Doctoral School of Psychology of University of Pécs

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# THE ROLE OF SOCIO-EMOTIONAL SKILLS IN CYBERBULLYING ENGAGEMENT

Theses of Doctoral (PhD) Dissertation

Nikolett ARATÓ

Supervisors:

Beatrix LÁBADI, PhD

Kata LÉNÁRD, PhD

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# 1. GENERAL INTRODUCTION

With the ongoing technological advancements, cyberbullying is becoming more frequent and problematic in adolescents' lives. Hence, research, education, intervention, and prevention targeting cyberbullying have become crucial to help adolescents, their parents, and their teachers to cope with the new challenges cyberbullying creates. By exploring the developmental, psychological, and social background of cyberbullying engagement, targeted and effective intervention and prevention programs could be implemented.

Cyberbullying is often identified as a subtype of traditional bullying taking place in a new context, i.e. the Internet (Li, 2007; Wang et al., 2010). Thus the definitions describing cyberbullying, partly adapt Olweus' definitional criteria (1994) for traditional bullying, using '*imbalance of power*', '*intentionality*', and '*repetition*' to differentiate cyberbullying acts from other types of aggression on the Internet (Berne et al., 2013; Nocentini et al., 2010; Slonje & Smith, 2008; Spears et al., 2009). Further, the definitions of cyberbullying involve specific characteristics of cyberbullying as well (Berne et al., 2013; Nocentini et al., 2010; Slonje & Smith, 2008; Spears et al., 2009). These unique characteristics include unlimited capacity of the Internet, the perpetrator's anonymity, the broad audience (Kwan & Skoric, 2013), and its 24/7 nature (Kowalski & Limber, 2007). Although, there is a lack of consensus about the definitional criteria of cyberbullying as not all cyberbullying incidents are characterized by all these aspects (Berne et al., 2013), for example only app. 20-30% of cybervictims are not aware of the cyberbullying perpetrator's identity (Slonje & Smith, 2008; Smith et al., 2008). Cyberbullying involvement affects both perpetrators' and victims' mental and physical health, as well as accounts for changes in their behaviour. The victims of cyberbullying experience negative affective states as a consequence of cyberbullying incidents (Alhujailli et al., 2020), i.e. they feel angry, anxious, afraid, and ashamed (Ortega et al., 2012). Both cybervictims and cyberbullying perpetrators may suffer from symptoms of anxiety and depression (Didden et al., 2009; Perren et al., 2010; Skilbred-Fjeld et al., 2020; Ybarra & Mitchell, 2004). Further, both cyberbullying perpetrators and cybervictims have poor physical health (Kowalski & Limber, 2013), and there is an increased risk of self-injury among them (Schneider et al., 2012). Cybervictims may also experience psychosomatic symptoms (Kowalski et al., 2014). Additionally, the behavioural consequences of cyberbullying involvement include substance abuse (Ybarra & Mitchell, 2004), truancy, poor academic performance, decreased concentration, and trespassing behaviours for both perpetrators and victims (Beran & Li, 2005, 2007; Vazsonyi et al., 2012; Ybarra et al., 2007).

Research regarding cyberbullying is still in the early phase in Hungary. Only a handful of studies (Domonkos & Ujhelyi, 2014; Várnai, 2019; Várnai et al., 2018; Várnai & Zsíros, 2014; Zsila et al., 2018; Zsila et al., 2019a; Zsila et al., 2019b) aimed to discover the frequency and the correlates of cyberbullying among Hungarian adolescents. On the other hand, there are several international studies researching the nature of cyberbullying, the differences between cyberbullying and traditional bullying, and the antecedents and consequences of cyberbullying. Still, researchers have not reached a consensus on the defining criteria of cyberbullying. Another limitation of the existing research about cyberbullying is that with the mostly cross-sectional studies there is not much information about causal relationships between cyberbullying and the antecedents/consequences. If comparing the existing knowledge about traditional bullying and cyberbullying, one can see that there are comprehensive theories (e.g. mentalizing social systems theory [Twemlow & Fonagy, 2005], SEL theory [Durlak et al., 2011; Smith & Low, 2013], etc.) about the dynamics behind traditional bullying that prevention and intervention programs could have been built on. However, there is no such synthesized and comprehensive theory about the dynamics of cyberbullying. Consequently, the aim of my doctoral studies was to discover possible variables that can help to explore which factors may be part of a comprehensive theory or whether already existing traditional bullying theories and variables from these (e.g. SEL [Durlak et al., 2011; Smith & Low, 2013], Brofenbrenner's theory, 1989) could help the understanding of the dynamics of cyberbullying.

In the first study, our aim was to adapt internationally accepted questionnaires, i.e. Cyber Victim and Bullying Scale (Cetin et al., 2011) and European Cyberbullying Intervention Project Questionnaire (Del Rey et al., 2015), that allowed to conduct further research of cyberbullying engagement in Hungary. We aimed to analyse the factor structure, reliability, and validity of the two questionnaires, to compare them based on these psychometrical, as well as on theoretical characteristics showing the questionnaires' advantages and disadvantages.

The goal of the second study was to examine the associations between cyberbullying and socio-emotional skills to explore whether SEL might be a working theory in cyberbullying. Thus, the effects of empathy, emotion regulation, and moral disengagement were explored during this study. Our aim was to clarify the inconsistent results regarding cybervictims' empathic skills. Another aim was to explore the role of moral disengagement in cyberbullying engagement and its relations to empathy and emotion regulation in cyberbullying engagement. At last, we examined the specific maladaptive emotion regulation strategies that might play a role in cybervictimization.

In the third study, not only socio-emotional factors were included but also social factors as they are relevant from a developmental viewpoint (e.g. Bronfenbrenner's theory [1989]). So, our aim was to explore the direct and indirect effects of social environment and emotion regulation difficulties on adolescents' cyberbullying involvement. We tested models of cyberbullying perpetration and cybervictimization, to analyse how the social factors, i.e. family functioning and perceived social support from family and friends affect cyberbullying engagement. We examined these social factors' direct effects, as well as their indirect effects through emotion regulation difficulties on cyberbullying perpetration and cybervictimization.

The fourth study was also planned based on a developmental viewpoint: Our previous results showed the importance of moral disengagement, thus the aspects of prosocial moral development (Eisenberg et al., 1991) were also included besides the socio-emotional skills. The social desirability was included as a social factor, measuring the pressure to conform the peers' beliefs, feelings, attitudes, etc. Moreover, not only cyberbullying engagement was studied but also factors influencing bystanders' reactions. The aim of the study twofold: First, our aim was to explore the role of prosocial moral reasoning, moral disengagement, social desirability, emotion regulation, and empathy in cyber bystanders' reactions, i.e. antisocial, prosocial, and ignoring reactions. Second, another goal of the study was to explore how moral development, moral disengagement, emotion regulation, and empathy differentiate among the different cyberbullying roles, i.e. cyberbullying perpetrator, cybervictim, bully-victim, and outsider.

## 2. FIRST STUDY - HUNGARIAN ADAPTATION OF THE CYBER VICTIM AND BULLYING SCALE (CVBS) AND THE EUROPEAN CYBERBULLYING INTERVENTION PROJECT QUESTIONNAIRE (ECIPQ)

### 2.1. Aim of the First Study

The aim of our study was to adapt internationally accepted questionnaires and to conduct the psychometric analyses of these measures on samples of Hungarian adolescents to explore whether they can be used in Hungarian research as well. We adapted two questionnaires, the Cyber Victim and Bullying Scale (Cetin et al., 2011) and the European Cyberbullying Intervention Project Questionnaire (Del Rey et al., 2015); the psychometric properties of these two measures will be introduced in the following two studies.

### 2.2. Hungarian Adaptation of the Cyber Victim and Bullying Scale (CVBS, Cetin et al., 2011)

#### 2.2.1. Method.

##### 2.2.1.1. Participants.

Six hundred and thirty-two high school students (261 boys and 371 girls), aged between 14 and 19 years (mean age = 16.47, SD = 1.47) participated in the study. The whole sample was used to the confirmatory factor analyses and to the internal consistency testing. A smaller part of this sample, consisting of 120 students (71 boys and 49 girls), aged between 16 and 20 years (mean age = 17.51, SD = 0.72) was used for the validity testing.

##### 2.2.1.2. Materials.

- The Cyber Victim and Bullying Scale (Cetin et al., 2011)
- The Interpersonal Reactivity Index (Davis, 1983 trans. Kulcsár, 1998)
- The Spielberger Anger Expression Scale (Spielberger, 1985 trans. Oláh, 1987)
- To measure school climate, Twemlow and Sacco's (2012) questions were used

#### 2.2.2. Results.

##### 2.2.2.1. Reliability Analyses.

##### 2.2.2.1.1. Reliability of the Scale of Cyber Bullying.

The reliability scores of the Scale of Cyber Bullying (Cronbach's α = .93) and two subscales, which are the Cyber Verbal Bullying (Cronbach's α = .86) and the Cyber Forgery (Cronbach's α = .84), can be considered high. The reliability score of the Hiding Identity could be considered low (Cronbach's α = .72), by cause of the ninth item (*"Hiding identity on the Internet."*) that had a low item-total correlation (r = .31) with the other items in the subscale. Therefore, the

ninth item was deleted from the Hungarian adaptation of the scale, and this way the reliability score of this subscale can be considered acceptable (Cronbach's α = .90).

*2.2.2.1.2. Reliability of the Scale of Cyber Victim.*

The reliability scores the Scale of Cyber Victim (Cronbach's α = .90) and two subscales, which are the Victim of Verbal Cyber Bullying (Cronbach's α = .82) and the Victim of Cyber Forgery (Cronbach's α = .80) can be considered high. The reliability score of the Victim of Hiding Identity could be considered low (Cronbach's α = 0.75), by cause of the ninth item (*"Hiding identity on the Internet."*) that had low item-total correlation (r = 0.42) with the other items in the subscale. Therefore, the ninth item was deleted from the Hungarian adaptation of the scale, with this change the reliability score of this subscale can be considered acceptable (Cronbach's α = .78).

### 2.2.2.2. Confirmatory Factor Analyses.

*2.2.2.2.1. Confirmatory Factor Analysis of the Scale of Cyber Bullying.*

According to the results of the confirmatory factor analysis, the original, three-factor model was an acceptable but objectionable approximation in the Hungarian adaptation of the Scale of Cyber Bullying as well. The fitting indices were the following: SRMR=0.05; $\chi^2$/df=4.99; NFI=0.89; TLI=0.89; CFI=0.91; RMSEA=0.08 (90% CI=0.07; 0.09).

*2.2.2.2.2. Confirmatory Factor Analysis of the Scale of Cyber Victim.*

According to the results of the confirmatory factor analysis, the original, three-factor model was an acceptable but objectionable approximation in the Hungarian adaptation of the Scale of Cyber Victim as well. The fitting indices were the following: SRMR=0.07; $\chi^2$/df=4.35; NFI=0.88; TLI=0.89; CFI=0.91; RMSEA=0.07 (90% CI=0.07; 0.08).

### 2.2.2.3. Criterion Validity.

The Interpersonal Reactivity Index, Anger Expression Scale, and a school climate questionnaire were used in order to test the criterion related validity of the Scale of Cyber Bullying and the Scale of Cyber Victim. There was negative correlation between the Verbal Cyber Bullying subscale and empathy (rho = -.20, p = .03), and perspective taking (rho = -.27, p < .001). There was a negative correlation between the Scale of Cyber Bullying and perspective taking (rho = -.24, p = .01) as well. Further, there was a positive correlation between fantasy and the Victim of Cyber Forgery subscale (rho = .22, p = .02), and between fantasy and the Scale of Cyber Victim (rho = .22, p = .02) as well. Anger/Out correlated statistically significantly with both scales (Scale of Cyber Bullying and Scale of Cyber Victim), as well as with all the subscales.

Anger/In correlated statistically significantly with the Victim of Cyber Forgery subscale, and with the Scale of Cyber Victim. The Scale of Cyber Victim correlated statistically significantly and negatively with the school climate. Further, all subscales of the Scale of Cyber Victim correlated statistically significantly and negatively with school climate as well.

**2.2.3. Discussion.**

The aim of this research was to develop and test the psychometric properties of the Hungarian adaptation of the Cyber Victim and Bullying Scale (CVBS-HU, Cetin et al., 2011). One strength of the CVBS-HU is that the indices of internal consistency support a greater reliability of the scales in the Hungarian sample than in the original Turkish sample. Further, it measures several types of cyberbullying perpetration and cybervictimization. Although, it is a self-administered measure, consequently the participants' answers might be influenced by biased or distorted memory, social desirability, media representation of cyberbullying, and the students' knowledge about cyberbullying. The most substantial and unavoidable limitation of the questionnaire is the inadequate fitting indices of the scales that makes the use of this measurement questionable. The inadequate fitting indices can be caused by the items that do not fit the subscales they belong to (e.g. 12, 16, 17, and 18). Furthermore, there are items (e.g. 21) that do not even measure behaviours that fit the definitional criteria of cyberbullying. Consequently, the use of CVBS-HU is questionable and not recommended because the items may not measure cyberbullying exclusively. Due to the limitations of CVBS-HU, the adaptation of another questionnaire was inevitable, so in a second study we developed the Hungarian adaptation of the European Cyberbullying Intervention Project Questionnaire (ECIPQ) and tested its psychometric properties.

**2.3. Hungarian Adaptation of the European Cyberbullying Intervention Project Questionnaire (ECIPQ)**

**2.3.1. Method.**

*2.3.1.1. Participants.*

One thousand four hundred and twenty-five (662 males, 760 females, and 3 transgender) high school students participated in the validation study of the ECIPQ. They aged between 11 and 19 years, their mean age was 15.29 years (SD = 1.69). To test the criterion validity of the questionnaire we used a subsample of these participants that consisted of 385 students (187 males and 198 females) who aged between 14 and 19 (mean age = 15.78, SD = 1.02).

### *2.3.1.2. Materials.*

- The European Cyberbullying Intervention Project Questionnaire (ECIPQ, Del Rey et al., 2015)
- The Interpersonal Reactivity Index (Davis, 1983 trans. Kulcsár, 1998)
- The Hungarian adaptation of Multidimensional Scale of Perceived Social Support (Zimet et al., 1988 trans. Papp-Zipernovszky et al., 2017)
- The Child Behaviour Checklist (Achenbach & Edelbrock, 1991 trans. Rózsa et al., 1999)

## 2.3.2. Results.

### *2.3.2.1. Reliability of the European Cyberbullying Intervention Project Questionnaire (ECIPQ).*

The reliability scores of the ECIPQ's both dimensions, that are cyberbullying perpetration (Cronbach's α = .91) and cybervictimization (Cronbach's α = .89), can be considered high. Although based on the item-total correlations, in the dimension of cyberbullying perpetration the first ("*I said nasty things to someone or called them names using texts or online messages.*", r = .53), second ("*I said nasty things about someone to other people either online or through text messages.*", r = .53), and tenth ("*I excluded or ignored someone in a social networking site or internet chat room.*", r = .61) items do not fit the with the other items well. Similarly, in the dimension of cybervictimization the first ("*Someone said nasty things to me or called me names using texts or online messages.*", r = .56), second ("*Someone said nasty things about me to others either online or through text messages.*", r = .64), and tenth ("*I was excluded or ignored by others in a social networking site or internet chat room.*", r = .57) items had lower item-total correlations with the other items in the scale. After deleting these items from the Hungarian adaptation of the ECIPQ, the reliability scores can still be considered high.

### *2.3.2.2. Confirmatory Factor Analyses.*

#### *2.3.2.2.1. The Dimension of Cyberbullying Perpetration.*

The results of the original scale's confirmatory factor analysis showed an inadequate approximation in the Hungarian sample (see Table 1). Based on the results of the item-total correlations and the items' factor loadings, the scale was further tested without the first (β = .43), second (β = .43), and tenth (β = .56) items. The results of the new scale's confirmatory factor analysis showed an adequate approximation of the Hungarian adaptation of the ECIPQ's cyberbullying perpetration dimension (see Table 1).

Table 1. Fitting indices of the ECIPQ's dimension of cyberbullying perpetration

| | SRMR | $\chi^2/df$ | NFI | TLI | CFI | RMSEA (90% CI) |
|---|---|---|---|---|---|---|
| **Complete Scale** | .04 | 8.94 | .97 | .96 | .97 | .08 (.07; .08) |
| **Without items 1, 2, and 10** | .01 | 3.92 | .99 | .99 | .99 | .05 (.03; .06) |

*2.3.2.2.2. The Dimension of Cybervictimization.*

Similarly to the dimension of cyberbullying perpetration, the results of the original scale's confirmatory factor analysis showed an inadequate approximation of the ECIPQ's cybervictimization dimension in the Hungarian sample (see Table 2). Based on the results of the item-total correlations and the items' factor loadings, the scale of cybervictimization was also further tested without the first ($\beta = 0.46$), second ($\beta = 0.53$), and tenth ($\beta = 0.56$) items. The results of the new scale's confirmatory factor analysis showed an adequate approximation of the Hungarian adaptation of the ECIPQ's cybervictimization dimension (see Table 2).

Table 2. Fitting indices of the ECIPQ's dimension of cybervictimization

| | SRMR | $\chi^2/df$ | NFI | TLI | CFI | RMSEA (90% CI) |
|---|---|---|---|---|---|---|
| **Complete Scale** | .05 | 10.38 | .95 | .94 | .96 | .08 (.07; .09) |
| **Without items 1, 2, and 10** | .02 | 5.04 | .99 | .98 | .99 | .05 (.04; .07) |

*2.3.2.3. Criterion Validity.*

The Interpersonal Reactivity Index, the Multidimensional Scale of Perceived Social Support, and the Child Behaviour Checklist were used to test the criterion related validity of the ECIPQ. According to the results of Spearman correlations, cyberbullying perpetration correlated statistically significantly with internalizing problems (rho= .23, p< .001), externalizing problems (rho= .54, p< .001), and perceived social support from family (rho= -.17, p< .01). Cybervictimization correlated statistically significantly with internalizing problems (rho= .33, p< .001), externalizing problems (rho= .43, p< .001), perceived social support from family (rho= -.25, p< .001), from friends (rho= -.11, p= .04) and from significant other (rho= -.11, p= .04), and personal distress (rho= .14, p= .01). Cyberbullying perpetration and cybervictimization were also correlated statistically significantly (rho=.51, p< .001).

### 2.3.3. Discussion.

As the CVBS-HU showed irreducible limitations, e.g. the objectionable fitting indices, the items that do not fit the definition of cyberbullying and/or the subscales, with the adaptation of the ECIPQ we aimed to have such measure. The most prominent strength of ECIPQ is its excellent psychometric properties. The reliability analyses showed that the scales have good or excellent internal consistency, as well as the items were not redundant. The ECIPQ also has limitations, as it is a self-administered questionnaire, social desirability, shame, and the morally questionable nature of cyberbullying might influence the participants' answers. Another statistical limitation is that the first, the second, and the tenth items are not consistent with the other items of the scales, however we do not suggest to leave out these items since they measure important behavioural aspects of cyberbullying.

### 2.4. Overall Discussion of Study 1

Overall, the first study aimed to develop the Hungarian adaptations of two questionnaires (CVBS and ECIPQ) measuring cyberbullying perpetration and cybervictimization. The CVBS-HU contains two of Olweus' (1994) three criteria, i.e. intentional harm and power imbalance, as well as one criterion specific to cyberbullying, that is anonymity. Whereas, the ECIPQ also includes two of Olweus' (1994) three criteria, i.e. repetition and power imbalance. Cyberbullying conducted via the Internet is assessed by the CVBS-HU, while the ECIPQ includes the Internet, as well as mobile phones as the devices/media through which cyberbullying could happen. Both questionnaires include the concept of cyberbullying perpetration as well as the concept of cybervictimization. Furthermore, the CVBS-HU has subscales assessing different types of cyberbullying and cybervictimization. The CVBS-HU's confirmatory factor analyses showed an inadequate fitting of the data to the original factor structure and some of the items do not fit the definition of cyberbullying and/or the subscale they belong to. Whereas, the ECIPQ's confirmatory factor analyses showed and adequate approximation of the Hungarian adaptation, but according to the statistical analyses the first, the second, and the tenth items are not consistent with the other items and the scales. On the contrary of these statistical data, these items measure prominent aspects of cyberbullying, so we do not suggest to leave them out. Based on the psychometric analyses, the CVBS-HU is a more limited measure that should be used without the questionable items or not at all, whereas the ECIPQ is a more general measure that has excellent psychometric properties. Both questionnaires have strengths as well as limitations that should be considered when choosing a measure that fits the purpose of the research.

## 3. SECOND STUDY – CYBERVICTIMIZATION AND CYBERBULLYING: THE ROLE OF SOCIO-EMOTIONAL SKILLS

### 3.1. Aim of Study.

The goal of our study was to analyse the role of affective and cognitive empathy, intention to comfort, specific adaptive and maladaptive emotion regulation strategies and moral disengagement in perpetration of cyberbullying and cybervictimization. The first objective of our study was to clarify the inconsistent previous results and examine whether lack of empathic skills also characterize the cybervictims as well as cyberbullies. We hypothesized that cybervictims are unable to feel vicarious emotions and take others' perspective. Another aim of this study was to explore the role of moral disengagement in cyberbullying and its relation to the role of empathy and emotion regulation in cyberbullying. Therefore, we hypothesized that whereas cyberbullies and bully-victims use moral disengagement to suppress the feelings of guilt, they are unable to understand their own as well as others' emotions. A third goal of this study was to explore the specific maladaptive emotion regulation strategies that may have a predictive role in cybervictimization.

### 3. 2. Methods

### 3.2.1. Participants.

The participants were 524 Caucasian adolescents (40.84% boys, M=15.73, SD=1.30; 59.16% girls, M=15.72, SD=1.20), aged 12-19 years (M= 15.73, SD= 1.24). Based on the grouping (according to the means and standards deviations), 6.9 % of the students were cyberbullies, 13.5% were cybervictimized, 5.2 % were bully-victims and 74.4 % were outsiders.

### 3.2.2. Materials.

- The short version of the Cyber Victim and Bullying Scale (CVBS-S, Arató et al., unpublished)
- The Empathy Questionnaire for Children and Adolescents (EmQue-CA, Overgaauw et al., 2017)
- The Cognitive Emotion Regulation Questionnaire (CERQ, Garnefsky & Kraaij, 2007 trans. by Miklósi et al., 2011)
- The Cyber Bullying Moral Disengagement Scale (CBMDS, Bussey et al., 2015)

### 3.3. Results

### 3.3.1. Differences among the cyberbullying groups (cyberbullies, cybervictims, bully-victims and outsiders) in empathy.

The analysis of variance revealed statistically significant differences between the cyberbullying groups in affective empathy (F [3, 502] = 7.78, p < .001, $\eta_p^2$ = .04). According to the Bonferroni-corrected post-hoc tests outsiders scored significantly higher than cyberbullies and bully-victims, as well as cybervictims scored significantly higher than cyberbullies and bully-victims. The two latter groups did not differ, also cybervictims and outsiders did not differ in empathy. The cyberbullying groups also differed in cognitive empathy (F [3, 502] = 7.14, p < .001, $\eta_p^2$ = .04). Reported by the Bonferroni-corrected post-hoc tests cybervictims scored significantly higher than cyberbullies and bully-victims. The two latter groups did not differ, as well as cybervictims and outsiders did not differ. We also found a significant group difference on the intention to comfort scale (F [3, 502] = 9.35, p < .001, $\eta_p^2$ = .05). According to the Bonferroni-corrected post-hoc tests outsiders scored significantly higher than cyberbullies and bully-victims. The two latter groups did not differ. Also, cybervictims scored significantly higher than cyberbullies.

### 3.3.2. Differences among the cyberbullying groups (cyberbullies, cybervictims, bully-victims and outsiders) in moral disengagement.

The analysis of variance revealed statistically significant differences among the cyberbullying groups in moral disengagement (F [3, 502] = 26.32, p < .001, $\eta_p^2$ = .14). According to the Bonferroni-corrected post-hoc tests cyberbullies and bully-victims scored significantly higher than cybervictims and outsiders. The two latter groups, as well as cyberbullies and bully-victims did not differ.

### 3.3.3. Differences among the cyberbullying groups (cyberbullies, cybervictims, bully-victims and outsiders) in emotion regulation strategies.

The analysis of variance revealed statistically significant differences between the cyberbullying groups in self-blame (F [3, 502] = 3.66, p = .01, $\eta_p^2$ = .02). Based on the Bonferroni-corrected post-hoc tests cybervictims scored significantly higher than outsiders. The other groups did not differ. The cyberbullying groups also differed in rumination (F [3, 502] = 4.39, p = .01, $\eta_p^2$ = .03). According to the Bonferroni-corrected post-hoc tests cybervictims scored significantly higher than cyberbullies and outsiders. The other groups did not differ. There was also significant difference between the cyberbullying groups in other blame (F [3, 502] = 3.61, p = .01, $\eta_p^2$ = .02). As reported by the Bonferroni-corrected post-hoc tests bully-victims scored

significantly higher than cybervictims. The other groups did not differ in other blame. The cyberbullying groups differed in acceptance (F [3, 502] = 3.31, p = .02, $\eta_p^2$ = .02) as well. According to the Bonferroni-corrected post-hoc tests victims scored significantly higher than cyberbullies. The other groups did not differ significantly. Furthermore, there was significant difference between the cyberbullying groups in planning (F [3, 502] = 3.40, p = .02, $\eta_p^2$ = .02). As reported by the Bonferroni-corrected post-hoc tests cybervictims scored significantly higher than cyberbullies. The other groups did not differ.

### 3.3.4. Determinants of cyberbullying perpetration and cybervictimization.

Based on the results of Pearson correlations we conducted two linear regression analyses with stepwise extension to discover which variables could predict cyberbullying perpetration and cybervictimization. According to the results of the linear regression analyses, moral disengagement (β = .41, p < .001), intention to comfort (β = -.14, p < .001), and other blame (β = .09, p = .02) accounted for 1% of the variance in cyberbullying perpetration (F[1, 513] = 5.55, p = .02). The final model of cyberbullying perpetration could account for 21% of the variability (F [1, 515] = 136.24, p < .001). Moral disengagement (β = .46, p< .001) was found to have the most influential, significant effect on cyberbullying perpetration. Further, self-blame (β = .11, p = .02), cognitive empathy (β = .12, p = .01), age (β = .12, p = .01), and acceptance (β = .11, p = .02) accounted for 1% of the variance in cybervictimization (F[1, 509] = 5.43, p = .02). The final model of cybervictimization could account for 3% of the variability (F [1, 512] = 17.25, p < .001). Self-blame (β =0.18, p < .001) was found to have the most influential, significant effect on cybervictimization.

### 3.4. Discussion

The main goal of the second study was to clarify the roles of empathy, emotion regulation and moral disengagement in cyberbullying perpetration and cybervictimization. Understanding the specific roles of socio-emotional skills can help to understand the dynamics behind cyberbullying and may serve as evidence for SEL based prevention and intervention programs. Overall, our results demonstrated the importance of empathy, emotion regulation strategies and moral disengagement in both cyberbullying perpetration and cybervictimization. Further, we showed evidence that older adolescents (17-19 years olds) are more likely to be cybervictimized than younger adolescents. An interesting outcome of this study was that cybervictims used both adaptive and maladaptive emotion regulation strategies. Moreover, cybervictims were able to understand others' emotions and perspective. Both of these results are worth further research to help understand why adolescents are victimized on the Internet and how they can be helped to

adaptively overcome the consequences of cyberbullying. In addition, cyberbullies and bully-victims used moral disengagement strategies to justify their aggressive online behaviour whereas they lacked empathic skills. Based on our results, decreasing the degree of using moral justification, cyberbullies and bully-victims may be capable of learning how to understand others' and their own affective states. Consequently, our results may serve as evidence for the use of SEL theory in anti-cyberbullying prevention and intervention programs. Higher levels of affective and cognitive empathy, intention to comfort others and adaptive emotion regulation could be protective factors against cyberbullying.

# 4. THIRD STUDY – RISK AND PROTECTIVE FACTORS IN CYBERBULLYING: THE ROLE OF FAMILY, SOCIAL SUPPORT AND EMOTION REGULATION

## 4.1. Aim and Hypotheses.

Previous research suggests that family and peer factors - particularly those associated with emotions and communication - may influence both cyberbullying perpetration and cybervictimization. Further, there is an established link between cyberbullying involvement and youngsters' emotion regulation. Although it is unclear, whether emotion regulation would act as a mediator in the relationship between family functioning, peer support and adolescent cyberbullying involvement. The goal of our study was to examine the direct and indirect effects, through emotion regulation difficulties, of family functioning factors (cohesion, adaptability and communication), perceived emotional parental and peer support in cyberbullying involvement. We tested models of cyberbullying perpetration and cybervictimization using these variables. First, we hypothesized that maladaptive family adaptability, unbalanced levels of family cohesion and conflictual communication style among family members increased the risk of both cyberbullying perpetration and cybervictimization. In addition, we assumed that these family characteristics had both a direct and an indirect effect on both cyberbullying perpetration and cybervictimization through emotion regulation difficulties. Additionally, we also hypothesized that perceived emotional peer and parental social support had an effect on cyberbullying involvement: poor peer and parental support led to both cyberbullying perpetration and cybervictimization. At last, we expected that poor emotional parental and peer support also had a direct and an indirect effect with the mediating role of emotion regulation difficulties on both cyberbullying perpetration and cybervictimization.

## 4.2. Materials and Methods

### 4.2.1. Participants.

One thousand, one hundred and thirty secondary school students participated in the study (561 men, 569 women, age range= 11-19 years, mean age=15.23, SD=1.71). However, 25 participants were removed from the database because of missing data. After the removal, 1105 students' (552 men, 553 women) data was analysed in the study, they were aged between 11 and 19 years (mean age=15.21, SD=1.71). Based on the means and standard deviations cyberbullying groups were created: 1.6% of the students were involved in cyberbullying as perpetrators, 7.1% were victims of cyberbullying, 4.9% were bully-victims and 86.4% were not involved in cyberbullying.

### 4.2.2. Materials.

- The European Cyberbullying Intervention Project Questionnaire (ECIPQ, Del Rey et al., 2015 trans. Arató et al., 2019)
- The Difficulties in Emotion Regulation Questionnaire (DERS, Gratz & Roemer, 2004 trans. Kökönyei, 2008)
- The Family Adaptability and Cohesion Evaluation Scale IV. (FACES IV, Olson, 2011 trans. Vargha & Tóth, 2008)
- The Multidimensional Scale of Perceived Social Support (MSPSS, Zimet et al., 1988 trans. Papp-Zipernovszky et al., 2017)

### 4.3. Results

### 4.3.1. Determinants of Cyberbullying Perpetration.

According to the results of the linear regression analysis with stepwise extension, perceived friend support ($\beta$= -.14, p < .001), enmeshed ($\beta$= .12, p < .001) and balanced ($\beta$= -.11, p < .001) family cohesion, difficulties in refraining from impulsive behaviour ($\beta$= .10, p = .001) and in understanding of emotions ($\beta$= .09, p= .01) accounted for 1 % of the variance in cyberbullying perpetration (F(1, 1099)=7.11, p= .01). Further, cyberbullying perpetration was most strongly affected by perceived friend support (F(1, 1103)=49.49, p= < .001, $\beta$= -.21, p < .001), which accounted for 4.3 % of the variance.

### 4.3.2. Determinants of Cybervictimization.

According to the results of the linear regression analysis with stepwise extension, perceived support from friends ($\beta$= -.11, p < .001) and family ($\beta$= -0.15, p < .001), enmeshed family cohesion ($\beta$= .14, p<.001), difficulties in refraining from impulsive behaviour ($\beta$= .10, p= .01), in understanding of emotions ($\beta$= .10, p= .003) and in accessing effective emotion regulation strategies when experiencing negative emotions ($\beta$= .10, p= .01) accounted for 1 % of the variance in cybervictimization (F(1, 1098)=7.37, p= .01). Further, difficulties in accessing effective emotion regulation strategies when experiencing negative emotions was most strongly affecting cybervictimization (F(1, 1103)=89.14, p< .001, $\beta$= .27, p< .001), which accounted for 7.5 % of the variance.

### 4.3.3. Model of Cyberbullying Perpetration.

The model, tested with path analysis, consisted of perceived social support from friends, balanced and enmeshed family cohesion as predictor variables, difficulties in refraining from impulsive behaviour and in understanding of emotions as mediating variables toward

cyberbullying perpetration. The results show that the model fits the data well, $\chi^2(1)= 4.00$, p= .05, RMSEA= .05 (90% CI: .01; .11), NFI= .99, TLI= .92, CFI= .99. Enmeshed family cohesion ($\beta$= .01, p< .01, 95% CI= .002; .02), balanced family cohesion ($\beta$= -.02, p< .001, 95% CI= -.04; -.01), and perceived friend support ($\beta$= -.02, p < .01, 95% CI= -.04; -.01) had significant total indirect effects on cyberbullying perpetration. The relationships among the variables were significant, except for the association between enmeshed family cohesion and difficulties in understanding of emotions ($\beta$= .06, p= .06). The specific indirect effect of perceived friend support was mediated by difficulties in refraining from impulsive behaviour ($\beta$= -.01, p= .01). Perceived friend support also had a specific indirect effect on cyberbullying perpetration through difficulties in understanding of emotions ($\beta$= -.01, p = .01). The specific indirect effect of balanced family cohesion was also mediated by both difficulties in refraining from impulsive behaviour ($\beta$= -.01, p< .01) and difficulties in understanding of emotions ($\beta$= -.01, p = .01). The specific indirect effect of enmeshed family cohesion was mediated by difficulties in refraining from impulse behaviour ($\beta$= .01, p< .01).

### 4.3.4. Model of Cybervictimization.

The model, tested with path analysis, consisted of perceived social support from friends and family, and enmeshed family cohesion as predictor variables, difficulties in refraining from impulsive behaviour, in understanding of emotions and in accessing effective emotion regulation strategies when experiencing negative emotions as mediating variables toward cybervictimization. The results show that the model fits the data well, $\chi^2(4)=5.72$, p= .22, RMSEA= .02 (90% CI: .00; .05), NFI= .99, TLI= .99, CFI= .99. Perceived support from family ($\beta$= -.07, p= .001, 95% CI= -.11; -.05) and enmeshed family cohesion ($\beta$= .04, p< .001, 95% CI= .02; .06) had a significant total indirect effect on cybervictimization. Perceived support from friends had only a direct effect on cybervictimization, as the relationship was insignificant between perceived friend support and difficulties in refraining from impulsive behaviour ($\beta$= -.06, p= .10), difficulties in accessing effective emotion regulation strategies when experiencing negative emotions ($\beta$= -.03, p= .48) and difficulties in understanding of emotions ($\beta$= -.03, p= .30). The specific indirect effect of perceived social support from family was mediated by difficulties in accessing effective emotion regulation strategies ($\beta$= -.03, p= .01), by difficulties in understanding of emotions ($\beta$= -.03, p= .01) and by difficulties in refraining from impulsive behaviour ($\beta$= -.02, p= .01). The specific indirect effect of enmeshed family cohesion was mediated by difficulties in accessing effective emotion regulation strategies when experiencing

negative emotions ($\beta$= .02, p< .01), by difficulties in understanding emotions ($\beta$= .01, p= .01) and by difficulties in refraining from impulsive behaviour ($\beta$= .02, p= .01).

### 4.4. Discussion

The main goal of our study was to examine the role of family factors (cohesion, adaptability and communication), perceived parental and peer support and difficulties in emotion regulation on cyberbullying perpetration and cybervictimization. Our results supported models for both cyberbullying perpetration and cybervictimization: Enmeshed family cohesion, difficulties in refraining from impulsive behaviour and in understanding of emotions are risk factors for both cyberbullying perpetration and cybervictimization. Difficulties in accessing effective emotion regulation strategies when experiencing negative emotions is a risk factor for only cybervictimization. Further, perceived support from friends is a protective factor for both cyberbullying perpetration and cybervictimization. Perceived support from family is a protective factor for cybervictimization, whereas balanced family cohesion is a protective factor against cyberbullying perpetration. According to our results, family adaptability and communication have no role in cyberbullying perpetration and cybervictimization. However, because of the cross sectional nature of the study, it is important to note that the associations among the variables can happen the opposite way as well, e.g. poor perceived peer support can also be a consequence of cybervictimization. So, the analysed pathways are only based on our preconceptions but further longitudinal research will be needed to further analyse the causal relations among the observed variables. Further, the weak estimates imply that there may be other influencing factors that were not included in our research. Therefore, it would be important to continue this line of research. Future research could use Bronfenbrenner's ecological systems theory (1989) and include more variables from the individual (e.g. moral and socio-emotional skills), microsystem (e.g. school climate), mesosystem (e.g. socioeconomic status), exosystem (e.g. community or media attitudes toward cyberbullying) and macrosystem (e.g. cultural attitude towards bullying behaviour) levels. Future findings about other significant influencing factors could help the development of effective prevention and intervention programs. At last, a strength of our research is that our results contribute to a more dynamic viewpoint of cyberbullying behaviours and might help the beginning of a new direction in cyberbullying research.

# 5. FOURTH STUDY – THE ROLE OF MORAL REASONING, MORAL DISENGAGEMENT, SOCIAL DESIRABILITY, EMOTION REGULATION, AND EMPATHY IN CYBER BYSTANDER BEHAVIOUR AND CYBERBULLYING ENGAGEMENT

## 5.1. Aim of Study.

The aim of the current study was twofold. First, we aimed to explore the role of moral development, moral disengagement, social desirability, emotion regulation, and empathy in cyber bystander behaviour. Second, our goal was to examine the association among moral development, moral disengagement, emotion regulation, empathy, and cyberbullying involvement.

Concerning cyber bystander behaviour, our aim was to explore how moral development, moral disengagement, social desirability, emotion regulation, and empathy influence the different bystander reactions, i.e. antisocial, prosocial, and ignoring reactions. We hypothesized that those adolescents who use advanced levels of prosocial moral reasoning, like perspective taking reasoning, and have higher levels of social desirability, better empathic and emotion regulation skills are more likely to respond in prosocial ways in cyberbullying situations. Whereas, we assumed that those students who use moral disengagement strategies and lower levels of prosocial moral reasoning (e.g. hedonistic reasoning and dehumanization of the victim), have lower levels of social desirability, difficulties with emotion regulation, and lack empathic skills, are more likely to respond antisocially in cyberbullying situations. At last, we hypothesized that those adolescents who ignore cyberbullying situations, and do not intervene in any form, use moral disengagement strategies and lower levels of prosocial moral reasoning, lack empathic skills, and have emotion regulation difficulties and lower levels of social desirability.

Additionally, we aimed to explore how moral development, moral disengagement, emotion regulation, and empathy influence cyberbullying engagement. We aimed to test how these factors differentiate among the different cyberbullying roles, i.e. cyberbullying perpetrator, cybervictim, bully-victim, and outsider. We hypothesized that moral disengagement, low levels of moral development, i.e. hedonistic reasoning, and lack of empathic and emotion regulation skills predict cyberbullying perpetration and bully-victim status. Whereas we hypothesized that cybervictims lack socio-emotional skill, i.e. have difficulties regarding empathic skills and emotion regulation processes. Further, we assumed that morality and moral disengagement do not influence cybervictimization.

## 5.2. Methods

### 5.2.1. Participants.

Five hundred and seven Caucasian high school students (182 males and 322 females), aged between 12 and 19 years (mean age = 15.55, SD = 1.46) participated in the study. The choice of school and students was incidental, based on accessibility. In our sample, 2.4 % of the students were involved in cyberbullying acts as perpetrators, 7.7 % of the participants were cybervictimized, 5.1 % were involved in cyberbullying acts both as perpetrators and victims, and 84.8 % of the students were not involved in cyberbullying acts.

### 5.2.2. Materials.

- An altered version of Carlo, Eisenberg, and Knight's (1992) Objective Measure of Prosocial Moral Reasoning
- The European Cyberbullying Intervention Project Questionnaire (ECIPQ, Del Rey et al., 2015 trans. Arató et al., 2019)
- The Cyber Bullying Moral Disengagement Scale (CBMDS, Bussey et al., 2015)
- The Interpersonal Reactivity Index (IRI, Davis, 1983 trans. Kulcsár, 1998)
- The Difficulties in Emotion Regulation Scale Short Form (DERS-SF, Kaufman et al., 2015)
- The Social Desirability Scale - 17 (SDS – 17, Stöber, 2001)

## 5.3. Results

### 5.3.1. The Role of Moral Development, Moral Disengagement, Social Desirability, Emotion Regulation, and Empathy in Cyber Bystander Behaviour.

#### 5.3.1.1. Determinants of Antisocial Cyber Bystander Behaviour.

The model was statistically significant ($\chi^2$ [18] = 98.66, p < .001), it explained 30.3 % of the overall variance in the dependent variable (Nagelkerke $R^2$ = .30) and correctly classified 85.4 % of cases. Age (p < .001, OR = 1.41, 95 % CI = 1.15; 1.73), moral disengagement (p = .05, OR = 1.07, 95 % CI = 1.00; 1.14), hedonistic prosocial moral reasoning (p < .001, OR = 1.25, 95 % CI = 1.16; 1.35), and perspective taking prosocial moral reasoning (p = .01, OR = 1.17, 95 % CI = 1.03; 1.33) increased the likelihood of antisocial cyber bystander behaviour. Whereas, needs oriented prosocial moral reasoning (p = .02, OR = 0.87, 95 % CI = 0.78; 0.98) decreased the likelihood of antisocial cyber bystander behaviour. Further, social desirability (p = .07, OR = 0.92, 95 % CI = 0.83; 1.01) marginally significantly decreased the likelihood of antisocial bystander reaction.

### 5.3.1.2. Determinants of Prosocial Cyber Bystander Behaviour.

The model was statistically significant ($\chi^2$ [18] = 272.05, p < .001), it explained 63.2 % of the overall variance in the dependent variable (Nagelkerke $R^2$ = .63) and correctly classified 87.4 % of cases. Stereotypic prosocial moral reasoning (p = .01, OR = 1.20, 95 % CI = 1.05; 1.38) increased the likelihood of prosocial cyber bystander behaviour. Whereas hedonistic prosocial moral reasoning (p < .001, OR = 0.55, 95 % CI = 0.49; 0.62) and fantasy (p = .04, OR = 0.93, 95 % CI = 0.86; 0.99) decreased the likelihood of prosocial cyber bystander behaviour. Additionally, difficulties with refraining from impulsive behaviour marginally significantly (p = .06, OR = 1.12, 95 % CI = 0.99; 1.26) increased, while moral disengagement marginally significantly (p = .09, OR = 0.93, 95 % CI = 0.86; 1.01) decreased the likelihood of prosocial cyber bystander behaviour.

### 5.3.1.3. Determinants of Ignoring/Neutral Cyber Bystander Behaviour.

The model was statistically significant ($\chi^2$ [18] = 116.75, p < .001), it explained 27.5 % of the overall variance in the dependent variable (Nagelkerke $R^2$ = .28) and correctly classified 70.7 % of cases. Moral disengagement (p < .001, OR = 1.12, 95 % CI = 1.05; 1.19) and hedonistic prosocial moral reasoning (p = .02, OR =1.07, 95 % CI = 1.01; 1.14) increased the likelihood, whereas needs oriented prosocial moral reasoning (p < .001, OR =0.86, 95 % CI = 0.79; 0.93) decreased the likelihood of ignoring/neutral cyber bystander behaviour. Further, difficulties with the ability to engage in goal-directed behaviour when experiencing negative emotions marginally significantly (p = .08, OR =1.08, 95 % CI = 0.99; 1.17) increased the likelihood of ignoring/neutral cyber bystander behaviour, whereas personal distress (p = .09, OR = 0.95, 95 % CI = 0.89; 1.01) marginally significantly decreased the likelihood of ignoring/neutral cyber bystander behaviour.

## 5.3.2. Determinants of Cyberbullying Roles.

According to the results of the multinomial logistic regression analysis, the model (age, emotion regulation difficulties, moral disengagement, and levels of prosocial moral reasoning) fit the data well ($\chi^2$ [39] = 155.04, p < .001). Age (p = .03), difficulties with the ability to engage in goal-directed behaviour when experiencing negative emotions (p = .02), and moral disengagement (p < .001) had significant effect on the cyberbullying roles. Difficulties with accessing effective emotion regulation strategies when experiencing negative emotions (p = .06) and stereotypic prosocial moral reasoning (p = .07) had a marginally significant effect on the cyberbullying roles. Moral disengagement (p < .001, OR = 1.35, 95 % CI = 1.16; 1.57) increases the risk of cyberbullying perpetration. Additionally age (p = .08, OR = 1.50, 95 % CI

= 0.95; 2.37) had marginally significant tendency to increase the risk of engagement in cyberbullying perpetration and difficulties with the ability to engage in goal-directed behaviour when experiencing negative emotions (p = .06, OR = 0.76, 95 % CI = 0.57; 1.01) had a marginally significant tendency to decrease the risk of engagement in cyberbullying. Further, moral disengagement (p < .01, OR = 1.17, 9 5 % CI = 1.06; 1.30) also increased the risk of cybervictimization. Difficulties with accessing effective emotion regulation strategies when experiencing negative emotions (p = .05, OR = 1.19, 95 % CI = 1.00; 1.41) had a marginally significant tendency to increase the risk of cybervictimization, whereas hedonistic prosocial moral reasoning (p = .06, OR = 0.89, 95 % CI = 0.78; 1.01) had a marginally significant tendency to decrease the risk of cybervictimization. Age (p = .01, OR =1.72, 95 % CI = 1.15; 2.58), difficulties with accessing effective emotion regulation strategies when experiencing negative emotions (p = .05, OR = 1.31, 95 % CI = 1.00; 1.72) and moral disengagement (p < .001, OR = 1.50, 95 % CI = 1.30; 1.71) increased the risk of involvement in cyberbullying as both perpetrators and victims. Whereas, difficulties with the ability to engage in goal-directed behaviour when experiencing negative emotions (p = .01, OR = 0.72; 95 % CI = 0.56, 0.92) and stereotypic prosocial moral reasoning (p = .02, OR = 0.75, 95 % CI = 0.60; 0.95) decreased the risk of involvement in cyberbullying as both perpetrators and victims. In 98.4 % of the time, the model correctly predicted outsiders and in 57.7 % of the time correctly predicted bully-victims. Although, the model predicted cybervictimization (2.6 % of the time) and cyberbullying perpetration (0.0 % of the time) poorly.

**5.4. Discussion**
The goal of the current study was twofold. First, we aimed to explore the role of moral development, moral disengagement, social desirability, empathy, and emotion regulation in cyber bystander behaviour. Second, our goal was to examine whether moral development, moral disengagement, empathy, and emotion regulation differentiate among the cyberbullying roles. Overall, our results demonstrated the role of moral development, moral disengagement, emotion regulation and empathy in cyber bystander behaviour. Importantly, our results showed that adolescents using moral disengagement and hedonistic prosocial moral reasoning are prone to respond antisocially or passively to cyberbullying situations. Whereas, stereotypic, approval oriented moral reasoning and impulsivity increased the likelihood of a prosocial response. Thus, our results support that intervention or prevention programs targeting peer support should focus on morality and the reduction of justification strategies. Additionally, our study also demonstrated the role of moral disengagement, moral development, and emotion regulation underlying cyberbullying engagement. Cyberbullying perpetrators, cybervictims, and bully-

victims all have emotion regulation difficulties and use moral disengagement strategies whereas stereotypic, approval oriented moral reasoning is a protective factor against cyberbullying engagement. Consequently, cyberbullying prevention and intervention should target adolescents' regulation skills and morality. Summing up the strengths of our study, our research's benefits are twofold. First, we used a new, ecologically valid method to measure cyber bystander behaviour and prosocial moral reasoning that might broaden future research possibilities and increase reliability. Second, our results have implications for practitioners concerning the role of morality and emotion regulation in cyberbullying engagement that might be used as a focus in prevention and intervention programs.

# 6. FINAL CONCLUSIONS

Based on already existing traditional bullying theories and cyberbullying research evidence, the aim of my doctoral studies was to explore which factors may be part of a comprehensive theory about cyberbullying involvement and may help to understand the dynamics of cyberbullying. Therefore, developmentally, psychologically, and socially relevant factors were included in our research: The studies focused mainly on the effect of socio-emotional skills (i.e. empathy and emotion regulation), moral development (i.e. moral disengagement and prosocial moral reasoning), and social factors (i.e. family functioning and perceived social support) in adolescents' cyberbullying engagement and cyber bystander behaviour. In the first study, we adapted two questionnaires to enable us to study cyberbullying engagement in the Hungarian adolescent population. Cyber Victim and Bullying Scale (Cetin et al., 2011) and European Cyberbullying Intervention Project Questionnaire (Del Rey et al., 2015) were the scales chosen and psychometrically analysed. In the second study based on the SEL theory of traditional bullying, we aimed to explore the role of socio-emotional skills in cyberbullying engagement. In the third study, social factors were also included besides the socio-emotional skills. The aim was still to explore the role of socio-emotional skills but knowledge from Bonfrenbrenner's theory (1989) was also included, i.e. the individual's development and behaviour is influenced by the different levels, e.g. peer and family factors. In the fourth study, besides the socio-emotional skills we aimed to explore the role of morality in cyberbullying engagement as well. Additionally, we also aimed to investigate socio-emotional and moral skills' influence on cyber bystander behaviour not just in cyberbullying involvement.

Throughout the three studies about the socio-emotional correlates of cyberbullying engagement, it became clear that cyberbullies and bully-victims are deeply similar: Our results show that they are characterized by the same difficulties regarding their empathic skills and emotion regulation (they both use other blame and have difficulties with accessing emotion regulation strategies when experiencing negative emotions), and both cyberbullies and bully-victims tend to use moral disengagement strategies. Furthermore, cyberbullying perpetrators and cybervictims are also similar in some social and socio-emotional factors. Both cyberbullying perpetrators and cybervictims lack social support from peers and imbalanced family cohesion characterizes their family. Furthermore, in both the third and fourth study they had mostly the same emotion regulation difficulties: difficulties with accessing effective emotion regulation strategies when experiencing negative emotions, with understanding of emotions and refraining from impulsive behaviour. In the fourth study, all three groups involved

in cyberbullying somehow (cyberbullies, cybervictims, bully-victims) were hardly distinguishable.

An aim of the studies was to explore developmentally, psychologically, and socially relevant factors that can be part of a comprehensive theory of cyberbullying involvement. We have chosen the studied variables based on previous traditional bullying theories and Bronfenbrenner's theory (1989) as well. Our results support the relevance of SEL theory (Durlak et al., 2011; Smith & Low, 2013) in cyberbullying involvement as well. We found a pattern of socio-emotional skills (i.e. difficulties with emotion regulation, lack of empathic skills) and moral disengagement underlying cyberbullying perpetration, cybervictimization, and the bully-victim role as well. Furthermore, our results also show that Bronfenbrenner's theory (1989) has relevance in the explanation of cyberbullying. Our results showed the individual factors that influence cyberbullying engagement (e.g. empathy, moral development, moral disengagement, and emotion regulation), and also a little about the effects of the microsystem level (i.e. family and peer effects). However, this would need more research with the inclusion of further levels' factors like peer norms about cyberbullying, the cultural view on bullying behaviour, the school's policy, digital skills of the environment and the individual, etc.

The results of my doctoral studies provide valuable information on the psychological and social background of cyberbullying engagement in adolescence: The results provide evidence on the importance of socio-emotional skills in cyberbullying; both empathy and emotion regulation play a prominent role in cyberbullying. Furthermore, the role of moral disengagement and its relation to the socio-emotional skills was showed. The importance of family and peers was also emphasized by our results. All the aforementioned results have implications for future research and also for practice, i.e. anti-cyberbullying programs. The role of emotion regulation, moral disengagement, and moral development was not only showed in cyberbullying roles, but also in cyber bystander behaviour. The research of morality related to cyber bystanders behaviour can be a meaningful direction for cyberbullying research since it is not widely studied yet and it would be a new turn for anti-bullying programs as well. Based on the results of our studies and previously conducted ones, both research (especially longitudinal designed ones) and the development of research based anti-cyberbullying programs would be exceedingly important in the future.

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