Cybergossip, cyberaggression, problematic Internet use and family communication

Cibercotilleo, ciberagresión, uso problemático de Internet y comunicación con la familia

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ABSTRACT

Research into risky online behaviour among children and adolescents is on the rise, with more studies being conducted into the factors which can influence this phenomenon, above all in relation to school and family life. In the latter sphere, one relevant factor is the degree of genuine trust children have in their parents when using the Internet. The main objective of this study is to verify the effects of child disclosure about cyberaggression, in addition to the mediating role of problematic Internet use and cybergossip, and the moderating role of gender and age. A total of 866 primary school children (53% girls) between 10 and 13 years old (M=11.21; SD=0.90) were surveyed using self-reporting. The data processing followed a moderated serial mediation model using "Process". The results revealed the effects of child disclosure about cyberaggression and the mediation of problematic Internet use and cybergossip. Unlike gender, age moderated the effects of the mediation model. The results highlight the need to foster a climate of trust and communication in the family environment to reduce involvement in risky online behaviour, in which children feel understood and supported by their parents, which in turn encourages open communication about Internet use.

RESUMEN

La investigación sobre ciberconductas de riesgo infantil y juvenil se abre paso con estudios sobre factores que puedan influir en estos fenómenos, entre los que se destacan los relacionados con la convivencia escolar y familiar. En esta última, es relevante el nivel de confianza espontánea del hijo hacia su progenitor en el uso Internet. El objetivo de este trabajo es comprobar el efecto de la revelación filial en la ciberagresión, así como el rol mediador del uso problemático de Internet y el cibercotilleo, y el rol moderador del sexo y la edad. Un total de 866 escolares de primaria (53% chicas) de entre 10 y 13 años (M=11,21; D.T.=0,90) fueron encuestados mediante el uso de autoinformes. El tratamiento de datos siguió un modelo de mediación serial moderada a través de «Process». Los resultados evidenciaron los efectos de la revelación filial sobre la ciberagresión, así como la mediación del uso problemático de Internet y el cibercotilleo. A diferencia del sexo, la edad moderó los efectos del modelo de mediación. Los resultados ponen de manifiesto la necesidad de establecer un clima de confianza y comunicación en el entorno familiar para disminuir la implicación en las ciberconductas de riesgo, donde los menores se sientan comprendidos y apoyados por los progenitores, facilitando la comunicación espontánea sobre el uso de Internet.

KEYWORDS | PALABRAS CLAVE

Cyberaggression, child disclosure, problematic Internet use, cybergossip, primary education, moderated mediation model.
Ciberagresión, revelación filial, uso problemático de Internet, cibercotilleo, educación primaria, modelo de mediación moderada.

1. Introduction

Cyberaggression is a problem that affects a significant number of boys and girls worldwide at an increasingly younger age. Young cyberbullies engage in behaviour that harms their peers psychologically and morally, damaging social connections, which are such a key influence at these ages. Internet provides a different context from face-to-face bullying, although one partly feeds on the other, with even more damaging consequences. Cyberaggressors are given the chance to bully others anonymously (Dennehy et al., 2020), round the clock (24/7 attack), thus making the victim even more vulnerable to their attacks and instilling in them a self-learned helplessness and psychological maladjustment (Zych et al., 2019). The publication of embarrassing photos, hacking the identity of an individual on social media, sharing intimate personal details or images, the threats of revealing private information, insults or spreading rumours through digital devices are all typical of the aggressive behaviour which is facilitated by communication technology and its all-pervasive digital software (Livingstone & Smith, 2014).

A recent study in Spanish schoolchildren between 11 and 12 years old revealed a rate of cyberaggression of about 6.3% (Garmendia et al., 2019). Compared with international figures, it should be noted that the figures for prevalence in Spain are lower than those found in other European countries (Sorrentino et al., 2019), or between Europe and America (Herrera-López et al., 2017; Smith et al., 2019). As well as descriptive studies, more research is needed to further our knowledge of the causal, or at least correlational, factors. The existing research has focused mainly on personal factors and factors related to the school context and the quality of coexistence, with less attention focused on the family context and its differential factors (Álvarez-García et al., 2019).

Some studies in this field have pointed to the key role of intra-family communication, and particularly child disclosure, as one of the differential elements in the quality of family life. The information which sons and daughters disclose to their parents, which is understood as an indirect form of parental recognition and control (Kerr et al., 2012), has been shown to reduce involvement in cyberaggressive behaviour (Buelga et al., 2017). We now need to go one step further and analyse the factors that can help us understand how child disclosure can influence involvement in cyberaggression. To achieve this, we analysed the mediating role of problematic Internet use and cybergossip, whose link with cyberaggression has previously been established (Romera et al., 2018).

Most of the research work at this level has focused on adolescents, among whom the use of digital devices is widespread (Wang et al., 2016), although they begin using them much earlier (Smahel et al., 2020): hence the need to research the final years of primary school.

1.1. Child disclosure and cyberaggression

The influence of the family context on children's Internet behaviour has focused mainly on studying the norms of control and supervision of the use of information and communication technologies (ICTs). These studies show that parental control which imposes strict limits on children's activities and continuously demands information about what they are doing is in fact an ineffective strategy for reducing risky behaviour in adolescence, including cyberaggression (Baldry et al., 2019; Sasson & Mesch, 2014). In particular, studies on the forms of parental communication used to control their children's online behaviour indicate that attempts to obtain information through direct requests and questions and a certain level of intrusion is associated with higher levels of cyberaggression (Shapka & Law, 2013).

In contrast, the creation of a positive, trusting relationship with both parents leads to better social adjustment and well-being in their children, and acts as a protective factor, especially if child disclosure is encouraged, by which the family knows what the children are doing because the children tell them, without the need for parental control (Machimbarrena et al., 2019). Here, a number of studies have highlighted the fact that the risk of involvement in cyberaggression decreases with the use of parental strategies based on communication and trust (Buelga et al., 2017).

1.2. Problematic Internet use and cybergossip as potential mediators

Over 24% of young people use their digital devices on a daily basis to communicate with friends on social media, and over half of these connect several times a day (Areepattamannil & Khine, 2017).

However, it constitutes problematic Internet use when it becomes compulsive and produces cognitive concern and a deterioration of intrapersonal and interpersonal relations (Caplan, 2010) and stronger symptoms of depression (Lozano-Blasco & Cortés-Pascual, 2020). Although it has been noted that personal factors can influence this excessive use of technology, other studies indicate that the family plays a key role in preventing and reducing it (Garmendia et al., 2019; Sela et al., 2020). Various studies have revealed how parental mediation, which is understood as how parents manage the relationship between their children and the media, is a major factor in young people's Internet use (Bartau-Rojas et al., 2018). Studies such as Saunders and Varma (2016) show that an inductive or instructive parenting style favours less intensive Internet use and that young people exposed to fewer hours on Internet have higher rates of parental support and communication (Tur-Porcar et al., 2019). The recent meta-analysis by Chen and Shi (2019) argues that, although restrictive mediation is more effective in reducing the amount of time children spend online, active parental mediation and joint use, are more effective in reducing the incidence of online risks.

In addition, cyberaggression studies have highlighted that the mere fact of spending more time online and making excessive and frequent use of Internet is considered a risk factor that could lead to negative effects (Baldry et al., 2019). In addition, Spanish studies have indicated that problematic Internet use is linked to cyberaggression (Cerezo et al., 2016).

Excessive Internet use seems to stimulate or exaggerate tendencies in social communication which exist in all cultures, such as online gossip, making it available to a wider audience (Subrahmanyam et al., 2008). Cybergossip is a type of online behaviour which involves sharing comments (positive, negative or neutral) among a group of two or more people about another person who is not present.

Although some research has identified this type of behaviour as a kind of indirect aggression, the two are different, in that in cyberaggression there is a clear intention to do harm that does not necessarily exist in cybergossip. In fact, it has also been recognised as having the function of lending the group greater cohesion and improving interpersonal relationships (Foster, 2004). This means that cybergossip and cyberaggression need to be studied in a differentiated way and with instruments that adjust to the nature of their respective online behaviour (Romera et al., 2018). It does not follow, however, that the practice of cybergossip is completely devoid of risky online behaviour. Although there has been little research into the relationship between cybergossip and other risky online behaviour, recent studies have shown that cybergossip can increase involvement in cyberaggression (Kisfalusi et al., 2019). In the virtual context, it is more difficult for the sender of the comments to convey their exact communicative intention and for the receiver to interpret it, and this could lead to misunderstandings and, therefore, risky online behaviour such as cyberaggression.

1.3. The present study

Previous research has shown not only the negative consequences associated with being involved in cyberaggression, an immoral practice in which a large number of adolescents, boys and girls alike, become involved at an increasingly early age, but also the important role of the family in its prevention. However, further research is needed looking into the family context in the development of this kind of online behaviour performed by children and adolescents. Not only is it important to identify what family styles and strategies are most effective in preventing online bullying, but also to explore how they can promote online behaviour that can help reduce involvement in risky online behaviour and, therefore, foster positive online coexistence. In this context, the present study aims to examine the mediating effect of problematic Internet use and cybergossip between child disclosure and involvement in cyberaggression.

Because a large number of studies have highlighted which parental communication strategies, mainly those that enhance child disclosure, reduce the risk of involvement in aggressive behaviour (Law et al., 2010), we expected to find that child disclosure about online behaviour reduced cyberaggression (Hypothesis 1). Most previous work has focused on the effects of this relationship, albeit without taking into account possible mediators. We also expected to find that problematic Internet use and cybergossip mediated the relationship between child disclosure and cyberaggression (Hypothesis 2). Due to the fact that boys tend to be more involved in risky online behaviour than girls throughout adolescence, and that child disclosure is more common among girls and during childhood (Arpaci et al., 2020; Smahel et al. al.,

2020), we expected the effects of child disclosure on risky online behaviour to be lower in late childhood (Hypothesis 3a) and in girls (Hypothesis 3b), compared to early adolescents and boys.

2. Materials and methods

2.1. Participants

The incidental sample consisted of 866 schoolchildren (53% girls), from six state primary schools (58%) and subsidized schools (42%), in both rural (36%) and urban (64%) areas in the provinces of Córdoba and Jaén (Spain). The schools were selected through non-probability sampling for accessibility (Singleton & Straits, 2004). The children's ages ranged from 10 to 13 years old (M=11.21; S.D.=0.90), with a distribution by primary school year as follows: 28.8% in 4th year (n=249), 28.9% in 5th year (n=250) and 42.3% in 6th year (n=366).

2.2. Instruments

Cyberaggression was assessed using 8 items on a five-point Likert-scale ranging from 0=never, 1=once or twice, 2=once or twice a month, 3=about once a week, to 4=more than once a week. Examples of the items for cyberaggression included: "I posted embarrassing videos or pictures of someone online" or "I spread rumours about someone on the Internet" in the last two months. This scale was part of an adaptation for primary school of the European Cyberbullying Intervention Project Questionnaire, ECIPQ (Del-Rey et al., 2015), consisting of two dimensions, cybervictimization and cyberaggression. We used only the second dimension for this study, taking the mean scores of the items, with higher values denoting a higher frequency of being involved in cyberaggression. For this research, the validity indices were optimal: χ^2 S-B=56.4149; gl=20; <.001; NNFI=.98; CFI=.98; RMSEA=.04; SRMR=.05, and the reliability index was good for the dimension of cyberaggression, =.74.

Child disclosure was measured with four items about how often the children told their parents about their online activities, taken from the adaptation by Law et al. (2010) on Stattin and Kerr's Parenting Questionnaire (Stattin & Kerr, 2000). An ad hoc simple five-point Likert-type scale was used, ranging from "never" to "always". The following items were used: "I tell my parents when I open a new account on social media", "I tell my parents when I chat to new people on social media/WhatsApp", "I tell my parents the content of the messages I send or receive through social media/WhatsApp" and "I tell my parents before revealing information about myself to other people through social media/WhatsApp". Optimal indices were obtained for reliability (ω=.83) and validity: χ^2 S-B=17.7493; gl=2; <.001; NNFI=.98; CFI=.99; RMSEA=.06; SRMR=.02.

Problematic Internet use was measured using the Internet-Related Experiences Questionnaire scale (Beranuy et al., 2009), which uses a 10-item Likert scale with 4 points of frequency, from "never" to "quite a lot". The items included the following: "I prefer to talk to my friends through social media/WhatsApp rather than in person", "I feel anxious when I cannot connect to social media/WhatsApp". A unidimensional distribution of the items was taken into account and optimal values were obtained with the study sample for reliability (ω=.78) and validity: χ^2 S-B=51.3417; gl=35; <.001; NNFI=.99; CFI=.99; RMSEA=.02; SRMR=.03.

Cybergossip was measured using the Cybergossip Questionnaire (Romera et al., 2018). This is a one-dimensional survey consisting of nine items measured on a Likert scale with values from 0 (never) to 4 (always). The items included: "I tell my friends on social networks or WhatsApp about things I hear about that happen to others", "I talk about others on social networks or WhatsApp because it makes me feel closer to my group of friends". Optimal indices were obtained for the study sample for reliability (ω=.80) and validity, χ^2 S-B=100.7370; gl=27; <.001; NNFI=.96; CFI=.97; RMSEA=.05; SRMR=.05.

2.3. Procedure

The school management teams at the different schools were contacted to inform them about the aims of the study. Those schools which expressed interest received detailed information on the data collection procedure. Written consent was obtained from the students' families and the participants gave their verbal consent. The study complied with the Declaration of Helsinki on confidentiality, privacy and informed

consent, and was approved by the Ethical Committee for Bioethics and Biosafety of the University of Córdoba.

The questionnaires were administered individually on paper in the students' classroom. The children were informed that the test was voluntary and anonymous. Data collection was done by previously trained researchers, who informed the children about the collection procedure and answered any questions they had about how to complete the questionnaire. The teachers in charge of the class were absent during the process. Response time ranged from 15 to 20 minutes. The data was collected in 2017.

2.4. Data analysis

Due to the skewness shown by the variables of cybergossip and cyberaggression, both were subjected to square root transformation, following the recommendations by Tabachnick and Fidell (2007). All future references refer to these transformed variables.

The preliminary analyses were performed using mean and standard deviation, together with the Spearman correlation coefficient for each of the study factors which were to be verified in the theoretical model.

Similarly, Students' t test was performed to contrast the existence of differences by gender and age (late childhood=10-11 years old; early adolescence=12-13 years old), considering Cohen's d to control the effect size. These analyses were performed using the IBM SPSS Statistics 20 statistical package.

Finally, a serial mediation model was performed using "Process" v3.4 (Hayes, 2013) (Model 6) to evaluate the mediating effect of problematic Internet use (first mediator) and cybergossip (second mediator) in the relationship between child disclosure (independent variable) and cyberaggression (dependent variable). The moderation effects were analysed using Model 92, in order to evaluate whether gender and age influenced the associations between the study variables. "Process" is a macro used in SPSS which employs least squares regression to estimate the importance and size of direct and indirect effects in mediation models. "Process" performs better than the traditional causal step approach (both in terms of statistical power and detecting type I error). The indirect effects were inferred using the Bootstrapping method, after generating an empirical representation of the sample distribution of indirect effects. Bootstrapping is suitable for linear hypotheses where the variables have a non-normal distribution (Chernick, 2008), as was the case in the present study. In the mediation model, the total effect denoted the basic relationship between child disclosure and cyberaggression. The relationship between the indirect effect and the total effect (P_M) shows the measurement of the mediation effect (Wen & Fan, 2015). All the variables were standardized before the analyses to facilitate the interpretation of the results.

3. Results

Table 1 shows the descriptive analyses of the study variables. Boys and early adolescents showed a greater involvement in cyberaggression and problematic Internet use. Early adolescents also showed greater use of cybergossip. Girls and late childhood participants showed higher levels of child disclosure. The effect size was low-moderate. A positive relationship was observed between the variables of cyberaggression, cybergossip and problematic Internet use, with scores ranging between .39 and .55. Child disclosure negatively correlated with all the study variables (Table 1).

| Table 1. Correlations, descriptive statistics and differences by gender and age													
				Differences by gender					Differences by age				
Variables	Correlations			Boys		Girls		Student-t		Late childhood		Early adolescence		Student-t
	1	2	3	M	SD	M	SD	t^1	d	M	SD	M	SD	t^2	d
1. CA	-			.29	.35	.23	.28	2.51*	.17	.20	.29	.33	.33	-6.17***	.42
2. CG	.53	-		.47	.40	.45	.38	.34	-	.39	.36	.57	.41	-7.00***	.49
3. PIU	.35	.47	-	.84	.74	.66	.61	4.30***	.29	.67	.66	.85	.69	-3.46***	.24
4. CD	-.25	-.24	-.24	2.26	1.36	2.68	1.25	-4.69***	.32	2.59	1.35	2.35	1.27	2.63***	.18

Key. M=mean; SD=Standard Deviation; t=Student's t; d=Cohen's d; CA=Cyberaggression; CC=Cybergossip; PIU=Problematic Internet Use; CD=Child disclosure; *p<.05; **p<.01; ***p<.001. [1] 1=Boys; 2=Girls. [2] 1=Late childhood; 2=Early adolescence.

A serial mediation analysis was carried out with 5,000 bootstrap samples. Table 2 shows the coefficients of the mediation model. The total effect of child disclosure on cyberaggression was significant: $\beta=-.27$, t=-8.15, <.001. We then analysed the models of the mediating variables, problematic Internet use and cybergossip, and of the dependent variable, cyberaggression. Child disclosure was significantly associated with problematic internet use and cybergossip. Problematic internet use was significantly associated with cybergossip and cyberaggression. Cybergossip was also significantly associated with cyberaggression. After controlling for the effects of mediators, the direct effect of child disclosure on cyberaggression remained significant. The bootstrap procedure was used to evaluate the indirect effect and the confidence intervals (CI). An indirect effect was significant if the CI did not include the value 0. In addition, a significant indirect effect was obtained for the Child disclosure $\rightarrow$ Problematic Internet use $\rightarrow$ Cyberaggression path, $\beta=-.04$, 95% CI [-.06, -.02], $P_m=.14$. The Child disclosure $\rightarrow$ Cybergossip $\rightarrow$ Cyberaggression path produced a significant indirect effect, $\beta=-.05$, 95% CI [-.09, -.02], $P_m=.20$. Finally, the Child disclosure $\rightarrow$ Problematic Internet use $\rightarrow$ Cybergossip $\rightarrow$ Cyberaggression path showed a significant indirect effect, $\beta=-.15$, 95% CI [-.19, -.10], $P_m=.55$. Thus, problematic internet use and cybergossip were shown to have a partial mediating role in the effect of child disclosure on cyberaggression.

| Table 2. Serial mediation between child disclosure and cyberaggression					
Predictors	**Problematic Internet use**		**Cybergossip**		**Cyberaggression**	
	β	**t**	**β**	**t**	**β**	**t**
Child disclosure	-.26***	-8.04	-.12**	-3.89	-.12***	-4.19
Problematic Internet use			.45***	14.77	.14***	4.45
Cybergossip					.45***	14.03
R²	.07***		.25***		.34***	
F	(1, 857) 64.68		(2, 856) 141.77		(3, 855) 145.11	

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

The moderation results indicate that there were no statistically significant differences between boys and girls in the associations between variables (ps>.05). Age proved to be a determining variable in the effects of child disclosure on problematic Internet use: ß=-.20, t=-2,95 <.01. The effects were significantly greater in early adolescence in comparison to late childhood (See Figure 1).

Figure 1. Moderating role of age in the effects of child disclosure on problematic Internet use
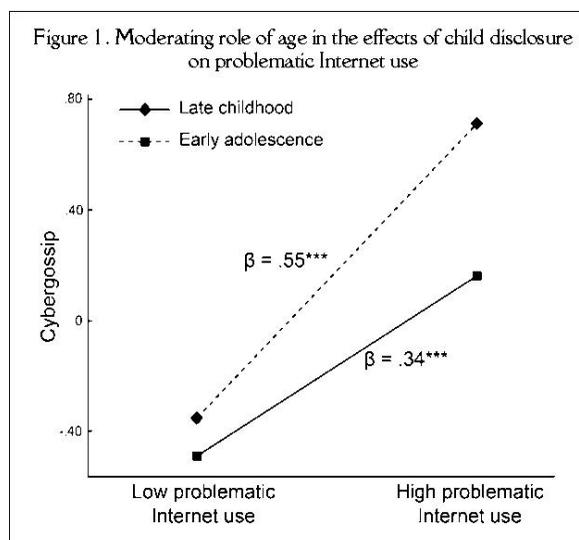
Age was found to influence the effects of problematic Internet use on cybergossip: $\beta=.21$, t= .51, p<.001. These effects were significantly greater in early adolescence in comparison to late childhood (Figure 2). Indirect effects show how the Child disclosure $\rightarrow$ Problematic Internet Use $\rightarrow$ Cyberaggression path was significant in early adolescents, $\beta_{Early-adolescence}= .07$, 95% CI [-.12, -.03], but not in late childhood, $\beta_{Late\ childhood}=-0.02$, 95% CI [-.04, .00]. As regards the Child disclosure $\rightarrow$ Cybergossip $\rightarrow$ Cyberaggression path, there were no significant differences between the two groups, $\beta_{Early\ adolescence\ -\ late\ childhood}=.00$, 95% CI [-.06, .06]. Finally, as for the Child disclosure $\rightarrow$

Problematic Internet use → Cybergossip → Cyberaggression path, early adolescents showed statistically greater effects, $\beta_{Early\ adolescence}$=-.09, 95% CI [-.13, -.06], $\beta_{Late\ childhood}$=-.02, 95% CI [-.04, -.01], $\beta_{Early\ adolescence\ -\ late\ childhood}$=-.06, 95% CI [-.11, -.03].

Figure 2. Moderating role of age in the effects of problematic Internet use on cybergossip
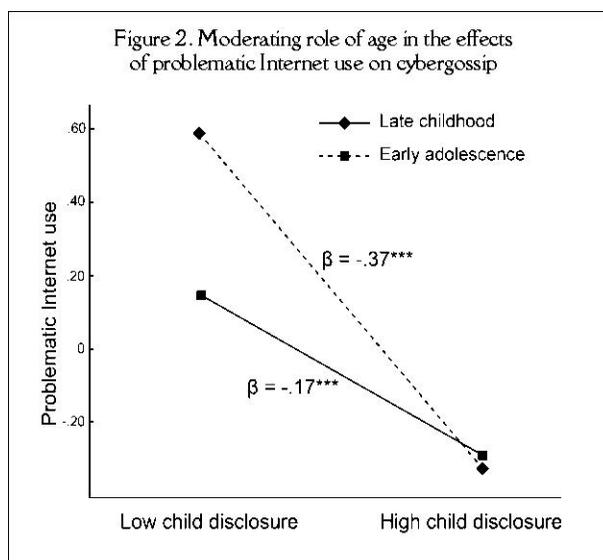
4. Discussion and conclusions

The aim of this research was to advance our scientific knowledge about the cyberaggression phenomenon, which occurs in the digital world shared by boys and girls and which has its beginnings in the last years of primary education. The problem was addressed by looking at the relationship of cyberaggression with the possible risk and protection factors present in school and family settings. As mentioned in Hypothesis 1, we expected the results to indicate that establishing family relationships based on communication and trust reduces the risk of being involved in cyberaggression. Although the protective effect of child disclosure has already been recognized in previous research (Buelga et al., 2017), it remains to be seen how this relationship is enhanced, in particular, by finding out what types of online behaviour can mediate the effect of this communication on cyberaggression. To achieve this, we formulated and examined a mediation model based on the integration of problematic Internet use and cybergossip, two types of online behaviour whose relationship with cyberaggression has been demonstrated (Cerezo et al., 2016; Kisfalusi et al., 2019).

This study enables us to advance in the identification of certain online activities that can potentially mediate the relationship between child disclosure and cyberaggression: problematic Internet use and cybergossip. These results suggest that both forms of online behaviour mediate the effects of such communication on cyberaggression (Hypothesis 2). Previous studies have shown that a greater online presence increases exposure to risks such as cyberaggression (Cerezo et al., 2016; Baldry et al., 2019), and in turn, that child disclosure reduces problematic Internet use (Chen & Shi, 2019). Likewise, it has been shown how making evaluative comments about other people on Internet increases the risk of cyberaggression (Romera et al., 2018). The reason for this is that cybergossip is behaviour which is developed in a group and clearly fulfills a function of enhancing group cohesion. The evaluative nature of the comments shared in that group not only affects the behaviour of its members, but also serves as a stimulus to boost the kind of behaviour which is valued within the peer group. By posting messages about others, these boys and girls normalise hurtful behaviour in order to maintain their social position and status within the group. This is why it is so important to address this kind of online behaviour, because, although it is not initially intended to do any harm, it is susceptible to misunderstandings and therefore increases the risk of engaging in cyberaggression behaviour. The relationship between parental educational practices and cybergossip has not yet been explored, so this study represents an advance by stressing the need for parents

to talk with their children about their online activity: not just their individual behaviour, but the conduct and attitudes they assume as part of their peer group, from which they learn their social conduct. Helping them to interpret the content of messages and understand the emotional nuances behind them, while learning not to instinctively assign hostile intentions to messages, are some of the key areas to work on, and this is especially vital at the age when children begin to maintain interpersonal relationships online. The findings for mediation suggest that child disclosure about children's online behaviour can serve as a protective factor against involvement in cyberaggression by reducing inappropriate Internet use and involvement in cybergossip, which are factors that also influence cyberaggression.

As was expected, the moderation results show that late childhood is the key time for implementing educational strategies aimed at promoting appropriate Internet use through open family communication. It has been observed how, mainly in early adolescence, high levels of child disclosure are related to low levels of problematic Internet use, just as more problematic Internet use is associated with greater involvement in cybergossip (Hypothesis 3a). The fact that these relationships are strengthened in early adolescence highlights the transition to the adolescent stage as a key evolutionary period to promote safe online use, as well as underlining the need to pay attention at these vital, transformative ages to the most important variables that can reduce problems of cyberaggression, which tend to increase considerably during adolescence (Smahel et al., 2020). In contrast, gender did not moderate the associations between the study variables (Hypothesis 3b). This suggests that, even though girls engage in more child disclosure and are less commonly involved in risky online behaviour, being a boy or a girl does not increase the probability that problematic Internet use or cybergossip is associated with cyberaggression. These results coincide with previous studies which reveal that gender is not a differentiating variable in the effects of parental communication on Internet use (Huang et al., 2019).

A number of limitations must also be taken into account in this study. First of all, although the sample is relatively large, it comes from one geographical region, so these relationships would need to be explored with participants from other regions and cultures in order to be able to generalise the results. In addition, the study includes measurements taken on one single occasion, so that causal relationships between the study variables cannot be established. In addition, although the child disclosure scale explores certain types of behaviour shared with families, it would be interesting to investigate the reasons that encourage children to talk about their online behaviour, as well as how adults respond to this information. Another limiting factor is the type of instrument used, self-report scales, not only because they are associated with desirability, but also because, due to the age of the children taking part, some difficulties may be encountered in the reading comprehension of the items. Further visual aids and qualitative studies could be used to support the reliability of the results obtained, and an analysis of the family context (education, socio-economic level or parenting strategies) would help us to understand better the established relationships. Further research could apply a longitudinal design to allow us to explore the causal nature of the study variables. We need to delve deeper, too, into the role of the peer group in online behaviour, following developmental studies which highlight the influence of social media on individual social behaviour. Similarly, it would be of interest to explore cultural differences in the links between parental educational practices and the prevention of online risks (Shapka & Law, 2013).

Despite these limitations, this is the first study to examine the mediating relationship between problematic Internet use and cybergossip in the relationship between child disclosure about children's and adolescents' online behaviour and cyberaggression. The results we present here constitute a significant step forward for research in this line, as well as providing guidance for the design of cyberaggression prevention programs. They also highlight the importance of raising awareness in the family context in favour of building a positive online coexistence that fosters communication and trust, which facilitate and encourage children and adolescents to share their experiences on the social media with their parents, whose role it is to help them reflect, experience emotions and make moral judgements. It is therefore vital that families are involved, so that children can learn to manage their online relationships well. Not only is it a question of families worrying about how to avoid cyberaggression, but they should also be involved in building a positive online coexistence, striving to make the use of Internet problem-free and to ensure that the interactions and group dynamics set up do not result in the bullying of others. These results can

also provide guidance for designing cyberaggression prevention programs, which would require training for families to help them manage the relationships with their children about their Internet use, and to teach them about the different aspects of online behaviour which may constitute a risk.

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