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The Role of Bullying, Online Activity, and Parental Supervision on The Emotional Impact of Cyberbullying

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The study design was approved by the Andalusian Biomedical Research Coordinating Committee before data collection.

The Role of Bullying, Online Activity, and Parental Supervision on The Emotional Impact of Cyberbullying

Previous evidence on cyberbullying among adolescents indicates that involvement as a cybervictim has devastating consequences, particularly in the emotional domain. However, not all cybervictims suffer the same negative emotional effects. This study aimed to examine which specific factors are most relevant in explaining the variability in the emotional responses among cybervictims: feeling depressed, angry, and active or ready for action, considering also gender and age. A total of 4,271 Spanish secondary school students (49.3% girls), aged 11-18 years (M_{age} = 13.57, SD = 1.22) participated in this cross-sectional study. Participants completed paper scales measuring bullying and cyberbullying involvement, online activity on digital devices, and family digital practices. Cybervictims (15.3%) were identified to test two structural equation models (SEMs), in which individual and contextual variables were progressively introduced, and subsequently comparing according to gender and age. The results of the SEM showed that all factors had a crucial role in the association between cybervictimisation and each type of emotional impact, with differences between boys and girls, but not between pre-adolescents and adolescents. Specifically, bullying victimisation, social media use and oversharing practices predicted the depressed impact followed by the angry impact, acting as a risk factor for the negative emotional effects among cybervictims. However, online parental supervision predicted the active impact, i.e. being prepared to face the situation, acting as a protective factor. These results suggest the importance of schools and families addressing bullying, cyberbullying, digital education and socio-emotional development among adolescents comprehensively not only to prevent involvement in violent phenomena, but also to mitigate their negative effects and promote more effective coping.

Keywords: Cyberbullying, Adolescents, SEM, Risk factors, Emotional impact

The Role of Bullying Victimisation, Online Activity, and Parental Supervision on The Emotional Impact of Cyberbullying

Research on adolescents' use of information and communication technologies (ICTs) has focused on understanding their purposes, as well as the potential benefits and risks to their health and well-being (McDool et al., 2020). Findings from a study conducted by Andrade et al. (2021) on a large sample of 41,509 Spanish adolescents aged 11-18 years, point to adolescents using technology mainly for social interaction (e.g., chatting), followed by entertainment (e.g., listening to music). This is in line with other international studies (e.g. see Scherer et al., 2017) and suggests that the Internet, social media, instant messaging apps and other virtual environments (e.g. video games) have become important settings for socialising with peers (Allen et al., 2014; Patel & Quan-Haase, 2022). According to the World Health Organization (WHO, 2020), adolescents perceive most of their online social experiences as positive. For instance, they use the network to make friends and not feel lonely (Nesi et al., 2018). However, although a proportion of adolescents, over 78.9%, report feeling positive emotions when they are online, such as joy, calmness fun or comfort, there is another proportion, up to 27.9%, who recognise feeling negative emotions, such as insecurity, loneliness, distress and even rejection (Andrade et al., 2021). These negative emotions could be related to risks associated with online activities, including aggression-related behaviours within the peer group (Vannucci et al., 2020).

Previous evidence shows that episodes of peer aggression through electronic media can be sporadic, for example as reactive behaviour to avoid a threat, but can also evolve into persistent or severe forms of aggression, leading to certain types of interpersonal violence (Smahel et al., 2020). This poses a serious public health problem worldwide (UNESCO, 2018). "Cyberbullying" is one of the most studied types of interpersonal violence among adolescents (Arató et al., 2022; Giumetti & Kowalski, 2022), as its incidence peaks at this age

(i.e., around 13-15 years) (WHO, 2020), with girls being more involved as cybervictims (Carvalho et al., 2021; Tsitsika et al., 2015), and has devastating consequences for health and well-being of those involved (Campbell et al., 2012; Espelage & Hong, 2016; Hellfeldt et al., 2019; Tran et al., 2023). Actually, Audrin and Blaya (2020), in data from 1,019 children and young people who participated in the EU Kids online survey in France, found that the more students reported having been cybervictims, the lower their psychological well-being. Cyberbullying is therefore one of the phenomena of peer violence that has captured the most attention as a consequence of increased internet use (Eden et al., 2023).

Cyberbullying is a type of peer-to-peer violence through electronic forms of contact in which, as in traditional bullying, the set of aggressions is carried out by an individual or group in a premeditated or intentional, unjustified and repeated manner over time (Vivolo-Kantor et al., 2014) and involves a power imbalance or domination (Menin et al., 2021). It is also characterised by potential anonymity (Menesini et al., 2012), asynchrony (Kowalski et al., 2019) or viralisation of attacks (Casas et al., 2020), whether written or visual (e.g. posting harmful comments or sharing audiovisual content, respectively) (Perasso et al., 2020). Although the prevalence of suffering from this problem varies across studies worldwide (Brochado et al., 2016), recent systematic reviews such as that of Zhu et al. (2021), which included 63 studies mostly from US, Spain, China, Israel, Turkey, Canada or South Korea, yielded rates of peer cybervictimisation ranging from 13.99 to 57.5%.

The Emotional Impact of Cyberbullying Victimisation

Extensive research on the impact of cyberbullying (Audrin & Blaya, 2020) has identified diverse effects, such as emotional consequences (Liu et al., 2020; Marciano et al., 2020), impaired academic performance (Tsitsika et al., 2015), or risky behaviours (e.g., substance abuse) (Vannucci et al., 2020). Among these effects, the findings are consistent in pointing to negative emotional impact as the common outcome for cybervictims, even up to one year

after experiencing the attacks (e.g., higher levels of sadness) (Halliday et al., 2023), with girls vs. boys being more affected by suffering from them (Kelly et al., 2019; Kim et al., 2019; Moreno-Ruiz et al., 2019; Ortega, Elipe et al., 2012; Tao et al., 2024).

But not all cybervictims suffer the same type of emotional effects, nor with the same intensity (Dredge et al., 2014; Elipe et al., 2015). Emotions therefore vary considerably among cybervictims (Bottino et al., 2015; Kim et al., 2017). According to Elipe et al. (2017), the "emotional impact" of cyberbullying, as a construct, should be understood as the broad spectrum of emotions experienced by cybervictims, including negative emotions (e.g., loneliness or irritability) but also other emotions more related to activation (e.g., determination). When exploring the emotional responses of cybervictims, it has been found that they often feel dissatisfied with their lives (Cañas et al., 2020) and have difficulties in regulating their emotions (Beltrán-Catalán et al., 2018), which could lead them to use maladaptive strategies to cope with their situation (Arató et al., 2020). In this vein, two types of negative emotional impact have been defined: depressed and angry. The "depressed impact" includes emotions related to sadness, fear or helplessness, while the "angry impact" includes emotions related to rage or offence (Campbell et al., 2012; Ortega-Ruiz, Elipe et al., 2012). Tackling these types of negative emotional impact is urgent, in line with recent research showing that depressed mood may lead to suicidal ideation (Zhou et al., 2024) and angry mood may lead to cyberperpetration (Zsila et al., 2019). In contrast, since there are also cybervictims who, albeit to a lesser extent, show an adaptative resilience, a third type of emotional impact has been defined: active impact. "Active impact" includes emotions related to being ready or determined to cope and overcome the situation (Elipe et al., 2017).

Hence, in the current research, we sought to understand the specific factors responsible for the different emotional impact of cyberbullying on victims. To this end, we examined some individual factors – i.e., face-to-face bullying victimisation and online activity, such as

social media use and oversharing practices, and contextual factors – i.e., family digital practices such as online parental supervision, as both types of variables could be important in explaining not only higher or lower levels of involvement in cybervictimisation, but also variability in emotional responses among cybervictims.

Links Between Bullying, Cyberbullying and Its Emotional Impact

To date, extensive research in peer violence has shown that face-to-face victimisation and cybervictimisation associated, both in cross-sectional (e.g., see Chudal et al., 2021) and longitudinal studies (e.g., see Viau et al., 2020). Indeed, there is ample evidence of their overlap (Beltrán-Catalán et al., 2018; Carvalho et al., 2021). For instance, in a cross-national macro-study involving 764,518 adolescents from 37 European and North American countries, by Cosma et al. (2020), 45.8% of the victims of cyberbullying were also victims of traditional bullying. This pattern is similar to that found in another cross-sectional studies with smaller sample sizes. Specifically, Wang et al. (2019) reported this combined peer cyber and traditional victimisation among the 2111 Taiwanese adolescents participating in their study in 48.7% of cybervictimisation cases. However, there is less research on whether involvement in face-to-face victimisation also contributes to the different emotional impact of cybervictimisation. In this regard, having combined peer victimisation experiences in both face-to-face and online contexts can led to more severe emotional consequences, e.g., higher internalising symptom levels (Carvalho et al., 2021; Chudal et al., 2021; Marciano et al., 2020), possibly intensified by the uncertainty about the cyberspace (Menesini et al., 2012). Moreover, Giménez-Gualdo et al. (2015) found that cyberbullying was experienced more negatively by adolescents who had been victimised both face-to-face and online than by those who had been victimised only online.

Links Between Online Activity, Cyberbullying, and Its Emotional Impact

There is a growing concern around the risky social media use among adolescents (Andrade et 2021; Audrin & Blaya, 2020; Giumetti & Kowalski, 2022). Based on the meta-analysis of Marciano et al. (2020), in particular, social media use predicts cybervictimisation over time. "Social media use" refers to the frequency or type of online activity of minors on the platforms they use to communicate and consume content (Allen et al., 2014; Kelly et al., 2019), which can be intensive or problematic (Boer et al., 2020; Craig et al., 2020). According to a recent UNICEF report, by Andrade et al. (2021), which informs on the impact of technology on Spanish adolescents, 83.5% admitted to having three or more simultaneous virtual profiles, with Instagram and Tiktok being the most used. In this sense, findings are consistent in pointing to the significantly higher risk of cybervictimisation involvement, or higher severity, when social media use is intensive (Craig et al., 2020; Hoareau et al., 2021). This is particularly the case of those adolescents who connect more often, for a longer time and across more profiles (Feijóo et al., 2021). This intensive use could even continue to increase when adolescents are already being cybervictimised (Müller et al., 2018), may account for approximately 35% of cases (Camerini et al., 2020; WHO, 2020), either in terms of time spent or variety of uses. Compared to non-cybervictims, Navarro et al. (2016) found that cybervictims tend to use the social media to make new contacts, create an anonymous identity, avoid the real world, or compensate for their difficulties in face-to-face interaction.

A second concern relates to the sharing of content on social media (Giumetti & Kowalski, 2022; Kowalski et al., 2019). Adolescents today have normalised the exposure or disclosure of privacy when using social media, e.g. personal information or photos online (Chen et al., 2017; Shabahang et al., 2022). These sharing practices are referred to as "oversharing", as they involve overexposing one's real identity or intimacy (Tello, 2013). Despite the fact that adolescents have normalised these type of online practices and engage in them as a way of gaining visibility within the peer group (Bastiaensens et al., 2016), it has

been demonstrated that oversharing the private life (e.g., feelings, thoughts or daily experiences) through social media places adolescents at risk of becoming targets for cyberaggression, including serious negative behaviours – e.g., impersonation through a fake profile, which would intensify the feeling of insecurity online and offline (Lareki et al., 2017).

Data from the Health Behaviour in School-aged Children (HBSC) survey, including 154,981 adolescents from 29 countries, already pointed to deteriorating general well-being (e.g., psychological complaints, such as feeling low, irritable and nervous) among problematic social media users (Boer et al., 2020). However, the consequences of this intensive use of social media are even more severe among cybervictims (Marciano et al., 2020). Cybervictims experience diminished perceptions of well-being more intensely (Longobardi et al., 2020), e.g., through higher levels of depressive symptoms (Kelly et al., 2019; Varela et al., 2022).

Links Between Online Parental Supervision, Cyberbullying, and Its Emotional Impact

One of the most examined contextual risk/protective factors related to the use of technology and their potential risks, such as cyberbullying, is online family functioning (Camerini et al., 2020; Nocentini et al., 2018; Zhu et al., 2021). In particular, recent studies with an Italian (N = 4,390, aged 13-20 years) or a Spanish (N = 6,408, aged 10-16 years) adolescent population highlight the importance of online parental supervision in increasing (Baldry et al., 2019) or reducing (Martín-Criado et al., 2021) their risk of involvement as cybervictims, respectively. According to Ortega, Del Rey et al. (2012), "Online parental supervision" typically refers to monitoring and assisting with social networking activities in the family environment as part of digital education. Thus, findings generally indicate that family digital strategies based on warmth and collaboration are more effective in curbing involvement in cybervictimisation (Aljasir & Alsebaei, 2022; Arató et al., 2020; Moreno-Ruiz et al., 2019) than more restrictive measures, such as the prohibition of the use of digital devices (Elsaesser et al., 2017). In addition, other significant findings suggest that these

adequate levels of online parental supervision may even mitigate some negative effects among cybervictims, such as depressive symptoms (Hellfeldt et al., 2019). The literature, however, is scarce on whether online parental supervision could also play a role in reducing other negative emotional consequences of cybervictimisation, such as annoyance, or in promoting more positive ones, such as activation.

The Present Study

Evidence from previous research suggests that there is variability in cybervictims' emotional responses (Giménez-Gualdo et al., 2015; Ortega-Ruiz, Elipe et al., 2012; Wachs et al., 2020). Hence, the present study aimed to find out which specific factors are most relevant in explaining the different emotional impact on adolescents who are cybervictims, focusing not only on the depressive mood – the most commonly studied (Tran et al., 2023; Vaillancourt et al., 2017; Zhou et al., 2024), but also on the angry or active mood (Elipe et al., 2015, 2017). To do this, we examined individual and contextual circumstances that have traditionally been considered as risk/protective factors in the origin of cybervictimisation and which, in turn, may have a significant explanatory role in the variety of emotional responses of cybervictims. Advances in understanding the factors associated with the emotional consequences of cybervictimisation would offer insights into how to mitigate the more negative effects and enhance the more positive ones when coping with cybervictimisation.

We pursued a threefold objective. First, to explore whether there are differences in bullying victimisation, social media use, oversharing practices, online parental supervision, and emotional impact between cybervictims and uninvolved, controlling by gender and age. We assumed that cybervictims would present higher levels of face-to-face bullying victimisation, social media use and oversharing practices, and the most negative emotional impact, that is, depressed or angry mood, and lower level of online parental supervision (Hypothesis 1; H1). Second, to examine whether and to what extent involvement in

cybervictimisation is related to depressed, angry, or active impact. We anticipated that cybervictimisation was positively associated with angry or depressed impact and negatively associated with active impact (Hypothesis 2; H2). Third, to analyse whether bullying victimisation, social media use, oversharing practices, and online parental supervision have a relevant explanatory power in the emotional variability among cybervictims. We expected to identify that bullying victimisation, social media use and oversharing practices contribute to angry or depressed impact, and that online parental supervision contribute to active impact (Hypothesis 3; H3).

Method

Participants

In our study, 4,271 students (49.3% girls), aged 11-18 years (M_{age} = 13.57, *SD* = 1.22), were recruited from 30 secondary schools in southern Spain. Of the total sample, 34.4% were in 7th grade, 31.4% in 8th grade, 30.3% in 9th grade and 4% in 10th grade. The sub-sample of cybervictims consisted of 654 students (49.3% girls), aged 12-18 (*M* = 13.84; *SD* = 1.25).

Measures

Participants were asked about some socio-demographic data (i.e., age, gender and academic year), as well as several Likert-type statements from validated scales:

To measure cybervictimisation, we selected the adaptation of the subscale of the *European Cyberbullying Intervention Project Questionnaire*, ECIP-Q (Del Rey et al., 2015) already validated in the Spanish adolescent population (Martín-Criado et al., 2021), comprising 13 items (Cronbach's $\alpha_{overall}$ = .90, 58.8% of Variance Extracted; .90 Reliability of the Construct (RC); .90 Coefficient H). All items had five response options, where 0 = "Never", 1 = "Yes, once or twice", 2 = "Yes, once or twice a month", 3 = "Yes, about once a week" and 4 = "More than once a week". The statements referred to the frequency of having suffered from physical, verbal, and psychological abuse and social exclusion through the

internet and social media in the last two months (e.g., "Someone has threatened me through messages on the internet or social networks"). This subscale showed a confirmatory factor analysis (CFA) with optimal values (χ^2 S−B = 821.71; DF = 46; p = .001; NNFI = 0.94, CFI = 0.95; RMSEA = .05, SRMR = .08).

The emotional impact of cybervictimisation was assessed using the *Cybervictimisation Emotional Impact Scale*, CVEIS (Elipe et al., 2017). This scale included 18 items ($\alpha_{overall}$ = .76), distributed across three factors: *depressed* ($\alpha_{depressed}$ = .87, 55.78% of Variance Extracted; .90 Reliability of the Construct (RC); .90 Coefficient H), *angry* (α_{angry} = .75, 59.7% of Variance Extracted; .89 Reliability of the Construct (RC); .88 Coefficient H) and *active* impact (α_{active} = .84, 55.6% of Variance Extracted; .92 Reliability of the Construct (RC); .90 Coefficient H), which were employed in the statistical analyses separately to meet the objectives of this study. All items had five response options (from 0 = "No, not at all" to 4 = "A lot") that asked adolescents to grade the extent to which they would feel different emotions when cybervictimised, related to three types of emotional impact: *depressed* (9 items), e.g., "scared, afraid", "defenseless, helpless", "depressed, sad"; *angry* (3 items), e.g., "irritable, in a bad mood", "choleric, enraged", "annoyed, angry"; and *active* (6 items), e.g., "energetic, lively", "determined, daring", "active, alert". The CFA reported optimal values for the three types of emotional responses: *depressed* (χ^2 S−B = 39.4574; DF = 2; p < .001; NNFI = 0.99, CFI = 0.99; RMSEA = .056, SRMR = .015); *angry* (χ^2 S−B = 23.5489; DF = 2; p < .001; NNFI = 0.99, CFI = 0.99; RMSEA = 0.04, SRMR = 0.01); and *active* (χ^2 S−B = 25.2460; DF = 2; p < .001; NNFI = 0.99, CFI = 0.99; RMSEA =0 .04, SRMR = 0.01).

To measure bullying victimisation, we used the victimisation subscale of the *European Bullying Intervention Project Questionnaire*, EBIP-Q (Ortega-Ruiz et al., 2016), consisting of 9 items ($\alpha_{overall}$ = .89, 53.8% of Variance Extracted; .90 Reliability of the Construct (RC); .90 Coefficient H) – we added two *ad hoc* items referring to LGBT bullying to the seven original

items. All items had five response options, where 0 = "Never", 1 = "Yes, once or twice", 2 = "Yes, once or twice a month", 3 = "Yes, about once a week" and 4 = "More than once a week". The statements referred to the frequency of having suffered from physical, verbal, and psychological abuse and social exclusion over the past two months (e.g., "Someone has hit me, kicked me or pushed me"). The CFA reported optimal values (χ^2 S−B = 397.89; DF = 27; p = .001; NNFI = 0.96, CFI = 0.97; RMSEA = .06, SRMR = .07).

Next, we measured the use of social media through an *ad hoc* scale, validated by Martín-Criado et al. (2021) in a Spanish sample. This scale contained five items ($\alpha_{overall}$ = .81, 52.78% of Variance Extracted; .89 Reliability of the Construct (RC); .87 Coefficient H) with five response options (from 0 = "Never" to 4 = "Always") that assessed adolescents' normalised online activity (e.g., "I follow YouTubers and try to do trending challenges"). The CFA reported optimal values (χ^2 S−B = 2996.99; DF = 462; p = .001; NNFI = 0.99, CFI = 0.99; RMSEA = .01, SRMR = .03).

We measured oversharing practices using an *ad hoc* scale, validated by Martín-Criado et al. (2021) in a Spanish sample. This scale included three items ($\alpha_{overall}$ = .85, 51.78% of Variance Extracted; .92 Reliability of the Construct (RC); .90 Coefficient H) with five response options (from 0 = "Never" to 4 = "Always"), in which adolescents were asked about the frequency of having disclosed intimate or private information in an attempt to seek popularity online (e.g., "I share photos and videos on my social networks and WhatsApp about what I do in my day-to-day life"). The CFA reported optimal values (χ^2 S−B = 1987.78; DF = 356; p = .001; NNFI = 0.96, CFI = 0.97; RMSEA = .05, SRMR = .06).

Finally, we measured online parental supervision using the family digital tutoring subscale of the *Escala para la evaluación de la calidad de la ciberconducta* [Scale for the evaluation of the quality of cyberbehaviour] (ESCACIBER) (Ortega-Ruiz, Del Rey et al., 2012). This subscale contained four items ($\alpha_{overall}$ = .83, 57.78% of Variance Extracted; .91

Reliability of the Construct (RC); .89 Coefficient H) with five response options, where 0 = "Never" and 4 = "Always". The statements referred to parental guidance, monitoring and support in the use of technology (e.g., "My parents help me to solve problems that happen to me in virtual social networks" or "My parents help me to make appropriate use of virtual social networks"). The CFA reported optimal values (χ^2 S−B = 66.32; DF = 2; p = .001; NNFI = 0.97, CFI = 0.99; RMSEA = .09, SRMR = .08).

Procedure

We conducted this study considering the ethical standards of the A.P.A. and was approved by the XXX Biomedical Research Ethics Coordinating Committee, following the guidelines of the International Conference on Good Clinical Practice. A purposive sampling by accessibility was used to conduct a cross-sectional study. School management teams were contacted by telephone and e-mail to request their collaboration in this research. Those interested and willing to participate informed the families through their computer platform about the purpose, content and application format of our survey and asked for their consent for their children to participate. Once the families provided their consent, the authorised students were asked to complete the survey, being previously informed of its anonymous and voluntary nature, as well as of their right to withdraw from participation at any time and the importance of answering all questions honestly. The students then gave their assent. Data collection, using paper surveys, took place during school hours for 20-30 minutes in the presence of the class teachers.

Data Analysis

We examined the psychometric properties by CFA, considering the fit indices for categorical variables (Hu & Bentler, 1999). We also determined the reliability using Cronbach's alpha coefficients, together with construct reliability and the H-index, following the criteria of Weiss (2011), as complementary reliability measures for dimensional

instruments. Then, using SPSS v.26, we performed descriptive statistical analyses (*M* and *SD,* and %) and comparison of means by Student's t-test. First, we applied the criteria for involvement proposed by the authors of ECIP-Q (Del Rey et al., 2015). The cut-off point was having been cyberbullied "at least once or twice a month". Once the two groups, "uninvolved" and "cybervictims", were identified, we tested Student's t-means to examine differences in all variables under study. We repeated the Student's t-means comparison to verify whether there were significant differences in scores according to gender (boys vs. girls) and age (pre-adolescents vs. adolescents). In the latter case, the "pre-adolescent" and "adolescent" groups were split according to criteria similar to those of Steinberg (2014), where "pre-adolescents" corresponds to 11-13 years and "adolescents" to "14-18". Additionally, following Cohen's (1977) recommendations, we used Cohen's *d* index to measure the effect size, with a "small" effect between 0.2 and 0.3, a "medium" effect around 0.5 and a "large" effect from 0.8 to infinity.

Subsequently, we selected the subsample of cybervictims to perform two structural equation models (SEMs) using EQS v.6.4 software. In model 1, our hypothetical model (see Figure 1), the direct association between cybervictimisation and emotional impact (depressed, angry, or active) was tested. Then, in model 2 (see Figure 2), face-to-face bullying victimisation, social media use, oversharing practices and online parental supervision were introduced as independent variables to assess their association both with cybervictimisation and the different types of emotional impact.

SEM 1 and 2 were configured with the latent variables, considering the observed variables, or individual items. Models 1 and 2 were estimated using the Least Square Robust method, as suggested by Flora and Curran (2004). The fit of the models was tested with the following indices: Satorra-Bentler scaled chi-square (χ^2S −B; Satorra & Bentler, 2001); the comparative adjustment index (CFI) and the non-normality adjustment index (NNFI; ≥ .90 is

adequate; ≥ .95 is optimal); the root mean square error of approximation (RMSEA) and the root mean square residual (SRMR; ≤ .08 is adequate; ≤ .05 is optimal; Hu & Bentler, 1999). To address the second aim, the degree of robustness of the factorial structure or invariance of the models was tested through multigroup analysis, with gender and age as the analysis criteria. This analysis consists of comparing sets of increasingly restrictive models (Models 1 and 2). In Model 1, configural invariance is tested by imposing the same factorial structure on both subsamples and checking whether the fit indexes of the combined model indicate good model fit. Next, in Model 2 the factorial loads are restricted and the fit indexes of both models are compared. Changes (Δ) in NNFI, CFI, RMSEA and SRMR of > 0.01 between the models indicate the condition of measurement invariance is not met (Dimitrov, 2010).

Results

Based on the first objective, involvement as a victim of cyberbullying has been calculated on the basis of the theoretical criteria outlined previously (Del Rey et al., 2015; Martín-Criado et al., 2021). Of the participants, 15.3% were cybervictims (n = 654), of which 50.7% were boys (n = 331) and 49.3% girls (n = 323). Descriptive results are shown in Table 1. Supporting the H1, statistically significant differences were found in all variables under study. Specifically, cybervictims showed higher scores on bullying victimisation, social media use, oversharing practices, and all types of emotional impact (angry, active or depressed) than uninvolved. However, cybervictims showed lower scores on online parental supervision than uninvolved. We also calculated the differences between the variables studied according to gender (boys vs. girls) and age (pre-adolescents vs. adolescents). In terms of gender, boys showed significant differences with a higher average score in active impact and social media use. However, girls scored significantly higher on depressed impact and online parental supervision (see Table 2). In terms of age, pre-adolescents showed higher scores on the

involvement in traditional bullying victimisation and online parental supervision, while adolescents only showed a higher level of oversharing practices (see Table 3). In addition, the matrix of polychoric correlations of the latent variables studied in this research has been calculated (see Table 4).

Links Between Cyberbullying and Emotional Impact

In order to address the second objective, a structural equation model has been developed with cybervictimisation as the independent variable. The dependent variables are the three types of emotional impact studied. The fit of model 1 reported optimal indices (χ^2 S-B = 2523.58; p = .00; RMSEA = .05; SRMR = .08; CFI = .95; NNFI = .95). The explained variance was R^2 = .68 for depressed impact, followed by R^2 = .64 for angry impact and R^2 = .14 for active impact (see Figure 1). Confirming the H1, cybervictimisation was directly associated with depressed impact (β = .87, p < .05) and angry impact (β = .80, p < .05), and inversely associated with active impact (β = –.37, p < .05).

Subsequently, two multi-group analyses of this model were carried out to compare their similarities or differences based on the socio-demographic variables of gender and age. The comparative gender model showed differences both in the fit indices and in the comparative multi-group analysis itself. Table 5 and Figure 2 show the differences in model fit and constrictions with deltas. The model fits better for girls than for boys and the betas are very different. For girls, the relationship between cybervictimisation and depressed (β = .80, p < .05) and angry impact (β = .52, p < .05) is more significant than for boys. The explained variance was R^2 = .78 for depressed impact, followed by R^2 = .66 for angry impact and R^2 = .10 for active impact. For boys, there is even a positive relationship with active impact (β = .40, p < .05), in contrast to the general model and the girls' model, which had an inverse relationship (see Figure 2). The explained variance was R^2 = .38 for depressed impact, followed by R^2 = .44 for angry impact and R^2 = .34 for active impact. In terms of age, no

differences were shown in the fit and relationships of the model (see Table 5). The fit is correct and there are no notable differences in the relationships between variables (see Figure 3).

Links Between Individual/Contextual Factors, Cyberbullying and Emotional Impact

Based on the second objective, a new structural equation model has been calculated where the following independent variables have been introduced: traditional bullying victimisation, online parental supervision, social media use and oversharing practices. The fit of model 2 reported optimal indices (χ^2 S-B = 3719.19; p = .00; RMSEA = .01; SRMR = .07; CFI = .99; NNFI = .99). The explained variance was R^2 = .71 for cybervictimisation, and R^2 = .87 for depressed impact, R^2 = .68 for angry impact and R^2 = .25 for active impact. As can be seen in Figure 4, bullying victimisation was directly associated with cybervictimisation (β = .87, p < .05), depressed impact (β = .85, p < .05) and angry impact (β = .78, p < .05), and inversely associated with active impact (β = –.34, p < .05); oversharing practices were directly associated with cybervictimisation (β = .29, p < .05), angry impact (β = .86, p < .05) and depressed impact (β = .78, p < .05), and inversely associated with active impact (β = –.24, p < .05); social media use was directly associated with cybervictimisation (β = .58, p < .05), angry impact (β = .78, p < .05) and depressed impact (β = .76, p < .05), and inversely associated with active impact (β = –.49, p < .05); online parental supervision was inversely associated with cybervictimisation (β = –.15, p < .05), angry impact (β = –.34, p < .05) and depressed impact (β = –.28, p < .05), and directly associated with active impact (β = .45, p < .05). Therefore, H3 was confirmed. In order to contrast possible differences and similarities, multi-group analyses with the variables of gender and age have also been calculated for this second model. As in the previous model, the gender comparison showed significant differences both in the fit and in the constrictions of the relationships between variables. Age, on the other hand, did not show any significant differences in fit or relationships. Table 6 Figures 5 and 6

showed the model fit and the relationships between the variables in the multi-group analyses by gender and age. The best fit of the model for girls and significantly different relationships in terms of direct and indirect relationships with angry and depressed impacts stand out. For example, among girls the direct relationship of online parental supervision with cybervictimisation ($\beta = -.30$, $p < .05$), and with angry ($\beta = -.54$, $p < .05$) and depressed ($\beta = -.39$, $p < .05$) impacts are inverse. Among boys, the importance of the relationship with active impact is noteworthy, where the direct relationship of cybervictimisation was positive ($\beta = .16$), contrary to the rest of the models calculated (see Figure 5). With regard to age, no differences were shown in the fit and relationships of the model (see Table 6). The fit is correct and there are no notable differences in the relationships between variables (see Figure 6).

Discussion

The present study aimed to investigate the role of bullying victimisation, social media use, oversharing practices and online parental supervision in explaining variability in emotional responses among cybervictims. This study provides relevant information on the specific factors that are associated with experiencing more negative emotional responses, such as annoyance or depression, versus less negative ones, such as activation, after experiencing cyberbullying. Hence, the present study advances the understanding of cybervictimisation among adolescents by demonstrating that the different emotional responses depend not only on the involvement in the phenomenon itself, but also on the presence of other individual and contextual conditions that act as risk or protection from the negative emotional impact.

Our first hypothesis asserts that, compared to uninvolved, cybervictims present higher levels of face-to-face bullying victimisation, social media use, oversharing practices, and negative emotional impact, that is angry or depressed, and lower levels of online parental supervision, considering possible differences between boys and girls, and between pre-

adolescents and adolescents. Our results support this hypothesis and, in fact, are in line with previous literature on cyberbullying (Baldry et al., 2019; Camerini et al., 2020; Cosma et al., 2020; Zhu et al., 2021). Surprisingly, we also find that cybervictims score higher on active impact, which refers to being prepared or willing to overcome the situation (Elipe et al., 2017). One possible explanation for this is that some cybervictims feel the emergency of the situation and the need to escape. However, this does not ensure that cyberaggressions will stop (Nacimiento & Mora-Merchán, 2014). This is particularly the case if cybervictimisation occurs very frequently. Severe cybervictims tend to use less effective coping strategies than occasional cybervictims, being among the most effective strategies to seek social support or stay positive (Navarro et al., 2016). In terms of gender differences, and in line with prior investigations, our results support that girls who are cybervictimised tend to experience higher levels of depression than cybervictimised boys (e.g. Tran et al., 2023), while cybervictimised boys tend to react more often than cybervictimised girls in an aggressive manner (e.g. Zsila et al., 2019). These results provide further insights into the differential emotional mechanisms underlying boys' and girls' coping with cyberbullying (Tao et al., 2024). However, with respect to age, our results only point to differences in the level of traditional bullying victimisation, but not in the rest of the variables analysed. Particularly, pre-adolescents show higher levels of bullying victimisation than adolescents, being consistent with previous research indicating a higher prevalence of involvement in the problem in the last years of primary and first years of secondary school (Andrade et al., 2021; WHO, 2020).

Our second hypothesis asserts that cybervictimisation is positively associated with angry impact and depressed impact and negatively associated with active impact, taking into account possible gender and age differences. According to our model 1, our results support this hypothesis and specifically reflect that cybervictimisation is similarly associated with both annoyance and depression (Campbell et al., 2012; Carvalho et al., 2021; Ortega-Ruiz,

Elipe et al., 2012). This indicates that cybervictims experience a significant deterioration in their socio-emotional development (Espelage & Hong, 2016; Giménez-Gualdo et al., 2015; Hellfeldt et al., 2019). In line with these findings, Audrin and Blaya (2020) found that cybervictimisation was related, on the one hand, to a decrease in emotional well-being (e.g., anxiety and low self-esteem) and, on the other hand, to a decrease in social competence, leading adolescents to develop impulsive or deviant behaviours. The fact that the model fits better for girls than for boys, with two of the three emotional impacts being negative (i.e. depressed or angry mood) is consistent with the fact that, according to the literature, cyberbullying has a worse impact on girls' well-being (Kelly et al., 2019; Kim et al., 2019; Moreno-Ruiz et al., 2019; Tao et al., 2024). Conversely, the fact that there is no difference in comparing the emotional impact of cybervictimisation between pre-adolescents and adolescents suggests that better or worse emotional response is not age-related, i.e. it is not necessarily a developmental issue.

Our third hypothesis asserts that bullying victimisation, social media use, oversharing practices, and online parental supervision play an important role in explaining the different emotional impact of cybervictimisation, controlling how it varies in boys and girls. Supporting this, and according to our model 2, our results indicate that the individual factors analysed seem to modulate the association between cybervictimisation and angry and depressed impacts, suggesting a potential risk role, and the contextual factor analysed seem to modulate the association between cybervictimisation and active impact, suggesting a potential protective role. In other words, the emotional impact does not simply depend on involvement itself, but also on individual and contextual circumstances.

As for bullying victimisation, in our study it is the factor that seems to be most, but not exclusively, associated with cybervictimisation, in line with previous evidence (Cosma et al., 2020; Wang et al., 2019). Moreover, according to Viau et al. (2020) the continuity of peer

aggression in physical and online environments means that not only victims experience a higher risk of becoming cybervictims, but also viceversa. Additionally, in our model, bullying victimisation is also found to most strongly explain the negative emotional impact, particularly the depressed impact. It seems clear that poly-involvement in bullying and cyberbullying would expose adolescents to a situation of greater vulnerability, as they would feel helpless both face-to-face and through the screen, which could lead to a greater sense of sadness (Beltrán-Catalán et al., 2019; Chudal et al., 2021).

Social media use in particular seems to explain cybervictimisation and its angry impact. There are several possible explanations. On the one hand, that adolescents who are online more frequently (e.g., on a daily basis) or engaging in a variety of activities (e.g., participating in trending challenges) are more likely to experience frequent cyberaggressions (Allen et al., 2014; Baldry et al., 2019; Wachs et al., 2020). On the other hand, that continued exposure to these cyberaggressions could trigger complex emotional processes, such as anger rumination (Liu et al., 2020), especially if cyberspace is their primary means of coping (e.g., to escape from problems) (Navarro et al., 2016). This is of particular concern given that poor emotional regulation of annoyance could lead cybervictims to engage in the perpetration of cyberbullying (Zsila et al., 2019). Furthermore, depending on gender, this factor has a greater explanatory power in boys, contrasting with the fact that it is girls who, according to Craig et al. (2020), are more likely to engage in intense or problematic social media use, especially at ages 13 and 15 years.

As for oversharing practices, in our study it is the factor that most strongly explains the angry impact among cybervictims. Several studies indicate that this type of online activity, in which adolescents overshare some aspects of their private lives (Tello, 2013) is related to the seeking of rewarding attention from peers (Shabahang et al., 2022). Cybervictims, being aware of their situation, may resort to the strategy of sharing this type of

content to make themselves more visible among peers and get more recognition or support from them (Martín-Criado et al., 2021). However, these practices may in fact be penalised by the peer group with more attacks (Ranney & Troop-Gordon, 2020) and thus leading to higher levels of frustration (Kwan et al., 2020). Considering gender differences, in our study this factor, oversharing, proves to have the most explanatory power in the variability of emotional impact for both girls and boys who are cybervictims. This finding highlights that it is the exposure of personal information itself, and not the amount, that not only increases the risk of cyberbullying, but also that it has worse emotional consequences for both girls and boys, although some studies, such as that of Shabahang et al. (2022), show that boys share significantly more on social media than girls.

Finally, as for online parental supervision, in our study this factor seems to explain to a greater extent the active impact among cybervictims. That is, this form of digital family support – e.g., guidance on how to make appropriate use or solve problems on the internet and social media (Ortega-Ruiz et al., 2012a) contributes not only to preventing adolescents' involvement in cybervictimisation (Aljasir & Alsebaei, 2022; Martín-Criado et al., 2021), but also to reducing the negative emotional impact once they are involved. In other words, parental guidance on how to make safe and positive use of the internet and social media can therefore predispose adolescents to be alert to the emergence of the problem and provide them with sufficient safety, confidence or protection to feel able to overcome it when they are victims of cyberbullying (Hellfeldt et al., 2019; Nocentini et al., 2018). Considering the role of gender in our study, this factor seems to be more relevant for girls, in line with more than a third of cybervictim girls reporting that their parents supervise their activities on social media, in contrast to the perception of poorer parental supervision by cybervictim boys (Baldry et al., 2019). However, despite the usefulness of online parental supervision, sometimes cybervictims hide the problems that occur online from their families (Elsaesser et al., 2017).

This silence could have at least two possible explanations. On the one hand, due to adolescents' perception of their parents' low technological competence, or digital divide (Baldry et al., 2019; Monks et al., 2016). On the other hand, due to fear of overreactions or measures to restrict or ban the use of the internet and social media (Elsaesser et al., 2017).

Limitations

This study has several limitations that should be noted. First, the cross-sectional nature of our study precludes establishing causal relationships between the variables analysed. Second, we used purposive sampling by accessibility in one region of Spain, which limits the generalisability of the results. Third, we collected data using student self-reports, so there is a risk of social desirability in student responses. Finally, there are some uncontrolled variables, as we analysed three types of emotional impact (i.e., angry, active or depressed), but not other internalising or externalising symptoms.

Future Research Directions

Despite these limitations, this study presents important advances in the knowledge of cyberbullying and its emotional impact among adolescents. Our study suggests that some face-to-face and online experiences, such as bullying victimisation, social media and oversharing practices' use are associated with a higher level of cybervictimisation and a negative emotional impact (i.e., depressed or angry), while online parental supervision is associated with a lower level of cybervictimisation and a positive emotional impact (i.e., active). These findings point to circumstances that might act as risk factors versus protective factors, respectively, not only for involvement in the phenomenon, but also for its emotional effects. To contribute further to the understanding of this form of peer-to-peer cyberviolence, future lines of research should: 1) explore longitudinally the links between the variables; 2) extend data collection to other national and international regions; 3) combine different measures (e.g., peer or family reports); and 4) examine the role of other relevant factors in the

dynamics of cyberbullying, such as anger regulation (Arató et al., 2022; Zsila et al., 2018), peer pressure (Monks et al., 2016), need for popularity (Longobardi et al., 2020; Ranney & Troop-Gordon, 2020) or coping strategies, e.g., social support seeking (Nacimiento & Mora-Merchán, 2014).

Implications

The results of the present study have important implications for the prevention of cyberbullying. Our study provides relevant insights for teachers, counsellors, other educational practitioners and families on some key factors that need to be addressed not only to prevent the involvement of minors in cyberbullying, but also the negative emotional effects.

Based on our results, it seems crucial the joint approach to bullying and cyberbullying given their frequent overlapping (Del Rey et al., 2016; Viau et al., 2020; Zhu et al., 2021). In order to address cyberbullying, we suggest the promotion of digital education not only among adolescents, but also families, so that they know how to make positive use of the internet and social media (Elsaesser et al., 2017; Feijóo et al., 2021; Marciano et al., 2020). Taking these aspects into account would allow for the design and implementation of more effective psychoeducational programmes, which is one of the most urgent current demands in the field of violence prevention and intervention (Gaffney et al., 2019). Additionally, our results also support the need to promote social and emotional learning (Smith & Low, 2013), including resilience (Santos et al., 2020) and anger regulation (Liu et al., 2020) as some of the main prevention and intervention strategies to help cybervictims to cope better with this form of cyberviolence, thus buffering its negative effects.

Conclusions

The main contributions of our study suggest that: 1) cybervictims show higher levels of face-to-face bullying victimisation, social media use and oversharing practices and lower

levels of online parental supervision and, in the face of cyberbullying, feel more angry and depressed than uninvolved – with girls scoring higher in depressed mood and boys in angry or active mood; 2) the level of cybervictimisation accounts mainly for depressed impact – especially among girls, followed by angry impact – especially among boys; and 3) the emotional impact varies according to the presence of face-to-face bullying victimisation, social media use, oversharing practices, and online parental supervision. Specifically, among cybervictims, their additional experiences of face-to-face bullying victimisation mainly explain the depressed responses; oversharing practices, followed by social media use (i.e. the frequency and variety of use) mainly explain the angry responses; and online parental supervision exclusively explains activation to overcome the situation – with these factors being especially relevant for girls vs. boys. However, there do not appear to be differences in explaining the variability of emotional responses and their associated factors depending on age, suggesting that this is not a developmental issue.

Our study highlights that, in order to better explain involvement in cybervictimisation and its emotional impact, it is important to consider not only the specific risks of the virtual context (e.g., problematic use of digital devices), but also the physical context (e.g., experiences of face-to-face bullying victimisation) (Baldry et al., 2019; Cosma et al., 2020; Viau et al., 2019; Zhu et al., 2021). In this sense, the specific characteristics of cyberbullying, i.e., potential anonymity of the cyberaggressor (Menesini et al., 2012), 24/7 exposure to attacks (Kowalski et al., 2019) or their wide dissemination (Casas et al., 2020) contribute to cybervictims feeling frustrated, insecure or helpless and with a perceived lack of support (Campbell et al., 2012; Kwan et al., 2020). However, it seems clear that the emotional impact could also be promoted by other individual and contextual circumstances. In our study, face-to-face bullying victimisation, the type and frequency of use of social media and oversharing practices predict higher levels of cybervictimisation and depressed or angry reactions, while

the involvement of families in the appropriate use of technology seems to predict lower levels of cybervictimisation and active responses to overcome this problem. Hence, the promotion of positive peer interactions both in the face-to-face and online environments (Ortega-Ruiz, Del Rey et al., 2012), as well as of the positive use of technology (McDool et al., 2020), integrating a gender perspective, are important pillars to reduce cyberbullying and mitigate its devastating effects.

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Table 1

Descriptive analyses and Student's t-tests by involvement in cyberbullying

	M	*SD*		*M*	*SD*	*t*	*p*	d
Angry Impact	1.83	1.22	Uninvolved	1.77	1.22	–6.20	.01*	.30
			Cybervictims	2.09	1.14			
Active Impact	1.06	.98	Uninvolved	1.01	.96	–4.87	.01*	.25
			Cybervictims	1.24	1.04			
Depressed Impact	1.56	.96	Uninvolved	1.52	.97	–7.10	.01*	.32
			Cybervictims	1.81	.91			
Bullying Victimisation	.36	.48	Uninvolved	.25	.33	–21.87	.01*	.25
			Cybervictims	.94	.74			
Online Parental Supervision	2.33	1.18	Uninvolved	2.36	1.17	3.70	.01*	.37
			Cybervictims	2.17	1.20			
Oversharing Practices	.96	.90	Uninvolved	.88	.86	–10.38	.01*	.50
			Cybervictims	1.33	.99			
Social Media Use	1.48	.99	Uninvolved	1.43	.98	–7.32	.01*	.33
			Cybervictims	1.75	.99			

Note. * Statistically significant differences $p < .05$.

Table 2

Descriptive analyses and Student's t-tests by gender differences

		M	*SD*	*t*	*p*	d
Angry Impact	Boys	2,12	1,19	-,506	.61	.03
	Girls	2,17	1,18			
Active Impact	Boys	1,59	1,04	8,561	.01*	.31
	Girls	,90	,93			
Depressed Impact	Boys	1,53	,98	-6,302	.01*	.32
	Girls	2,06	1,02			
Bullying Victimisation	Boys	,96	,78	,765	.44	.02
	Girls	,91	,69			
Online Parental Supervision	Boys	2,01	1,20	-3,311	.01*	.37
	Girls	2,34	1,18			
Oversharing Practices	Boys	1,29	1,00	-,827	.40	.05
	Girls	1,35	,96			
Social Media Use	Boys	2,09	,94	8,933	.01*	.33
	Girls	1,41	,92			

Note. * Statistically significant differences $p < .05$.

Table 3

Descriptive analyses and Student's t-tests by age differences

		M	*SD*	*t*	*p*	d
Angry Impact	Pre-adolescents	2,09	1,15	-,827	.41	.03
	Adolescents	2,17	1,21			
Active Impact	Pre-adolescents	1,22	1,02	-,181	.85	.01
	Adolescents	1,24	1,07			
Depressed Impact	Pre-adolescents	1,81	1,02	,430	.67	.12
	Adolescents	1,78	1,05			
Bullying Victimisation	Pre-adolescents	1,01	,79	2,847	.05*	.25
	Adolescents	,89	,69			
Online Parental Supervision	Pre-adolescents	2,48	1,13	5,243	.01*	.37
	Adolescents	1,96	1,21			
Oversharing Practices	Pre-adolescents	1,17	,91	-3,462	.01*	.35
	Adolescents	1,45	1,01			
Social Media Use	Pre-adolescents	1,83	1,01	1.485	.13	.09
	Adolescents	1,71	,98			

Note. * Statistically significant differences.

Table 4

Polychoric correlations of the latent variables

	Active Impact	Depressed Impact	Angry Impact	Bullying Victimisation	Online Parental Supervision	Oversharing Practices	Social Media Use
Active Impact	-	-,277**	,051	-,021	-,087*	,088*	,200**
Depressed Impact	-,277**	-	,380**	,074	,090*	,051	-,123**
Angry Impact	,051	,380**	-	,108*	-,012	,142**	,030
Bullying Victimization	-,021	,074	,108*	-	-,071	,016	,069
Online Parental Supervision	-,087*	,090*	-,012	-,071	-	-,086*	-,055
Oversharing Practices	,088*	,051	,142**	,016	-,086*	-	,282**
Social Media Use	,200**	-,123**	,030	,069	-,055	,282**	-

*The correlation is significant at the .05 level; ** The correlation is significant at the .01 level.

Table 5

Links between cyberbullying and emotional impact. Model 1 according to gender and age

Models		χ^2S-B	df	*p*	NNFI	CFI	RMSEA	SRMR	Δ χ^2S-B	Δ*p*	Δ NNFI	Δ CFI	Δ RMSEA	Δ SRMR
Gender	Boys	2195.80	789	.01	0.95	0.95	0.06	0.07	1093.19	0.00	0.04	0.04	0.03	0.04
	Girls	1102.61	789	.01	0.99	0.99	0.03	0.03						
Age	Pre-adolescents	2345.92	789	.01	0.95	0.95	0.04	0.04	-87.39	0.00	0.00	0.00	0.01	0.00
	Adolescents	2433.31	789	.01	0.95	0.95	0.05	0.04						

Table 6

Links between individual/contextual factors, cyberbullying and emotional impact. Model 2 according to gender and age

Models		χ^2S-B	df	*p*	NNFI	CFI	RMSEA	SRMR	Δ χ^2S-B	Δ*p*	Δ NNFI	Δ CFI	Δ RMSEA	Δ SRMR
Gender	Boys	2285.80	1255	.01	0.94	0.95	0.06	0.07	-769.55	0.05	0.04	0.04	0.03	0.03
	Girls	3055.35	1255	.01	0.99	0.99	0.03	0.04						
Age	Pre-adolescents	3987.37	1255	.01	0.99	0.99	0.04	0.05	-906.94	0.00	0.01	0.01	0.01	0.01
	Adolescents	4894.31	1255	.01	0.98	0.98	0.05	0.06						

Figure 1

Graphical solution – Model 1

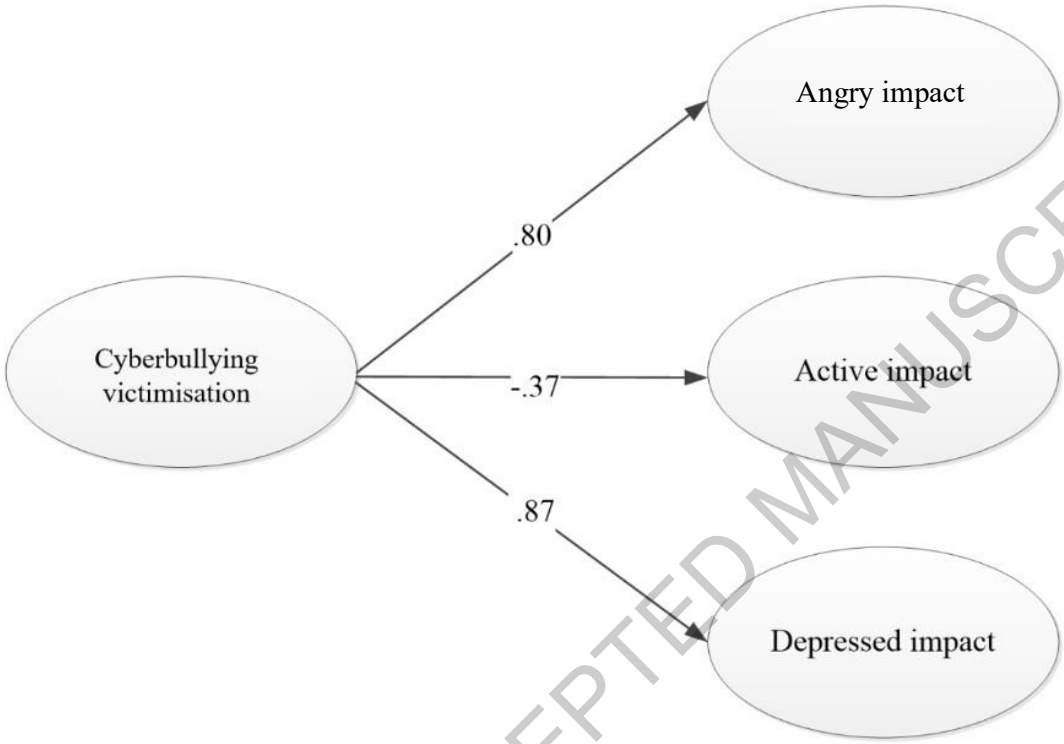

Figure 2

Graphical solution – Multigroup model 1 by gender

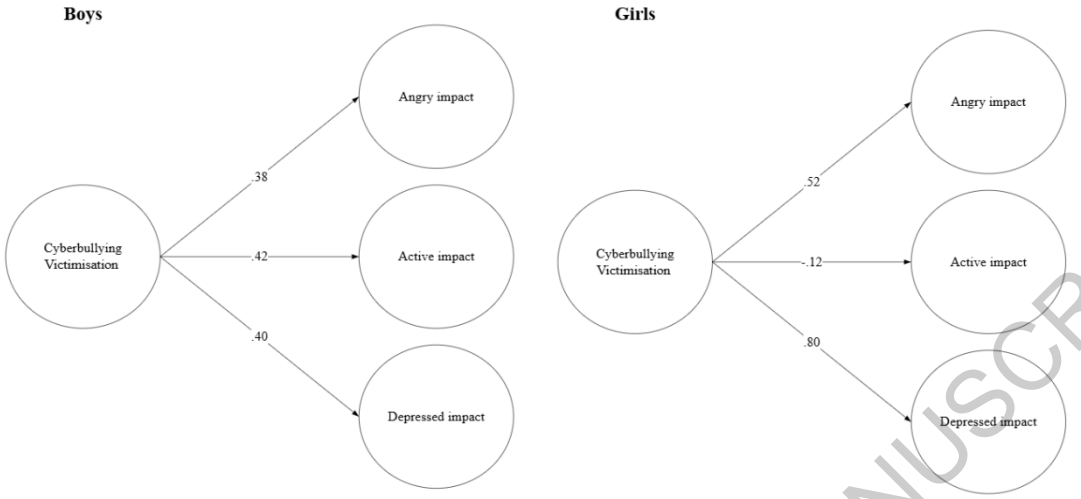

Figure 3

Graphical solution – Multigroup model 1 by age

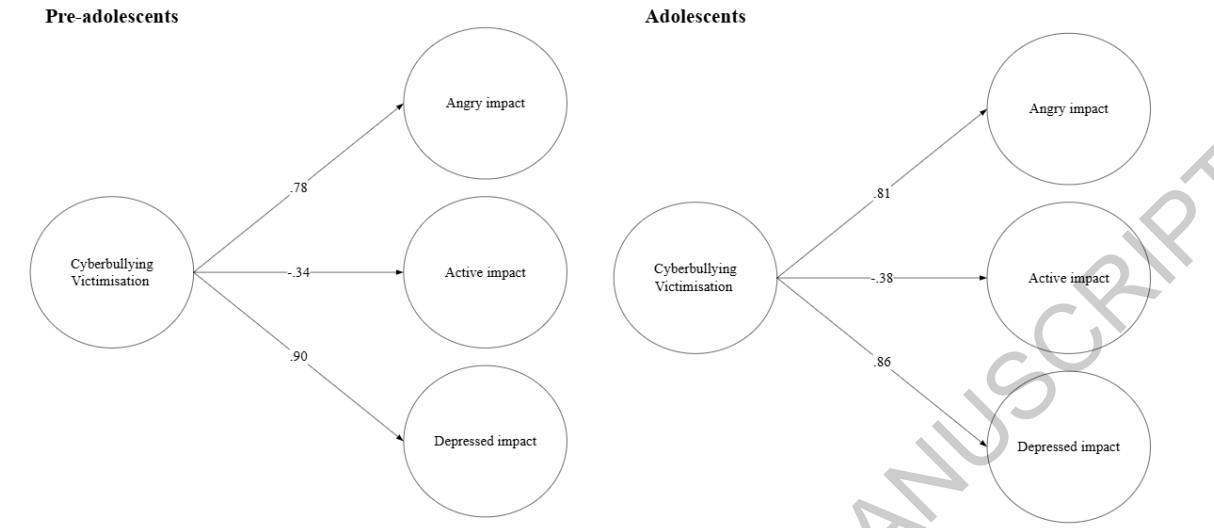

Figure 4

Graphical solution – Model 2

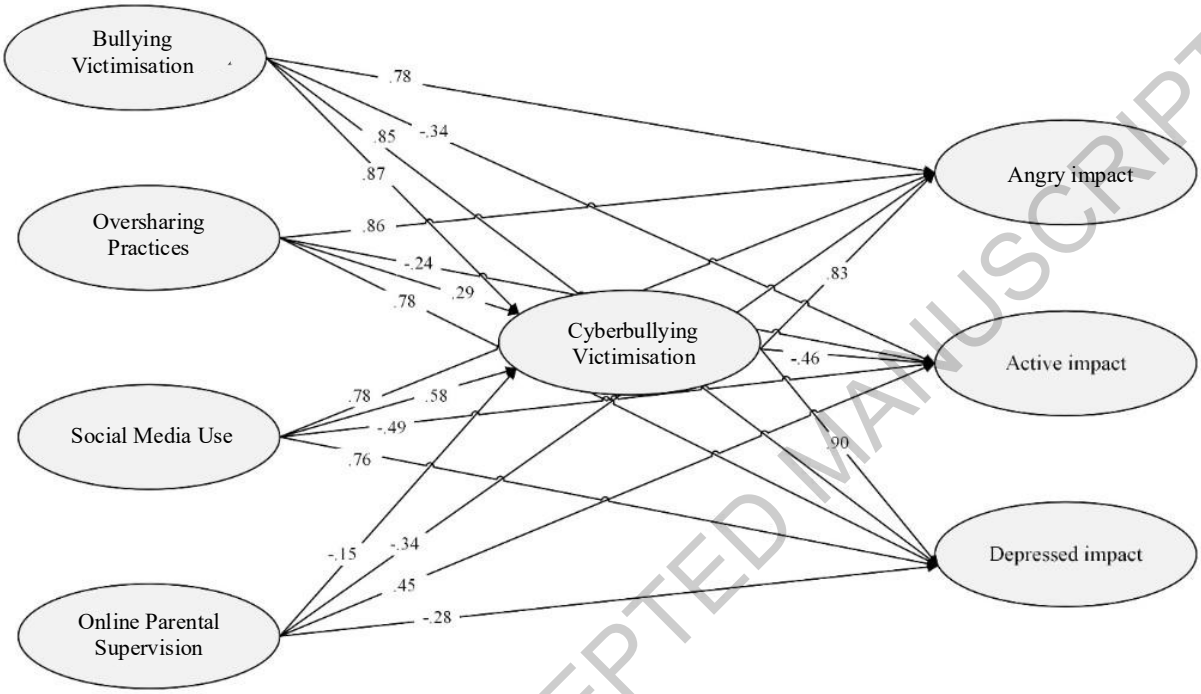

Figure 5

Graphical solution – Model 2 by gender

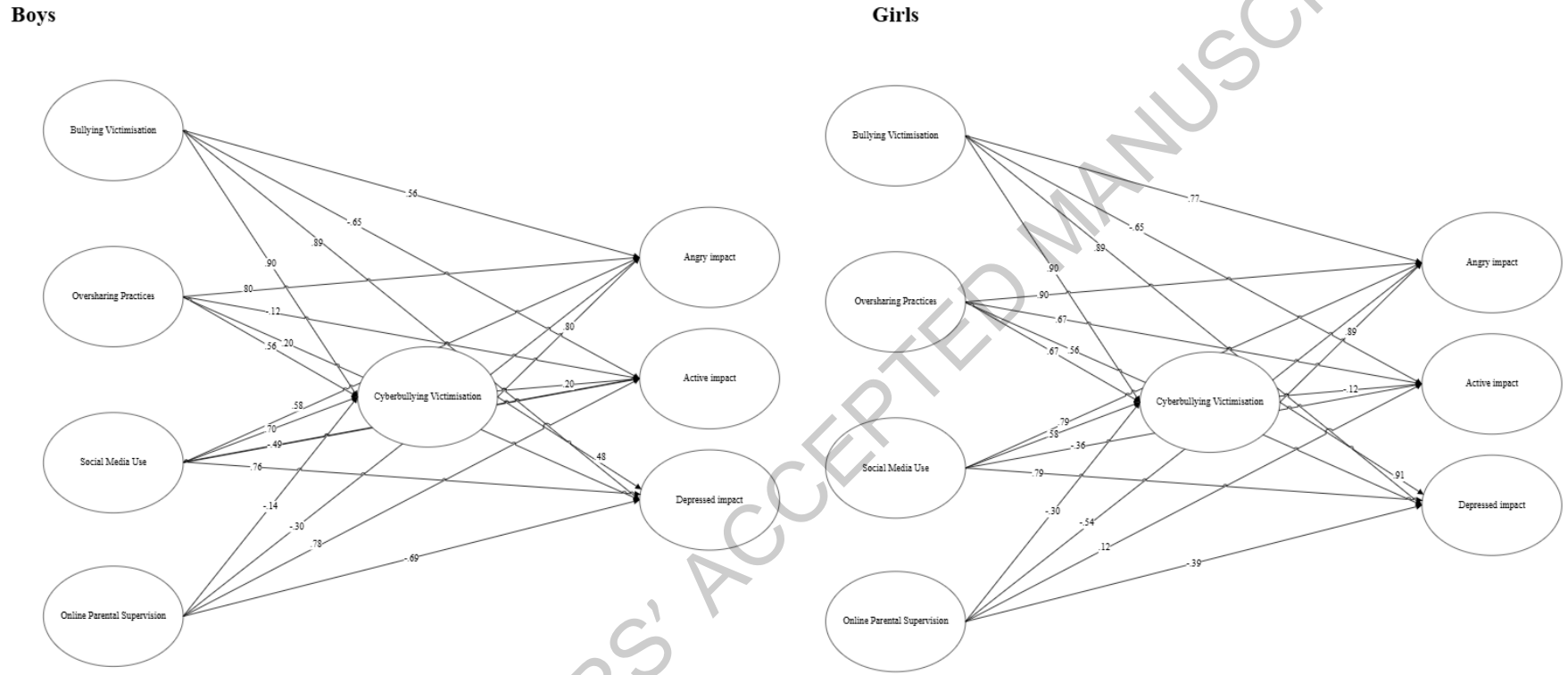

Figure 6

Graphical solution – Model 2 by age