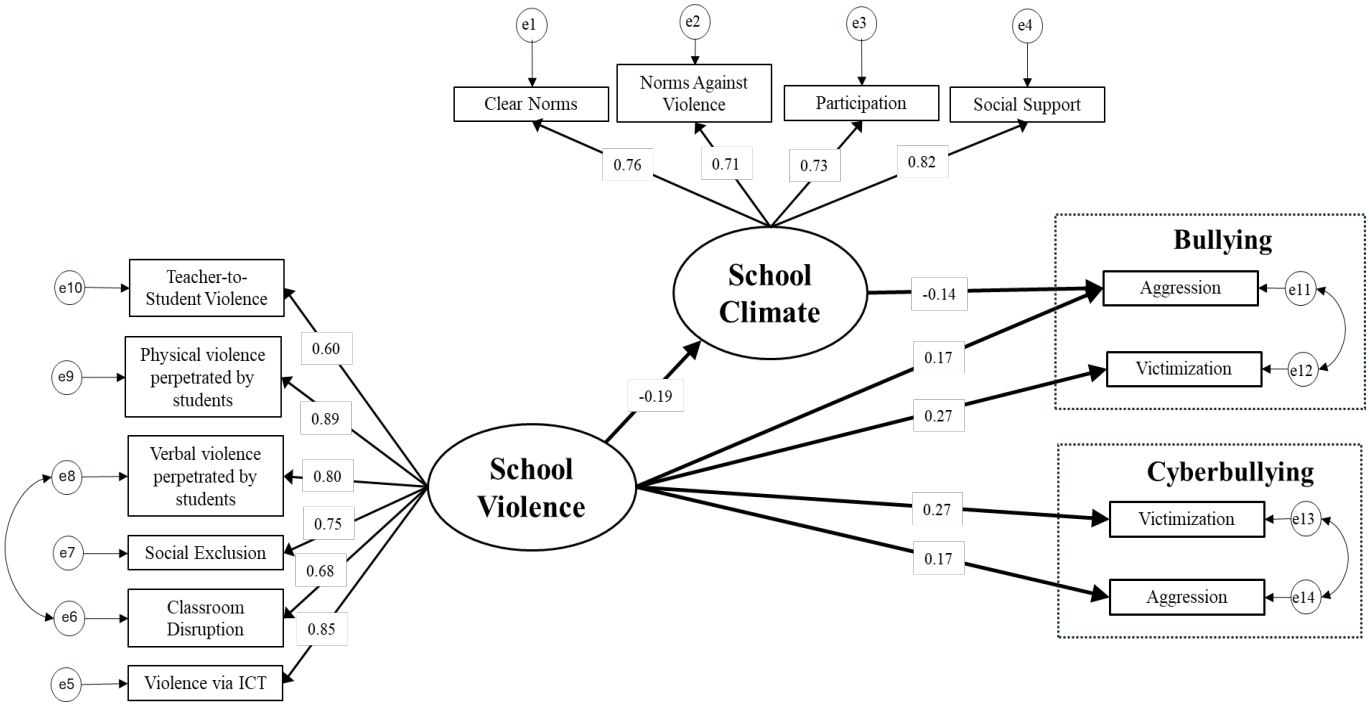

Figure 1. Structural equation model with the best fit indices

The coefficients of these effects along with their statistical significance levels are presented in table 4. All regression weights were statistically significant. Specifically, for the latent factor "School Violence," the regression weights indicated that the observed variables "Physical violence perpetrated by students" (β = 0,890; p = 0,001), "Violence via ICT" (β = 0,852; p = 0,001), and "Verbal violence perpetrated by students" (β = 0,796; p = 0,001) exhibited the highest factor loadings, representing the most substantial contributions to the construct. Therefore, within this student sample, school violence is predominantly characterized by these three dimensions. Regarding the latent factor "School Climate," the regression weights indicated that the observed variables "Social Support" (β = 0,823; p = 0,001) and "Clear Norms" (β = 0,757; p = 0,002) exhibited the highest factor loadings, representing the most significant contributions to the construct.

Table 3. Standardized Regression Weights Between Latent Factors and Observed Variables

			B [IC 95 %]	*p*
School violence	→	School climate	-,190 [-,377 - -,006]	,041
School violence	→	Violence via ICT	,852 [,793 - ,898]	,001
School violence	→	Classroom disruption	,681 [,584 - ,762]	,001
School violence	→	Social exclusion	,751[,668 - ,814]	,002
School violence	→	Verbal violence perpetrated by students	,796 [,731 - ,857]	,001
School violence	→	Physical violence perpetrated by students	,890 [,835 - ,928]	,001
School violence	→	Teacher-to-student violence	,602 [,475 - ,713]	,001
School violence	→	Bullying victimization	,274 [,109 - ,430]	,001
School violence	→	Bullying aggression	,170 [,012 - ,326]	,031
School violence	→	Cyberbullying victimization	,201 [,040 - ,367]	,016
School violence	→	Cyberbullying aggression	,170 [,016 - ,341]	,032
School climate	→	Bullying aggression	-,138 [-,280 - ,025]	,033
School climate	→	Clear norms	,757 [,640 - ,828]	,002
School climate	→	Norms against violence	,707 [,575 - ,800]	,001
School climate	→	Participation	,732 [,614 - ,810]	,001
School climate	→	Social support	,823 [,716 - ,905]	,001

Thus, within this student sample, school climate is primarily characterized by these two dimensions. Bullying and cyberbullying were incorporated into the analyses as four observed variables: two reflecting victimization and two reflecting aggressions. The weak negative effect (β = -0,190; p = 0,041) of the latent factor "School Violence" on the latent factor "School Climate" indicates that school violence—primarily manifested through the dimensions—detrimentally impacts the school climate. However, school climate does not appear to exert a significant contribution to students' bullying or cyberbullying behaviors. According to the model, this factor demonstrated only a weak direct negative effect (β = -0,138; p = 0,033) on aggression through traditional bullying.

The latent factor of school violence exhibited weak but statistically significant direct effects on all dimensions of bullying and cyberbullying. These results indicate that school violence partially contributes to explaining both victimization and perpetration behaviors. Although all path coefficients were positive and of small magnitude, the effects were more pronounced for bullying victimization (β = 0,274; p = 0,001) and cyberbullying victimization (β = 0,201; p = 0,016) than for bullying perpetration (β = 0,170; p = 0,031) and cyberbullying perpetration (β = 0,170; p = 0,032).

DISCUSSION

In this study, we aimed to examine the complex interactions among school violence, school climate, and the processes of victimization and aggression associated with bullying and cyberbullying in adolescent populations. Using SEM, our analyses revealed the following: (1) school violence had a weak negative effect on school climate and a weak positive effect on both aggression and victimization roles in bullying and cyberbullying; (2) school climate showed a significant effect only on the aggression role in traditional bullying; and (3) school climate did not mediate the relationship between school violence and the roles of aggression and victimization in either bullying or cyberbullying. These results suggest that school violence is more strongly related to victimization in bullying and that teacher violence is the dimension most associated with both bullying and cyberbullying.

Additionally, the SEM analyses revealed that school violence is predominantly determined by physical violence perpetrated by students, violence via ICT, and verbal violence perpetrated by students. In other words, these three dimensions showed the highest factor loadings on the latent variable. Regarding school climate, social support and clear norms were the most influential dimensions. Although the effect size is modest, it is statistically significant and suggests that physical, verbal, and ICT-mediated violence perpetrated by students contributes to a negative school climate, indirectly affecting the social support dimension. Consequently, such violence may foster an environment characterized by mistrust and social isolation among adolescents, leading some students to withdraw or avoid social interactions.[29]

Furthermore, it may engender a perceived lack of solidarity from peers and educators, potentially resulting in emotional distress, including symptoms of stress, anxiety, or depression.[8] Ultimately, violence undermines social cohesion within the school setting, impeding the formation of robust and effective support networks.

[14] Thus, school climate reduces aggression associated with bullying but does not significantly affect cyber-aggression or victimization through bullying or cyberbullying. A school environment in which students receive support and develop positive connections with peers and educators may decrease the likelihood of aggressive behaviors.[10]

Promoting positive relationships among students and between students and teachers, implementing early interventions targeting aggressive conduct, enforcing clear and consistent anti-bullying policies, and fostering collaboration with the broader school community collectively strengthen bullying prevention efforts. These findings suggest that violence within the school context may facilitate the normalization of aggressive behaviors, fostering the perception among students that such actions are acceptable and legitimate forms of peer interaction. This normalization may extend beyond the physical school environment, contributing to the emergence and perpetuation of aggressive dynamics in digital settings.[30]

Our initial hypothesis in designing this study was that school climate would mediate the relationship between school violence and students' involvement in bullying and cyberbullying, both as perpetrators and victims. This proposition was supported by previous empirical findings and the theoretical rationale that a school environment characterized by clear anti-violence norms, strong social support, and high student engagement fosters protective dynamics that reduce the occurrence of everyday aggressive behaviors and inhibit their progression into more systematic forms of violence, such as bullying and cyberbullying.[15,31,32]

Mediation analyses, conducted through the estimation of indirect effects among latent constructs, did not provide evidence supporting a mediating role of school climate in the association between school violence and students' involvement in bullying and cyberbullying, either as perpetrators or victims. Rather, the findings suggest that school violence and school climate exert distinct and independent effects on bullying-related behaviors. Although theoretically plausible, the hypothesized mediational pathway was not empirically supported by the data. Moreover, the absence of a statistically significant indirect effect precluded the identification of a structural mechanism through which school climate could explain the escalation from situational or reactive acts of school violence to systematic, intentional, and asymmetrical forms of interpersonal aggression among peers.

The direct effects observed between school violence and the victim and perpetrator roles in bullying and cyberbullying were statistically significant but of small magnitude, suggesting that these forms of violence contribute modestly to the emergence and persistence of such roles.[10,33] Specifically, episodic, spontaneous, unplanned, and predominantly symmetrical acts of aggression—occurring either among peers or between students and faculty—cannot be disregarded; however, these manifestations alone lack the intensity and systematic nature necessary to evolve into chronic bullying behaviors. Consequently, these disruptive behaviors, conflictual interactions, or isolated aggressive incidents do not exert sufficient influence to meaningfully degrade the overall school climate.

Our pattern of small yet significant direct effects of school violence on bullying/cyberbullying roles converges with prior SEM studies reporting modest paths once shared variance among school-level factors is modeled.[31,34] However, the absence of mediation by school climate in our model diverges from evidence in Scandinavian and Anglo-Saxon samples, where climate (particularly clear rules, teacher fairness, and collective efficacy) has partially buffered the impact of school violence on bullying involvement.[15,35,36] One plausible explanation is contextual: our participants were drawn largely from low and lower-middle socioeconomic strata, settings in which resource constraints and higher exposure to community violence can attenuate the protective leverage of school climate indicators observed in higher-resourced systems.[37] In line with European findings, we also observed that cyberbullying is less tightly coupled to climate than traditional bullying—consistent with the notion that online aggression is less constrained by in-school supervision and norms.[38] Finally, our loadings highlight student physical, verbal, and ICT-mediated violence as core determinants of the school-violence latent factor, echoing studies that identify peer-driven aggression (rather than teacher practices alone) as the primary engine of climate erosion in adolescence.[39,40]

This study has several limitations that should be acknowledged. First, the cross-sectional design precludes causal inferences, as the relationships identified between school violence, school climate, and bullying/cyberbullying roles may vary over time. Second, the use of self-report measures introduces the risk of recall bias and social desirability effects, particularly when assessing sensitive issues such as aggression and victimization. Third, the sample was drawn from a single public institution serving predominantly low and lower-middle socioeconomic strata, which may limit the generalizability of findings to other school contexts, including private or rural settings. Finally, although SEM allowed for the estimation of latent constructs, the model did not incorporate other relevant ecological factors—such as family dynamics, cultural variables, or community violence—that may also shape the interplay between school climate and bullying-related behaviors. Future studies employing longitudinal, multi-informant designs and more diverse samples are needed to further validate and extend these findings.

CONCLUSION

A range of psychological and psychopathological factors have been identified as critical determinants in the adoption of aggressor and victim roles in school bullying and cyberbullying phenomena. Nevertheless, the central hypothesis underlying this study posited that certain low-severity, recurrent, and episodic forms of school-based aggression could serve as antecedent conditions in the emergence of systematic patterns of victimization and perpetration—particularly in educational contexts characterized by a school climate lacking adequate regulatory and protective mechanisms. From this theoretical standpoint, it was proposed that contextual variables within the school environment could exert a mediating or facilitating influence on the transition from incidental aggressive behaviors to entrenched and asymmetric bullying dynamics among peers. However, the empirical findings did not substantiate this hypothesis.

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CONFLICT OF INTEREST

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