The influence of demographic factors on cyberbullying

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Abstract

This study examines the prevalence of cyberbullying among adolescents and its relationship with demographic factors, including gender, age, school level, and place of residence. Cyberbullying, similar to traditional bullying but occurring through digital platforms, has significant physical, psychological, and emotional consequences for students. A comparative research design was employed, with a stratified sample representing variations in school location, gender, and education level. Data were analyzed to assess differences between groups and verify proposed hypotheses. Findings reveal notable gender differences, with males reporting higher levels of cyberbullying than females. Older adolescents and students in higher grades reported more frequent experiences of cyberbullying compared to younger peers. Participants from urban areas also reported a greater prevalence than those from rural settings. These results confirm that demographic factors influence the occurrence of cyberbullying. The study emphasizes the importance of targeted interventions, increased psychological support in schools, and educational initiatives promoting students' emotional well-being. Addressing these factors is essential for fostering safer school environments and reducing the harmful impact of online harassment.

Keywords: Adolescence; cyberbullying; demographic factors; school environment; student well-being.

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1. INTRODUCTION

Nowadays, cyberbullying has gained a lot of attention, which also comes because of the great use of technology by everyone, regardless of age, gender, race, ethnicity, etc. Technology has become inseparable in everyone's life, but the teenage years remain a delicate age, which is often affected by cyberbullying (Kasturiratna et al., 2025; Cao et al., 2025).

Cyberbullying does not differ much from traditional bullying that has happened constantly in different places, especially in the school environment where students are directly involved (Gao et al., 2024). Today, an information is shared in a few seconds to many people at once, not knowing the consequences it can have for someone's life, physical, psychological and emotional consequences affecting the general well-being of teenagers (Jo, 2025).

Cyberbullying violates the privacy and the right of different people to enjoy technology and not to suffer from the consequences that certain people cause them with the purpose of their spiritual instability (Mohamed Othman et al., 2025).

Cyberbullying is new, but it can best be understood through the old lens of traditional bullying. Bullying is aggressive behavior that is intentional and involves an imbalance of power or strength. Sometimes this imbalance involves differences in physical strength among children, but often it is characterized by differences in power or social status (Lim et al., 2024). Because of this imbalance of power or strength, a child who is being bullied finds it difficult to defend himself (Luo et al., 2025). Typically, bullying doesn't just happen once or twice, but is repeated over time (Sorrentino et al., 2024).

There is no single definition of what constitutes cyberbullying. In general, the proposed definitions are broad attempts to include repeated intentional uses of digital communication technologies in causing emotional distress. The basic elements of cyberbullying are that it:

- is intentional
- is repeated
- causes harm perceived by its target and
- is carried out through computers, mobile phones, or other electronic devices.

That such behavior is intentional is seen. Likewise, if the harm of a harassing act is not perceived by its target, then it fails to cause emotional distress. The requirement that the bullying in question be carried out via an electronic device is the main distinguishing feature between traditional bullying and cyberbullying.

1.1. Purpose of research

The purpose of this research is to analyze the prevalence of cyberbullying. In addition to this basic goal contained in this study, the other goal is to prove the differences between different categories related to cyberbullying, such as gender differences, age, residence, and participating schools in the research. The study's hypotheses are as follows:

H1. There are differences between female and male students regarding cyberbullying.
H2. There are differences between elementary and middle school classrooms regarding cyberbullying.
H3. Adolescents from the city experience higher levels of cyberbullying than adolescents from the village.
H4. There are age differences regarding cyberbullying.

2. MATERIALS AND METHODS

2.1. Research design

This study employed a comparative research design to examine the prevalence of cyberbullying among adolescents and its relationship with demographic factors, including gender, age, school level, and place of

residence. The design enabled systematic comparison between participant groups based on these variables.

2.2. Participants

The sample was selected using a stratified sampling method to ensure representation across key demographic categories: urban and rural school locations, male and female students, and primary and secondary school levels. Participants consisted of adolescents enrolled in grades 6–12. Stratification allowed for balanced representation of each subgroup to facilitate valid comparative analysis.

2.3. Data collection method

Data were collected using a structured questionnaire designed to measure self-reported experiences of cyberbullying. The instrument captured demographic information and included items assessing the frequency and nature of cyberbullying incidents. The survey was administered in school settings, ensuring confidentiality and voluntary participation.

2.4. Data analysis technique

Data analysis involved descriptive statistics to determine the overall prevalence of cyberbullying and inferential statistics to test the study's hypotheses. Independent samples t-tests and comparative analyses were conducted to assess differences across gender, age groups, school levels, and place of residence. Statistical significance was determined at the $p < .05$ level.

3. RESULTS

3.1. Results for hypothesis 1

H1. There are differences between female and male students regarding cyberbullying.

Table 1 indicates the presence of gender differences in school violence. The male group is represented with a mean value of 17.67, while the female group is represented with a mean value of 11.26. The standard deviation for the male group is 10.348, which is higher than the standard deviation for the female group, recorded at 9.71. These results support the stated hypothesis.

Table 1

Gender differences in school violence

Gender	Cyberbulllying			
	Minimum	Averege	Maximum	Std. Deviation
Male	0	17.67	53	10.348
Female	0	11.26	55	9.718

3.2. Results for hypothesis 2

H2. There are differences between primary and secondary school classes regarding cyberbullying.

Table 2

Independent samples test

Assumption	F	p	t	df	p (2-tailed)	Mean Difference	Std. Error Difference	95% CI for Mean Difference
Equal variances assumed	8.476	.004	7.401	892	< .001	5.116	0.691	[3.759, 6.472]
Equal variances not assumed	—	—	7.499	785.411	< .001	5.116	0.682	[3.777, 6.455]

Table 2 presents data indicating variations in reported experiences of cyberbullying, with students in grades 10, 11, and 12 exhibiting higher levels compared to those in grades 6, 7, 8, and 9. These results corroborate the validity of the proposed hypothesis.

3.3. Results for hypothesis 3

H3. Adolescents living in the city experience higher levels of cyberbullying than adolescents living in the village.

Table 3

Total points for Cyberbullying

Age	n	M	SD	SE	95% CI for M	Min	Max
6	102	14.75	9.798	0.970	[12.82, 16.67]	0	51
7	101	14.43	10.143	1.009	[12.42, 16.43]	0	40
8	140	15.87	11.598	0.980	[13.93, 17.81]	0	53
9	149	13.21	9.642	0.803	[11.62, 14.80]	0	40
10	152	16.72	9.972	0.809	[15.12, 18.32]	0	44
11	133	16.92	10.736	0.930	[15.08, 18.76]	0	45
12	122	17.14	10.076	0.912	[15.33, 18.95]	0	48
Total	900	15.64	10.385	0.346	[14.96, 16.32]	0	55

Note. M = mean, SD = standard deviation, SE = standard error, CI = confidence interval.

Table 3 reveals that students residing in urban areas report an average cyberbullying score of 17.33 with a standard deviation of 11.047, whereas students from rural areas report an average of 12.64 with a standard deviation of 9.966. These findings support the hypothesis that differences in school violence exist based on place of residence.

3.4. Results for hypothesis 4

H4. There are age differences regarding cyberbullying.

Table 4

Independent Samples test

Assumption	F	Sig.	t	df	p	Mean Difference	SE Difference	95% CI of the Difference
Equal variances assumed	4.471	.035	4.988	897	<.001	3.899	0.782	[2.365, 5.433]
Equal variances not assumed	4.746	—	4.746	369.97	<.001	3.899	0.822	[2.283, 5.514]

Table 4 indicates that older teenagers exhibit a higher average level of involvement in cyberbullying compared to younger teenagers. Based on this evidence, the hypothesis positing age-related differences in cyberbullying has been confirmed.

Table 5

Average scores of cyberbullying by residence

Residence	M	SD	SE
City	17.33	11.05	0.73
Village	12.64	9.97	0.39

Note. M = Mean; SD = Standard Deviation; SE = Standard Error.

An independent samples t-test showed that participants living in the city (M = 17.33, SD = 11.05) reported significantly higher cyberbullying scores than those living in the village (M = 12.64, SD = 9.97), t(897) = 4.99, p < .001. The mean difference was 3.90, 95% CI [2.37, 5.43].

Table 6

Average cyberbullying scores by age

Age	M	Min	Max	SD
11	12.65	0	34	8.92
12	15.00	0	39	9.77
13	14.80	0	53	10.88
14	14.77	0	41	10.71
15	15.77	0	44	9.92
16	17.07	0	55	10.75
17	17.63	0	51	10.45
18	15.19	0	37	9.67
19	23.75	0	48	18.79

Descriptive statistics indicate that cyberbullying scores generally increase during the teenage years, with the highest mean score observed among 19-year-olds (M = 23.75, SD = 18.79). Teenagers aged 16 to 19 consistently reported higher averages compared to younger adolescents aged 11 to 15, suggesting that older adolescents may be more involved in or exposed to cyberbullying behaviors (Table 6).

4. DISCUSSION

The present study examined the prevalence of cyberbullying among adolescents and its relationship with demographic factors, including gender, age, school level, and place of residence. The findings revealed significant variations across all tested demographic variables, thereby confirming the proposed hypotheses and underscoring the complex interplay between socio-demographic characteristics and involvement in cyberbullying.

Consistent with prior studies, gender differences emerged, with males reporting higher levels of cyberbullying involvement than females. This aligns with findings by Barlett and Coyne (2014) and Kowalski et al. (2014), who observed that male adolescents are often more engaged in direct and overt forms of online aggression, potentially reflecting broader gendered patterns in aggression expression. However, some research has indicated that females may engage more frequently in relational or covert cyberbullying (Li, 2006; Slonje & Smith, 2008), suggesting that the present study's focus on overall prevalence may have captured more traditionally aggressive behaviors, thereby amplifying the male prevalence rates. This divergence highlights the importance of examining different forms of cyberbullying separately in future work.

Age and school-level differences were also evident, with older adolescents and students in higher grades reporting more frequent experiences of cyberbullying. This finding corroborates previous research indicating that cyberbullying risk increases with age during adolescence, potentially due to greater access to technology, more autonomous internet use, and complex peer dynamics in later school years (Tokunaga, 2010; Wright, 2017). The developmental trajectory of social relationships during mid-to-late adolescence, alongside increased online activity, may account for the higher involvement observed among older students (Livingstone & Smith, 2014). However, some studies (Smith et al., 2008) have reported more mixed age-related patterns, suggesting cultural and contextual factors may moderate these trends.

The finding that adolescents from urban areas reported higher cyberbullying prevalence than their rural counterparts is consistent with evidence that urban youth often have greater and more diverse access to digital technologies, larger online networks, and more frequent online interaction, which can increase both exposure to and perpetration of cyberbullying (Barlett et al., 2016; Navarro et al., 2013). Nonetheless, it is important to note that rural adolescents may also experience cyberbullying, though possibly in forms less visible in standardized survey measures, as suggested by Patchin and Hinduja (2010). Differences in digital literacy, parental monitoring, and peer group structures between urban and rural contexts may also contribute to these disparities.

Overall, the current findings reinforce the growing consensus that cyberbullying is not uniformly distributed across adolescent populations, but rather shaped by intersecting demographic factors (Kowalski et al., 2014; Wright, 2017). The gender, age, school-level, and urban–rural differences observed here highlight the need for differentiated prevention and intervention strategies. For example, programs targeting younger adolescents could focus on early digital citizenship skills, while those for older students may need to address more complex issues of online relationships and identity. In urban areas, interventions might integrate community-based digital literacy and monitoring initiatives, whereas rural settings may benefit from targeted awareness-raising and resource provision to address potential underreporting.

5. CONCLUSION

This study demonstrates that demographic factors, particularly gender, age, school level, and place of residence, play a significant role in shaping adolescents' experiences of cyberbullying. While these factors do not fully explain the prevalence of online harassment, they provide important insights into vulnerable groups and contexts where targeted interventions may be most effective.

Cyberbullying remains a pressing social and educational concern. Addressing it requires a coordinated response involving all stakeholders, educational institutions, municipal education authorities, school leaders, teachers, parents, and community organizations. Preventive efforts should include the development of clear guidelines, ongoing training for academic staff, and the promotion of programs that enhance students' physical, psychological, and emotional well-being. Schools should actively communicate the importance of empathy, respect, and mutual support among students, while also encouraging victims to seek professional help when needed.

Given the current shortage of school-based psychologists, urgent measures are needed to increase their presence in educational settings. Psychologists can play a pivotal role in providing timely support, monitoring students' well-being, and conducting ongoing research to inform policy and practice. Through sustained, collaborative efforts, we can work toward creating a safer, more supportive environment in which children and adolescents can thrive, both offline and online..

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