İSTANBUL UNIVERSITY PRESS

Experimed 2025, 15 (2): 144–152

https://doi.org/10.26650/experimed.1706159

Submitted: 27.05.2025
Revision Requested: 10.06.2025
Last Revision Received: 11.06.2025
Accepted: 16.07.2025

Experimed

Research Article

Open Access

Relationship between Cyberbullying, Victimization and Depression among High School Students in Turkiye

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Abstract

Objective: This study aimed to investigate the relationship between depression, cyberbullying, and cybervictimization among high school students in the Diyarbakir region during the post-pandemic period of COVID-19.

Materials and Methods: A total of 1,985 high school students (1,057 females and 928 males), aged 13 to 18, from the Diyarbakir province participated in this cross-sectional survey. Participants completed the Bullying and Cyberbullying Scale for Adolescents (BCS-A) and the Beck Depression Inventory (BDI). Sociodemographic characteristics and computer and internet usage behaviours were evaluated as factors influencing the scale scores.

Results: Cyberbullying was found to be more prevalent among male students with higher access to digital devices (computers, phones, tablets) and longer internet use, particularly those whose mothers had higher education levels. Conversely, elevated BDI scores were observed among female students in the tenth grade who attended public schools, had more than four siblings, and had limited access to technological resources. Statistically significant positive correlations were identified between the BDI scores and both the bullying perpetration and victimization scores.

Conclusion: This study highlights the growing impact of digital aggression on adolescent mental health in Turkiye and underscores the importance of targeted forensic-psychiatric screening and early preventive strategies in high school populations.

Keywords Cyberbullying · Cybervictimization · Adolescent Mental Health · Beck Depression Inventory (BDI) · Internet Use · COVID-19 Pandemic

Citation: Uysal C, Cobanoglu T, Guvendeger Doksat N, Yildirim Z, Aslan H, Aslan M, Inceoglu F, & Polat O Relationship between Cyberbullying, Victimization and Depression among High School Students in Turkiye . Experimed 2025; *15*(2): 144-152. DOI: 10.26650/experimed.1706159

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INTRODUCTION

Bullying and its adverse effects are now widely acknowledged as significant public health concerns worldwide (1). As technology has become more embedded in daily life, bullying behaviors have evolved into new digital forms, commonly referred to as cyberbullying (2, 3). This form of aggression encompasses repeated, intentional actions carried out via digital platforms—such as mocking, exclusion, public shaming, rumor dissemination, or non-consensual disclosure of personal information (4).

The rapid proliferation of social media, particularly among adolescents, has increased their vulnerability to such behaviors (5). For instance, a recent nationwide study in the United States reported that 46% of teenagers between 13 and 17 years had experienced at least one incident of cyberbullying (6). Global estimates vary significantly, with prevalence rates ranging from 14% to 58%.

Unlike conventional bullying, which typically occurs in physical settings, cyberbullying is often anonymous and might happen at any time, making it more persistent and difficult to address (7, 8). The lasting visibility of online content can intensify psychological harm, leading to severe emotional distress (9). Victims of cyberbullying are more likely to experience self-injurious behavior, suicidal ideation, and even attempts at suicide (10).

Cyberbullying is therefore characterized by repetitive and intentional acts of aggression using electronic communication, with considerable potential for perceived and actual harm to the individual (11). While digital technologies provide new avenues for communication, they also present unique risks for harmful interpersonal behaviors that require targeted public health and educational interventions.

In Turkiye, despite the growing digital engagement among adolescents, regionally grounded data on cyberbullying and its psychological impacts remain limited. Given the increased reliance on digital education during and after the COVID-19 pandemic, high school students have become particularly vulnerable to cyber aggression. Therefore, this study was designed to address the gap in localized data and to examine the interaction between cyberbullying, victimization, and depression levels in a representative adolescent population.

MATERIALS AND METHODS

Participants

This study used a cross-sectional survey to investigate how common cyberbullying and cybervictimization are among high school students in the province of Diyarbakir, Turkiye, and how these experiences play out. Prior to data collection, the research team obtained ethical approval from the Non-Interventional Research Ethics Committee at Dicle University, Faculty of Medicine. After receiving approval from the Provincial Directorate of National Education, they randomly selected public high schools from the area.

In accordance with national education research protocols and as permitted by the Ministry, participation was considered ethically acceptable within the institutional framework approved by the local education authority. The survey was conducted anonymously, and participation was entirely voluntary. The target population consisted of students in grades 9 to 11, an age group identified as particularly susceptible to online risks due to increased internet use for education and communication during the COVID-19 pandemic.

Demographic Characteristics

The demographic characteristics of the study samples are presented in Table 1. A total of 1,985 students participated, consisting of 1,057 females and 928 males. Age distribution included 412 students aged 14, 799 aged 15, and 633 aged 16. Most participants were in the 10th grade (n=153), and the majority were attending public schools (n=1,695).

In terms of familial and socioeconomic indicators, 1,006 students reported having more than four siblings. The mothers of the participants had varying levels of education: 326 were illiterate, 456 had completed primary school, and 341 were university graduates. The fathers' educational levels also varied, with 388 primary school, 450 high school, and 441 university graduates.

Tests: Bullying, being bullied and beck depression inventory (BDI) scales were applied in the survey.

Bullying and Cyberbullying Scale for Adolescents (BCS-A): Thomas et al. created the BCS-A to measure both bullying and victim experiences in teenagers between 12 and 18 years old (12). The original scale showed strong internal consistency across its different areas. For the victimization subscale, the Cronbach's alpha scores were 0.72 for physical, 0.92 for verbal, 0.66 for relational, and 0.83 for cyberbullying. For the bullying subscale, the scores were 0.69 for physical, 0.92 for verbal, 0.69 for relational, and 0.92 for cyber forms.

Later, a Turkish version of the BCS-A was translated and validated by Ozbey and Basdas (13). They designed two matching forms, each with 13 items that covered the same four categories. In the Turkish version, all factor loadings were strong—above 0.630 in the victim section and 0.679 in the bullying section. Reliability scores (Cronbach's alpha) ranged from 0.606 to 0.806 for victimization and from 0.616 to 0.815

for bullying. These numbers suggest that the scale works well in Turkish too.

Table 1. Demographics information of the participants

Variables	Group	Number	Percentage
Gender	Female	1,057	53.2
	Male	928	46.8
Age, years	13	28	1.4
	14	412	20.8
	15	799	40.3
	16	633	31.9
	17	99	5.0
	18	14	0.7
Class	9	684	34.5
	10	1,153	58.1
	11	148	7.5
School	State School	1,695	85.4
	Private School	290	14.6
Number of Siblings	0	7	0.4
	One	63	3.2
	2	368	18.5
	3	541	27.3
	≥4	1,006	50.7
Mother's Education Status	Illiterate	326	16.4
	Literate	211	10.6
	Primary School	456	23.0
	Middle School	260	13.1
	High School	300	15.1
	University	341	17.2
	Master/ PhD	91	4.6
Father's Education Status	Illiterate	104	5.2
	Literate	103	5.2
	Primary School	388	19.5
	Middle School	349	17.6
	High School	450	22.7
	University	441	22.2
	Master/ PhD	150	7.6
Parents' Marital Status	Married	1,833	92.3
	Divorced	77	3.9
	Stepmother	10	0.5
	Stepfather	7	0.4
	Mother Not Alive	13	0.7
	Father Not Alive	45	2.3
Personal Computer	Yes	500	25.2
	No	1,485	74.8
Personal Mobile Phone	Yes	1,232	62.1
	No	753	37.9
Internet	Yes	1,236	62.3
		345	17.4
	No	1,016	51.2
Do you do homework online?	Yes	1,215	61.2
	No	315	15.9
Do you play games on the internet?	Yes	534	26.9
	No	1,194	60.2
Do you access social networks on the internet?	Yes	991	49.9
	No	994	50.1
Other	Yes	216	10.9
	No	1,769	89.1

BDI: BDI is a widely used 21-question self-report tool for measuring how severe someone's depressive symptoms are. Each question is scored on a scale from 0 to 3, with higher scores showing stronger symptoms. The Turkish version has been tested and found to be reliable. According to Hisli and Onalan et al., it has an internal consistency score of 0.80 (14, 15).

Validity and Reliability

To ensure these tools are trustworthy and meaningful for the study, researchers looked at how consistent and valid they are. Reliability was checked using Cronbach's alpha for the main tools: the BDI, the bullying scale, and the cyberbullying victimization scale. These results are detailed in Table 2.

To check if the tools used in the study were measuring what they were supposed to, two main stats were used: Composite reliability (CR) and average variance extracted (AVE). CR looks at how well the items on a scale reflect the bigger concept they're meant to measure. It's like Cronbach's alpha, and a score of 0.70 or higher usually means it's reliable. AVE, on the other hand, shows how much of the total variation in responses is explained by the concept being measured. A value above 0.50 suggests that the scale has good convergent validity—basically, that everything fits together well.

When checking the reliability of the tools, Cronbach's alpha scores came out strong, ranging from 0.90 to 1.00, which points to excellent internal consistency. These scores were based on

Table 2. Descriptive statistics of scale scores

Points	Mean ± SD	Min - Max	Cronbach α	AVE	CR
Cyberbullying Victimization	6.5 ± 2.99	0 - 25	0.934	0.55	0.86
Cyberbullying	6.15 ± 3.2	0 - 25	0.779	0.67	0.91
BDI	24.54 ± 16.59	0 - 80	0.863	0.51	0.96

SD: Standard Deviation; Min: Minimum; Max: Maximum; CR: Composite reliability; AVE: Average Variance Extracted; BDI: Beck Depression Inventory.

Table 3. Comparison of scale scores according to sociodemographic data

Variables	Groups	Cyberbullying Victimization		Cyberbullying		BDI	
		Mean ± SD	M (Min - Max)	Mean ± SD	M (Min - Max)	Mean ± SD	M (Min - Max)
Gender	Female	6.37 ± 2.69	5(0-25)	5.73 ± 2.41	5(0-25)	25.85 ± 14.78	23(0-80)
	Male	6.64 ± 3.29	5(0-25)	6.64 ± 3.85[a]	5(0-25)	23.05 ± 18.32 [a]	19(0-80)
p value		0.596*		**0.001***		**0.001***	
Age	13	7.57 ± 3.58	6(5-18)	7.75 ± 5.04	5(5-25)	30.46 ± 21.2	26.5(1-80)
	14	6.5 ± 2.89	5(0-25)	6.00 ± 2.74	5(0-25)	22.57 ± 15.26	20(0-80)
	15	6.44 ± 2.97	5(0-25)	5.91 ± 2.83	5(0-25)	24.46 ± 16.27	21(0-80)
	16	6.44 ± 2.94	5(2-25)	6.48 ± 3.82	5(0-25)	25.56 ± 17.23	23(0-80)
	17	6.99 ± 3.56	5(5-25)	6.15 ± 2.43	5(0-16)	25.12 ± 18.47	21(0-80)
	18	7.14 ± 3.11	6(5-14)	6.64 ± 3.75	5(5-19)	25.29 ± 14.17	23.5(6-55)
p value		0.120**		0.051**		0.093**	
Class	9	6.46 ± 2.87	5(0-25)	6.11 ± 2.91	5(0-25)	22.72 ± 16.2	19(0-80)
	10	6.52 ± 3.1	5(0-25)	6.16 ± 3.4	5(0-25)	25.83 ± 16.86 [a]	23(0-80)
	11	6.53 ± 2.68	5(5-19)	6.34 ± 2.93	5(0-25)	22.92 ± 15.35	20(0-80)
p value		0.517 **		0.051**		**0.001****	
School	State	6.53 ± 3.06	5(0-25)	6.14 ± 3.24	5(0-25)	25.34 ± 17.16	22(0-80)
	Private	6.33 ± 2.54	5(5-24)	6.22 ± 2.98	5(5-25)	19.9 ± 11.77 [a]	18.5(0-71)
p value		0.383*		0.076*		**0.001***	
Number of Siblings	0	10.17 ± 7.86	6.5(5-25)	6.00 ± 2.45	5(5-11)	31.67 ± 26.39	27(2-80)
	1	6.86 ± 3.73	6(5-25)	6.37 ± 3.17	5(5-25)	26.24 ± 17.78	23(0-80)
	2	6.57 ± 3.3	5(2-25)	6.44 ± 3.75	5(0-25)	21.19 ± 14.06	18(0-80)
	3	6.48 ± 2.56	5(5-21)	6.30 ± 3.16	5(0-25)	23.56 ± 16.24	20(0-80)
	≥4	6.44 ± 2.98	5(0-25)	5.96 ± 3.00 [a]	5(0-25)	26.14 ± 17.27 [a]	23(0-80)
p value		0.202**		**0.004****		**0.001****	
Mother's Education	Illiterate	6.44 ± 2.88	5(0-25)	5.91 ± 2.88	5(0-25)	27.26 ± 19.14	23(0-80)
	Literate	6.13 ± 2.97	5(0-25)	6.06 ± 3.31	5(0-25)	26.61 ± 17.42	23(0-80)
	Primary	6.55 ± 2.99	5(0-25)	6.04 ± 3.1	5(0-25)	26.06 ± 16.69	23(0-80)
	Middle school	6.56 ± 3.15	5(0-25)	6.06 ± 2.97	5(0-25)	25.2 ± 17.58	21(0-80)
	High school	6.78 ± 3.07 [a]	5(5-25)	6.07 ± 2.71	5(5-25)	24.07 ± 15.35	21(0-80)
	University	6.56 ± 3.14	5(4-25)	6.55 ± 3.84	5(5-25)	20.07 ± 12.81 [a]	18(0-80)
	Master's/PhD	5.97 ± 1.82	5(5-14)	6.88 ± 3.84 [a]	5(5-25)	18.89 ± 13.3 [a]	18(0-70)
p value		**0.024****		**0.006****		**0.001****	
Father's Education	Illiterate	6.85 ± 3.84	5(4-25)	6.65 ± 3.77	5(5-25)	29.36 ± 19.3 [a]	24(0-80)
	Literate	6.28 ± 2.12	5(4-14)	6.27 ± 3.59	5(5-25)	25.79 ± 16.26	24(0-80)
	Primary	6.43 ± 3.04	5(0-25)	5.66 ± 2.37 [a]	5(0-25)	26.78 ± 17.3	23(0-80)
	Middle school	6.55 ± 3.26	5(0-25)	5.99 ± 3.04	5(0-25)	25.94 ± 18.22	22(0-80)
	High school	6.46 ± 2.78	5(3-25)	6.18 ± 3.13	5(0-25)	25.19 ± 16.86	21(0-80)
	University	6.63 ± 3.14	5(4-25)	6.41 ± 3.58	5(5-25)	21.14 ± 13.38	20(0-80)
	Master's/PhD	6.2 ± 2.1	5(5-15)	6.57 ± 3.64	5(5-25)	19.28 ± 13.76 [b]	17(0-70)
p value		0.718**		**0.006** **		**0.001****	
Parent's Marital Status	Married	6.48 ± 2.97	5(0-25)	6.12 ± 3.15	5(0-25)	24.59 ± 16.73	21(0-80)
	Divorced	6.82 ± 3.48	5(3-25)	6.95 ± 4.7	5(5-25)	23.12 ± 14.95	21(0-80)
	Stepmother	9.1 ± 5.47	6(5-18)	5.9 ± 1.66	5(5-9)	35 ± 16.17	29.5(19-64)
	Stepfather	5.29 ± 0.49	5(5-6)	6.14 ± 3.02	5(5-13)	17.57 ± 12.11	22(0-32)
	Mother Not Alive	6.69 ± 1.7	6(5-11)	6.54 ± 3.53	5(5-18)	27 ± 18.2	24(7-80)
	Father Not Alive	6.16 ± 2.31	5(5-17)	6.07 ± 2.29	5(5-14)	22.96 ± 12.89	18(2-56)
p value		0.220 **		0.745 **		0.258 **	

Superscripts ([a,b,]) show the differences within the group. There is no difference in the measurement that takes place with the same letters. SD: Standard Deviation; M: Median; Min: Minimum; Max: Maximum; BDI: Beck Depression Inventory; *: Mann-Whitney U Test; **: Kruskal-Wallis Test.

Table 4. Comparison of scale scores according to computer use

Variables	Groups	Cyberbullying Victimization		Cyberbullying		BDI	
		Mean ± SD	Median (Min - Max)	Mean ± SD	Median (Min - Max)	Mean ± SD	Median (Min - Max)
Number of Computers at Home	One	6.3 ± 2.82	5(0-25)	5.52 ± 1.99 [a]	5(0-25)	28.73 ± 19.19 [a]	24(0-80)
	Two	6.62 ± 3.15	5(0-25)	6.32 ± 3.56	5(0-25)	24.36 ± 15.93 [b]	22(0-80)
	Three	6.63 ± 3.06	5(0-25)	6.58 ± 3.62 [b]	5(0-25)	22.73 ± 14.65 [c]	20(0-80)
	≥4	6.41 ± 2.81	5(5-25)	6.33 ± 3.38	5(5-25)	20.12 ± 13.79	18(0-80)
p value		0.279 **		**0.001****		**0.00****	
Having a Personal Computer	Yes	6.62 ± 3.17	5(0-25)	6.75 ± 3.99	5(0-25)	21.7 ± 15.17	19(0-80)
	No	6.46 ± 2.93	5(0-25)	5.95 ± 2.86 [a]	5(0-25)	25.5 ± 16.94 [a]	22(0-80)
p value		0.356*		**0.001***		**0.001***	
Having a Personal Mobile Phone	Yes	6.56 ± 3.04	5(0-25)	6.42 ± 3.58	5(0-25)	23.22 ± 16.14	20(0-80)
	No	6.4 ± 2.9	5(0-25)	5.73 ± 2.4 [a]	5(0-25)	26.7 ± 17.09 [a]	23(0-80)
p value		0.279*		**0.001***		**0.001***	
Having a Personal Tablet	Yes	6.4 ± 2.95	5(0-25)	6.32 ± 3.46	5(0-25)	22.31 ± 15.5	20(0-80)
	No	6.54 ± 3.01	5(0-25)	6.08 ± 3.08 [a]	5(0-25)	25.52 ± 16.96 [a]	22(0-80)
p value		0.412*		**0.039***		**0.001***	
Having an Internet	Yes	6.56 ± 3.19	5(0-25)	6.38 ± 3.48	5(0-25)	23.75 ± 15.96	21(0-80)
	No	6.39 ± 2.63	5(0-25)	5.79 ± 2.66 [a]	5(0-25)	25.82 ± 17.49 [a]	22(0-80)
p value		0.961*		**0.001***		**0.011***	
How Do You Connect to the Internet?	Home	6.5 ± 3.05	5(0-25)	6.2 ± 3.21	5(0-25)	23.6 ± 15.76	21(0-80)
		6.7 ± 3.16	5(0-25)	6.35 ± 3.8	5(0-25)	25.59 ± 16.92	23(0-80)
	Mobile Phone	6.18 ± 2.57	5(2-25)	5.8 ± 2.65	5(0-25)	26.4 ± 18.44	23(0-80)
	Tablet	6.8 ± 2.56	6(3-15)	6 ± 1.9	5(5-15)	26.48 ± 18.23	26(0-80)
	Computer	7.23 ± 3.72	5(5-18)	6.38 ± 3.18	5(5-14)	29.46 ± 21.79	31(4-80)
p value		0.053**		0.139**		0.063**	
Is your internet usage supervised?	Yes	6.4 ± 2.7	5(0-25)	5.99 ± 2.7	5(0-25)	24.15 ± 16.43	21(0-80)
	No	6.6 ± 3.24	5(0-25)	6.31 ± 3.61	5(0-25)	24.91 ± 16.74	22(0-80)
p value		0.884*		0.641*		0.224*	
How often do you use the internet?	Always	6.9 ± 3.52 [a]	5(4-25)	7.23 ± 4.66 [a]	5(0-25)	27.19 ± 18.45	23(0-80)
	> 3 hours online daily	6.66 ± 3.16 [a]	5(2-25)	6.23 ± 3.08	5(0-25)	26.13 ± 15.18	24(0-80)
	2-3 hours online daily	6.36 ± 2.78	5(0-25)	5.86 ± 2.63	5(0-25)	22.13 ± 15.19 [a]	19(0-80)
	≤ one hour online daily	6 .00± 2.11	5(0-18)	5.54 ± 1.8	5(0-19)	23.13 ± 17.43	20(0-80)
	Online every 2-3 days	6.08 ± 2.44	5(0-15)	5.21 ± 0.96	5(0-8)	23.58 ± 13.24	22.5(2-80)
	Once a week	6.30 ± 2.2	5(4-13)	5.38 ± 0.92	5(5-9)	26.68 ± 22.58	21(0-80)
	Rarely	6.82 ± 3.59	5(5-25)	5.69 ± 2.72	5(5-25)	27.42 ± 17.41	23(0-80)
p value		**0.007****		**0.001****		**0.001****	

Superscripts ([a,b,c]) show the differences within the group. There is no difference in the measurement that takes place with the same letters. SD: Standard Deviation; M: Median; Min: Minimum; Max: Maximum; BDI: Beck Depression Inventory; *: Mann-Whitney U Test; **: Kruskal-Wallis Test.

factor loadings obtained through exploratory factor analysis (EFA). EFA helps uncover hidden patterns or "factors" among a group of related items, trimming things down to the core ideas. The results backed up the tools' reliability and showed that they were valid in terms of structure.

Statistical Analyses

All statistical analyses were performed using SPSS version 25 (SPSS Inc., Chicago, IL, USA). First, the Kolmogorov–Smirnov test was run to see if the data followed a normal curve. Depending on how the data were spread out, results were shown as mean ± standard deviation or as median with the lowest and highest values included.

To check for differences between the two separate groups, the researchers used the Mann–Whitney U test. If they needed to compare more than two groups, they used the Kruskal–Wallis test. Furthermore, when this test showed a significant result, they followed up with a post hoc test using the Bonferroni correction to keep things accurate and avoid false positives.

To understand how the different scale scores were related to each other, Pearson's correlation coefficient was used. Any p-value below 0.05 was seen as a sign that the result was statistically significant.

RESULTS

A comparison of the test scores and demographic data of the students participating in the study is presented in Table 3. The female BDI score was significantly higher than that of the males, and the male bullying scale score was significantly higher than that of the females (p=0.001). The BDI scores of those in the tenth grade were significantly higher than those in the ninth grade. The BDI score of those who attended public school was significantly higher than those who attended private school. The bullying scale scores of those with more than four siblings were significantly lower than those with one or three siblings. The BDI score of those with more than four siblings was higher than that of those with two or three siblings, and the BDI score of those with one sibling was higher than that of those with two siblings. The bullying scale scores of those whose mothers were master's/doctoral graduates were higher than those whose mothers were illiterate. The BDI score of those whose mothers were master's/doctoral graduates and whose mothers were university graduates was significantly lower than that of others. The bullying scale scores of those whose fathers were university graduates and whose fathers were masters/doctoral graduates were higher than those whose fathers were primary school graduates. The BDI scores of those whose fathers were university graduates and whose fathers were masters/doctoral graduates were significantly lower than those of the other groups. There was no significant difference in terms of other parameters and test scores.

The relationships between the test scores, computer use, and internet habits of the students participating in the study are presented in Table 4. The bullying scale scores of those who had more than one computer at home were significantly higher than those who had one computer at home. As the number of computers at home increased, the BDI score decreased significantly. The bullying scale scores were higher among those who had a personal computer than those who did not, those who had a personal mobile phone than those who did not, those who had a personal tablet than those who did not, and those who had an internet connection compared to those who did not. BDI scores were lower among those who had a personal computer than those who did not, those who had a personal mobile phone than those who did not, those who had a personal tablet than those who did not, and those who had an internet connection compared to those who did not. The bullying scale score of those who were constantly connected to the Internet was significantly higher than that of the other groups who were connected to the Internet for less than 3 hours a day. The BDI score of those who were constantly connected to the internet and who were connected for more than 3 hours was higher than those who were connected for 2-3 hours a day and less than an hour a day. No significant difference was observed in terms of other parameters and test scores.

Correlations and regression analysis between test scores are given in Table 5 and 6. There were low positive correlations between BDI and bullying scale and being bullied scale scores. There was a moderate positive correlation between bullying and being bullied scale scores.

Table 5. Examining the relationships between scale scores by correlation analysis

Points	Value	BDI	Cyberbullying
Cyberbullying Victimization	r	0.265	0.392
	p	**0.001**	**0.001**
Cyberbullying	**r**	0.247	
	p	0.043	

r: Pearson correlation analysis; p: Statistical significance; BDI: Beck Depression Inventory.

Table 6. Regression analysis of the relationship between scale total scores in groups

Dependent	Independent	R^2	F test	p_1 value	β_1	t- test	p_2 value
BDI	**Still**	0.028	28.189	0.001*	**18.978**	**19.357**	**0.001***
	Stop by				**0.968**	**7.223**	**0.001***
	To do				−0.118	−0.946	0.344

BDI: Beck Depression Inventory; R^2 : Explanatory Coefficient; **p_1<0.05: F test result for the significance of the model; β_1: Non-standardized regression coefficients; *p_2<0.05: t test result for the significance of the regression coefficients.

DISCUSSION

In this study, the internet use and related cyberbullying, cyberbullying victimization and BDI scores of 1,985 high school students in Diyarbakir, Turkiye were evaluated. BDI scores were higher for women than for men, for those who studied in public schools than for those who studied in private schools and for those whose mothers and fathers had lower education levels than those who did not. Additionally, those who did not own a personal computer, tablet, phone, or internet had higher BDI scores than those who did. Moreover, a positive

significant relationship was determined between exposure to cyberbullying and BDI scores.

Extensive research has consistently linked bullying involvement—whether as a victim, perpetrator, or both—to adverse mental health outcomes and reduced life satisfaction (16-18). Victims of bullying frequently display internalizing symptoms such as anxiety, depression, fearfulness, and social withdrawal, whereas perpetrators tend to exhibit externalizing behaviours including aggression, delinquency, and impulsivity (19-21). Adolescents who occupy dual roles—as both bullies and victims—appear to be at even greater psychological risk, showing elevated levels of both internalizing and externalizing problems (22).

The rise in cyberbullying has paralleled the increasing integration of internet technologies into the daily lives of adolescents, particularly those belonging to Generation Z (23). A cross-national analysis involving over 180,000 adolescents from 35 countries found that individuals from cultures valuing self-expression reported lower rates of bullying behavior, while all forms of bullying exposure were associated with decreased quality of life (24). Evidence suggests that adolescents who experience cybervictimization may respond through avoidance, denial, or even retaliatory bullying (25). Moreover, cybervictimization has been linked to elevated risks of stress, substance abuse, low self-esteem, suicidal ideation, and feelings of shame or rage (26). In alignment with these findings, our study identified a significant positive correlation between cyberbullying exposure and depressive symptomatology, as measured by BDI scores. These results underscore the necessity of implementing educational and clinical interventions that promote adolescent awareness of cyber aggression and ensure access to appropriate psychiatric care.

Understanding the factors that influence both cyberbullying perpetration and victimization is essential for designing targeted interventions. Although some research has suggested that girls are more frequent victims and boys more often perpetrators of cyber aggression (27), other studies indicate a more nuanced picture. For instance, while Cook et al. and Slonje and Smith reported no significant gender differences in exposure, Guo and Unver & Koc noted that males may demonstrate higher levels of perpetration (8, 28-30). In contrast, other analyses, including those by Yigit et al. and Kowalski et al., found mixed or inconclusive patterns (2, 31). A recent meta-analysis highlighted gender as a moderate factor in predicting cyberbullying, with males tending to engage more in perpetration and females being more susceptible to victimization . In our study, male students were significantly more likely to engage in cyberbullying behaviors than females, which aligns with previous findings in the Turkish context. However, no gender-based difference was observed in cyberbullying victimization. Similarly, age was not found to significantly influence bullying dynamics, consistent with studies limited to adolescent populations (32, 33).

Another noteworthy finding of our study relates to the influence of sibling numbers on cyberbullying dynamics. Prior work by Chen et al. suggested that sibling presence may offer a protective buffer against online aggression, possibly due to emotional or digital peer support (34). Supporting this, Cagirkan and Bilek reported lower cyberbullying scores among students with two or more siblings (35). In our analysis, students with four or more siblings exhibited significantly lower bullying scale scores than those with fewer siblings. However, the BDI scores presented a more complex picture: while students with no siblings had the highest depression scores, even those with more than four siblings showed elevated BDI scores compared to students with two or three siblings. This suggests that while a greater number of siblings may be associated with reduced cybervictimization, it does not uniformly buffer against depressive symptoms. The inverse relationship observed between depression severity and the number of siblings—especially in single-child households—may reflect additional psychological vulnerabilities associated with isolation or reduced familial interaction.

Prior research has consistently demonstrated that owning personal electronic devices and engaging in prolonged internet use are key predictors of increased exposure to cyber aggression (2, 36). A Turkish study noted that adolescents who possess a computer at home and use it for leisure activities tend to have higher levels of both cyberbullying perpetration and victimization. Similarly, adolescents who spend more than four hours online daily or engage in internet use after 11:00 p.m. have been reported to score significantly higher on cyberbullying-related scales (29, 37).

Cagirkan and Bilek further observed that students with their own mobile phones and private internet access are more likely to engage in cyberbullying (35). Our findings are in alignment, indicating that adolescents with access to personal devices (computers, tablets, and smartphones) and unrestricted internet connectivity reported higher levels of perpetration. Interestingly, no statistically significant association was observed between device ownership and cybervictimization. Moreover, frequent and extended internet usage—exceeding two to three hours per day—was associated with elevated scores in cyberbullying, victimization , and depressive symptoms (as measured by the BDI).

Adolescents often refrain from reporting negative online experiences to their parents, fearing restrictions on internet access or mobile phone use (25). This lack of disclosure undermines parental control efforts. Korkmaz reported that approximately half of adolescents use the Internet without supervision and that unsupervised youth are significantly more prone to engage in cyberbullying (38). Dehue et al. also found that many parents remain unaware of their children's experiences with cyber aggression (39). Although our study did not establish a significant relationship between parental internet monitoring and cyberbullying outcomes, this may reflect a broader pattern of inadequate digital oversight and limited parental awareness.

CONCLUSION

The findings of this study demonstrate a significant positive correlation between depressive symptom severity, as measured by the BDI, and both cyberbullying perpetration and victimization scores. Furthermore, a statistically meaningful relationship was identified between being a victim of cyberbullying and subsequently engaging in perpetration, indicating that victims may transition into offenders over time.

These results highlight the cyclical and escalating nature of cyber aggression among adolescents, underscoring the urgent need for comprehensive preventive strategies. Protecting vulnerable youth from cyber violence and interrupting the victim-to-perpetrator trajectory requires a multifaceted approach. Educational initiatives should emphasize digital literacy, personal rights, privacy protections, and responsible online behavior from an early age. Moreover, national legal frameworks must be promptly updated to address violations related to online harassment and infringement of digital freedoms.

Ethics Committee Approval	Ethics Committee Approval: Ethical approval for this study was obtained from the Clinical Research Ethics Committee of Dicle University, dated 15.12.2021 and numbered 494.
Peer-review	Externally peer-reviewed.
Author Contributions	Conception/Design of Study – C.U., O.P., N.G.D.; Data Acquisition – C.U., Z.Y., H.A., T.C., F.I.; Data Analysis/Interpretation – C.U., F.I., Drafting Manuscript – C.U., O.P., T.C.; Critical Revision of Manuscript – C.U., O.P.; Final Approval and Accountability – C.U., T.C., N.G.D., Z.Y., H.A., M.A., F.I., O.P.
Conflict of Interest	The authors declare no conflict of interest.
Financial Disclosure	The authors declare that they received no financial support for this study.

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