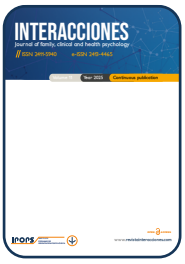
INTERACCIONES
Journal of family, clinical and health psychology
// ISSN 2411-5940 e-ISSN 2413-4465

www.revistainteracciones.com



ORIGINAL ARTICLE

Cyberbullying in high school and university: Description, comparison, and associations between behaviors in victims and aggressors

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Received: February 10, 2025 | **Revised:** March 28, 2025 | **Accepted:** April 23, 2025 | **Published Online:** May 14, 2025

CITE IT AS:
Mendoza González, B., Morales Reynoso, T., Serrano Barquín, M. (2025). Cyberbullying in high school and university: Description, comparison, and associations between behaviors in victims and aggressors. *Interacciones, 11*, e445. https://dx.doi.org/10.24016/2025.v11.445

ABSTRACT

Introduction: Experiences of cyberbullying can have lasting effects on victims' self-esteem, social relationships, and overall well-being. **Objective:** This study aims to determine the association between cyberbullying behaviors, both as victims and aggressors, in high school and university students, identifying differences and similarities between the two educational contexts. **Methods:** We conducted a cross-sectional study with 402 participants (203 women and 199 men), including 200 high school students and 202 university students. Both institutions were public and located in urban areas of the State of Mexico's capital. Cyberbullying was assessed using the Cyberbullying Questionnaire, which evaluates multiple forms of cyberbullying. **Results:** University students were more likely than high school students to engage in cyberbullying as aggressors, with a large effect size. Among high school students, a strong association was observed between being victims of cyberbullying through the spread of secrets and the repeated receipt of disturbing messages (r = .659). In university students, significant co-occurrence of behaviors was identified within the aggressor subscale, revealing associations between grooming, sexting, denigration, exclusion, and happy slapping. **Conclusions:** These findings underscore the importance of implementing intervention programs in upper secondary and higher education settings, where action protocols are typically less established compared to basic education levels.

Keywords: Cyberbullying, victimization, adolescents, aggressors, high school students, College Students.

INTRODUCTION

International efforts in recent years have been aimed at safeguarding children and adolescents, particularly to defend them from all types of violence. An example of this is the International Inspire Project of the World Health Organization, whose objective is to protect the rights of children and adolescents to reduce the risk of delinquency, violence in the family, and ensure the well-being of children and future adults (WHO, 2019). However, to achieve this, it is necessary to recognize the violence that afflicts them.

Cyberbullying is a type of violence that affects students of different educational levels. It is characterized by aggressive behaviors that use information and communication technologies, which occur in virtual environments. Its objective is to attack victims to hurt and embarrass them through information and communication technologies, making use of different electronic means (Cho et al., 2019; Moreno et al., 2019; Serrano et al., 2021), causing dizzying and permanent damage due to the permanence of information on social networks.

Data reveal that 22% of boys and girls in different parts of the world have received a video with sexual content; 19% have reported having been abused through posts, emails, and text

messages; and 8% have been photographed, with those images used to publish them, exhibiting the victims in virtual environments, and causing them exponential damage (United Nations Educational, Scientific and Cultural Organization [UNESCO], 2019). Its incidence is lower than that of bullying, since for every boy, girl, or adolescent who participates in cyberbullying, three participate in bullying (Pichel et al., 2022). However, its study is imminent due to the implications for the well-being and psychological health of persons, as the role of bully is associated with antisocial behavior (Chen et al., 2017; Varela-Torres et al., 2021), consumption of alcohol, tobacco, and cannabis, and a three times higher risk of consumption among those who participate in bullying (Pichel et al., 2022). Victims, on the other hand, are at greater risk of depression (Chen et al., 2017), internet addiction, and psychoactive substance use (Zsila et al., 2018).

Over the past 15 years, research has been developed in various parts of the world to analyze aggressions that occur in virtual environments (Lozano-Blasco et al., 2020; Polanin et al., 2022). Some research has identified that bullies in the school setting tend to replicate their behavior in virtual environments as well (Chen et al., 2017; Chu et al., 2018; Mendoza et al., 2021; Varela-Torres et al., 2021). Studies suggest that participation in cyberbullying is predicted by episodes of bullying in any of the participant roles (Chen et al., 2017; Guo, 2016). It was recently noted that preventing and addressing cyberbullying through specialized programs also reduces bullying (Polanin et al., 2022). Evidence also shows a change in roles from bullying to cyberbullying, identifying that victims of bullying change in cyber environments to the role of bully (Chu et al., 2018; Garaigordobil, 2015; Mendoza et al., 2021; Varela-Torres et al., 2021; Zsila et al., 2018), changes that may be due to the fact that they are not pure victims, that is, they play a double role as victim-harasser, as demonstrated in recent research. The above is explained due to the stability of the victim profile over time, which is strengthened through behaviors and thoughts that remain throughout the victim's life, remaining in each of the environments in which they develop (Mendoza et al., 2021; Varela-Torres et al., 2021). The Aggressor profile is also stable across contexts, as people who exhibit aggressive behavior will do so in the various environments in which they develop, because they have learned that their behavior has high gains at very low cost, so they acquire popularity, leadership, and power, with little or no consequences for the harm caused to others (Mendoza et al., 2021).

In addition to having verified the changes in roles from bullying to cyberbullying as previously explained, it is also verified that in purely virtual environments young people move from one profile to another in cyberbullying behavior, so they can be victims of cyberbullying in specific contexts and participate as cyber aggressors in other virtual spaces (Lozano-Blasco et al., 2020).

The development of cyberbullying behavior is explained through the ecological model, by determining multiple risk factors present in different systems in which girls, boys and adolescents develop, such as: individual, family, school, or the chrono system that indicates the risk depending on the chronological stage in which the person is (Cho et al., 2019).

In this framework, according to the individual context, it has been identified that sex is not a determining factor, since men and women have the same probability of being victimized (Serrano et al., 2021), proving that sex does not predict cyberbullying (Lozano-Blasco et al., 2020).

In the social context, it has been identified that a risk factor for the development of cyberbullying behavior is the difficulty that young people have in being digital citizens, since they lack the skills that enable them to live together peacefully, free of violence and democratically using information and communication technologies (Pérez-Maldonado et al., 2022).

Cyberbullying exists despite two digital gaps faced, the first of which is at the first level, and refers to the multiple factors that limit them in the use and access to virtual environments, starting with not having access to the Internet or devices that allow it (Lemus & López, 2021), the second gap corresponds to the second level that indicates the deficit in digital skills required to responsibly use information and communication technologies and guarantee the privacy of information (Perez-Maldonado et al., 2022;Van Deursen & Van Dijik, 2019), which in addition to affecting the rights to freedom, privacy, data security and communication of adolescents and young people (Hackett, 2022), puts them at greater risk of being victimized due to their lack of digital security skills (Pérez-Maldonado et al., 2023).

Efforts have been made to find out whether the change in educational level associated with age is related to cyberbullying behavior, identifying that high school students practice it more than secondary school students (Sánchez-Dominguez et al., 2020), however, there are few studies that demonstrate its incidence contrasting high school and university students, so the objective of the present study is to determine the association between cyberbullying behaviors as victims and aggressors in high school and university students, identifying differences and similarities between both educational contexts

METHODS

Design

This is quantitative research, with a correlational study and a cross-sectional design. The sampling is non-probabilistic and incidental (León & Montero, 2011), since it is derived from a research project in which research agreements were made with the participating institutions.

Participants

402 students participated, 203 women and 199 men. Of the total number of participants, 200 were high school students and 202 were university students. Both institutions were public, in an urban area of the capital of the State of Mexico, Mexico. The age range was 15 to 25 years ($\bar{x}$ =18.67; σ=3.151). The students participated freely and voluntarily. The parents of the underage students signed an informed consent through which the objectives of the research were explained, notifying them that participation in the study would not cause any type of harm. In addition, the minors were asked for their consent to participate, notifying them that they could suspend their participation if they so decided.

Instruments

The information was obtained through the Cyberbullying Questionnaire (Calvete et al., 2010). The questionnaire has two scales, the first measures behaviors of the aggressor profile, and the second measures behaviors of the victim profile. It is designed with Likert scale options for three responses, measuring the temporality with which cyberbullying behaviors are exhibited: Never (1), Once or twice a week (2), three to four times a week (3). The victim scale is made up of 11 items, and the aggressor scale is made up of 17. Both scales contain cyberbullying behaviors: Stalking, cyber-harassment, grooming, impersonation, happy slapping, flaming, and exclusion. The psychometric properties of the questionnaire for the Mexican population have been studied, reporting a Cronbach coefficient of 0.84 to measure victimization and 0.87 to measure participation as an aggressor, with a general coefficient of 0.96 (Chávez et al., 2021).

Procedure

The research project is derived from an agreement developed with the participating institutions. To approve the participation of the invited educational institutions (high school and higher education level), objectives, materials, and procedures were presented to them. Once the school authorities agreed to participate in the study, the necessary steps were taken to channel the applications of the instrument. The data collection was done in a thirty-minute session, in the school classrooms through a form generated in Google, the answers were transferred to a database created in the SPSS Statistical Program Version 25, only the information of the participants who gave their informed and voluntary consent to participate was processed.

Data Analysis

To evaluate the normality distribution of the variable under study, the Kolmogorov-Smirnov test was applied. The results of this test indicated statistical significance ($p < .05$), which led to the rejection of the null hypothesis of normality. Consequently, it was determined that the data did not follow a normal distribution. To address the general objective, the following statistical analyses were conducted:

Descriptive statistics were performed by calculating the frequency of cyberbullying behaviors for both the victim and aggressor subscales at each educational level.

Non-parametric tests were selected for data analysis, as the data did not meet the normality assumptions required for parametric tests. High school and university students were compared based on the average ranks of each item in the victim and aggressor subscales using the Mann–Whitney U test. To assess the magnitude of the differences, the Probability of Superiority coefficient (PSest) was calculated as an indicator of effect size. The following thresholds were used to interpret PSest values: no effect (PSest ≤ 0.50), small effect (PSest ≥ 0.56), medium effect (PSest ≥ 0.64), and large effect (PSest ≥ 0.71).

Spearman correlation analyses were conducted for the items comprising the victim and aggressor subscales of the cyberbullying questionnaire.

Ethical Considerations

The study was approved and evaluated by expert reviewers in methodology and ethics who provided a project record 7255-2025CIB.

RESULTS

Descriptive analysis

For the aggressor subscale, 23% of high school students and 17.5% of university students reported frequently excluding others from online groups. Additionally, 20% of high school students admitted to frequently recording or photographing individuals engaged in sexual behavior, while 99% of university students reported doing so at least once or twice per week. Conversely, 21% of high school students frequently shared links to content showing individuals being humiliated, compared to only 3% of university students (see Supplementary Material 1). Furthermore, 35.6% of university students reported frequent involvement in online arguments, compared to 6% of high school students. Sending threats via email was reported by 25% of university students and 12% of high school students. Writing jokes or rumors to ridicule others was equally reported by 16% of both groups. Lastly, 12% of students from both levels reported frequently sharing links to gossip or rumors intended to ridicule others.

For the victim subscale, 70% of high school students reported receiving threatening or insulting messages via mobile phone, compared to 18% of university students. Exclusion from online groups was reported by 49% of high school students and 19% of university students. Being recorded during acts of humiliation and having the videos shared was reported by 40% of high school students and 2% of university students (see Table 2). Posting self-humiliating images was reported by 36% of high school students and 4% of university students. Writing self-directed rumors was reported by 33.5% of high school students and 15% of university students. Additionally, 34% of high school students and 6% of university students reported that their secrets or compromising information had been shared. Finally, 19% of high school students and 4.5% of university students reported that someone had accessed their account to send messages impersonating them (see Supplementary Material 1).

Comparative analysis

Table 1 presents the average ranks for each item in the aggressor subscale and victimization subscale, comparing high school and university students using the Mann–Whitney U test. Most items showed statistically significant differences, with university students scoring higher scores than high school students. This pattern was supported by a large effect size, indicating the superiority of the university group in terms of aggressive cyberbullying behaviors. Only one intentional exclusion from online groups—did not differ significantly between groups, as students from both levels reported similar behavior. One exception was the item on recording videos of physical aggression, where high school students had slightly higher scores, confirmed by a small effect size. High school students reported significantly higher levels of victimization than university students across most items, with small effect sizes. No significant differences were

Table 1. Contrast of cyberbullying between high school students (n = 200) and university students (n = 202)

	Educational Level	Ranks	*U Mann-Whitney*	*p*	PS_{est}
Aggressor Subscale					
1. I start fights and arguments using insults	High school	136.8	33,143,000	0.00	0.82
	University	265.6			
2. I send messages to threaten or isolate through email	High school	133.8	33,740,500	0.00	0.83
	University	268.5			
3. I send messages to threaten or insult through my cell phone.	High school	131.3	34,244,000	0.00	0.84
	University	271.0			
4. I upload humiliating images of others	High school	120.7	36,360,000	0.00	0.90
	University	281.5			
5. I share links to humiliating images	High school	166.8	27,142,000	0.00	0.67
	University	235.9			
6. I write rumors, gossip about others to ridicule them	High school	159.5	28,599,000	0.00	0.71
	University	243.1			
7. I share links about rumors or gossip about other people	High school	136.7	33,170,000	0.00	0.82
	University	265.7			
8. I obtain keys or passwords from others and send messages impersonating them, to make them look bad. Identity theft	High school	166.8	33,525,000	0.00	0.83
	University	235.9			
9. I record videos showing humiliation to other people	High school	115.3	37,432,500	0.00	0.93
	University	286.8			
10. I share videos in which another person is humiliated	High school	114.2	37,657,500	0.00	0.93
	University	287.9			
11. I record videos or take photos to show that a person hit another person	High school	207.1	19,082,000	0.02	0.47
	University	196.0			
12. I send videos that contain images of a person hitting another person	High school	121.5	36,196,500	0.00	0.90
	University	280.7			
13. I spread secrets, information or compromising images of other people through social networks. Foul play.	High school	115.7	37,633,500	0.00	0.93
	University	286.5			
14. I intentionally remove some people from social media groups.	High school	206.3	19,238,500	0.24	0.47
	University	196.7			
15. I persistently send threats to some people to intimidate them.	High school	116.0	37,293,000	0.00	0.92
	University	286.1			
16. I record videos or take photos of someone engaging in sexual behavior.	High school	106.0	39,292,000	0.00	0.97
	University	296.0			
17. I send videos or images of other people engaging in sexual behavior.	High school	109.6	38,583,500	0.00	0.95
	University	292.5			
Victimization Subscale					
1. I receive threatening emails	High school	218.3	16,843,000	0.00	0.42
	University	184.9			
2. I receive threatening cell phone messages	High school	254.2	9,660,000	0.00	0.24
	University	149.3			
3. They have uploaded images of me to humiliate me	High school	233.9	13,728	0.00	0.34
	University	169.5			
4. They write rumors, gossip, or comments about me to ridicule me.	High school	219.8	16,533,000	0.00	0.41
	University	183.4			
5. They use my password and send messages in my name	High school	216.2	17,262,000	0.00	0.43
	University	186.4			

Table 1. Continued.

6. They record me on video while they force me to do something humiliating	High school	203.5	19,792,000	0.00	0.49
	University	199.5			
7. They record me on video while someone hurts me	High school	203.0	19,895,000	0.25	0.49
	University	200.0			
8. They spread my secrets or compromising images	High school	229.8	14,532,000	0.00	0.36
	University	173.4			
9. I am intentionally excluded from online groups	High school	231.5	14,202,000	0.00	0.35
	University	171.8			
10. I am constantly sent disturbing and threatening messages.	High school	227.9	14,929,000	0.00	0.37
	University	175.4			
11. I am videotaped or photographed during sexual conduct.	High school	204.0	19,692,000	0.12	0.49
	University	199.0			

found in two items: being recorded while physically assaulted and being recorded during sexual activity (p = 0.248 and p = 0.123, respectively), as both groups reported similar experiences.

Correlational analysis for victimization

Table 2 presents the Spearman correlation coefficients for the subscale items of victimization among high school students and university students. A strong, positive, and significant correlation was found between the items "They have spread my secrets" (Grooming, Ví8) and "They insistently send me disturbing and threatening messages" (Harassment, Ví10), with r = .659. Moderate positive correlations were observed between "They have shared links that contain humiliating images of me" (Denigration, Ví4) and both "They have spread my secrets" (Ví8, r = .519) and "They insistently send me disturbing and threatening messages" (Ví10, r = .492). Multiple moderate correlations were identified among items Ví1–Ví5 and Ví8–Ví10, indicating a general co-occurrence of victimization behaviors in high school students.

The strongest correlation was between receiving threatening messages via email (Flaming, Ví1) and via cell phone (Flaming, Ví2), with r = .589 in university students. Weak correlations were found between "They have shared links containing humiliating images of me" (Ví4) and four items: Ví1 (r = .311), Ví8 (r = .358), Ví9 (r = .383), and Ví10 (r = .333), suggesting limited co-occurrence of victimization behaviors. Additionally, a weak correlation was observed between receiving threatening messages via email (Ví1) and being excluded from online groups (Ví9).

Correlational analysis for aggressor

Table 3 presents the Spearman correlation coefficients for the aggressor subscale in both high school and university students. For high school students, moderate positive correlations (r = .40–.60) were observed between the item "Writing comments, jokes, or gossip to ridicule others" (Denigration, Ag6) and the following items: "Sending links to humiliating images" (Cyber Harassment, Ag5), "Obtaining passwords to send messages while impersonating others" (Identity Theft, Ag8), and "Spreading secrets or compromising content online" (Grooming, Ag13). Among university students, a perfect correlation (r = 1.00) was found between "Recording videos or taking photos of someone engaging in sexual behavior" (Ag16) and "Sending those videos or images" (Ag17), indicating full co-occurrence. These two items also showed a strong correlation with "Insistently sending threats to intimidate others" (Ag15, r = .574). A strong correlation was also found between "Uploading humiliating images" (Ag4) and "Sharing links to those images" (Ag5), with r = .573.

Moderate correlations were observed between "Writing rumors or gossip to ridicule others" (Denigration, Ag6) and both "Sharing links to such content" (Grooming, Ag7, r = .427) and "Intentionally excluding others from social media groups" (Exclusion, Ag14, r = .410). A moderate correlation was also found between "Recording beatings" (Happy Slapping, Ag11) and "Sending those videos" (Ag12), with r = .484. Additionally, items Ag16 and Ag17 (Sexting) were moderately associated with Ag11 and Ag12 (Happy Slapping) and Ag13 (Grooming), indicating co-occurrence among different forms of aggressive behavior.

DISCUSSION

This study identified a significant association between various cyberbullying behaviors among high school and university students. The findings confirm that cyberbullying is a prevalent phenomenon across both educational levels, with behaviors occurring as frequently as 3–4 times per week. Among university students, 36% reported engaging in online arguments involving insults, 25% admitted to sending threatening or isolating emails, and 17% intentionally excluded others from social media groups. In high school, 21% of students shared humiliating images, and 16% reported spreading rumors or gossip to ridicule peers. These results align with national data from Mexico, which reports that 36% of students have experienced cyberbullying (INEGI, 2023), and similar patterns are reported across Latin America (Larzabal, 2020).

The comparison between groups revealed that educational level is associated with the prevalence and type of cyberbullying behavior. High school students were more likely to be victims, particularly of threats, exclusion from digital groups, and the

Table 2. Correlation coefficients for the victimization subscale among high school students (n = 200) and university students (n = 202).

	V1	V2	V3	V4	Ví5	Ví6	Ví7	Ví8	Ví9	Ví10	Ví11
Ví1	1	.589**	.239**	.311**	.217**	0.05	0.12	.167*	.363**	.249**	0.05
Ví2	0.389**	1	.237**	.268**	.213**	0.07	0.08	.211**	.264**	.382**	0.05
Ví3	0.426**	0.355**	1	.195**	.202**	.153*	0.02	.164*	.158*	.195**	0.03
Ví4	0.279**	0.233**	0.328**	1	.241**	0.14	0.10	.358**	.383**	.333**	0.05
Ví5	0.372**	0.206**	0.221**	0.358**	1	.142*	0.02	.149*	0.14	.259**	0.03
Ví6	-0.02	-0.03	0.05	0.02	0.03	1	0.01	0.12	0.11	0.05	0.02
Ví7	0.112*	0.04	0.08	0.158**	0.00	-0.03	1	.186**	.078**	.139*	0.01
Ví8	0.365**	0.286**	0.429**	0.519**	0.352**	0.07	0.09	1	.195**	.206**	0.03
Ví9	0.223**	0.162**	0.203**	0.364**	0.239**	0.00	0.163**	0.268**	1	.229**	0.04
Ví10	0.434**	0.349**	0.467**	0.492**	0.307**	0.168*	0.149**	0.659**	0.255**	1	0.04
Ví11	0.10	0.03	0.01	0.07	0.226**	0.219**	-0.03	0.123*	0.00	0.06	1

Note: *Correlation is significant at .05; **Correlation is significant at .01. Blue values represent high school students, and green values represent university students. Ví1. I receive threatening messages by email; V2. I receive threatening messages on my cell phone; V3. They have uploaded images of me to humiliate me; V4. They have shared links that contain humiliating images of me; V5. They use my passwords to send messages in my name and cause problems; V6. They record me on video while someone humiliates me Ví7. I have been videotaped while someone hurts or hits me; Ví8. My secrets have been spread; Ví9. I have been removed from an online group; Ví10. I have been sent disturbing and threatening messages; Ví11. I have been videotaped engaging in sexual behavior.

Table 3. Correlation coefficients for the aggressor subscale among high school students (n = 200) and university students (n = 202).

	Ag1	Ag 2	Ag 3	Ag 4	Ag 5	Ag 6	Ag 7	Ag 8	Ag 9	Ag10	Ag11	Ag12	Ag13	Ag14	Ag15	Ag16	Ag17
Ag 1	1	0.214**	0.411**	0.12	0.05	0.272**	0.14	0.12	0.08	0.19	0.03	0.190**	0.142*	0.233**	0.08	0.05	0.05
Ag 2	0.14	1	0.374**	0.10	0.03	0.11	0.138*	0.206**	0.180*	0.03	0.03	0.12	0.318**	0.10	0.244**	0.01	0.01
Ag 3	0.04	0.12	1	0.13	0.06	0.219**	0.237**	0.191**	0.05	0.250**	0.03	0.250**	0.300**	0.286**	0.233**	0.02	0.02
Ag 4	0.13	0.142*	0.00	1	0.573**	0.235**	0.167*	0.12	0.230**	0.05	0.07	0.149*	0.05	0.11	0.03	0.02	0.02
Ag 5	0.03	0.04	0.08	0.10	1	0.08	0.03	0.03	0.03	0.04	0.13	0.10	0.03	0.07	0.02	0.01	0.01
Ag 6	0.25	0.140*	0.10	0.228**	0.521**	1	0.427**	0.04	0.280**	0.301**	0.280**	0.235**	0.140**	0.410**	0.283**	0.163*	0.163*
Ag 7	0.03	0.05	0.03	0.01	0.187**	0.387**	1	0.06	0.138*	0.143*	0.10	0.143*	0.265**	0.357**	0.208**	0.03	0.03
Ag 8	0.05	0.01	0.00	0.01	0.332**	0.405**	0.01	1	0.02	0.142*	0.167*	0.03	0.03	0.03	0.02	0.01	0.01
Ag 9	0.151**	0.06	0.188**	0.13	0.020**	0.254**	0.10	0.11	1	0.274**	0.318**	0.12	0.03	0.01	0.02	0.01	0.01
Aug 10	0.130**	0.03	0.00	0.05	0.117**	0.392**	0.04	0.202**	0.07	1	0.353**	0.302**	0.09	0.09	0.172*	0.02	0.02
Aug 11	0.04	0.10	0.11	0.01	0.06	0.06	0.02	0.08	0.41	0.07	1	0.484**	0.260**	0.13	0.201**	0.372**	0.372**
Aug 12	0.11	0.02	0.08	0.05	0.04	0.293**	0.08	0.11	0.26	0.05	0.348**	1	0.353**	0.155**	0.172**	0.327**	0.327**
Aug 13	0.13	0.02	0.187**	0.01	0.187**	0.437**	0.11	0.265**	0.07	0.12	0.02	0.12	1	0.342**	0.424**	0.372**	0.372**
Aug 14	0.149*	0.00	0.10	0.146*	0.04	0.07	0.05	0.07	0.01	0.04	0.08	0.09	0.200**	1	0.268**	0.154*	0.154*
Aug 15	0.06	0.10	0.09	0.285**	0.08	0.224**	0.07	0.09	0.223**	0.04	0.10	0.08	0.01	0.06	1	0.574**	0.574**
Aug 16	0.05	0.144*	0.04	0.01	0.00	0.347**	0.05	0.179*	0.195**	0. 057	0.255**	0.193**	0.191**	0.05	0.159*	1	0.990**
Aug 17	0.02	0.01	0.01	0.08	0.06	0.323**	0.10	0.05	0.166**	0. 031	0.228**	0.194**	0.00	0.02	0.326**	0.376**	1

Note: *Correlation is significant at .05; **Correlation is significant at .01. Blue values represent high school students, and green values represent university students. Ag1. I start fighting and arguments using insults; Ag2. I send threatening or insular messages via email; Ag3. I send threatening or insulting messages via cell phone; Ag4. I upload humiliating images of others; Ag5. I share links to humiliating images; Ag6. I write rumors and gossip about others to ridicule them; Ag7. I share links to rumors or gossip about other people; Ag8. I obtain passwords from others and send messages impersonating them to make them look bad; Ag9. I record videos showing humiliation of other people; Ag1. I share videos in which another person is humiliated; Ag11. I record videos or take photos to show beatings towards a person; Ag12. I send videos that contain images of a person being beaten; Ag13. I spread secrets, information, or compromising images of other people through social networks. Dirty play; Ag14. I intentionally remove people from social media groups; Ag15. I persistently send threats to people to intimidate them; Ag16. I record videos or take photos of someone engaging in sexual behavior; Ag17. I send videos or images of other people engaging in sexual behavior.

dissemination of humiliating content. Conversely, university students were more often identified as aggressors, engaging in exclusion, impersonation, the sharing of humiliating content (happy slapping), and the dissemination of sexually explicit material (sexting). Notably, 40% of university students admitted to participating in online arguments, a behavior more prevalent in this group than in high school students. These results support the findings of Morales et al. (2021), who reported high school students acting as both aggressors and victims.

Although both groups exhibit cyberbullying behaviors, university students appear more likely to act as aggressors. This may be explained by evidence indicating a lack of digital safety skills among university students, which compromises their ability to engage effectively, safely, and critically (Pérez-Maldonado et al., 2023).

Analysis of the victimization subscale showed that high school students frequently reported the dissemination of compromising content and the persistent receipt of threatening messages. These behaviors suggest a strong association between grooming, denigration, and harassment, consistent with prior research showing that cyberbullying victims often experience multiple forms of aggression, which reinforces feelings of helplessness. Such patterns may extend to other contexts, including aggression from authority figures such as teachers (Laorden-Gutiérrez et al., 2023; Mendoza et al., 2021, 2022).

In the aggressor subscale, denigration in high school students was closely associated with cyber harassment, identity theft, and grooming, suggesting a convergence of tactics aimed at damaging the victim's emotional well-being, reputation, and social relationships (Morales et al., 2023).

Among university students, victimization was primarily centered on receiving threatening messages (via email or phone), which correlated with other forms of victimization. Sharing humiliating images (Ví4) was associated with receiving threats (Ví1, Ví10), being excluded from groups (Ví9), and the dissemination of personal information (Ví8), indicating that different victimization behaviors tend to co-occur. These results are consistent with other studies reporting that ICT-mediated violence is frequently perceived by university students (Gutiérrez, 2019).

Correlation analysis revealed that receiving threatening messages by email was a central risk factor for further victimization. Strong correlations, such as between spreading secrets (Ví8) and threatening messages (Ví10), indicate that aggressors use multiple tactics to reinforce harassment. In the aggressor subscale, strong correlations were found between creating and disseminating sexually explicit content, suggesting intentional and coordinated digital sexual aggression. The co-occurrence of these behaviors indicates a deliberate effort to maximize harm. Moderate associations between rumor spreading and social exclusion indicate that defamation and isolation are interconnected tactics. In the case of happy slapping, students who recorded violent acts were also those who disseminated the material, suggesting active engagement in violence for social validation and potential moral disengagement (Caivano & Talwar, 2023; Chang et al., 2025). These findings suggest that cyber-aggressors in university settings tend to engage in multiple harmful behaviors, reflecting a complex pattern of online aggression. Recent studies suggest that these behaviors are often driven by high stress levels and loneliness, which serve as key predictors of cyberbullying. Aggressors may seek to exert power and control through manipulation and exclusion (Shkurina, 2024).

Overall, the results are consistent with prior research indicating that cyberbullying behaviors tend to be stable over time for both aggressors and victims (Mendoza et al., 2021; Morales et al., 2023). The findings emphasize the need for interventions that address both roles, as participation in one behavior increases the likelihood of involvement in others, intensifying harm. Moreover, cyberbullying has been linked to broader antisocial behavior, including vandalism, beyond digital and school contexts (Iranzo et al., 2019).

Cyberbullying arises from multiple contributing factors. Research identifies personal, technological, familial, and cultural variables as relevant. Key personal risk factors include deficits in emotional intelligence, poor social skills, lack of empathy, limited gratitude, absence of behavioral consequences, and motivations such as power, popularity, and leadership (Chamizo & Rey, 2020; Garaigordobil, 2019; Yudes et al., 2019; Polanin et al., 2022). Problematic internet use has also been shown to be a predictor (Hassan et al., 2023; Rejeb et al., 2025). Family-related risk factors include a lack of parental supervision and emotional support. Studies show that over 70% of adolescents report no supervision in virtual environments (Garaigordobil, 2019; Yudes et al., 2019).

This study highlights the urgent need for effective intervention programs at the high school and university levels. Such programs should aim to foster cognitive and behavioral change by addressing cognitive distortions that reinforce victimization and aggression. Emphasis should be placed on developing socio-emotional competencies such as empathy, self-regulation, and gratitude to reduce reactive aggression, manage anger, and prevent threats, harassment, and other forms of cyber abuse (Chamizo & Rey, 2020; Polanin et al., 2022; Yudes et al., 2019). Future research should adopt an ecological model to examine cyberbullying across multiple systems, enabling a more comprehensive identification of risk and protective factors.

Limitations

A limitation of this study includes reliance on a single self-report instrument, which may be influenced by social desirability bias. Additionally, it did not assess the frequency of internet use or misuse of social media, which are known correlates of cyberbullying behavior.

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FUNDING SOURCE

This paper was supported by Universidad Autónoma del Estado de México.

CONFLICT OF INTEREST

The authors declare that there were no conflicts of interest in the collection of data, analysis of information, or writing of the manuscript.

ACKNOWLEDGMENTS

Not applicable.

REVIEW PROCESS

This study has been reviewed by external peers in double-blind mode. The editor in charge was David Villarreal-Zegarra. The review process is included as supplementary material 2.

DATA AVAILABILITY STATEMENT

The authors declare that the database is not available.

DECLARATION OF THE USE OF GENERATIVE ARTIFICIAL INTELLIGENCE

The authors declare that they have not made use of artificial intelligence-generated tools for the creation of the manuscript, nor technological assistants for the writing of the manuscript.

DISCLAIMER

The authors are responsible for all statements made in this article.

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Ciberbullying en bachillerato y universidad: Descripción, comparación y asociaciones entre comportamientos en víctimas y agresores

RESUMEN

Introducción: Las experiencias de ciberacoso pueden tener efectos duraderos en la autoestima, las relaciones sociales y el bienestar general de las víctimas. **Objetivo:** Este estudio tiene como objetivo determinar la asociación entre las conductas de ciberacoso, tanto como víctimas como agresores, en estudiantes de nivel medio superior y superior, identificando diferencias y similitudes entre ambos contextos educativos. **Métodos:** Se realizó un estudio transversal con 402 participantes (203 mujeres y 199 hombres), de los cuales 200 eran estudiantes de nivel medio superior y 202 de nivel superior. Ambas instituciones eran públicas y estaban ubicadas en zonas urbanas de la capital del Estado de México. El ciberacoso fue evaluado mediante el Cuestionario de Ciberacoso, que mide diferentes formas de esta conducta. **Resultados:** Los estudiantes universitarios mostraron una mayor probabilidad de participar como agresores en conductas de ciberacoso en comparación con los estudiantes de nivel medio superior, con un tamaño del efecto grande. En los estudiantes de nivel medio superior, se observó una asociación fuerte entre ser víctima de ciberacoso mediante la difusión de secretos y la recepción constante de mensajes perturbadores (r = .659). En los estudiantes universitarios, se identificó una co-ocurrencia significativa de conductas en la subescala de agresores, con asociaciones entre grooming, sexting, denigración, exclusión y happy slapping. **Conclusiones:** Estos hallazgos resaltan la necesidad de implementar programas de intervención en los niveles medio superior y superior, contextos educativos que usualmente no cuentan con protocolos de actuación establecidos como ocurre en el nivel básico.

Palabras claves: Ciberacoso, victimización, adolescentes, agresores, estudiantes de nivel medio superior, estudiantes universitarios.