Cyberbullying Profiles: Differences in Anxiety, Depression, and Stress in a Sample of Spanish Students

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Abstract

The increased prevalence and significant negative consequences associated with cyberbullying justify the need for empirical research that helps provide a deeper understanding of the problem. The objective of this study was to identify the existence of different cyberbullying profiles (according to degree of cybervictimization and cyberaggression of students) and whether these profiles vary with regard to anxiety, depression, and stress. The sample consisted of 1,185 students aged 12 to 18 ($M = 14.01$; $DT = 2.36$). A latent class analysis and ANOVA were carried out. The data showed four profiles: not-involved (low scores for cybervictimization and cyberaggression), cybervictims (moderately high scores for cybervictimization and low scores for cyberaggression), cyberbullies (low scores for cybervictimization and moderately high scores for cyberaggression), and cybervictims-cyberbullies (high scores for cybervictimization and cyberaggression). Statistically significant differences in anxiety, depression, and stress were found between the profiles. The group of cybervictims and cybervictims-cyberbullies presented higher anxiety than the not-involved group and cyberbullies. The cybervictims-cyberbullies group showed higher depression and stress levels than the other groups, and the cyberbully group showed a higher level of depression than the not-involved group.

Keywords

cyberbullying, anxiety, depression, stress, latent class

Introduction

There are many advantages associated with the rapid progression and development of information technologies and communication in different sectors. However, this has also meant that some of society's problems have been mirrored in the virtual space. As such, bullying in the academic context has been extended to virtual contexts, resulting in what is known as cyberbullying. Cyberbullying is defined as "an aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend themself" (Smith et al., 2008, p. 376). Tokunaga (2010) defines it as any behavior by an individual or group carried out with the intention of causing harm or discomfort to others through the repeated dissemination of hostile or aggressive messages via digital media, particularly cell phones or the Internet. Bullying is no longer limited to the academic context as

it may occur at any time of the day and is characterized by the wide dissemination of bullying.

Previous empirical research has identified different forms of cyberbullying (Kowalski et al., 2012):

- Insults.
- Harassment. Repeat offensive messages sent through email, public forums, text messages, etc.
- Belittling. Derogatory information disseminated through digital media, damaging the reputation of

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the cybervictim, for example, alteration of photos usually with sexual content.

- Impersonation. The bully impersonates the identity of the victim, using their passwords to access their online accounts and send aggressive or cruel messages to other people.
- Exclusion. Not allowing the victim to participate in a specific social network.
- Happy slapping. Physical aggression recorded on video to be disseminated on online networks.

There are various ways a person may cyberbully, depending on the technological skills of the bully and their degree of imagination on how to perpetrate the cyberaggression. These cyberbullying characteristics have meant that research has established different ways of understanding the problem by analyzing different modalities, establishing cut-off points to reach the necessary frequency for cyberbullying to be considered, analyzing whether the student has been a victim of cyberbullying in different time frames (in the last few months, in the last year, at any time during their educational stage), etc. This, together with the different types of methodologies used and the selection of different age ranges has led to widely varying prevalence rates in different studies. As such, meta-analytic studies report prevalence rates ranging between 5% and 40% for cybervictimization and between 10% and 20% for cyberaggression behaviors (Brochado et al., 2017; Modecki et al., 2014; Patchin & Hinduja, 2012).

Three main roles have generally been identified in cyberbullying: the victims, the bullies, and the observers (Garaigordobil & Aliri, 2013; Kokkinos et al., 2014). In addition, a student victim profile has been identified. This profile corresponds to a victim that has become a bully in order to defend themself from attacks, thus giving the name victim-bully (Lee et al., 2021). In general, studies have classified students into different roles according to the different cut-off points determined by standard deviations or a cluster analysis to form groups of perpetrators and victims. The prevalence found for each of the cyberbullying roles changes according to whether the cut-off point established is stricter or more flexible. As a result, some studies use other types of methodologies that allow for this problem to be resolved, for example, using the latent profile analysis (LPA) and the latent class analysis (LCA). These classification methods provide different indices of model fit, allowing for greater accuracy when classifying pupils into groups. An LCA allows for the classification of a group of students with similar and different characteristics and experiences with regard to other groups of students. Schultze-Krumbholz et al. (2015), using an LCA, found that 70.1% of students identified as "not-involved," 26.1%

corresponded to the "bully/victim" profile, and, finally, 4% of students were categorized as "perpetrators with mild victimization." The study was carried out with a sample of 6,260 students (11–23 years) from different European countries and assessed cyberbullying with the European Cyberbullying Intervention Proyect Questionnaire (ECIPQ; Brighi et al., 2012). Betts et al. (2017), using a sample of 440 British students aged 16 to 19, identified four student profiles: "not-involved," "rarely victim and bully," "typically victim," and "retaliator." Recently, Hayes et al. (2021), using a sample of 540 American students aged 16 to 19, identified four pupil profiles through an LPA: Not-Involved (80.7%), Traditional Victim-Only (10.3%), Traditional Aggressor/Victim (4.8%), and Combined Aggressor/Victim (traditional aggression, cyber aggression, and victimization; 4.1%). The authors used the Cyberbullying & Online Aggression Survey Instrument (COASI; Hinduja & Patchin, 2015). The diversity of the results is due, as was the case with prevalence, to the different methodologies used, however, these studies support the identification of different profiles of cyberbullying.

Moreover, the negative consequences associated with the different roles involved in cyberbullying have been widely corroborated (Alonso & Romero, 2020; Campbell & Bauman, 2018; Yang et al., 2021). Although the studies have been mostly focused on the evident consequences for victims, students categorized as perpetrators and victims-bullies also exhibit greater personal, social, and academic maladjustments (Campbell et al., 2013; Kowalski & Limber, 2013; Lee et al., 2021). Generally, victims tend to have internalizing problems (anxiety, depression, stress, helplessness, or loneliness), while bullies tend to present externalizing behaviors (aggressiveness, low empathy, truancy, substance use) (Campbell & Bauman, 2018; Hinduja & Patchin, 2007). However, studies are increasingly showing how participation as a bully is also related to anxiety, depression, stress, and psychosomatic symptoms (Campbell et al., 2013; Estévez et al., 2019). Less attention has been given to the role of the victim-bully with regard to their emotional problems. However, research notes that this group of students may even present increased levels of maladjustment than the group consisting of only victims or the group consisting of only bullies (Fahy et al., 2016; Fisher et al., 2016; Haynie et al., 2001; Lee et al., 2021) as a result of experiencing the negative effects of both types of bullying.

As such, the present study has two objectives. On the one hand, it looks to identify, in a sample of Spanish adolescents, whether the degree of cybervictimization and cyberaggression of students can lead to different implication profiles in cyberbullying. Based on previous empirical research, the following profiles were expected

to be found: (1) a profile with low scores for aggression and victimization; (2) a profile with high scores for victimization and low scores for aggression; (3) a profile with low scores for victimization and high scores for aggression; and (4) a profile with high scores for victimization and aggression. Moreover, once the different cyberbullying profiles had been identified, it was analyzed whether there were significant differences between the profiles in the anxiety, depression, and stress variables.

Methodology

Participants

The sample consisted of 1,256 Spanish students aged 12 to 18 ($M = 14.01$; $SD = 2.36$), of whom 71 (5.6%) were excluded due to errors or omissions in their answers, failure to obtain consent from their parents or guardians, or absence on the day the questionnaires were administered. Therefore, the final sample consisted of 1,185 students (574 boys and 611 girls) who were studying at the compulsory secondary education or Spanish baccalaureate level. The distribution of the students by sex and academic year was as follows: 214 in 7th grade (105 boys and 109 girls), 208 in 8th grade (100 boys and 108 girls), 198 in 9th grade (97 boys and 101 girls), 197 in 10th grade (96 boys and 101 girls), 186 in 11th grade (94 boys and 92 girls), and 182 in 12th grade (92 boys and 90 girls). By means of a Chi-square test, which was used to analyze the homogeneity of the frequency distribution, it was found that there were no statistically significant differences between the sex x course groups ($\chi^2 = 3.84$; $p = .389$).

Instruments

European Cyberbullying Intervention Project Questionnaire (ECIPQ). The identification of cybervictimization and cyberaggression was carried out through the Spanish version of the European Cyberbullying Intervention Project Questionnaire (ECIPQ; Del Rey et al., 2015). The questionnaire consists of two scales: Cybervictimization (11 items) and Cyberaggression (11 items), presenting a Likert scale from 1 to 5 (1 = never; 2 = once or twice; 3 = once or twice a month; 4 = once a week; 5 = more than once a week). Students are asked to report the extent to which they have been victimized or have perpetrated victimization through online media in the last 2 months (excluding others or spreading rumors, receiving or making insults, impersonating someone, being excluded and ignored, or manipulating images). The questionnaire presents appropriate internal consistency indices (Casas et al., 2013). In the present study, the Cybervictimization and Cyberaggression subscale obtained adequate reliability indices (Cronbach's alpha

equal to .88 for Cybervictimization and .83 for Cyberaggression).

Depression, Anxiety, and Stress Scales-21 (DASS-21). DASS-21 consists of 21 items that evaluate three factors (Depression, Anxiety, and Stress). The Depression subscale evaluates dysphoria, hopelessness, sadness, anhedonia, devaluation of life, self-deprecation, and a lack of interest or involvement. The Anxiety subscale evaluates aspects associated with the psychophysiological activation and subjective experiences of anxiety. Finally, the Stress scale evaluates the difference between being relaxed, nervous excitement, agitation, irritability, and impatience. The appropriate psychometric properties of the scale have been widely corroborated (Bados et al., 2005; Crawford & Henry, 2003; Lovibond & Lovibond, 1995). In this study, the reliability of the DASS-21 for the three factors was adequate (Cronbach's alpha of .86, .84, and .76 for Depression, Anxiety, and Stress, respectively).

Procedure

Firstly, permission was requested from the educational centers for the administering of the questionnaires. The students, with prior written authorization from parents or guardians, completed the evaluation instruments collectively in the classrooms. The researchers informed the students about voluntary and anonymous participation. The average administration time of the questionnaires was 10 min for the ECIPQ and 10 min for the DASS-21. The ethics committee of the University granted informed consent for the research to be carried out. Likewise, the ethical principles of the Declaration of Helsinki were considered, respecting the standards with respect to human research.

Statistical Analysis

The identification of cyberbullying profiles was carried out through the Latent Class Analysis methodology (LCA). In accordance with the scores obtained for cybervictimization, cyberaggression, and cybervictimization-cyberaggression, the profiles were established. The students were included in the classes on the basis of the profile presented. The choice of the number of classes that identified a better representation of the data was made using the lowest Bayesian Information Criteria (BIC) and Akaike Information Criterion (AIC) indicator, and the value closest to one for Entropy as fit indices (Schreiber, 2017). ANOVAs were then conducted to test for any differences in anxiety, depression, and stress between the different groups, and the Bonferroni post hoc test was used to analyze between which groups there

were statistically significant differences. Finally, the *d* index (standardized mean difference) (Cohen, 1988) was used to assess the magnitude of these differences. Their interpretation is as follows: $0.20 \leq d \leq 0.50$ supposes a small effect size, while $0.51 \leq d \leq 0.79$ is moderate and $d \geq 0.80$ is large.

Results

Cyberbullying Profiles

Table 1 presents the fit obtained for each model from two to six classes. The four-class model presents greater classification ability and interpretability, in addition to being the model with the best BIC, AIC, and Entropy indicators. The four-class solution consists of four cyberbullying profiles. The first profile classifies 572 students (48.28%; 70% girls and 30% boys) with low scores for cybervictimization (range of scores = 0–6) and cyberaggression (range of scores = 0–5), and therefore this profile has been referred to as "not-involved." The second profile consists of 215 students (18.10%; 69% girls and 31% boys) with moderately high scores for cybervictimization (range of scores = 0–13) and low scores for cyberaggression (range of scores = 0–8), categorizing them as "cybervictims." The third profile, named "cyberbullies" consists of 203 students (17.16%; 39% girls and 61% boys) with low scores for cybervictimization (range of scores = 0–8) and moderately high scores for cyberaggression (range of scores = 0–17). Finally, the fourth profile consists of 195 students (16.46%; 43% girls and 57% boys) who present high scores for cybervictimization (range of scores = 0–19) and cyberaggression (range of scores = 0–15), thus denominating them "cybervictims-cyberbullies" (see Figure 1).

Inter-Group Differences in Anxiety, Depression, and Stress

The ANOVA results showed the existence of statistically significant differences in the three factors evaluated (Anxiety, Depression, and Stress) ($p \leq .001$). Regarding the Anxiety dimension, the post hoc contrasts showed that the students in the cybervictim and cybervictim-cyberbully group scored higher than the not-involved group, with the size of these differences being small in both classes ($d = 0.26$ and $d = 0.33$, respectively). Likewise, these two groups also obtained significantly higher mean anxiety scores than the cyberbully group, again with the size of the differences being small ($d = 0.29$ and $d = 0.34$, respectively). No statistically significant differences in anxiety were found between the not-involved group and the cyberbully group. Regarding the Depression dimension, the cybervictim-cyberbully group presented higher means than the rest of the groups

Table 1. Fit Indices for the Results of Latent Class Analysis.

No. of classes	BIC	AIC	Entropy	Number of parameters
2	1,191.815	1,145.410	0.978	9
3	−1,926.208	−1,998.394	0.922	14
4	**−3,237.956**	**−3,335.923**	**0.965**	**19**
5	−4,365.231	−4,488.979	0.952	24
6	−4,874.212	−5,023.741	0.956	29

Note. Bold: Profile with higher fit level. BIC = Bayesian information criterion; AIC = Akaike information criterion.

analyzed, and these were statistically significant. The size of these differences was moderate with regard to the not-involved group ($d = 0.78$) and cybervictim group ($d = 0.55$), and small with respect to the cyberbully group ($d = 0.46$). Likewise, the cyberbully group presented higher means in depression than the not-involved group, with these means also being statistically significant, but with a small effect size ($d = 0.27$). Similarly, regarding the Stress dimension, the cybervictim-cyberbully group presented higher means than the rest of the groups, with these being statistically significant. In this case, the size of the effect was moderate with regard to the not-involved group ($d = 0.57$) and small with respect to the cybervictim group ($d = 0.35$) and the cyberbully group ($d = 0.34$) (Table 2).

Discussion and Conclusions

The present work had two objectives. Firstly, the different combinations in the scores obtained for cybervictimization and cyberaggression were analyzed to define cyberbullying profiles in a sample of adolescents. It was then checked whether there were statistically significant differences between the profiles obtained with regard to anxiety, depression, and stress. Through an LCA, four different cyberbullying profiles were identified. One group with a profile with low scores for cybervictimization and cyberaggression (not-involved), a second group of students with moderately high scores for cybervictimization and low scores for cyberaggression (cybervictims), a third profile, categorized as cyberbullies with low scores for cybervictimization and moderately high scores for cyberaggression, and finally, a group with high scores for cybervictimization and cyberaggression (cybervictims-cyberbullies). The profiles found are in line with the studies that found the typical cyberbullying roles (Betts et al., 2017; Hayes et al., 2021; Schultze-Krumbholz et al., 2015), although they differ with respect to the composition and percentage of students included in each profile. Similarly, they differ with regard to the score obtained in the hypothesized cybervictimization and
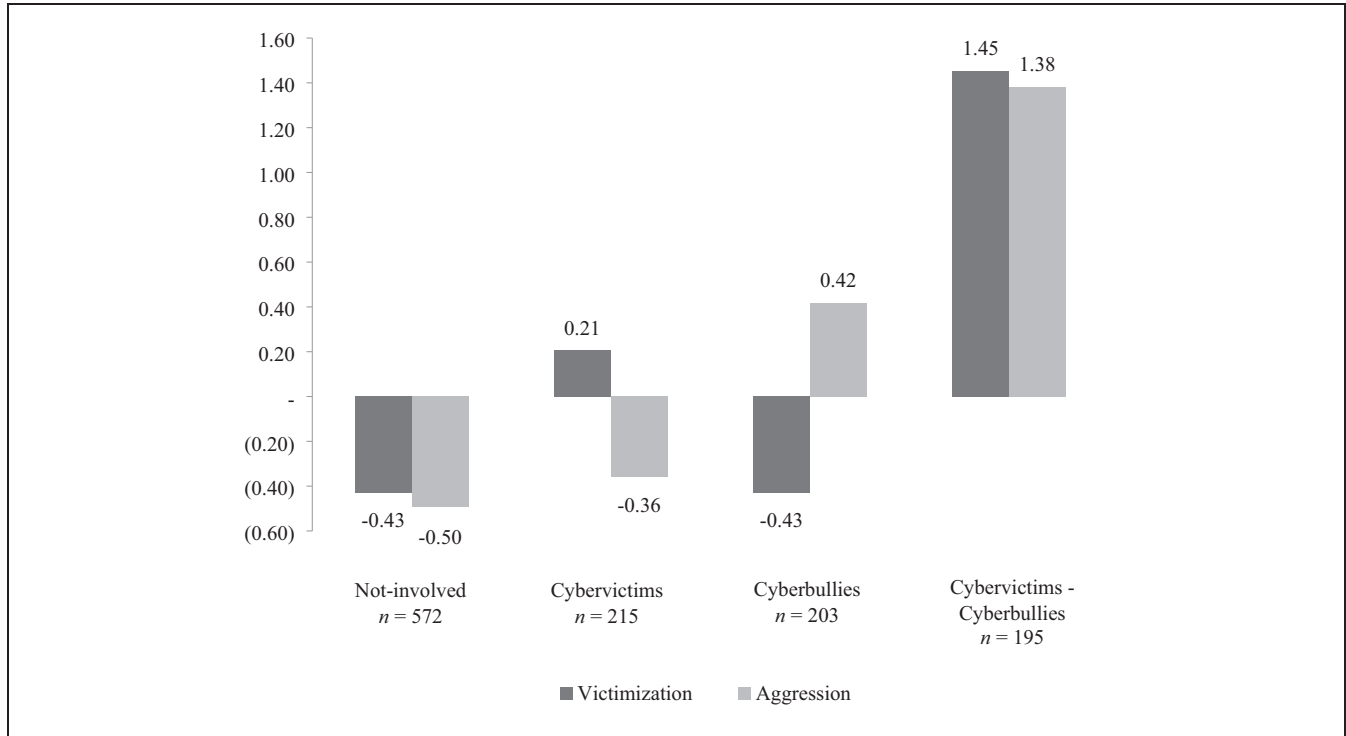
Figure 1. Graphic representation of the LCA solution.

Table 2. Means and Standard Deviations obtained by the Four Groups.

Dimensions	Not-involved		Cybervictims		Cyberbullies		Cybervictims - Cyberbullies		Statistical significance
	M	SD	M	SD	M	SD	M	SD	F
Anxiety	2.42	2.48	3.08	2.67	2.31	2.59	3.29	3.07	8.96
Depression	2.58	2.70	3.03	3.14	3.31	3.19	4.99	3.97	31.78
Stress	4.11	3.40	4.79	3.56	4.85	3.58	6.15	4.01	17.39

cyberaggression (high, moderate, or low), which may partially maintain the starting hypothesis of the present study. The largest difference with regard to other studies is the percentage of students categorized as not-involved. This present study found a much lower percentage of students not involved in cyberbullying (48.28%) than in other studies with similar samples. The majority of studies have indices that vary between 70% and 80% of the not-involved students (Hayes et al., 2021; Schultze-Krumbholz et al., 2015). These differences probably occur because of the different ways of understanding and evaluating cyberbullying, the methodology used, the selection of different age ranges or the different frequencies required to consider that cyberbullying has or has not occurred. Likewise, different studies analyze the phenomenon of school bullying and cyberbullying together, finding higher rates of non-involvement (Hayes et al., 2021; Schultze-Krumbholz et al., 2015). This may

indicate that the probability of suffering attacks through the internet is higher due to the intrinsic characteristics of the medium (anonymity of the aggressor, permanent connectivity, accessibility, and permanence of the information published or victimization extended outside the educational center). The fact that a low percentage of students are classified as not-involved highlights the importance of preventive interventions on digital health in students (Chen et al., 2023).

Moreover, the percentages found for the cybervictim, cyberbully, and cybervictim-cyberbully profiles are similar (between 16% and 18% of the students). The strength of categorizing young people as cyberbullies, cybervictims, cybervictims-cyberbullies, and those not-involved in multiple studies is notable (Estévez et al., 2019; Schreiber, 2017; Schultze-Krumbholz et al., 2015). It is also noteworthy that the victimization and aggression scores for the cybervictim-cyberbully profile are much

higher than those obtained by the profile consisting of only victims and by the profile consisting of only bullies. It is possible that students who are victimized to a greater extent also react more with aggressive behavior in the virtual context.

Regarding the second objective, the results show statistically significant differences between the groups found in the anxiety, depression, and stress variables. These data give validity to the existence of different cyberbullying profiles and help to understand the relationship between cyberbullying and emotional problems. The data indicate that the cybervictim group and the cybervictim-cyberbully group show significantly higher scores for anxiety than the not-involved group and the cyberbully group. These data are in line with the previous studies that note a direct relationship between being a victim or victim-cyberbully and elevated levels of anxiety (Campbell, & Bauman, 2018; Hinduja & Patchin, 2007). Given the transversal nature of the present study, it is not possible to show a causal relationship between victimization and anxiety symptomatology. Previous studies note a bidirectional relationship between both variables in such a way that anxiety may be a consequence of the victimization suffered, but also high levels of anxiety can make people more vulnerable targets for bullying by their peers (Martínez-Monteagudo et al., 2020; Siegel et al., 2009). Suffering cyberbullying may considerably increase the levels of anxiety experienced by the student, but also the student's increased level of anxiety may lead to behaviors and emotional states that may result in socially inappropriate behaviors, low self-esteem, or difficulties in defending themselves against aggression. They may be perceived by their peers as shy and withdrawn, and, therefore, would be at a greater risk of being attacked. In turn, this intimidation may increase their levels of anxiety, thus becoming a vicious circle that is difficult for the bullied student to escape from (Martínez-Monteagudo et al., 2020).

Regarding depression and stress, the cybervictim-cyberbully group presented higher means than the rest of the groups analyzed, with these differences being statistically significant. Various studies have analyzed how victim-bully students present more psychosocial and adjustment problems than the other roles involved in bullying and cyberbullying behaviors, showing both internalizing and externalizing symptoms (Fahy et al., 2016; Fisher et al., 2016; Haynie et al., 2001; Kowalski et al., 2012; Lee et al., 2021). It seems that the wide range of symptoms presented by this group may be the most relevant predictor of a higher degree of emotional distress and psychosocial maladjustment in this group of students. The internalizing symptoms may affect social skills and lead to a lack of self-confidence, which can have an impact on establishing satisfactory and adjusted

relationships with peers, and can result in externalizing behaviors, thus making them bullies (Lee et al., 2021). The present study seems to show how the depression and stress suffered by this group may be a differentiating variable of the group consisting of only cybervictims. It could be said that the combination of anxiety, depression, and stress could lead to an outburst of externalizing behaviors that turn the victim into a bully. A student with increased levels of anxiety and who is also depressed and highly stressed may result in low acceptance by peers, leading to externalizing behaviors, resulting in aggression or cyberbullying. Moreover, the present study found that the group of cyberbullies presents higher scores for depression than the not-involved group. Various studies show how aggressive behaviors from students come from feelings of unhappiness, a lack of satisfaction with life, social isolation, anxiety, depression, and high levels of anger and rage, which, together with other circumstances, make them more vulnerable to suffer from and perpetrate cyberbullying (Martínez-Monteagudo et al., 2020; Vlachou et al., 2011). The fact that depression appears as a highlighted variable for both the cybervictim-cyberbully group and the cyberbully group may indicate the relevance of depression for aggressive behaviors online. Moreover, it is in the depression variable where the highest effect sizes of the study occur.

Finally, the symptoms of anxiety, depression and stress found in the profiles of student victims, aggressors and victim-aggressors could be a consequence of the trauma experienced through online media. Recent research indicates how bullying victimization could be considered a repetitive interpersonal trauma; some studies also indicate how cybervictims and cyberbullies presented significantly higher levels of post-traumatic stress syndrome symptoms (Liu et al., 2020; Mateu et al., 2020) (see Idsoe et al., 2021, for a review).

The present study presents some limitations that must be considered. Firstly, the transversal character of the study does not allow for causality between the variables to be established. This is especially relevant in this study if we consider the bidirectional relationship that may occur between cyberbullying and anxiety, depression, and stress. Suffering from and perpetrating cyberbullying may result in various emotional problems but also experiencing these emotional problems can lead to the student becoming a target or a perpetrator of these attacks themself. Therefore, future studies need to carry out longitudinal studies to clearly establish the complex relationships that occur between cyberbullying, anxiety, depression, and stress. Moreover, only evaluating through self-reports may lead to bias or social desirability, and, as such, it would be advisable to use additional evaluation measures. Despite these limitations, the

present study provides useful information that contributes to an in-depth understanding of the relationship that occurs between cyberbullying and emotional problems. Moreover, the study provides information about the different student cyberbullying profiles and how these student profiles differ from each other according to the anxiety, depression, and stress presented. These results lead to relevant practical implications that can help prevention and specific intervention in the different profiles. On the one hand, the negative consequences of cyberbullying for students (victims and bullies) show the need to establish educational and social policies to prevent or identify cyberbullying early, as well as provide resources to help prevent it before it occurs. On the other hand, there is the need for preventative activities to avoid, reduce, or eliminate the emotional problems suffered by the cybervictims profile and, especially, the cybervictims-cyberbullies profile. This latter profile has been highlighted in the present research for exhibiting greater emotional problems than the rest, and has been identified as being a profile that is particularly susceptible to experiencing the negative effects of both types of roles. Being a victim of cyberbullying may reduce the empathetic ability of students in such a way that instead of understanding the bully or adequately regulating their emotions, they try to defend themself against the attacks by displaying aggressive behavior. Likewise, the feelings of defenselessness together with the perception of there being a lack of protection by the figures of authority may lead to the need to create an antisocial reputation that protects them from future attacks online (Estévez et al., 2019). The training of appropriate coping strategies in the face of an attack, such as seeking help, regulation of emotions, or the promotion of empathetic attitudes and prosocial behaviors in the educational context may prevent students who are victims of cyber-attacks from being driven to release their frustration by becoming bullies themselves. In addition, training for faculty and students on the issue (e.g., what cyberbullying is and how to prevent it) and the responsible use of the Internet should be prioritized. Equally, to strengthen the social support of those affected (victims and bullies), support and counseling services should be formalized for students who have participated in or have suffered from cyberbullying (Lan et al., 2022). In conclusion, it is essential that interventions address the inherent differences in the different profiles found in cyberbullying.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Ethics Statement

The ethics committee of the University of Alicante (UA-2023-02-07) granted informed consent for the research to be carried out. Likewise, the ethical principles of the Declaration of Helsinki were considered, respecting the standards with respect to human research.

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Data Availability Statement

Data available on request to the corresponding author.

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