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International Journal of Psychology and Educational
Studies

ISSN: 2148-9378



Cyber Bullying and Victimization among University Students*

Mesut GÖNÜLTAŞ¹

¹ Department of Guidance and Counseling, Ege University, İzmir, Turkey  0000-0001-5574-5307

ARTICLE INFO

Article History

Received 24.02.2021

Received in revised form

16.01.2022

Accepted 02.02.2022

Article Type: Research

Article

ABSTRACT

The study aimed to reveal the prevalence of cyber bullying and victimization among university students and to analyze whether levels of cyber bullying and victimization in students can be differentiated according to the level of problematic Internet use. Moreover, the study intended to examine the relationships between gender, year level, and level of income and cyber bullying and victimization. The team recruited 863 university students enrolled at different departments of Ege University, during academic year 2017–2018. The Revised Cyber Bullying Inventory, Problematic Internet Usage Scale (PIUS), and Demographic Information Form were used for data collection. Multiple linear regression analysis and the Kruskal–Wallis H-test were used for data analyses. Results indicated that cyber bullying and victimization are common problems among university students with prevalence rates of 57% and 68%, respectively, among students in the current sample. The findings demonstrated that levels of cyber bullying and victimization differed based on gender and level of income. However, no significant relationship was observed with year level. Additionally, the “negative consequences of the Internet” and “social comfort,” which are two subscales of PIUS, predicted the prevalence of cyber bullying and victimization. Excessive usage, the third subscale, did not predict any variable. Considering the findings obtained from this study, further research on university students and adults is suggested. Moreover, preventive measures to secure the Internet should be considered to prevent cyber bullying. Specifically, developing intervention programs for cyber victims is necessary to mitigate the negative effects.

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Keywords:

Cyber bullying, cyber victimization, problematic Internet use, gender differences

1. Introduction

In recent years, large audiences have used electronic devices with the rapid advancement of technology. Especially, communication tools that provide Internet access have become an important part of life. The Internet, which is one of the most important means of communication, is used by 59% of the world population. Moreover, this rate can reach 95% in developed countries (Internet World Stats, 2022). The advantages of the Internet play an important role in such intensive use. The Internet facilitates life in many aspects, such as communication, business, and shopping. Despite these conveniences, limited control in the virtual environment creates certain disadvantages and leads to the problematic use of the Internet. One of the harmful activities caused by such disadvantages is cyber bullying, where traditional bullying takes place in the virtual world (Aricak, 2009).

Cyber bullying, which typically occurs on websites and social media platforms, causes problems, such as fear, sadness, anger, self-harm, academic failure, and low self-esteem in victims (Kalender et al., 2019). Cyber bullying and victimization are widely noted among young people. Particularly, university students are at a risky position for cyber bullying as they can easily access the Internet and communicate more in the virtual environment compared with other age groups due to the frequent use of smart-phones, computers, and the

*This article was produced from Mesut Gönültaş's master thesis.

¹Corresponding author's address: Faculty of Education, Ege University, Bornova/İzmir/Turkey

e-mail: mesut.gonultas@ege.edu.tr

Citation: Gönültaş, M. (2022). Cyber bullying and victimization among university students. *International Journal of Psychology and Educational Studies*, 9(2), 297-307. <https://dx.doi.org/10.52380/ijpes.2022.9.2.441>

Internet (Young, 2004; Qudah et al., 2020). Therefore, addressing the cyber bullying experiences of university students with a consideration of possible negative consequences is necessary. In addition, examining problematic Internet use, which is deemed related to cyber bullying and victimization, is expected to contribute to the understanding of cyber bullying.

Theoretical framework: Cyber bullying and victimization

Hinduja and Patchin (2008) defined cyber bullying as damaging behavior conducted deliberately and repetitively through electronic texts, whereas Cénat et al. (2021) pertains to cyber victimization as being intentionally harmed by others through communication technologies. Shariff (2005), who described cyber bullying as a covert form of bullying through communication, stated that cyber bullying has three main features:

- Anonymity (being able to hide the identity of the bully);
- Large numbers of people can participate in bullying;
- Frequent involvement of sexual harassment.

Various studies have focused on cyber bullying as it poses risks to individuals from all age groups. Such studies have revealed that cyber bullying and victimization range between 1.2% and 58% and between 1% and 68%, respectively, in terms of frequency (Leung et al., 2018; Kowalski et al., 2019). Although the findings in the literature regarding the prevalence of cyber bullying by gender are inconsistent, one of the frequent conclusions is that males are more likely to conduct cyber bullying (Qudah et al., 2019), whereas females are more likely to experience cyber victimization (Heiman & Olenik-Shemesh, 2015).

Behaviors related to cyber bullying lead to serious psychological, social, and emotional impacts on victims. Being a victim in the virtual environment can result in low levels of self-esteem, depression, anxiety, and loneliness (Beran & Li, 2005; Hinduja & Patchin, 2009). Furthermore, the negative effects of cyber bullying are not only limited to the psychological and emotional dimensions but can also lead to behavioral changes in victims. Various studies indicate that cyber victims incur more absences in school (Bauman & Newman, 2013), use more alcohol and cigarette (Mesch, 2009), drop out and bring guns to school (Ybarra et al., 2007), and commit suicide (Kirby, 2008). Moreover, not only victims but also individuals who engage in cyber bullying and witness such incidents can face negative consequences (Kalender et al., 2019). As in the current study, in studies investigating cyberbullying among Turkish university students, Akbulut and Eristi (2011) concluded that males do more cyberbullying. Turan et al. (2011) found that 59.8% of university students were exposed to cyberbullying.

Problematic internet use

The compulsive use of the Internet in a manner that leads to conflicts in important aspects of life and difficulty in establishing limitation on its use is referred to as problematic Internet use (Kim & Davis, 2009). Individuals with this tendency frequently overuse the Internet, want to increase usage time, and thus face negative consequences. Social isolation, academic failure, and physical and mental fatigue are a few examples of such outcomes (Block, 2008). The Internet provides facilities in daily life, presents opportunities for communication, and is easily accessible, which thus increases time spent online, which is effective in making users dependent on the Internet. Such conveniences and social life render university students one of the groups most at risk to Internet addiction (Ceyhan, 2010). In the literature, the prevalence of problematic internet use varies between 1% and 55% (Sayeed et al., 2021). Studies noted the damaging effect of problematic internet use on mental health (Lam, 2014) and academic performance of youngs (Khan et al., 2016).

In summary, cyber bullying has posed risks to all Internet users and has been particularly prevalent among the youth. Research on cyber bullying has been conducted mainly on students in the middle and high school levels (Kowalski et al., 2019). Therefore, the experiences of university students with cyber bullying, which is one of the groups most at risk for problematic Internet use, have gained importance. As it reveals the level of cyberbullying among university students, it is considered that this study will shed light on the intervention programs to be developed. Against this background, the current study aims to investigate the prevalence of cyber bullying and victimization among university students and to analyze whether the levels of the two concepts experienced by students differ according to the level of problematic Internet use. Another objective

of the study is to examine the relationships between gender, year of study, and level of income and cyber bullying and victimization. In this context, the study aims to answer the following questions:

- a) What are the prevalence rates of cyber bullying and victimization among university students?
- b) Can the level of problematic Internet use predict cyber bullying and victimization occurrence among students?
- c) Do the level of cyber bullying and victimization among university students vary by gender, grade level, and income level (that of the parents)?

2. Methodology

2.1. Research Design

The study is descriptive in nature, that is, it intends to reveal the current situation of a subject. The correlational survey method was used to obtain quantitative data.

2.2. Research Sample

The study recruited students from Ege University during academic year 2017–2018. The stratified sampling method was used for selection. First, participants from various academic fields, such as Educational Sciences, Health Sciences, Social Sciences, and Natural Sciences were considered for selection. Afterward, the cluster sampling method was used to select the departments. According to the ratios of academic departments in the university, 297, 116, 129, 170, and 151 students were selected from the Department of Literature, Department of Education, Department of Science and Pharmacy, and Department of Engineering, respectively. A total of 863 students volunteered (after excluding 82 with missing or incorrectly answered items). The respondents were grouped according to gender (female = 634 [73%]; male = 229 [27%]), year level (first year = 226 [31%]; second year = 194 [22%]; third year = 214 [25%], fourth year = 189 [22%]); and income level (low = 63 [8%], medium = 758 [87%], and high = 42 [5%]).

2.3. Data Collection Tools and Procedure

Revised Cyber Bullying Inventory (RCBI): Erdur-Baker and Kavşut (2007) first developed the inventory, which was later revised by Topcu and Erdur-Baker (2010). The study on the validity and reliability of the scale was conducted on 358 participants with ages ranging from 13 to 21 years. The inventory, which consists of two parallel forms, namely, cyber bullying and victimization, features 14 items each for both forms (a total of 28 items) and is rated using a four-point Likert-type scale. The lowest score for both forms is 14, whereas the highest score is 56. High scores in the cyber bullying and victimization forms indicate frequent cyber bullying behaviors and frequent exposure to cyber bullying, respectively. The cyber bullying form is collected under a single factor, and the factor loadings of the items vary between .28 and .83. The cyber victimization form is collected in the same manner, and the factor loadings of the items vary between .21 and .78. The internal consistency coefficients for reliability were .82 and .75 for cyber bullying and victimization, respectively.

Problematic Internet Usage Scale (PIUS): The scale was developed by Ceyhan et al. (2007). The measurement tool aims to determine the level of problematic Internet use among university students and includes 33 items rated using a five-point Likert-type scale. The study on its validity and reliability was conducted on 1,658 university students. The scale comprises three sub-dimensions, namely, “negative consequences of the Internet,” “social benefit/comfort,” and “excessive use.” The three factors explained 25.36%, 14.62% and 8.98% of the total variance. Taken together, the factors explained 48.96% of the total variance. It was found that the scale was able to discriminate problematic internet use concerning the time spent on the internet and individuals’ perception of themselves as internet addicts. The internal consistency coefficient of the scale was 0.95. Specifically, the internal consistency coefficients of the three factors were calculated as 0.94, 0.85, and 0.75, respectively.

Demographic information form: The researcher prepared the form with nine questions that gather information on the demographics of the participants.

Process: Within the scope of the research, permission was obtained from the authors of the scales used, and approval of the study protocol was granted by the Ethics Committee of the university. Thereafter, RCBI, PIUS, and the Demographic Information Form were administered to the participants. Before administration, the

researcher introduced himself to the students and informed them about the data collection tools. The students were verbally reminded that participation is voluntary. Questions about the tools were answered during the administration. The scales took approximately 25 min to complete.

2.4. Data Analysis

Multiple linear regression analysis and multivariate analysis of variance (MANOVA) were used for data analysis. Prior to MANOVA, the homogeneity of variances was tested using Levene's test, whereas the equality of variance-covariance matrices were tested with Box's M-test. The conditions of MANOVA, which is a parametric type of test, were unmet. Thus, a non-parametric version (the Kruskal–Wallis test) was applied. Furthermore, the Mann–Whitney U-test was used to determine the source of differences. Multiple linear regression analysis was used to analyze problematic Internet use, which is an independent variable.

3. Findings

The findings were categorized according to the abovementioned research questions. Accordingly, descriptive statistics of the data was first presented followed by the findings on the prevalence of cyber bullying among university students. Table 1 provides the minimum and maximum values, means, and standard deviations of the scores.

Table 1. Minimum and Maximum Values, Means, and Standard Deviations

Scales	n	Min.	Max.	X	SD
RCBI—Cyber Bullying	863	14.00	53.00	17.33	5.23
RCBI—Cyber Victimization	863	14.00	47.00	18.46	5.73
Problematic Internet Use					
Negative Consequences of the Internet	863	17.00	85.00	31.35	12.58
Social Benefit/Comfort	863	10.00	50.00	19.11	7.74
Excessive Use	863	6.00	30.00	20.22	5.12

Table 1 indicates that the respondents reached an average of 17.33 for cyber bullying and 18.46 for cyber victimization. In other words, the participants have higher cyber victimization scores than cyber bullying. For the PIUS, the average scores are 31.35 (± 12.58), 19.11 (± 7.74), and 20.22 (± 5.12) for the negative consequences of the Internet, social benefit/comfort, and excessive use, respectively. Table 2 presents the data on the prevalence of cyber bullying and victimization among students, their experiences with cyber bullying, and their role in cyber bullying.

Table 2. Prevalence Rates of Cyber Bullying and Victimization and Roles of Students in Cyber Bullying

	Groups	n	%
Cyber bullying	Involved	492	57.1
	Uninvolved	371	42.9
Cyber Victimization	With experience	584	67.67
	Without experience	279	32.33
Bully/Victim	Yes	422	48.89
	No	441	51.11
Participation in Cyber Bullying Incidents	Yes	654	75.78
	No	209	24.22
Total		863	100

Table 2 presents that 57% of the students have committed cyber bullying at least once in the previous six months (In the scale it is asked whether the behavior has been done in the last six months). A total of 68% of the students have been exposed to cyber bullying at least once, whereas 49% have been bullies/victims. Furthermore, 76% were involved in cyber bullying incidents, whereas 24% were never involved.

Multiple linear regression analysis was conducted to determine the extent to which the subscale scores for the PIUS can predict the cyber bullying and victimization scores of the respondents.

Table 3. Means, Standard Deviations, and Mutual Correlation Values (N = 863)

Variable	X	SD	1	2	3
Cyber Bullying	17.34	5.24	.348*	.351*	.235*
Predictor Variables					
1.Social Benefit	19.11	7.75	–	.725*	.471*
2.Negative consequences of the Internet	31.35	12.60		–	.666*
3. Excessive Use	20.22	5.12			–

* $p < .05$

The results indicate that the two subscales of the PIUS ($F(3,854) = 46.96; p < .05$), namely, social benefit/comfort and negative consequences of the Internet, can significantly predict cyber bullying. Table 4 provides the results of the multiple linear regression analysis of the predictor variables.

Table 4. Results of Multiple Linear Regression Analysis for Social Benefit/Comfort, Negative Consequences of the Internet, and Excessive Use (Cyber Bullying; N = 863)

Variables	B	Standard Error	β
Social Benefit/Comfort	.132	.031	.196*
Negative Consequences of the Internet	.085	.023	.205*
Excessive Use	.006	.043	.006
Constant	12.02	.699	

$R^2 = .14; F(3,854) = 46.96, *p < .05$

Exposure to the negative consequences of the Internet and using the Internet for its social benefit/comfort contribute significantly to the prediction of the levels of cyber bullying among students. Table 5 provides the means, standard deviations, and mutual correlations between cyber victimization and the subscales of the PIUS.

Table 5. Means, Standard Deviations, and Mutual Correlation Values (N = 863)

Variable	X	SD	1	2	3
Cyber Victimization	18.48	5.73	.335*	.333*	.204*
Predictor Variables					
1.Social Benefit/Comfort	19.11	7.75	–	.725*	.471*
2.Negative Consequences of the Internet	31.35	12.60		–	.666*
3. Excessive Use	20.22	5.12			–

The finding indicates that cyber victimization can be significantly predicted by two subscales which are social benefit and negative consequences of the Internet ($F(3,854) = 38.71; p < .05$). Table 6 displays the results of multiple linear regression analysis.

Table 6. Summary of Multiple Linear Regression Analysis for Social Benefit/Comfort, Negative Consequences of the Internet, and Excessive Use (Cyber Victimization, N = 863)

Variables	B	Standard Error	β
Social Benefit/Comfort	.180	.034	.244*
Negative Consequences of the Internet	.054	.025	.119*
Excessive Use	.011	.048	.010
Constant	13.11	.775	

$R^2 = .12; F(3,854) = 38.71; *p < .05$

An examination of Table 6 reveals that exposure to the negative consequences of the Internet and using the Internet for its social benefit/comfort can significantly predict the cyber victimization levels of students.

To address the third question, the study investigated whether levels of cyber bullying and victimization differ according to demographic variables. First, the Mann–Whitney U-Test was used to examine whether a

significant difference exists in the scores between cyber bullying and victimization by gender. Table 7 presents the results.

Table 7. Mann–Whitney U-test Results on Differences in Scores for Cyber Bullying and Victimization by Gender

Variable	Gender	n	Mean Rank	Rank Sum	U	Z	p
Cyber Bullying	Females	634	397.78	252,195	50900	-6.962	.000
	Males	229	526.73	120,621			
Cyber Victimization	Females	634	407.28	258,216.50	56,921.50	-4.925	.000
	Males	229	500.43	114,599.50			

Table 7 indicates a significant difference between the scores for cyber bullying and victimization by gender. That is, males display higher scores for cyber bullying and victimization than females.

Additionally, the Kruskal–Wallis test was used to determine whether a significant difference exists in the scores for cyber bullying and victimization according to year level. Table 8 presents the results.

Table 8. Differences in Scores for Cyber Bullying and Victimization by Year Level (Kruskal–Wallis Test)

Variable	Grade Level	n	Rank Sum	SD	χ^2	p
Cyber Bullying	1	266	459.10	3	6.062	.109
	2	194	431.06			
	3	214	422.90			
	4	189	405.12			
Cyber Victimization	1	266	461.74	3	5.799	.122
	2	194	423.36			
	3	214	414.03			
	4	189	419.37			

Table 8 reveals no significant difference in the scores for cyber bullying ($\chi^2 = 6.062$; $p > .05$) and victimization ($\chi^2 = 5.799$; $p > .05$) according to year level. Further analysis of the scores according to level of income was conducted using the Kruskal–Wallis Test (Table 9).

Table 9. Differences in Scores for Cyber Bullying and Victimization by Level of Income (Kruskal–Wallis Test)

Variable	Level of Income	n	Rank Sum	SD	χ^2	p
Cyber Bullying	Low	63	470.23	2	9.776	.008
	Middle	758	421.50			
	High	38	532.84			
Cyber Victimization	Low	63	453.12	2	11.882	.003
	Middle	758	421.66			
	High	38	557.96			

The results indicate that the scores for cyber bullying ($\chi^2 = 9.776$; $p < .05$) and victimization ($\chi^2 = 11.882$; $p < .05$) differed significantly based on income level. Thus, the Mann–Whitney U-test was employed to determine further in which groups this difference occurred (Table 10).

Table 10. Differences in Scores for Cyber Bullying and Victimization by Level of Income (Mann–Whitney U-test)

Variable	Level of Income	n	Mean Rank	Rank Sum	U	Z	p
Cyber Bullying	Middle	758	397.57	298,323	1,0662	-2.808	.005
	High	38	496.92	18,883			
Cyber Victimization	Low	63	46.45	2,926.50	910.50	-2.023	.043
	High	38	58.54	2,224.50			
Cyber Victimization	Middle	758	392.46	297,487	9,826	-3.362	.001
	High	38	518.92	19,719			

According to the results of the Mann–Whitney U-test, a significant difference exists between the middle- and high-income student groups in terms of level of cyber bullying. The high-income student group displayed higher scores for cyber bullying than the middle-income student group. Moreover, the high-income student

group produced significantly higher scores for cyber victimization compared with the middle- and low-income student groups.

4. Conclusion and Discussion

The study explored the prevalence of cyber bullying and victimization among university students, the power of problematic Internet use in predicting cyber bullying and victimization, and whether cyber bullying and victimization differ according to demographic variables. The findings revealed that the rates of cyber bullying and victimization and involvement in cyber bullying can reach 57%, 68%, and 76%, respectively, among university students. Based on these results, the study inferred that cyber bullying is a common problem among university students. In fact, a previous research on university students revealed that cyber bullying is widespread. Faucher et al. (2014) found that the rates of cyber bullying and victimization among college students are 5.1% and 24.1%, respectively. Other studies reported various rates. Byrne (2021) found the cyber victimization rate at 58.4%, whereas Dilmaç (2009) calculated the cyber bullying rate at 22.5% and victimization rate at 55.3%. Although the rates in these findings differ, the results are in line with those of the present study and support the view that cyber bullying is a major problem among university students. Alternatively, several reasons can explain the difference in the rates. That is, such differences may be noted in terms of the frequency of performing an action and its duration (for example, many studies consider a one-time act sufficient to be considered cyber bullying, whereas other studies prefer repeated occurrences of an act). Furthermore, the prevalence rates of cyber bullying and victimization vary due to the use of different measurement tools and research methods and diversity in the socio-cultural characteristics of the participants.

The findings with regard to the second research question revealed that the scores for cyber bullying and victimization were significantly correlated with social benefit/comfort and the negative consequences of the Internet, which are subscales of the PIUS. Similar studies on these variables concluded that they are related (Feijóo et al., 2021; Gámez-Guadix et al., 2013; Jung et al., 2014; Zsila et al., 2018;). Conversely, differences in naming problematic Internet use exist in the literature, and concepts, such as Internet addiction and pathological Internet use, are used instead of the one presented in the current study (Huan et al., 2014; Spada, 2014). Such studies obtained results parallel to those of the current research.

Reviewing the literature, the study inferred that problematic Internet use as a predictor of the levels of cyber bullying and victimization is an expected result. The reason for this notion is that the literature stated that spending a substantial amount of time on the Internet increases the risk of problematic use (Akdağ et al., 2014), and individuals who use the Internet more frequently are more involved in cyber bullying incidents (Park et al., 2014). In addition, problematic Internet users and cyber bullies displayed certain symptoms, such as low self-esteem, shyness, loneliness, and low levels of social support (Calvete et al., 2010; Caplan, 2003; Huan et al., 2014; Patchin & Hinduja, 2010). Consequently, their ability to use technological tools are more advanced than others (Hinduja & Patchin, 2008; Morahan-Martin & Schumacher, 2000). The existence of such similarities strengthens the view that cyber bullies and problematic Internet users display similar characteristics as individuals.

The current findings on demographic variables revealed that levels of cyber bullying and victimization among university students differ significantly by gender. Specifically, males engage more in the act of cyber bullying, whereas they experience more occurrences of cyber victimization than females. This finding overlaps with those of many studies in the literature (Arıcak et al., 2008; Erdur-Baker & Kavşut, 2007; Li, 2006; Wang, Wang & Lei, 2021). Alternatively, the results of the current study differ from those of other researchers (Patchin & Hinduja, 2006; Slonje & Smith, 2008), who reported no significant differences in cyber bullying by gender. Although such studies obtained different results, a predominant finding is that cyber bullying is more common among males. The literature justified this tendency by stating that males are more prone to violence and aggression (Ayas & Piskin, 2011), perform bullying more (Dölek, 2002), and display low levels of sensibility toward cyber bullying (Kınay, 2012) compared with females. In addition, males spend more time on the Internet (Bayraktar & Gün, 2007), use the Internet more in a problematic manner, and reveal higher rates of Internet addiction (Yılmaz et al., 2014). Lastly, the fact that the Internet is easily accessible and emphasizes ability to use rather than physical strength (Patchin & Hinduja, 2006) may lead to a decrease in gender differences.

The determining roles of year level and age variables on individual levels of cyber bullying and victimization have frequently been the subject of research. Similar to the finding of the current study, several studies stated that age/year level exert no difference in cyber bullying (Smith et al., 2006; Patchin & Hinduja, 2006). However, certain studies concluded that cyber bullying indicated a significant difference in age/year level (Slonje & Smith, 2008; Wade & Beran, 2011). As is known, cyber bullying can be observed in all age groups. This notion can be explained not only by the widespread use of communication tools but also by ease of use. Communication tools are necessary; as such, engaging in cyber bullying is becoming easier over time.

Findings related to income level revealed that individuals with high levels of income are the group most at risk to cyber bullying. Furthermore, many studies concluded that the levels of cyber bullying and victimization increase with the increase in the level of income (Firat & Ayran, 2016). Deniz (2015) suggested that this result is related to increased access to means of communication with the increase in income level. Similarly, Syts (2004) proposed that socio-economic level is related to the frequency of using communication tools, which indirectly influences cyber bullying. Apart from these factors, low-income university students frequently have to work, which can be considered another reason for the difference in income level in relation to cyber bullying. In this case, a student's probability of becoming involved in cyber bullying incidents will decrease in line with time spent on the Internet. Lastly, Internet-based communication tools can now be used by everyone and such increased access to the Internet has reduced the differences in income level (Erdur-Baker & Kavşut, 2007).

5. Limitations and Recommendations

The current study has its limitations. First, the sample does not show a balanced distribution in terms of gender (634 females, 229 males) and income level (low = 63, middle = 758, and high-income = 42). Future studies should consider a sample with a more balanced distribution of these variables. Second, only quantitative data were collected, which is similar to the vast majority of research on the subject. Nevertheless, qualitative data can be used to shed light better on participants' experiences with cyber bullying. Research on cyber bullying is mainly conducted on adolescents with secondary and high school education. However, the current and other studies on university students suggest that not only adolescents but also older age groups consider cyber bullying a problem. As such, further research on university students and adults is recommended. Finally, preventive measures to secure the Internet should be considered to prevent cyber bullying. Specifically, developing intervention programs for cyber victims is necessary to mitigate the negative effects. In this regard, future studies should examine the effects of these programs. Finally, it is recommended that psychological counselors working in schools and universities should focus on preventive practices related to cyberbullying.

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