



Cyber-rumor and internalizing symptoms in adolescence: mediating effect of resilience

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KEYWORDS

Bullying
Sex
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ABSTRACT

Digital media have acquired a key role in the social dynamics among adolescents, increasing the prevalence of risk behaviors such as cyberbullying. Although its study has increased in recent decades, there are still few studies focused on the effects of a specific type of cybervictimization, such as cyber-rumor. The aims of this study were first to examine whether victims of cyber-rumor have higher levels of internalizing symptoms and second to explore whether resilience mediates this association, controlling for the sex effect. A total of 558 students (54.3% girls) aged between 13 and 17 years old ($M = 14.65$; $SD = 1.19$) participated in the study. Data processing followed a mediation model through PROCESS. The results evidenced that both girls and cyber-rumor victims presented higher levels of depression, anxiety and stress. The mediation models showed that resilience only mediated the effect that being victim of cyber-rumor had on levels of depression and anxiety, but not on stress levels. Sex was not found to moderate such effects. In conclusion, these results underscore the importance of attending to cyberaggression phenomena given their effects on social and emotional well-being identified in this study. This suggests the need to design prevention programs that include among their strategies the promotion of skills for coping with cyber-rumor.

Ciber-rumor y síntomas internalizantes en la adolescencia: efecto mediador de la resiliencia

PALABRAS CLAVE

Acoso escolar
Sexo
Depresión
Ansiedad
Estrés
COVID

RESUMEN

Los dispositivos digitales han adquirido un papel fundamental en las dinámicas sociales entre los adolescentes, aumentando la prevalencia de conductas de riesgo como el ciberacoso. Aunque su estudio ha aumentado en las últimas décadas, aún son escasos los trabajos centrados en conocer los efectos de formas de cibervictimización sutiles, como el ciber-rumor. Los objetivos del estudio fueron, primero, examinar si las víctimas de ciber-rumor presentan mayores niveles de síntomas internalizantes, y segundo, explorar si la resiliencia actúa como mediadora de dicha asociación, controlando el efecto del sexo. Un total de 558 escolares (54.3% chicas) con edades entre 13 y 17 años ($M = 14.65$ años; $DT = 1.19$) participaron en el estudio. El tratamiento de datos siguió un modelo de mediación a través de PROCESS. Los resultados evidenciaron que las víctimas de ciber-rumor presentaron niveles más altos de depresión, ansiedad y estrés que los adolescentes que indicaron no haber sido víctimas de ciber-rumor. Los modelos de mediación mostraron que la resiliencia medió en la relación entre ser víctima de ciber-rumor y los niveles de depresión y ansiedad, pero no con los de estrés. No se encontró que el sexo moderara dichos efectos. En conclusión, estos resultados subrayan la importancia de atender a los fenómenos de ciberagresión dado sus efectos sobre el bienestar social y emocional identificados en este estudio. De ello se deriva la necesidad de diseñar programas de prevención que incluyan entre sus estrategias la promoción de habilidades para el afrontamiento del ciber-rumor.

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The increasingly early use of digital devices has led to the Internet playing a key role in the socialization process of adolescents (Areepattamannil & Khine, 2017; Ortega et al., 2012). Internet provides them with the opportunity to contact other people at any time and place, albeit in a somewhat fragmented way. The very nature of online communication, where the content remains permanently, means that they can access it at any time and there may be misunderstandings and problems of comprehension due to the absence of the non-verbal elements which usually aid interpretation. Thanks to Internet, the peer group, which is the most important context of socialization during adolescence (Rubin et al., 2015), has extended its boundaries of interaction and influence. Contrary to popular belief, there is no evidence of a negative impact of the use of technologies on adolescents' well-being: it is more that cyber behaviour has a dynamic, variable character and may lead to its users taking a number of unknown risks (Valkenburg et al., 2022; Vuorre et al., 2021; Weinstein, 2018). Cyber behaviour is an umbrella term for all the behaviour and interactions that take place online (Ortega et al., 2012), including risk behaviour, such as cyberbullying. Cyberbullying has been described as a series of deliberate aggressive actions, repeated over time and perpetrated through the use of information and communication media (Smith et al., 2008). In Spain, around 12.9% and 5.8% of students admit to having been cybervictims occasionally or frequently, respectively (Sastre et al., 2016). Among the different forms of cyberbullying, one of the most prevalent among adolescents is spreading rumours online, or cyber-rumour (Sastre et al., 2016), especially among girls (Festl et al., 2017).

The concept of cyber-rumour is relatively new and, as in its off-line version, it is often confused with cybergossip. However, although both patterns of behaviour involve spreading evaluative comments about a third person among a group, cybergossip includes positive, neutral or negative messages, with a range of social functions, including handling information, entertainment or forming closer bonds (García-Fernández et al., 2022; López-Pradas et al., 2017; Romera et al., 2018). In contrast, the spread of rumours refers only to posting messages with false or malicious content about a third person (DiFonzo & Bordia, 2007; Rosnow, 2001). Spreading rumours is an indirect form of aggression which is carried out with the clear intention of harming another person. The impact of these messages on the victim will depend on how much credibility the group gives both to the content of the message and the person who posts it, and how widely the message is spread (DiFonzo & Bordia, 2007). Among the most common consequences for victims are being excluded from the group and reduction to their reputation and self-esteem (DiFonzo & Bordia, 2007; Rosnow, 2001), which has a significant impact on their well-being, mainly during adolescence, a stage in which acceptance and the feeling of belonging to the group are key social objectives (Allen & Kern, 2017). Despite this, no studies have focused to date on describing the consequences and protective factors of the effect of cyber-rumour on the victims, although some previous studies have shown how resilience plays a protective, mediating role in the impact of cyber aggression on the

victim's well-being (Hinduja & Patchin, 2017; Raskauskas & Huynh, 2015).

Cybervictimization and internalizing symptoms

There has been extensive research into the consequences of being cybervictimized, and high levels of depression, anxiety and stress have been shown to be the commonest internalizing symptoms (Gini et al., 2018; Salmivalli et al., 2021; Yuchang et al., 2019). Although these studies refer to the individual's degree of emotional distress, and recognise a certain co-occurrence between them, there are also important differences between them (Antony et al., 1998). According to the tripartite model of anxiety and depression (Clark & Watson, 1991), both share characteristics in common, such as high levels of negative affect (e.g., anxiety or irritability), but they also have unique characteristics. For instance, the presence of low levels of positive affect (happiness, self-confidence, enthusiasm) is a characteristic of depressed mood, while physiological hyperactivity (trembling, palpitations, dizziness) is characteristic of a state of anxiety. Stress involves a feeling of tension, irritability and a tendency to react to stressful events.

The results of recent meta-analyses with adolescent cybervictims highlight both the previous existence of, and an increase in, internalizing problems, such as depression, anxiety and stress, which highlights a clear bidirectionality between the two effects (Gini et al., 2018; Salmivalli et al., 2021). Although, most of these meta-analyses describe the impact of cyberbullying in a general way, a recent study of the impact of general cyberbullying and offline bullying identified four subtypes of bullying (general, verbal, physical and relational), and higher levels of anxiety and depression were found in victims of relational bullying ($r = .37$ and $r = .40$, respectively) than in cybervictims ($r = .22$ and $r = .32$, respectively) (Yuchang et al., 2019). It is therefore logical to assume that cybervictims also present differences in their levels of depression, anxiety and stress, depending on the type of aggression they suffer. Other studies highlight the fact that girls become more frequently relational victims and cybervictims, which includes spreading rumours (Johansson & Englund, 2021; Smith et al., 2019). Therefore, it would be expected that adolescent cyber-rumour victims present higher levels of internalizing symptoms, with important differences between gender in their prevalence as victims and in their levels of depression, anxiety and stress.

It should be noted that, in extraordinary circumstances, such as the lockdown during the recent COVID-19 pandemic, this association can be accentuated. During a period in which adolescents were deprived of physical and social contact outside the family environment, Internet became the only context for interaction between individuals, which intensified the magnitude of the network's own characteristics, including a wider diffusion, continuous 24/7 contact and the difficulty in deleting the messages once shared. This situation could have intensified the discomfort and its consequences in victims of cyberbullying, who could have felt more isolated and vulnerable, and been subject to greater psychological and emotional

maladjustment (Zych et al., 2019). However, there is still little research into this situation and its consequences (Babvey et al., 2021; Zhu et al., 2021), and no studies have explored the characteristics of adolescent victims of cyber-rumours. Cross-sectional and longitudinal studies carried out during the lockdown period found increased levels of depression, anxiety and stress among adolescents, which was higher in girls (Magson et al., 2021; Panchal et al., 2021; Tamarit et al., 2020).

Resilience as a potential mediator

Despite the clear impact that victimization has on the individual, not all adolescents who suffer from it experience the same emotions and negative effects. The way in which victims deal with cyberbullying and the way in which they manage the situation constitute one of the greatest differential factors in the intensity and persistence of the negative effects (Sheppard et al., 2019; Sukhawathanakul & Leadbeater, 2020), which can be more or less harmful depending on the individual's capacity for managing recovery or resilience. Resilience has been defined as the intrapersonal ability to cope with trauma, and it is a dynamic process of adaptation and recovery which the individual uses in response to adverse situations, to adjust positively to their environment (Campbell-Sills & Stein, 2007; Windle et al., 2011). According to previous studies, resilience is not only a protective factor, but also softens the impact and the effects these experiences have on the victim (Hinduja & Patchin, 2017; Raskauskas & Huynh, 2015). Despite this, only one study has described the mediating role of resilience in the impact of victimization on levels of depression in adolescents, and its findings suggested that resilience mediated the impact of cybervictimization on the levels of depression experienced by victims (Santos et al., 2021). However, further research is required along these lines to identify whether resilience also has a mediating role for levels of anxiety and stress, specifically in the context of cyber-rumours. It could also be especially relevant to analyse the level of resilience of a victim of cyber-rumour, given that social media makes rumours longer-lasting and more extended, thus leading to higher levels of frustration and impotence in the victim and contributing to a lack of self-confidence in their capacity to adapt to the situation (Hinduja & Patchin, 2017). The aim of this study was to explore whether correct management of the situation and of their own emotional response could minimize the impact on the victim's well-being. Resilience is of particular importance because of the lockdown, when the traumatic effect probably varied depending on the use of strategies and personal resources to manage adversity (Zhu et al., 2021).

The present study

This study has a double objective: first, to examine whether adolescent cyber-rumour victims presented higher levels of internalizing symptoms (depression, anxiety, and stress), and second, to explore whether resilience acted as a mediator of this association in controlling the effect of the adolescent's gender.

From our review of the previous literature, we expected to find that adolescents who were victims of cyber-rumours would present higher levels of anxiety, depression, and stress (hypothesis 1), and lower levels of resilience (hypothesis 2). In addition, we expected resilience to mediate the effect of being a victim of cyber-rumours has on levels of anxiety, depression, and stress (hypothesis 3). Finally, we expected to find two differences associated to adolescents' gender: firstly, a greater incidence of girls as cybervictims (hypothesis 4a) and secondly, that the impact of being a victim of cyber-rumour on internalizing symptoms would be greater in girls than in boys (hypothesis 4b).

Method

Participants

The participants in the study form part of the Spanish sample of the "Impact of COVID-19 on adolescents and their communities" project, carried out by the Global Research Alliance team (<https://research-all.org/>). In total, 558 high school students (54.3% girls) with age ranged between 13 and 17 years ($M = 14.65$ years; $SD = 1.19$), from 22 state-funded (54.55%), semi-private (22.73%) and private (22.73%) schools in the province of Cordoba (Spain) took part in the study. The participants were distributed by academic years as follows: 21% ($n = 117$) from first year; 24.9% ($n = 139$) second year; 21.7% ($n = 121$) third year; 18.3% ($n = 102$) fourth year; and 14.2% ($n = 79$) whose school year was unknown.

Instruments

Cyber-rumour. This was measured using the answers to the following statement: *During the lockdown, another person/other people spread rumours (lies) about me.* The response options were dichotomous (0 = no; 1 = yes). The isolated use of such questions to reveal involvement in different types of aggression has been used in previous studies (Festl et al., 2017).

Internalizing symptoms. The abbreviated 21-item version of the *Depression, Anxiety and Stress Scale* (Lovibond and Lovibond, 1995) was used to evaluate the psychological discomfort perceived by an individual. The scale measures three negative emotional states: depression, anxiety and stress. Each dimension is composed of seven items, evaluated using a four-point Likert-type scale (0 = *has never happened to me* to 3 = *has happened to me very often*). The scores for each subscale were obtained by adding the scores for each subscale item, ranging from 0 to 21. Higher scores indicated higher levels of internalizing symptoms. Cronbach's α reliability coefficient was .94 for the whole scale and .84, .89, and .86 for the depression, anxiety, and stress subscales, respectively.

Resilience. The Spanish version (Notario-Pacheco et al., 2011) of the 10-item *Connor-Davidson Resilience Scale* (CD-RISC-10; Campbell-Sills & Stein, 2007) was used. This is a unidimensional scale which measures different cognitive resilience factors. The response to each item is evaluated on a five-point Likert-type scale (1 = *hardly ever* to 5 = *very true*).

The responses were added together to make the total score, with higher scores indicating higher levels of resilience. Cronbach's α reliability coefficient was .85.

Procedure

Schools were selected based on non-probabilistic sampling for greater accessibility. Local government authorization was obtained and the school management were contacted to inform them of the objectives of the study and ask for their involvement. The schools which showed interest signed the participation consent form, and active parental informed consent was required. It was emphasized to parents and students that participation in the study was confidential, anonymous, and voluntary. The study was conducted in accordance with the Declaration of Helsinki. Ethical approval was granted by the Ethics Committee of the lead author's institution. The data were collected through an online platform, during the months of June to December 2020. On average, the participants took between 20-30 minutes to complete the questionnaire, and the questions referred to the months when they were on lockdown.

Data Analysis

All the analyses were performed using the Statistical Package for Social Science (SPSS; v.25). First, the anxiety variable showed a higher than acceptable asymmetry, and so it was subjected to a square root transformation (Tabachnick & Fidell, 2007). Next, descriptive analyses were performed to explore the study variables, and bivariate Pearson correlations were calculated to determine the direction and degree of association between the quantitative study variables. A chi-square test (χ^2) was performed to identify any differences by gender in the cyber-rumour variable. We also performed a Student's t -test, and Cohen's d was taken into account to control the size of the effect, to explore whether there were differences the levels in internalizing symptoms and resilience based on gender or on being a victim of cyber-rumours. The p values below .05 indicated statistical significance.

A mediation model was run using the PROCESS v3.5 macro for SPSS (Hayes, 2018). Model 4 was used to test whether the association between being a cyber-rumour victim (independent variable) and levels of internalizing symptoms (dependent variable) was mediated by resilience (mediating variable). Three independent models were developed for each of the dependent variables (depression, anxiety, and stress). The PROCESS macro uses least squares regression to estimate the importance and size of direct and indirect effects in the models, and delivers a more satisfactory performance than the traditional causal step approach. Indirect effects and confidence intervals (CI) were inferred using the Bootstrap method, which is suitable for linear hypotheses when the variables do not follow a normal distribution (Chernick, 2007). An indirect effect is significant if the CI does not include the value 0 (Hayes, 2018). In our case, we used the maximum likelihood estimate and the 95% confidence interval corrected for the bias of 5,000 bootstraps to determine

whether the total and indirect effect of the model was statistically significant. In the mediation model, the total effect refers to the basic association between the independent and dependent variables, while the association between the indirect and the total effect allows to measure the mediation effect (Wen & Fan, 2015). Continuous variables (internalizing symptoms and resilience) were centred on the mean to reduce multicollinearity when calculating terms of interaction.

Finally, we performed Simple slope analyses in the PROCESS macro (Model 59) to test the last study hypothesis (hypothesis 4b). This analysis allows us to highlight the significant nature of the interaction between two variables on the dependent variable. Our aim was to explore whether being a victim of cyber-rumours interacted with gender to explain the differences in the levels of internalizing symptoms among students.

Results

A total of 55 (10%) adolescents affirmed that they had been victims of cyber-rumour during the lockdown. Girls ($n = 33$, 60%) were significantly ($\chi^2(479,1) = 8.38$; $p = .004$) more often cyber-victims than boys ($n = 11$, 20%). The gender of 11 (20%) of the adolescents who reported having been victims of cyber-rumour during lockdown was not known. The correlations between the variables of internalizing symptoms and resilience were significant: they were positive between the different internalizing symptoms (depression, anxiety, and stress) and negative in the relationship of each of them with resilience (see Table 1).

The results of the Student's t tests showed differences between the gender only for internalizing symptoms, with higher levels for girls than for boys. When comparing children who were involved and not involved, victims showed higher levels of internalizing symptoms, and lower levels of resilience, than adolescents who had not been bullied (see Table 2).

Table 3 shows the coefficients of the three mediation models. The total effect of being a victim of cyber-rumour on depression ($\beta = .75$, $t = 4.65$, $p < .001$), anxiety ($\beta = .64$, $t = 3.88$, $p < .001$), and stress ($\beta = .65$, $t = 4.03$, $p < .001$) was significant. In the analysis of the mediating variable of the three models, it was found that being a victim of cyber-rumour was significantly associated with resilience and that levels of resilience were significantly and negatively associated with levels of depression, anxiety and stress. After checking for the effects of the mediating variable, the direct effect of being a victim of cyber-rumour on the three dependent variables remained significant. The indirect effect of the models was significant

Table 1

Correlations between study variables

	Depression	Anxiety	Stress
Anxiety	.72		
Stress	.76	.72	
Resilience	-.36	-.36	-.29

Note. For all correlations $p < .001$

Table 2

Differences in the levels of the study variables by gender and being a victim of cyber-rumour

Differences by gender								
	Boys		Girls		<i>T</i>	Student's <i>t</i>		<i>d</i>
	<i>M</i>	<i>DT</i>	<i>M</i>	<i>DT</i>		<i>gl</i>	<i>p</i>	
1	2.48	3.38	4.39	4.94	-4.894	438.11	< .001	-.45 ^a
2	1.51	2.91	2.49	3.68	-3.639	462	< .001	-.34 ^a
3	3.21	3.76	5.16	4.84	-4.833	451.25	< .001	-.45 ^a
4	37.92	7.59	36.71	6.83	1.813	461	.070	.17 ^a

Differences by being a victim or not of cyber-rumour								
	CV		Non-V		<i>T</i>	Student's <i>t</i>		<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>		<i>gl</i>	<i>p</i>	
1	7.11	4.88	3.03	4.09	-5.473	51.74	< .001	.98 ^c
2	4.04	4.53	1.80	3.14	-4.786	494	< .001	.75 ^b
3	7.53	5.31	3.85	4.24	-4.510	49.83	< .001	.85 ^c
4	34.69	7.31	37.32	7.27	2.380	487	.018	-.36 ^a

Note. 1 = Depression; 2 = Anxiety; 3 = Stress; 4 = Resilience; CV = Cyber-rumour victim; Non-V = Non-victim of cyber-rumour. Cohen's *d* statistic effect size: ^a low (< .50); ^b medium (.50–.80); ^c high (> .80)

Table 3

Mediation between being a victim of cyber-rumour and internalizing symptoms

Predictors	Resilience		Depression	
	β	<i>t</i>	β	<i>t</i>
Cyber-rumour	-.38*	-2.29	.61***	4.06
Resilience			-.38***	-8.64
Age	.03	0.71	.14***	4.11
Gender	-.14	0.15	.35***	4.06
R ²	.02*		.25***	
F	(3,433) 2.93		(4,432) 36.36	

Predictors	Resilience		Anxiety	
	β	<i>t</i>	β	<i>t</i>
Cyber-rumour	-.41*	-2.47	.48*	3.15
Resilience			-.38***	-8.59
Age	.01	0.33	0.04	1.18
Gender	-0.12	-1.26	0.25**	2.83
R ²	.02*		.20***	
F	(3,433) 2.9		(4,432) 27.05	

Predictors	Resilience		Stress	
	β	<i>t</i>	β	<i>t</i>
Cyber-rumour	-.35*	-2.08	.55***	3.54
Resilience			-.30***	-6.66
Age	.02	0.50	.12***	3.65
Gender	-.12	-1.26	.35***	3.98
R ²	.02		.19***	
F	(3,430) 2.29		(4,429) 25.25	

Note. **p* < .05; ***p* < .01; ****p* < .001

for depression ($\beta = .14$, 95% CI [.02, .28], $P_M = .18$) and anxiety ($\beta = .16$, 95% CI [.02, .29], $P_M = .25$), but not for stress ($\beta = .10$, 95% CI [-.00, .21], $P_M = .15$). Resilience therefore played a partial mediating role in the effect of cybervictimization on depression and anxiety.

Finally, according to the results of the Simple slope analyses, the interaction between being a victim of cyber-rumour and gender was not significant for any of internalizing symptoms (depression: $\beta = -.34$, $p = .331$; anxiety: $\beta = -.50$, $p = .148$, and stress $\beta = -.38$, $p = .285$).

Discussion

In recent decades, digital devices have become one of the main means of communication and social interaction among adolescents, which has led both to new opportunities arising for interaction and communication, and to new challenges associated with the excessive or inappropriate use of these devices (Falla et al., 2021; Romera et al., 2021). Perhaps the most prevalent and potentially harmful aspect of such cyber-behaviours is cyberbullying. The number of studies on this type of online aggressive behaviour has increased exponentially. Despite this, some key questions still require to obtain fully understand this complex and interactive dynamic. Although some studies have explored the main consequences and protective factors for victims of cyberbullying (Camacho et al., 2021), to date, few studies have focused on exploring the effects of specific kind of cyber-aggression such as cyber-rumour. The objective of the present study was twofold: on the one hand, to describe whether adolescents who are victims of cyber-rumour present higher levels of internalizing symptoms and, on the other hand, to analyse the protective role of resilience in the impact of cyber-rumour on the well-being of victims.

The first two hypotheses were supported, as we found significantly higher levels of internalizing symptoms (depression, anxiety and stress) and lower levels of resilience among students who were victims of cyber-rumour. Results of previous studies on the relationship between being a victim of cyber-bullying and higher levels of internalizing symptoms (Gini et al., 2018; Salmivalli et al., 2021) have highlighted the need to address these individual aspects when designing cyberbullying prevention programs. This relationship may in fact be bidirectional, since adolescents with high levels of internalizing symptoms (depression, anxiety, and stress) are the ones with the highest risk of being victimized; and being cybervictimized has a negative impact on adolescents' well-being (Salmivalli et al., 2021). In our study, the presence of lower levels of resilience underlined new questions about whether adolescents who were being victimized initially presented worse levels of resilience or whether being subjected to this type of victimization reduced their perception of their ability to cope with it, and finally overcome them. Further longitudinal studies are needed to explore the directionality of this association in order to propose interventions that are better adjusted and closer to the reality experienced by these students.

The third hypothesis was partially confirmed, because resilience mediated the effect that being a victim of cyber-rumour had on levels of depression and anxiety. These results are in line with recent studies which underline the protective role of resilience in the presence of depressive symptoms in victims of cyber-bullying (Santos et al., 2021), but they also make a new contribution: a mediating effect in the levels of anxiety was found, which seems to highlight the strong association and co-occurrence between depression and anxiety (Clark & Watson, 1991). However, this effect was not found in the levels of stress suffered by the victims. This difference could be explained by several reasons, such as the difference in characteristics between these three types of internalizing symptoms – the first two being related to internal and lasting aspects, while stress seems to be associated with the tendency to act in a threatening situation (Anderson & Hope, 2008; Clark & Watson, 1991; Laurent & Ettelson, 2001). This may explain why resilience has a weaker mediating effect when faced with a state of alertness, frustration, and tension caused by stress. In addition, given that the cyber-rumour incidents evaluated in the study occurred during the lockdown period, the students could have already been experiencing excessively high levels of stress, associated with various factors such as health, school, family, which could have limited their ability to cope with the level of accumulated stress to which this state of agitation and alertness is added. This hypothesis should be confirmed in future studies in less stressful and uncertain contexts than those generated during the lockdown. These results also highlight the role of resilience as a relevant personal character trait for managing complex situations such as being a victim of cyber-rumour, and prove it is a key component which must be taken into account when designing cyberbullying prevention programs in which students can learn coping strategies to enable them to tackle or prevent these situations and mitigate their effects (Mora-Merchán et al., 2021).

Finally, we confirmed the first, but not the second, hypothesis related to gender. Girls presented a higher prevalence as victims of cyber-rumour (Hypothesis 4a). This result is in line with those found in previous studies, which highlight a higher prevalence of girls as victims of relational bullying and cyberbullying (Johansson & Englund, 2021; Smith et al., 2019). One possible explanation is that during adolescence, girls, unlike boys, begin interaction processes associated with dynamics of popularity and prestige, which seems to encourage this type of relational bullying to occur, with the aim of reducing their opponents' social standing (Smith et al., 2019). However, no differences were found based on gender when studying the impact of being a victim of cyber-rumour and its impact on internalizing symptoms (depression, anxiety, and stress). Although they presented higher levels of internalizing symptoms, these differences were therefore not associated with being cybervictimized. As a result, future studies could explore longitudinally into the social, relational, and individual factors which might explain the differences in these levels between boys and girls. This could provide a way of focusing programs on reducing the impact of mental health problems. In addition, given

that the victimized adolescents of both gender presented higher levels of internalizing symptoms than their non-victimized peers, it underscored that adolescent victims might be considered, in both gender, to present a more vulnerable profile, and that being victimized has a negative impact on adolescents' well-being. Future longitudinal studies could confirm how this association works.

This study has certain limitations that must be taken into account. First, the study includes a single time-period measurement, so it is not possible to establish longitudinal associations between the variables explored. Secondly, the data were recorded during the lockdown period, and although this provided relevant information about how the latest social reality affected adolescents, it could also be considered an exceptional period of constant social upheaval, leading to a cultural complexity and general vulnerability whose impact on adolescents and the population in general is still unknown. Finally, the instruments were administered to the student online, which made it impossible for them to solve their questions and could have led to difficulties in reading comprehension in some of the items.

Conclusions and practical implications

This study underlines the importance of defining cyberbullying according to the different types of cyber-behaviour and the importance of factors such as gender and individual characteristics when describing the levels of depression, anxiety, and stress in adolescents, as well as the complex variable that we call resilience. In addition, the results of the study enable us to advance in our knowledge of the dynamics used by adolescents online, and will help us to design intervention programs aimed at teaching them how to use these platforms to foster safe, and develop positive social relationships (Del Rey et al., 2018). It also reinforces the importance of including a space in educational programs to develop the skills needed to be able to successfully cope with and adjust to the reality that adolescents face in today's digital world. These sessions and programs should be part of school training programs, and teachers should be trained to be able to deliver them competently.

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Conflict of Interest

The authors have no conflicts of interest to declare.

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