

Doctoral School of Psychology of University of Pécs  
Developmental and Clinical Psychology Doctoral Program

# THE ROLE OF SOCIO-EMOTIONAL SKILLS IN CYBERBULLYING ENGAGEMENT

Dissertation

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## **1. GENERAL INTRODUCTION**

With the ongoing technological advancements, cyberbullying is becoming more frequent and problematic in adolescents' life. 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 can be implemented.

Cyberbullying research is a new area in psychology, though there is a considerable number of studies investigating the background of cyberbullying engagement. However, the limited number of longitudinal studies, the indeterminate definitional criteria, and the inconsistent results make hard to sum up a generalized knowledge about cyberbullying. This prevents practitioners from the development of effective and evidence-based intervention and prevention programs. Hence, in spite of the great number of existing research, further clarification is crucial about the psychological, social, and developmental background of cyberbullying engagement.

Thus, the aim of my doctoral studies was to clarify some existing results concerning the background of cyberbullying engagement and to find new, developmentally relevant factors that might influence adolescents' cyberbullying involvement. The following studies have focused on examining the effect of moral and socio-emotional development, as well as social factors on cyberbullying engagement and cyber bystander behaviour. In the first study, the aim was to adapt questionnaires that enable researchers to conduct research exploring cyberbullying's developmental correlates and psychological background. In the second study, the goal was to explore the role of social factors, like family functioning and perceived social support from family and friends, on cyberbullying engagement. Additionally, not only the direct effects of these social factors, but also the indirect effects, through emotion regulation, were analysed. In the third study, the aim was to clarify the role of empathy in cybervictimization and to examine the specific maladaptive emotion regulation strategies that might characterize the coping with the consequences of cybervictimization. Further, another goal was to understand the association between the use of moral disengagement strategies and socio-emotional skills in cyberbullying perpetrators. In the last study, the goal was to explore the role of moral development, moral disengagement, emotion regulation, and empathy not only in cyberbullying engagement, but also in cyber bystander behaviour.

## **1.1. Adolescence**

A wide range of biological, physical, neural, cognitive, psychological, and social changes take place during adolescence as it is the developmental phase of the transition between childhood and adulthood. Adolescence is a quite stressful developmental phase because of the novel hormonal and physical changes. Youngsters have to cope with and to adapt to the bodily (e.g. secondary sex characteristics, weight gain, changes in body composition) and neural (e.g. pruning, maturing prefrontal cortex) changes that go on during this time period (Archibald et al., 2003; Giedd, 2004; Giedd et al., 1999). Regarding cognitive development, adolescents become able to understand abstractions, symbolic logic, and cause-effect relations, i.e. using formal operations (Piaget, 1964). These biological and cognitive changes initiate the further changes that concern the psychological and the social areas of adolescents' lives (Archibald et al., 2003; Magnusson et al., 1985).

### **1.1.1. Individual changes during adolescence.**

During adolescence a variety of changes concern adolescents' emotions, socio-emotional and moral skills, behaviour, and self-concept. Adolescents' prior task is to develop a stable identity and self-concept (Erikson, 1956; Marcia, 1980), furthermore their empathic and moral skills develop further (Eisenberg-Berg & Mussen, 1978), and they become more able to regulate their emotional states and behaviours (Gestsdottir & Lerner, 2008; Zeman et al., 2006). As these developmental changes are quite challenging and stressful, there may be a decrease in adolescents' self-esteem (Simmons & Blyth, 1987; Thornburg & Jones, 1982), as well as an increase in adolescents' negative emotions and emotional liability (Buchanan et al., 1992; Larson et al., 1980; Larson & Lampman-Petratis, 1989; Rosenblum & Lewis, 2003), risk behaviours (Hurrelmann & Richterm 2006; Schulenberg & Maggs, 2002), depressive mood (Harter & Whitesell, 1996; Nolen-Hoeksema & Girgus, 1994), symptoms of anxiety (Voltas et al., 2017), and suicidal thoughts (Portes et al., 2002; Wilburn & Smith, 2005).

As mentioned previously, adolescents' most prominent task is to form a synthesized and integrated identity that is a conscious sense of their individual uniqueness and a continuous sense of their experiences (Erikson, 1956). Adolescents go through the process of exploration, i.e. searching for meaningful roles and values, to achieve commitment to a certain identity. If adolescents form commitments without explorations, their identity status is foreclosed, they most likely base their commitments on parental values. If adolescents go through explorations, but have not yet formed commitments, they are in the phase of moratorium. If they do not



explore their options and do not reach a commitment, they are in the status of identity diffusion (Marcia, 1980). The developmental goal of adolescence is to explore the various options adolescents have then commit to personally expressive roles, norms, and values. Whereas, their socio-emotional and moral skills, and behavioural tendencies undergo development as well (Eisenberg-Berg & Mussen, 1978; Gestsdottir & Lerner, 2008; Zeman et al., 2006).

Changes in the cognitive skills underlie the developmental changes in adolescents' *empathic skills*. As the cognitive role-taking or perspective-taking skills and abstract reasoning develop further, adolescents become able to experience emotions of others or of a group of people, and to feel the vicarious emotions of others, e.g. to share the pain of others on a larger scale (Roberts & Strayer, 1996; Rosenblum & Lewis, 2003). Further, adolescents have all the basic skills required for empathic responses and prosocial action, i.e. self-awareness and the ability to infer others' emotional experiences (Lewis, 1997; Rosenblum & Lewis, 2003). Additionally, with the development of the prefrontal cortex, which is the neural background of self-control, planning, problem solving, multi-tasking, decision-making, self-awareness, and inhibition, adolescents' *emotion regulation* capacities develop further as well (Archibald et al., 2003; Giedd, 2004; Giedd et al., 1999; Zeman et al., 2006). Thus, they become able to regulate or modulate intense emotions, self-soothe independently, and manage their emotional states in order to reach a certain goal or carry out a certain behaviour (Eisenberg, 2000).

Contradictory views coexist regarding adolescents' *morality* (Smetana & Turiel, 2003). Some theorists (Fass, 1977) described adolescents as highly individualistic and lacking moral commitments. On the other hand, others (Colby & Kohlberg, 1987; Eisenberg et al., 1998; Kohlberg & Gilligan, 1971) showed that understanding of the society's moral underpinnings and principled moral judgements emerge during adolescence. Indeed, according to Kohlberg's theory (1984) adolescents develop abstract, self-chosen ethical and moral principles. Further, adolescents become able to distinguish between what is moral and what is legal as they come to understand that laws are human constitutions that can be challenged when found unjust or contradictory to human rights or one's own moral principles. Regarding the development of *prosocial moral reasoning* (Eisenberg et al., 1998), adolescents use empathic and/or internalized values when they have to make moral decisions. Indeed, adolescents make moral judgements based on sympathetic feelings or on internalized values, norms, and responsibilities (Eisenberg et al., 1998). However, adolescents use moral reasoning strategies flexibly, depending on the social situation, the sense of personal agency, and societal conventions (Smetana & Turiel, 2003).

The developing cognitive, socio-emotional and moral reasoning skills have an effect on both *aggressive and prosocial behaviour* during adolescence. With the development of more advanced perspective-taking and empathic skills, adolescents are more likely to behave prosocially (Davis, 2018; Eisenberg et al., 2018). Since they are more skilled at taking others' perspective, thus feeling others' vicarious emotions (i.e. personal distress), they are more likely to help others in need. Additionally, emotion regulation is a key factor in prosocial behaviour. If adolescents have difficulties regulating the negative affects they feel as a consequence of witnessing others' distress, they may experience such high levels of negative arousal that prevent them from helping or responding empathically (Eisenberg, 2000). Moral development also contributes to prosocial behaviour. The development of personal moral principles and the ability to expect certain moral emotions as consequences of behaviour regulates adolescents' behaviour and inhibits immoral action (Eisenberg et al., 1991). On the other hand, when there is a deficit in the development of empathy, emotion regulation, and/or moral skills, adolescents are prone to behave antisocially or aggressively (Gini et al., 2014; Lovett & Sheffield, 2007; Robertson et al., 2012). Indeed, adolescents who lack empathic skills are more likely to behave aggressively towards others because they are unable to feel the vicarious emotions of others, so they do not understand or sense the harm they have caused for others (Lovett & Sheffield, 2007). Further, if adolescents are unable to regulate their negative emotional states or impulses that might lead to aggressive and/or problem behaviours, e.g. substance abuse. As by being incapable to understand and process emotions, they might turn the unbearable emotional states into externalizing behaviours, i.e. aggressive acts (Robertson et al., 2012). Moral disengagement, lack of internalized moral principles, and lower levels of moral reasoning (e.g. hedonistic prosocial moral reasoning) are also associated with aggressive behaviour. If adolescents' morality is on an immature developmental level, they are unable to use abstract, moral principles to guide their behaviour, or to make expectations on moral outcomes of their actions, they are more likely to act in ways that are harmful for others (Gini et al., 2014).

### **1.1.2. Social aspects of adolescence.**

Adolescence is not only a critical phase for adolescents but also for their family as the family system needs to adapt to the developmental changes that the adolescent family member goes through (Granic et al., 2003). Most parents and their children manage to maintain a warm, close relationship during the adolescent years, although they usually spend less time together (Baumrind, 1991). However, family conflicts become quite frequent during early adolescence as adolescents, as a developmental goal, seek more independence and autonomy (Laursen et

al., 1998). To help adolescents' healthy development, parents should offer warmth and support, encourage independence in the family communication. Whereas, they also should monitor adolescents' behaviour and set clear rules (Baumrind, 1991; Dishion & McMahon, 1998; Everri et al., 2015; Steinberg, 2000). Hence, family functioning contributes adolescents' successfulness in reaching their developmental goals, i.e. independency, autonomy, and responsibility. Moreover, family functioning also affects adolescents' developing socio-emotional and moral skills. Indeed, how parents balance between their monitoring and the adolescent's need for independency influences the adolescent's developing emotion regulation skills (Morris et al., 2007). Furthermore, both warm and supportive family relationships and flexible family adaptability help the development of sensitive empathic skills (Henry et al., 1996; Olson et al., 1979) and advanced moral reasoning (White, 2000). Thus, positive parenting support adolescents' emerging prosocial behaviour towards others in need (Eberly & Montemayor, 1998; Padilla-Walker et al., 2016). Whereas, lack of parental support, conflictive family relationships and communication enhance the chance of aggressive behaviour during adolescence (Cummings et al., 2003; Dekovic et al., 2004; Van der Graaff et al., 2012).

By spending less time with their family members, adolescents spend most of their time with their peers. Therefore, peer relationships become more prominent during adolescence (Hartup & Stevens, 1997). As family factors, peer relationships also influence adolescents' psychological development. Positive and supporting peer relationships help the development of adaptive emotion regulation (Steinberg & Silk, 2002), empathic (Laible, 2007; You & Kim, 2016) and moral (McDonald et al., 2014) skills. Additionally, peer relationships also influence adolescents' aggressive and prosocial behaviour via peer group norms (Laninga-Wijnen et al., 2018). However this relationship is twofold, as adolescents' emotion regulation, empathic skills, and social competence affect their ability to form and maintain social relationships (Eisenberg & Fabes, 1992; Gross & John, 2003; Sroufe et al., 1984). With the technological advancements taking place, adolescents are prone to form and maintain social relationships on the Internet as well (Gross, 2004; Valkenburg & Peter, 2007; Wolak et al., 2003). Adolescents also use social media to reinforce existing, offline relationships (Subrahmanyam & Greenfield, 2008). Although, there are concerns about adolescents' online relationships. Some raised concerns because online communication lacks important features of face-to-face communication, like eye contact and body language, thus might be less rich and result in weaker relationships (Kraut et al., 1998; Subrahmanyam & Greenfield, 2008). On the other hand, online communication can be as supporting as offline communication (Oh et al., 2014), and can

strengthen the already existing, offline relationships (Cummings et al., 2006; Valkenburg & Peter, 2007).

All the aforementioned social factors and developmental changes, i.e. the better ability to regulate one's emotions and behaviour, the better planning and decision-making strategies, higher levels of empathic skills and moral reasoning, as well as warmth and support from peers and family all contribute to adolescents' healthy development (Granic et al., 2003; Rosenblum & Lewis, 2003). Whereas, lack of empathic and moral reasoning skills, difficulties with emotion regulation, low support from peers and family, conflictive relationships with peers and parents may increase the chance of diffused identity, as well as of risk and problematic behaviours, e.g. substance abuse, or involvement in bullying or cyberbullying (Zych et al., 2019).

## **1.2. Traditional Bullying**

### **1.2.1. Definitional Criteria, Types and Prevalence of Traditional Bullying.**

Traditional bullying appears to be a universal phenomenon during the school years in several countries around the world (Smith et al., 2019). Traditional bullying was first defined by Olweus (1994a, p. 1173): "*A student is being bullied or victimized when he or she is exposed repeatedly and over time, to negative actions on the part of one or more other students.*" Further, Olweus (1994b) described three major aspects that distinguish traditional bullying from general aggression, i.e. *repetition*, *power imbalance*, and *intentionality*. *Repetition*, as a definitional criterion, is crucial for distinguishing traditional bullying acts from occasional negative actions that are not directed on a specific student. Additionally, there is a *power imbalance* between the bully and the victim, as the victimized student has some kind of physical or psychological disadvantage compared to the bully. Thus two students' fighting or arguing with the same physical or psychological strengths, does not count as a bullying incident. As a consequence of power imbalance, the victim has difficulties in defending himself or herself. At last, the perpetrator has the *intent to cause harm* to the victim or to damage the victim's relationships or reputation to reach a certain goal (e.g. hierarchical status in the class) (Olweus, 1994b; Sutton et al., 1999). Based on these characteristics, traditional bullying seems to be unprovoked and deliberate, thus can be considered as proactive, goal-directed aggression (Coie et al., 1991).

There are different types of categorization of traditional bullying acts. First, there are *direct* and *indirect* forms of bullying. *Direct* bullying acts are when the victim experiences open, face-to-

face attacks from the bully or bullies. On the contrary, *indirect* bullying is when the attacks are hidden, and happen in the form of social isolation, rumours or exclusion (Björkqvist et al., 1992; Olweus, 1994b). Another type of categorization can be by the form of aggression used during traditional bullying incidents, i.e. physical, verbal, and relational or social bullying (Björkqvist et al., 1992; Salmivalli et al., 2011). *Physical bullying* incidents are direct and happen by hitting, pushing, or kicking the victim. Direct *verbal bullying* means threatening or name-calling the victimized student face-to-face. Whereas, the goal of indirect, *relational or social bullying* is to damage the victim's social relationships, self-esteem and/or reputation by spreading rumours, exclusion, or persuading others not to play/talk with the person (Björkqvist et al., 1992; Crick & Grotpeter, 1995; Underwood et al., 2004).

The prevalence of traditional bullying varies among different studies, countries, and cultures (Griffin & Gross, 2004; Rigby & Smith, 2011). Although the studies applied the same definition of traditional bullying, the differences might originate from the different types of traditional bullying assessed, the wording of the questions, and the different response categories used in the studies (Rigby & Smith, 2011). As reported by Molcho and colleagues (2009), the lowest rates of bullying victimization (14.6%) and of bullying perpetration (15.4%) were found in Sweden, whereas the highest rates of bullying victimization (56.3%) and of bullying perpetration (54.9%) were found in Lithuania. However, the prevalence rates of both bullying perpetration and victimization seem to be decreasing (Molcho, et al., 2009; Rigby & Smith, 2011). There is little research investigating the prevalence rates of traditional bullying in Hungary. According to the 2013/2014 Health Behaviour in School-Aged Children (HBSC) study, 5.1% of the students from grades 5, 6, 7, 8, 9, 10, and 11 are victimized at least one time a week, whereas 3% reported the perpetration of traditional bullying (Németh & Költő, 2016). Another study, using a different traditional bullying measurement, have found that 15.2% of the students were victimized, whereas 7% of students perpetrated traditional bullying (Simon et al., 2015).

### **1.2.2. Participants of Traditional Bullying.**

For first sight, traditional bullying incidents happen in the dyadic relationship of the bully and the victim. There are two types of victims, i.e. *passive or submissive victims* and *provocative victims or bully/victims* (Griffin & Gross, 2004). *Passive victims* are quiet, sensitive, lonely, physically weak, highly anxious and insecure and have internalizing problems (Carney & Merrell, 2001; Olweus, 1994b). *Provocative victims* are both anxious and aggressive and have

behavioural problems and difficulties with social skills (Olweus, 1994b). Although according to the systemic model of bullying, traditional bullying is a systemic problem that has causes on different levels of the social ecological system. Thus, traditional bullying is not only happening in the dyadic relationship of the bully and the victim, but in the social circle of the classmates, teachers, school/school personnel, family, community, and culture (Swearer & Doll, 2001). Therefore, besides bullies and victims bystanders have a significant role in traditional bullying as well. Salmivalli (1999) identified four different bystander behaviours: assistant of the bully, reinforcers of the bully, defenders of the victim and outsiders. Assistants join the bully in the negative act, reinforcers give positive feedback to the bully by laughing or cheering, defenders help, comfort, or support the victim, whereas outsiders do not intervene in any way in the bullying incident (Salmivalli, 1999).

### **1.2.3. Risk and Protective Factors in Traditional Bullying.**

*Passive or submissive victims* are usually anxious, insecure, cautious, and sensitive. Additionally, they are socially withdrawn, quiet, passive, and shy. On account of these psychological characteristics, they have a negative view of themselves, i.e. low self-esteem and they also have difficulties with fitting in the peer group, thus they have little emotional support from their peers (Carney & Merrell, 2001; Olweus, 1994b). Further, victims also show symptoms of internalizing problems (Carney & Merrell, 2001; Craig, 1998). On the other hand, *provocative victims* are hot-tempered, aggressive, and offensive, whereas, like submissive victims, they also show symptoms of anxiety (Olweus, 1994b). They also might be hyperactive, restless, and unconcentrated as well (Olweus, 1994b). Therefore, provocative victims have difficulties in the classroom setting and may violate norms thus these behaviours may lead to their subsequent victimization (Greene, 2000). Some studies have found, that unresponsiveness and uninvolved parenting characterizes the parenting style of victims' parents (Flouri & Buchanan, 2002; Ok & Aslan, 2010). On the other hand, responsive parenting, i.e. overprotective and permissive parenting, was also found to be a risk factor of victimization. The overprotective parenting style endangers children by rearing them to be passive and submissive that are two specific characteristics of victims (Carney & Merrell, 2001; Olweus, 1994b). Whereas, permissive parenting is not demanding, teaches no norms or rules to the children thus children do not know what behavioural rules they should follow thus their classmates may pick on them because of their norm breaking behaviours (Georgiou, 2008).

There are several protective factors that decrease the chance of victimization. Indeed, certain individual factors like social competence, intelligence, and problem solving are protective against victimization (Cook et al., 2010; Kowalski et al., 2014). Additionally, social factors, like school and family environment, and peer context, can also be protective against victimization. Positive school climate and school safety protect children from engaging in traditional bullying acts (Cook et al., 2010; Kowalski et al., 2014). Positive family environment and parental support also serve as protective factors against traditional bullying engagement (Cook et al., 2010; Lereya et al., 2013), as does peer support and high peer status (Cook et al., 2010; Heerde & Hemphill, 2018; Kowalski et al., 2014).

Perpetrators of traditional bullying have a strong need to dominate others, and they have a positive attitude toward using aggressive means to reach their goals and toward violence (Carney & Merrell, 2001; Olweus, 1994b). They are impulsive, hot-tempered, and they have low frustration tolerance (Bernstein & Watson, 1997; Olweus, 1994b). They show little empathy toward others (Bernstein & Watson, 1997; Olweus, 1994b), although they are prominent at knowing how to hurt others, i.e. they have high levels of cognitive empathy (Sutton et al., 1999). Further, familiar context and parental child-rearing practices also have an effect on bullying perpetration. Students who come from a harsh and abusive family environment are more likely to perpetrate bullying in the school. Additionally, power-assertive, inconsistent, neglectful, and aggressive child-rearing practices also enhance the chance of bullying perpetration (Carney & Merrell, 2001; Dehue et al., 2012).

There are protective factors against bullying perpetration as well. High self-esteem, social competence, high empathy, and problem solving skills are individual factors that are associated with low bullying perpetration (Cook et al., 2010; Kowalski et al., 2014; Mitsopoulou & Giovazolias, 2015; Tsaousis, 2016; Zych et al., 2019). Certain personality traits are also protective against bullying perpetration, e.g. openness, agreeableness, and conscientiousness as low levels of bullying perpetration were associated with higher levels of the aforementioned personality traits (Mitsopoulou & Giovazolias, 2015). Social factors might also be protective against bullying perpetration as well. Both positive school and home environment serves as protective factors against bullying perpetration (Cook et al., 2010; Kowalski et al., 2014). Further, high peer status and peer support decrease the chance of bullying perpetration (Cook et al., 2010; Heerde & Hemphill, 2018; Kowalski et al., 2014).

Additionally, there appear to be *gender differences* regarding traditional bullying engagement (Cook et al., 2010; Craig et al., 2009; Currie et al., 2008; Smith, 2016; Smith et al., 2019).

Indeed, boys are more likely to bully other (Cook et al., 2010; Craig et al., 2009; Smith et al., 2019). Whereas, regarding victimization the results are quite inconsistent (Smith et al., 2019). There are studies (Cook et al., 2010; Currie et al., 2008; Smith et al., 2019) that have found that boys also are victimized at higher rates than girls are. Other studies (Craig et al., 2009) have found that girls are more likely victims of traditional bullying. Further, gender differences might vary by the type of traditional bullying. Indeed, boys are more likely to engage in direct, physical bullying compared to girls (Björqvist et al., 1992; Smith, 2016). Whereas, girls bullied others more likely in indirect ways, by social exclusion or isolation (Rivers & Smith, 1994). Although, it was shown that the rate of victimization regarding relational or social bullying was approximately the same among both girls and boys (Craig, 1998).

#### **1.2.4. Consequences of Traditional Bullying.**

Involvement in traditional bullying affects both perpetrators and victims; furthermore, bystanders are also influenced by witnessing the bullying incidents between the bully and the victim. There are four areas where adolescents can experience the negative consequences of victimization: psychological well-being, social adjustment, psychological distress, and physical wellness (Rigby, 2003). Regarding *psychological well-being*, victims of traditional bullying usually report low levels of self-esteem and low global self-worth (Olweus, 1994b, Slee & Rigby, 1993). Victims are also characterized by poor *social adjustment*. As a consequence of traditional bullying victimization, students develop an aversion to the school environment, thus truancy is quite frequent among victimized students (Kochenderfer & Ladd, 1996; Rigby & Slee, 1993). Further, *loneliness* can be a consequence of bullying involvement as well, as victimized students have difficulty forming relationships subsequent of their victimization (Campbell, 2013). Several studies investigated the *psychological distress* that victimized students experience. Victimized children report symptoms of anxiety and insecurity (Olweus, 1994b). Further, they experience negative affective states, i.e. they feel irritable, nervous, and panicky after bullying incidents (Sharp, 1995) and they also have sleeping problems (Van Geel et al., 2016). Additionally, they experience symptoms of depression as well (Claes et al., 2015; Slee, 1995; Vanderbilt & Augustyn, 2010). In the most serious cases, victimization is associated with suicidal ideations and suicidal behaviour (Rigby, 2003; Rigby & Slee, 1999; Vanderbilt & Augustyn, 2010). Regarding *physical wellness*, victims of traditional bullying usually report psychosomatic symptoms, like headaches, mouth sores, “thumping “ in the chest, and stomach aches (Rigby, 2003; Vanderbilt & Augustyn, 2010; Wolke et al., 2001). Perpetrators of traditional bullying also experience high levels of depression (Claes et al., 2015; Slee, 1995;



Vanderbilt & Augustyn, 2010) and suicidal ideation (Rigby, 2003; Rigby & Slee, 1999). They also have poor social adjustment, they are likely to have social and externalizing problems. Further, bullies are at higher risk of dropping out of school (Vanderbilt & Augustyn, 2010). Both for victims and bullies there are several long-term consequences of bullying as well. Victims might suffer from various disorders, like psychosis, depression, and anxiety disorders in adulthood. Further, they can have poor self-esteem and abusive relationships. The long-term effects of perpetrating bullying can be the development of psychiatric disorders like for victims. Bullies might suffer from substance abuse, antisocial personality disorder, and anxiety disorders in adulthood. Childhood bullies are more likely convicted for crimes in adulthood, and they have problems with employment and romantic relationships (Vanderbilt & Augustyn, 2010). Whereas, bystanders of the bullying incidents report feelings of confusion, isolation, and “stuckness”. When they witness a bullying incident they meet with their own vulnerability and feel like they are isolated from their peers as well (Hutchinson, 2012).

### **1.3. Cyberbullying**

#### **1.3.1. Definitional Criteria of Cyberbullying.**

As a consequence of the ongoing technological advancements and the broader usage of technological devices, the Internet has become a significant part of everyday life. Internet usage has many advantages, however there are several online risks that adolescents are exposed to (Holfeld & Grabe, 2012), such as online grooming, problematic Internet use, and cyber dating violence (Machimbarrena et al., 2018). Further, the Internet has many features (e.g. anonymity, instant messaging, etc.) that can be used to commit conduct behaviours, such as cyber-hacking, cyberstalking, and several forms of cyber aggression, like cyberbullying (Kowalski et al., 2014).

Cyberbullying is often identified as a subtype of traditional bullying taking place in a new context that is the Internet (Li, 2007; Wang et al., 2010). Thus the definitions describing cyberbullying, partly adapt Olweus’ definitional criteria (1994) for traditional bullying and partly use the specific characteristics of cyberbullying (Berne et al., 2013; Nocentini et al., 2010; Slonje & Smith, 2008; Spears et al., 2009). A main question is, for both researchers and practitioners, how Olweus’ definitional criteria (imbalance of power, intentionality, and repetition, 1994) can be used to describe cyberbullying (Corcoran et al., 2015). Therefore, several definitions exist in the literature defining cyberbullying (Berne et al., 2013). According to one, more general definition cyberbullying is “*an aggressive act carried out using electronic*

*means by a group or individual repeatedly and over time against a victim who cannot easily defend himself or herself*” (Smith et al., 2008, p. 376.). Willard (2007), in a more detailed definition, described cyberbullying as an act of sending and/or posting hostile and cruel messages and pictures via the Internet or other devices of ICT (Information Communication Technology) that causes psychological and/or social harm. Shariff and Gouin (2005) perceived cyberbullying as a type of traditional bullying, that causes harm to the victim via electronic devices, mobile phones, blogs, different websites, and chat rooms. These definitions included both definitional criteria of traditional bullying (i.e. imbalance of power, intentionality, and repetition, Olweus, 1994b) and the specific characteristics of cyberbullying (e.g. Internet as the platform or medium of bullying acts).

Kwan and Skoric (2013) identified three specific characteristics of cyberbullying that are the unlimited capacity of the Internet, the perpetrator’s anonymity, and the broad audience. In cases of traditional bullying, only a small circle is witness to the victim’s humiliation. Whereas via the Internet cyberbullying acts can be seen, commented, and/or shared by several people, friends, acquaintances, friends and/or acquaintances of friends, and even strangers. Thus, a broader audience is witness to the cybervictim’s humiliation compared to traditional bullying; consequently, neither the cybervictim, nor the cyberbully is able to control the course of events (Cetin et al., 2011). As the Internet has unlimited capacity, the negative acts happening to the victim can be shared, commented and, in general, are available for a longer time. Further, the harmful content can be downloaded, repeatedly uploaded by others, therefore the cyberbullying perpetrator loses control over the harmful content and thus might feel less responsible for the negative events happening to the victim (Kwan & Skoric, 2013). As well as, the Internet offers the opportunity for the perpetrator to stay anonymous through fake profiles (Casas et al., 2013; Hinduya & Patchin, 2008). Approximately 20-30 % of cybervictims do not know the identity of the cyberbully (Slonje & Smith, 2008; Smith et al., 2008). Studies investigating the consequences of anonymous cyberbullying provide conflicting results: some studies (Slonje & Smith, 2008; Smith et al., 2008) showed that anonymity causes more severe harm on the victim. Whereas, Nocentini and colleagues (2010) found contradictory evidence showing that being cybervictimized by a known person is more harmful. Another specific characteristic of cyberbullying is its 24/7 nature, because the victim of cyberbullying is available for the cyberbullying perpetrator anytime and/or anywhere given the Internet’s specific features, so the victim cannot hide from the bullying at home compared to traditional bullying (Kowalski & Limber, 2007). As showed above, there is lack of consensus regarding the definitional criteria

of cyberbullying and there is still ongoing research on the clarification of the definition of cyberbullying (Berne et al., 2013). Although, maybe Tokunaga's (2010) definition is the clearest so far, including intentionality and repetition, from Olweus' definitional criteria (1994), as well as anonymity and the 24/7 nature of cyberbullying as cyberbullying's specific characteristics (Berne et al., 2013): *"Cyberbullying is any behavior performed through electronic or digital media by individuals or groups that repeatedly communicates hostile or aggressive messages intended to inflict harm or discomfort on other. In cyberbullying experiences, the identity of the bully may or may not be known. Cyberbullying can occur through electronically-mediated communication at school; however, cyberbullying behaviors commonly occur outside of school as well"* (Tokunaga, 2010, p. 278.).

### **1.3.2. Types of Cyberbullying.**

Advances in communication technology may create specific opportunities for cyberbullying (Vandebosch & Van Cleemput, 2008; Ybarra & Mitchell, 2004), for example, social media sites unintentionally support and maintain cyberbullying by forming groups, posting pictures and videos and commenting others' shared content (Kwan & Skoric, 2013). As the ICT (Information Communication Technology) developed throughout the years, new forms of cyberbullying emerged as well. On one hand, the different forms of cyberbullying can be categorized by the means used during cyberbullying acts (Slonje et al., 2013). Early research divided cyberbullying into two main categories, i.e. Internet and mobile phone bullying (Ortega et al., 2009). Other studies described more specific types of media used in cyberbullying: mobile phone calls, text messages, picture/video clip bullying, e-mails, chatroom, instant messaging, and websites (Smith et al., 2008). Otherwise, cyberbullying can be categorized by the type of action or its content (Slonje et al., 2013). Willard (2007) identified eight types of cyberbullying acts: flaming, harassment, denigration, impersonation, outing, trickery, exclusion, and cyberstalking. Whereas, Rivers and Noret (2010) described the different forms of verbal cyber bullying: threat of physical violence, abusive or hate-related, name calling, death threats, ending of platonic relationship, sexual acts, demands/instructions, threats to damage existing relationships, threats to home/family, and menacing chain messages.

### **1.3.3. Prevalence of Cyberbullying.**

The prevalence rates of cyberbullying engagement are highly variable across countries and studies. This might be due to the lack of consensus regarding the definitional criteria of cyberbullying, the various measures used to determine cyberbullying engagement that are based

on different definitional criteria and different time parameters for the occurrence of cyberbullying (e.g. last one year, six months, lifetime), and the criteria used to establish whether cyberbullying occurred (e.g. at least once or at least two or three times a month) (Kowalski et al., 2019). According to a review on the prevalence of cyberbullying in North America and in Europe (Brochado et al., 2017), cybervictimization rates ranged from 1.0% to 61.1%, cyberbullying perpetration rates ranged from 3.0% to 39.0%, whereas prevalence rates for being both a perpetrator and a victim of cyberbullying ranged from 1.5% to 72.0% between 2004 and 2014. Further, the prevalence rates of cybervictimization showed an increase throughout the years in Europe and Hungary (see Table 1 and 2). Although, the aforementioned high variability in the measurement and the great heterogeneity in the prevalence rates limit the possible conclusions about the prevalence rates of cyberbullying engagement.

Table 1. Prevalence rates of cybervictimization in Europe

<b>Countries participating in the study</b>	<b>Age of sample</b>	<b>Prevalence of cybervictimization</b>	<b>Reference</b>
Portugal, Spain, France, Belgium, United Kingdom, Ireland, Italy, Germany, Denmark, Netherlands, Norway, Sweden, Finland, Estonia, Lithuania, Poland, Czech Republic, Austria, Slovenia, Hungary, Romania, Bulgaria, Turkey, Greece	9-16 years olds	7%	Livingstone et al., 2011
Belgium, Denmark, Italy, Ireland, Portugal, Romania, United Kingdom	11-16 years olds	12%	Livingstone et al., 2014
		Highest prevalence rates in Denmark (21%) and in Romania (19%) Lowest prevalence rates in Portugal (5%) and in Italy (6%)	
Spain, Poland, Netherlands, Romania, Iceland, Greece	14-17 years olds	21,4%	Tsitsika et al., 2015
		Highest prevalence rates in Romania (37,7%) and in Greece (26,8%) Lowest prevalence rates in Spain(13,3%) and in Iceland (13,5%)	

Table 2. Prevalence rates of cybervictimization in Hungary

<b>Age of sample</b>	<b>Prevalence of cybervictimization</b>	<b>Reference</b>
9-16 years olds	6%	Livingstone et al., 2011
11-17 years olds	13.4 %	Várnai & Zsíros, 2014
12-13 and 16-17 years olds	40.5 %	Domonkos & Ujhelyi, 2014

#### **1.3.4. Cyberbullying Roles.**

Engagement in cyberbullying can happen in several ways. Adolescents can be involved in cyberbullying as perpetrators, victims, bully-victims, or bystanders. These cyberbullying roles tend to be fluid; adolescents usually are involved in several roles during cyberbullying situations (DeSmet et al., 2014; DeSmet et al., 2016; Van Cleemput et al., 2014). This fluidity of the roles can be a consequence of the Internet's characteristics like anonymity and the hidden impact of cyberbullying on the victim (Moxey & Bussey, 2020). Just like the various forms of bystanders' presence might also be a consequence of the Internet's specific features as bystanders may be with the perpetrator when the cyberbullying act is carried out, with the victim when it is received, or with neither, just scrolling on the Internet and witnessing the cyberbullying incident (Smith, 2012). There are three forms of bystander behaviour that can be carried out during cyberbullying situations. First, bystanders can act as assistants, reinforcing the cyberbullying perpetrator. Second, bystanders also can remain passive and avoid involvement in the cyberbullying incident (Mazzone, 2020). At last, bystanders can intervene; this intervention can be both prosocial and antisocial in nature (Moxey & Bussey, 2020). Prosocial bystander behaviour includes constructive intervention targeted toward the victim or the bully e.g. by encouraging the cyberbullying perpetrator to apologize or by providing support or advice to the cybervictim (Cassidy et al., 2013; DeSmet et al., 2014; DeSmet et al., 2016; Moxey & Bussey, 2020). Whereas, when bystanders intervene aggressively, they respond aggressively to the perpetrator of the cyberbullying act e.g. by threatening him/her or by posting humiliating images online (DeSmet et al., 2014; DeSmet et al., 2016; Moxey & Bussey, 2020). Similarly to the cyberbullying roles, the different bystander roles are fluid as well, bystanders might take multiple roles during cyberbullying incidents e.g. by taking the side of the cybervictim or of the cyberbullying perpetrator (DeSmet et al., 2014).

#### **1.3.5. Antecedents of Cyberbullying Engagement.**

Several studies have investigated the risk and protective factors that lead to cyberbullying perpetration and cybervictimization. According to Kowalski and colleagues (2019) these factors can be categorized as individual, peer, family, school- and community-level risk and protective factors. Additionally, technology use also has a prominent role: Both cyberbullying perpetration and cybervictimization are related to heightened time spent online, engaging in risky online behaviours (e.g. sharing personal information, talking to strangers) and in online gaming (Chang et al., 2015; Hinduja & Patchin, 2008; Ybarra & Mitchell, 2004).

*Individual risk factors of cybervictimization* include previous traditional bullying experience, showing that those children who were victimized in traditional bullying are more likely to become victims of cyberbullying acts as well (Álvarez-García et al., 2015, Antoniadou et al., 2016; Chang et al., 2015). Further, gender (Dehue et al., 2008; Hinduja & Patchin, 2008; Juvonen & Gross, 2008; Li, 2006; Kowalski & Limber, 2007; Patchin & Hinduja, 2006; Williams & Guerra, 2007; Ybarra et al., 2007; Ybarra & Mitchell, 2008), sexual identity (Elipe et al., 2018; Garaigordobil et al., 2020), disability or neurodevelopmental disorders, like ADHD (Beckman et al. 2016; Heiman et al., 2015), and obesity (Kenny et al., 2017) can be considered as significant individual factors enhancing the chance of cybervictimization (Kowalski et al., 2019). Previous studies (Dehue et al., 2008; Hinduja & Patchin, 2008; Juvonen & Gross, 2008; Li, 2006; Kowalski & Limber, 2007; Patchin & Hinduja, 2006; Williams & Guerra, 2007; Ybarra et al., 2007; Ybarra & Mitchell, 2008) showed inconsistent evidence about the gender differences regarding cybervictimization. Some studies (Hinduja & Patchin, 2008; Juvonen & Gross, 2008; Li, 2006; Patchin & Hinduja, 2006; Slonje & Smith, 2008; Smith et al., 2008; Smith et al., 2006; Williams & Guerra, 2007; Ybarra et al., 2007) have showed evidence that girls are more like cybervictimized, whereas other studies (Dehue et al., 2008; Kowalski & Limber, 2007; Ybarra et al., 2007; Ybarra & Mitchell, 2008) have found no significant difference between the genders in cybervictimization. LGBT youth report higher rates of cybervictimization compared to their heterosexual peers (Elipe et al., 2018; Garaigordobil et al., 2020). Little research have examined the role of disability in cybervictimization, though according to the existing results students with ADHD are more likely to be cybervictimized (Heiman et al., 2015), whereas girls with a disability or chronic health condition were more likely to become cyber bully-victims (Beckman et al., 2016). Individual risk factors include *psychological factors* as well. The most prominent risk factor of cybervictimization is low self-esteem (Álvarez-García et al., 2015; Bayraktar et al., 2015; Brewer & Kerslake, 2015). Further, lack of self-control (Antoniadou et al., 2016), problems with anger management (İçellioglu & Özden, 2014), as well as social anxiety and lack of social skills (Navarro et al., 2012), e.g. low social intelligence (Bayraktar et al., 2015) and low empathy (Schultze-Krumbholtz & Scheitauer, 2009), heighten the risk of cybervictimization among adolescents. *Social risk factors of cybervictimization* include peer, family, and school-and community-level factors (Kowalski et al., 2019). Adolescents lacking supporting peer relationships are more likely to become victims of cyberbullying (Baldry et al., 2015; Fridh et al., 2015; Kowalski et al., 2014). As well as, lack of parental warmth and family support (Fanti et al., 2012; Fridh et al., 2015; Kowalski et al., 2014; Martins et al., 2016; Williams & Guerra, 2007), offensive and avoidant

family communication (Buelga et al., 2017; Buelga et al., 2016; Elgar et al., 2014; Larranga, et al., 2016), conflictive family relationships and lack of emotional link among the family members (Ortega-Barón et al., 2016) are risk factors of cybervictimization. Additionally, feeling unsafe in the school also heightens the risk of cybervictimization (Bottino et al., 2015). Based on previously found predictors of cybervictimization, Guo (2016) drew the general profile of cybervictims. According to this profile, cybervictims are usually females, more active on the Internet and victims of traditional bullying. They show high levels of depression, helplessness, stress, and/or loneliness. They tend to bully others offline and show several problem behaviours, positive attitude toward aggression. They are characterized by antisocial personality traits and have low levels of self-satisfaction, self-concept, or self-esteem. Furthermore, cybervictims are treated negatively by family members and peers as well, and have low levels of school commitment (Guo, 2016).

*Individual protective factors against cybervictimization* include high social intelligence, empathy, more effective emotion regulation strategies, and self-efficacy in defending oneself (Chen et al., 2017; Kowalski et al., 2014). Frequent prosocial behaviour that is based on the aforementioned socio-emotional skills is also a protective factor against cybervictimization (Kowalski et al., 2014). Further, self-oriented personal competencies and low technology use were associated with lower rates of cybervictimization (Zych et al., 2019). As were high self-esteem and a good self-concept also protective against cybervictimization (Chen et al., 2017; Kowalski et al., 2014; Tsaousis, 2016). *Social protective factors against cybervictimization* comprise of social support from peers (Fridh et al., 2015) and from family (Fanti et al., 2012; Fridh et al., 2015; Lereya et al., 2013; Martins et al., 2016). Warm relationship with the parents (Elsaesser et al., 2017), positive family environment (Cook et al., 2010; Guo, 2016), parental involvement and communication (Lereya et al., 2013) were all family factors that are protective against cybervictimization. Parental rules and supervision regarding adolescents' online activities, as well as monitoring of such activities may also serve as protective factors that decrease the chance of being cybervictimized (Baldry et al., 2015; Chen et al., 2017; Kowalski et al., 2014). On the contrary, other studies (Elsaesser et al., 2017) showed that collaborative digital parenting, e.g. co-use and evaluative mediation, protect more likely against cybervictimization. All in all, the effect of digital parenting on cyberbullying engagement seems to be inconclusive so far. On the school-level, school safety, positive school climate (Kowalski et al., 2014, Zych et al., 2019) and close relationship with teachers (Ortega-Barón et al., 2016) are protective factors against cybervictimization.



*Individual risk factors of cyberbullying perpetration* include previous traditional bullying experience, and gender as well. Adolescents who perpetrated traditional bullying are more likely to become cyberbullying perpetrators as well (Baldry, Farrington, & Sorrentino, 2015; Kowalski et al., 2012). Furthermore, victims of traditional bullying might also become cyberbullying perpetrators (Antoniadou et al., 2016; Guo, 2016; Vazsonyi et al., 2012) as the Internet can serve as means of retaliatory aggression (Beran & Li, 2007) or as a way to canalize their unregulated negative emotions (e.g. anger, sadness, embarrassment) that are caused by cyberbullying (den Hamer & Konijn, 2016). On the contrary, Kowalski and colleagues (2012) have found that traditional bullying victimization does not contribute to cybervictimization. Summing up the results so far, the results show that traditional bullying perpetration increases the probability of cyberbullying perpetration, but the relationship between traditional bullying victimization and cybervictimization is not yet clearly confirmed. As is the relationship between gender and cyberbullying perpetration. According to some studies there is no association between gender and cyberbullying perpetration (Dehue et al., 2008; Kowalski & Limber, 2007; Ybarra et al., 2007; Ybarra & Mitchell, 2008), whereas others have showed that boys are more likely to engage in cyberbullying as perpetrators (Erdur-Baker, 2009; Hinduja & Patchin, 2008; Juvonen & Gross, 2008; Li, 2006; Patchin & Hinduja, 2006; Williams & Guerra, 2007; Ybarra et al., 2007). Various individual, psychological factors were studied in relation to cyberbullying perpetration so far. Low self-esteem (Baldry et al., 2015) and low cognitive and/or affective empathy (Baldry et al., 2015; Brewer & Kerslake, 2015; Del Rey et al., 2015) are risk factors for perpetrating cyberbullying. Further, dark-side personality traits increase the risk of becoming cyberbullying perpetrator. Narcissism (Chen et al., 2017), Machiavellian and psychopathic traits (Peterson & Densley, 2017) were shown to have a significant effect on cyberbullying perpetration. Internalizing and externalizing problems also increase the risk of perpetrating cyberbullying (Guo, 2016; Marciano et al., 2020), as does moral disengagement (Bussey et al., 2015; Renati, et al., 2012; Robson & Witenberg, 2013; Wang et al., 2016), low levels of self-control, high levels of sensation seeking behaviours, and impulsivity (Antoniadou et al., 2016; Baldry et al., 2015; Lianos & McGrath, 2017). Similarly to the social risk factors of cybervictimization, *social risk factors of cyberbullying perpetration* include peer, family, and school-and community-level factors (Kowalski et al., 2019). Peer rejection (Bayraktar et al., 2015) and social isolation (Baldry et al., 2015) were significant predictors of cyberbullying perpetration. Further, poor family support (Calvete et al., 2010; Fanti et al., 2012; Solecki et al., 2014; Wang et al., 2009), negative, offensive and avoidant family communication (Buelga et al., 2017; Buelga et al., 2016; Elgar et al., 2014; Larranga, et al., 2016) and negative, conflictive

family environment and relationships (Buelga et al., 2017; Hemphill & Heerde, 2014; Ybarra & Mitchell, 2004) increase the chance of adolescents' becoming perpetrators of cyberbullying. As do low teacher support, lack of rules regarding cyberbullying in the school, and negative school climate (Baldry et al., 2015; Guo, 2016). Based on the aforementioned predictors of cybervictimization, Guo (2016) drew the general profile of cyberbullying perpetrators. According to this profile, cyberbullying perpetrators are usually older males, more active online and perpetrators or victims of traditional bullying. They show behavioural and internalizing problems and a positive attitude toward violence. Cyberbullying perpetrators also have antisocial personality traits, lack moral values and empathic skills. Further, they have poor peer and family relationships, and report a negative school climate (Guo, 2016).

*An individual protective factor against cyberbullying perpetration* is agreeableness (van Geel et al., 2017), as the presence of this personality trait decreases the probability of cyberbullying perpetration. Other psychological strengths that are related to lower rates of cyberbullying perpetration are high self-esteem (Chen et al., 2017; Kowalski et al., 2014; Tsaousis, 2016), adaptive emotional management (Chen et al., 2017), and sensitive empathic skills (Kowalski et al., 2014; Zych et al., 2019). Additionally, low technology use is another protective factor against cyberbullying perpetration (Zych et al., 2019). *Social protective factors against cyberbullying perpetration* are more likely family factors (Kowalski et al., 2019). Emotional support from family, trust among family members, secure attachment, and positive home environment were shown to be protective factors against cyberbullying perpetration (Bayraktar et al., 2015; Cook et al., 2010; Elsaesser et al., 2017; Fanti et al., 2012; Guo, 2016; Wang et al., 2009). Further, parental monitoring can also serve as a protective factor against cyberbullying perpetration (Mesch, 2009). Peer-related factors can also serve as protective factors against cyberbullying perpetration, such factors can be positive peer influence (Cook et al., 2010; Guo, 2016) and peer support (Heerde & Hemphill, 2018; Kowalski et al., 2014). At last, a school-related protective factor against cyberbullying perpetration is school safety (Baldry et al., 2015; Bottino et al., 2015).

### **1.3.6. Consequences of Cyberbullying Engagement.**

Several studies investigated the possible consequences and negative influence of cyberbullying engagement for both victims and perpetrators (Kowalski et al., 2019). The outcomes of cyberbullying involvement can affect four areas in adolescents' lives: psychological health, physical health, social functioning, and behaviour (Kowalski et al., 2014). Regarding

*psychological health*, the victims of cyberbullying experience negative affective states as a consequence of cyberbullying incidents (Alhujaili et al., 2020), i.e. they feel angry, anxious, afraid, and ashamed (Ortega et al., 2012). Both cyberbullying perpetrators and cybervictims may suffer from symptoms of anxiety and depression (Didden et al., 2009; Perren et al., 2010; Skilbred-Fjeld et al., 2020; Ybarra & Mitchell, 2004), and suicidal ideations (Hinduja & Patchin, 2010; Schenk & Fremouw, 2012). Further, both cyberbullying perpetrators and cybervictims are characterized by low self-esteem (Didden et al., 2009) and low self-control (Vazsonyi et al., 2012). Regarding *physical health*, both cyberbullying perpetrators and cybervictims have poor physical health (Kowalski & Limber, 2013), and there is an increased risk of self-injury for them (Schneider et al., 2012). Further, cybervictims might experience psychosomatic symptoms, as well (Kowalski et al., 2014). The *social lives* of both cyberbullying perpetrators' and cybervictims' get impaired because of cyberbullying involvement therefore they report higher levels of loneliness (Sahin, 2012a). The *behavioural* consequences of cyberbullying involvement for both perpetrators and victims might be substance (i.e. tobacco, alcohol, or drug) use (Ybarra & Mitchell, 2004), truancy, absence from school, poor academic performance, decreased concentration, and trespassing behaviours (e.g. weapon carrying) (Beran & Li, 2005, 2007; Vazsonyi et al., 2012; Ybarra et al., 2007). Additionally, cybervictims report reduced levels of prosocial behaviour, as well (Kowalski et al., 2014).

#### **1.4. Aim of the Studies**

Based on the aforementioned developmental background and previous studies' results, the aim of my doctoral studies was to understand the role of socio-emotional skills (e.g. empathy, emotion regulation), moral development (e.g. prosocial moral reasoning, moral disengagement), and social factors (family functioning, perceived social support) in adolescents' cyberbullying engagement and cyber bystander behaviour.

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. Further, we aimed to analyse the factor structure, reliability, and validity of the two questionnaires, as well as to compare them based on these psychometrical, as well as on theoretical characteristics showing the questionnaires' advantages and disadvantages.

In the second study, 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 goal of the third study was to examine the effects of empathy, emotion regulation, and moral disengagement on cyberbullying engagement. 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.

The aim of the fourth 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. Introduction**

The prevalence of cybervictimization shows increase not just in Central, South, and Western Europe but in Hungary as well (see Tables 1 and 2). Thus, cyberbullying is becoming a pressing issue for the Hungarian educational system, teachers, students, and parents; therefore, research is needed to understand the dynamics of cyberbullying engagement and for the development of efficient prevention and intervention programs. Although, only a few studies were conducted in Hungary, so far, to explore the antecedents and consequences of cyberbullying engagement (Domonkos & Ujhelyi, 2014, 2015; Zsila et al., 2017). A reason behind the small number of research might be the absence of a reliable and valid questionnaire. Hence, our aim was to adapt questionnaires that might contribute to more research regarding cyberbullying in Hungary.

As it was previously introduced (see part 1.3.1.), there are several various definitions that make an attempt to describe the phenomenon of cyberbullying. These definitions partly include Olweus' (1994b) traditional bullying criteria (i.e. power imbalance, intentionality, and repetition) and the specific characteristics of cyberbullying (i.e. anonymity, 24/7 nature, and broad audience, Casas et al., 2013; Cetin et al., 2011; Hinduya & Patchin, 2008; Kowalski & Limber, 2007; Kwan & Skoric, 2013). All of the existing questionnaires measuring cyberbullying involvement are based on different definitional criteria, thus missing one or more components of the definitions (Kowalski et al. 2014). Further, the questionnaires also differ in the timeframe used to determine cyberbullying involvement (e.g. lifetime, last 6 months, or last year) and the frequency rate used to classify a person as a perpetrator, victim, bully-victim, or outsider (e.g. at least once, one or two times a month, or several times a week) (Kowalski et al., 2014; Kowalski et al., 2019).

There are two types of cyberbullying measures existing: single-item measures and multi-item checklists (Kowalski et al., 2014). Many single-item measures include the definition of cyberbullying and participants are asked how often they have experienced or performed the described behaviour (Hinduja & Patchin, 2008; Mesch, 2009; Williams & Guerra, 2007; Wolak et al., 2003). Whereas, multiple-item measures contain a checklist of behaviours that are considered as cyberbullying acts and participants are asked to indicate how often they have experienced or performed these behaviours (Álvarez-García et al., 2016, 2017; Del Rey et al., 2015). Both types of measurements have advantages and limitations. Single-item measures

might be advantageous because they can be practical, fast to be administered, and cost-efficient (Solberg & Olweus, 2003). On the other hand, single-item measures are less reliable (Berne et al., 2013). Further, participants might be less likely to indicate their engagement in cyberbullying acts on one global item compared to a scale where several behaviours are mentioned. This is one advantage of multiple-item questionnaires, that participants are more likely to indicate their involvement where there are several behaviours listed from they can choose (Ybarra et al., 2012). Additionally, multi-item questionnaires are more reliable (Murphy & Davidshofer, 2005) and by summing or taking the average of the items the random error might be reduced as well (Kowalski et al., 2014). A key limitation of these measures is that not all cyberbullying behaviours are included in each measure and the behaviours included might differ from one another in severity, thus the summing of the items might be challenging (Kowalski et al., 2014).

Based on the information and issues regarding cyberbullying instruments pointed out by previous research, Berne and colleagues (2013) summarized eight points to consider that can help to decide which instrument is adequate for research purposes. (a) They proposed that *single-item measures* should be avoided because these instruments are less reliable, lack scope and cannot be used to uncover details (Farrington, 1993; Smith et al., 2004). Further, they cannot distinguish between moderate and large differences and fine degrees of an attribute (Griezel et al., 2008). (b) It is important to consider the *underlying concept and definitional criteria* of cyberbullying included in the instrument (e.g. how many and which ones of the definitional criteria is included). (c) Various types of *devices and/or media* are included in the instruments; the two most frequent ones are mobile phones and e-mail. Although, there is an ongoing and rapid technological advancement, therefore the consideration of media and/or device included in the instrument is crucial. (d) Most of the existing instruments are adapted and psychometrically analysed on adolescent *sample*, there is little information on cyberbullying and cyberbullying instruments among adults (e) The *subscales* of the instruments should be based on statistical analysis (e.g. factor analysis), not only made up by theoretical grouping without statistical analysis. (f) The *self-administered nature* of the instruments might be a disadvantage, as respondents might underreport their involvement in cyberbullying because of social desirability or the moral issues regarding cyberbullying. On the other hand, self-administered measures have many advantages as well, e.g. large amount of data in short time, quick and simple administration. (g) There is little longitudinal regarding cyberbullying thus *test-retest reliability* is often missing regarding cyberbullying instruments. Further, half

the existing measures lack *internal reliability* testing as well. (h) The last point is *validity*: The validity tests also are often missing or only the convergent validity is analysed (Berne et al., 2013).

Based on the aforementioned points and literature, 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)**

Firstly, the Hungarian version of the Cyber Victim and Bullying Scale (CVBS, Cetin et al., 2011, see Appendix 1) was adapted for psychometric analyses. The questionnaire was chosen based on its specific characteristics. The measure has three subscales that cover different types of cyberbullying behaviour (e.g. verbal cyberbullying, use of fake profiles, and sexual cyberbullying), by using these subscales different types of cyberbullying perpetration and cybervictimization can be associated with individual and social antecedents and consequences of cyberbullying. Developers of the CVBS included two criteria of traditional bullying in their instrument that are intentionality and power imbalance (e.g. *“Hacking someone’s private webpage without permission”*), further one criteria of cyberbullying that is anonymity. In the instrument the device type that is used for cyberbullying is only the Internet, cyberbullying via mobile phone is not included. The questionnaire is assessing both cyberbullying perpetration and cybervictimization in adolescent population (age range = 14-19) with the three aforementioned subscales.

The internal consistency of two subscales of the Cyber Bullying Scale that are Verbal Cyber Bullying and Cyber Forgery was excellent (Cronbach’s  $\alpha = .81$  and Cronbach’s  $\alpha = .83$ , respectively). Whereas, the internal consistency of the third subscale of the Cyber Bullying Scale, that is Hiding Identity was lower (Cronbach’s  $\alpha = .69$ ). The internal consistency of two subscales of Cyber Victim Scale, that are Victim of Verbal Cyber Bullying and Victim of Cyber Forgery was excellent (Cronbach’s  $\alpha = .80$  and Cronbach’s  $\alpha = .86$ , respectively). Similarly to the Cyber Bullying Scale, the internal consistency of the third subscale of the Cyber Victim Scale, that is Victim of Hiding Identity, was lower (Cronbach’s  $\alpha = .68$ ). According to the

confirmatory factor analyses, for both the Cyber Bullying Scale and Cyber Victim Scale the three factor models show a good fit (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, see Appendix 1) measures both cyberbullying perpetration and cybervictimization with 22 items. The Scale of Cyber Bullying has three subscales: cyber verbal bullying, hiding identity and cyber forgery. The Scale of the Cyber Victim has the same three subscales reworded to measure cybervictimization. Participants answered on a five-point scale (1 = never, 2 = rarely, 3 = occasionally, 4 = frequently, 5 = always) to indicate how often they engaged in cyberbullying activities or became victims of it in the last one year.

The Interpersonal Reactivity Index (Davis, 1983 trans. Kulcsár, 1998, see Appendix 2) measures empathy with 28 items. The scale has four subscales: Fantasy (Cronbach's  $\alpha = .81$ ), Empathic Concern (Cronbach's  $\alpha = .74$ ), Perspective Taking (Cronbach's  $\alpha = .71$ ), and Personal Distress (Cronbach's  $\alpha = .53$ ). Participants answered on a five-point scale (0 = does not describe me well; 4 = describes me very well) to indicate how much the items describe their thoughts and feelings in a variety of situations.

The Spielberger Anger Expression Scale (Spielberger, 1985 trans. Oláh, 1987, see Appendix 3) measures individual differences in anger expression and control with 20 items. It contains of two subscales, that are Anger/In (Cronbach's  $\alpha = .65$ ) and Anger/Out (Cronbach's  $\alpha = .79$ ). The participants had to indicate on a four-point scale how strongly the items describe their feelings and acts when they are angry.

To measure school climate, Twemlow and Sacco's (2012) questions were used (Cronbach's  $\alpha = .80$ ), that are used to assess school climate in schools that participate the Peaceful Schools



Programs. The questions are related to the social climate in the school, competitiveness in school, and the relationship with the teachers. Participants answered on a five-point Likert-scale (1 = does not describe my school well; 5 = describes my school very well) to indicate how much the items describe their school environment (see Appendix 4).

#### **2.2.1.3. Procedure.**

After the ethical approval in conducting this study was granted from the Hungarian United Ethical Review Committee for Research in Psychology (reference number: 2017-27), we reached out to several schools with our research proposal. When the school principals agreed to participate in the study, parents' consent were asked about their children's participation. After, both parents and students agreed to the participation, the students completed the questionnaires by paper-pencil during school hours supervised by their teachers or the research's leader.

#### **2.2.1.4. Statistical Analyses.**

Confirmatory factor analyses were used to test whether the original factor structure can be used in the Hungarian version of the two scales (Scale of Cyber Bullying and Scale of Cyber Victim). According to Hu & Bentler (1999), the following criteria were used for the fitting indices:  $\chi^2/df < 2$ , RMSEA  $< .06$ , NFI  $> .95$ , TLI  $> .95$ , CFI  $> .95$ . Further, we used reliability analyses to test the internal consistency of the two scales and the subscales as well. The data showed non normal distribution, therefore non parametric tests were used to test the criterion validity of the scales. We tested the relationships among cyberbullying perpetration, cybervictimization, empathy, anger expression style, and school climate with Spearman's rank-order correlation. Additionally, to explore the gender differences in cyberbullying perpetration and cybervictimization Mann-Whitney U test was 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 and two subscales, which are the Cyber Verbal Bullying and the Cyber Forgery, can be considered high (see Table 3). The reliability score of the Hiding Identity could be considered low (Cronbach's  $\alpha = .72$ ), 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 (see Table 3).

Table 3. Descriptive statistics, reliability scores, and estimates of skewness and kurtosis of the Scale of Cyber Bullying

	Mean Score (SD)	Cronbach's $\alpha$	Skewness <i>Estimate (SD)</i>	Kurtosis <i>Estimate (SD)</i>
<b>Verbal Cyber Bullying</b>	9.47 (4.14)	0.86	3.36 (0.09)	14.46 (0.19)
<b>Hiding Identity</b>	6.25 (2.35)	0.89	4.73 (0.09)	30.2 (0.19)
<b>Cyber Forgery</b>	9.97 (4.34)	0.76	3.55 (0.09)	19.28 (0.19)
<b>Scale of Cyber Bullying</b>	25.69 (9.51)	0.92	4.25 (0.09)	25.03 (0.19)

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

The reliability scores the Scale of Cyber Victim and two subscales, which are the Victim of Verbal Cyber Bullying and the Victim of Cyber Forgery can be considered high (see Table 4). The reliability score of the Victim of Hiding Identity could be considered low (Cronbach's  $\alpha = 0.75$ ), 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 (see Table 4).

Table 4. Descriptive statistics, reliability scores, and estimates of skewness and kurtosis of the Scale of Cyber Victim

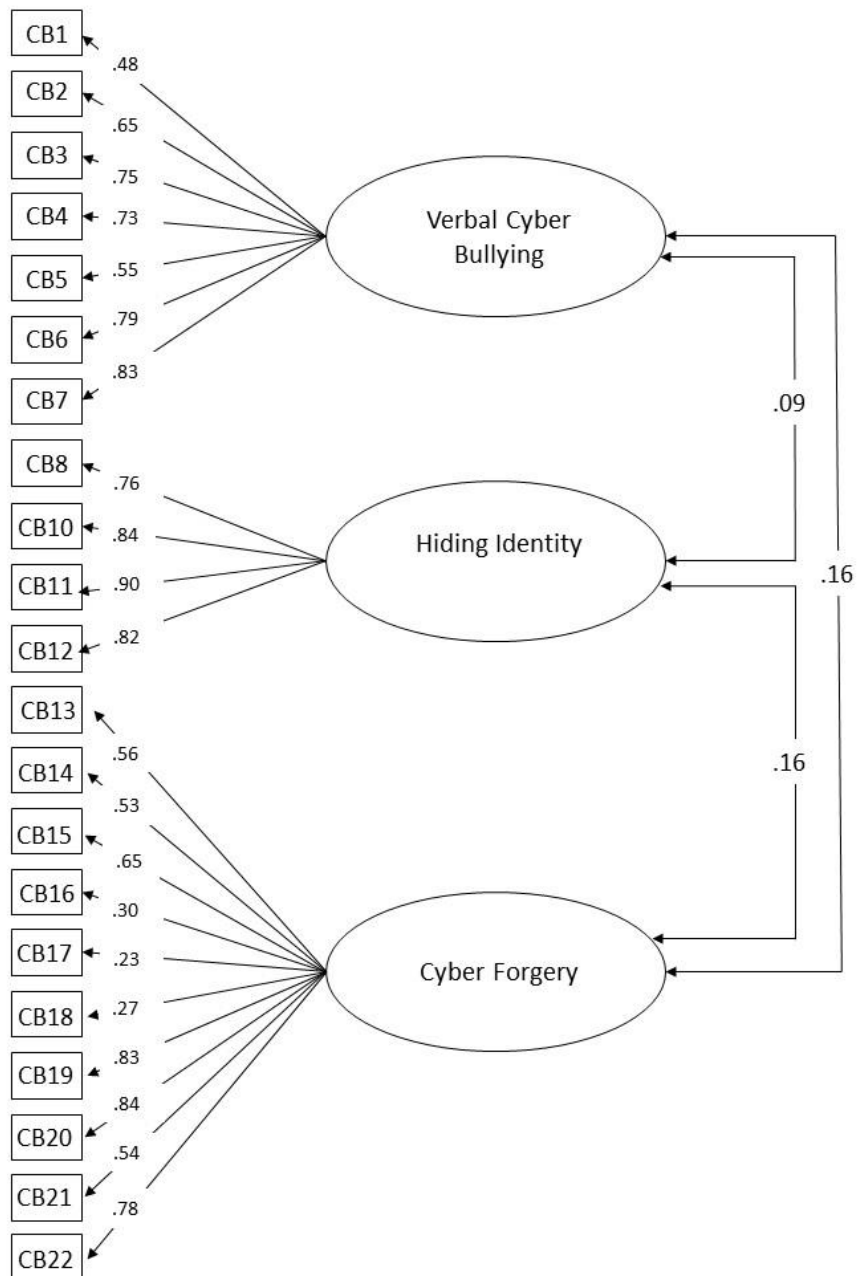
	Mean Score (SD)	Cronbach's $\alpha$	Skewness <i>Estimate (SD)</i>	Kurtosis <i>Estimate (SD)</i>
<b>Victim of Verbal Cyber Bullying</b>	11.04 (4.63)	0.82	1.77 (0.09)	4.79 (0.19)
<b>Victim of Hiding Identity</b>	7.43 (3.09)	0.78	2.42 (0.09)	8.49 (0.19)
<b>Victim of Cyber Forgery</b>	6.01 (6.02)	0.84	1.23 (0.09)	1.74 (0.19)
<b>Scale of Cyber Victim</b>	32.39 (12.14)	0.89	1.72 (0.09)	4.86 (0.19)

### 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 (see Figure1). 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).

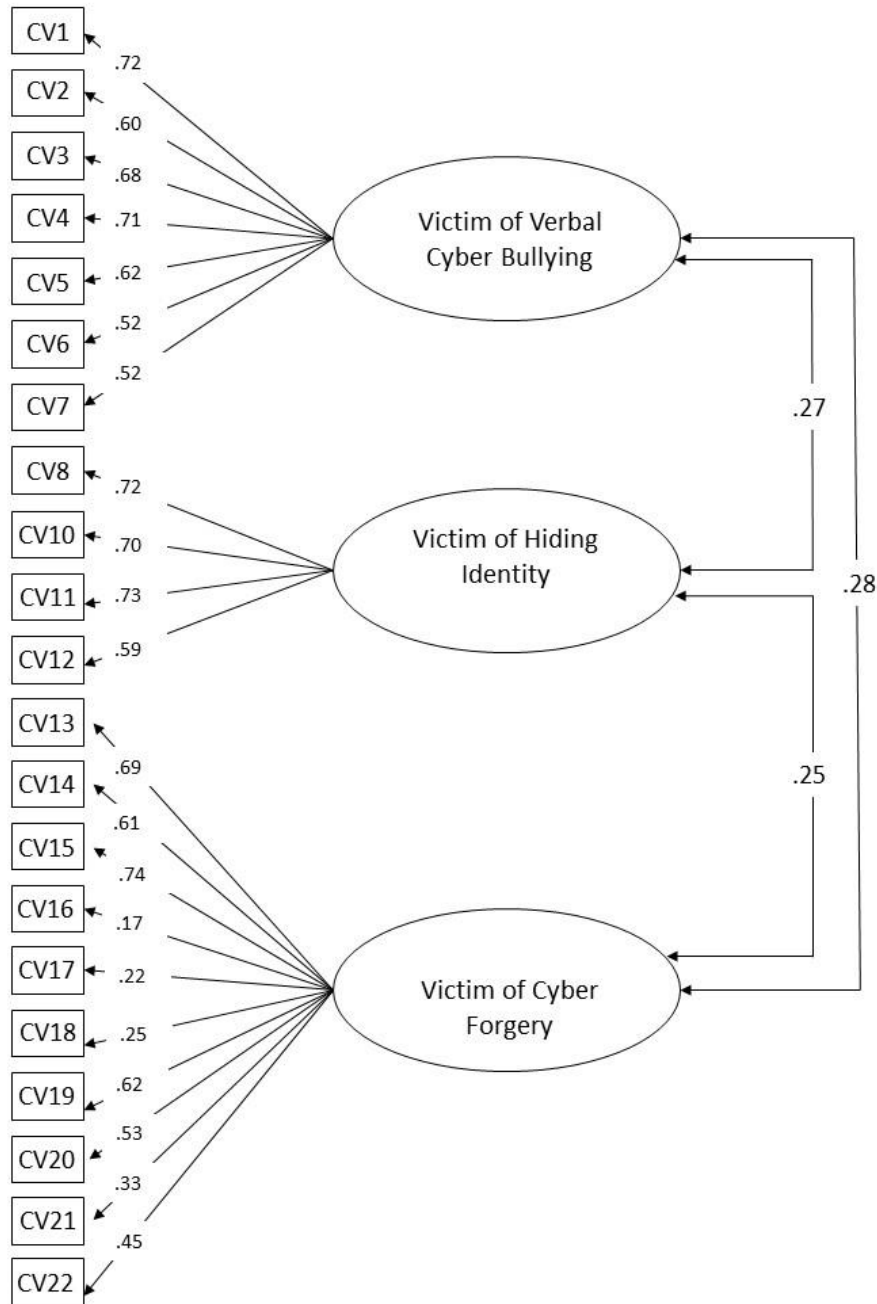
Figure 1: Result of the Scale of Cyber Bullying's confirmatory factor analysis



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 (see Figure 2). 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).

Figure2: Result of the Scale of Cyber Victim’s confirmatory factor analysis



### 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 ( $\rho = -0.20$ ,  $p = 0.03$ ), and perspective taking ( $\rho = -0.27$ ,  $p < 0.001$ ). There was a negative correlation between the Scale of Cyber Bullying and perspective taking ( $\rho = -0.24$ ,  $p = 0.01$ ) as well. Further, there was a positive correlation between fantasy and the Victim of Cyber Forgery subscale ( $\rho = 0.22$ ,  $p = 0.02$ ), and between fantasy and the Scale of Cyber Victim ( $\rho = 0.22$ ,  $p = 0.02$ ) 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 (see Table 5). 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 (see Table 5).

Table 5. Correlations among cyberbullying perpetration, cybervictimization, anger expressions styles, and school climate

\* $p < .05$ , \*\* $p < .01$

	<b>Verbal Cyber Bullying</b>	<b>Hiding Identity</b>	<b>Cyber Forgery</b>	<b>Cyber Bullying</b>	<b>Victim of Verbal Cyber Bullying</b>	<b>Victim of Hiding Identity</b>	<b>Victim of Cyber Forgery</b>	<b>Cyber Victim</b>
<b>Anger/ Out</b>	.29**	.19*	.26**	.34**	.28**	.28**	.29**	.34**
<b>Anger/ In</b>	-.05	.02	.00	-.02	-.12	-.04	-.21*	-.19*
<b>School climate</b>	-.07	.02	-.11	-.09	-.18*	-.19*	-.24**	-.28**

### 2.2.2.4. Gender Differences.

According to the Mann-Whitney U test, there was a significant gender difference on the Scale of Cyber Bullying and on all the subscales of the Scale of Cyber Bullying (see Table 6). Indeed,

males got higher mean scores on all the scales than females did (see Table 6). Further, there was a significant gender difference on the subscale of Victim of Hiding Identity (see Table 6). Females scored statistically significantly higher than males (see Table 6). Regarding the Scale of Cyber Victim, Victim of Verbal Cyber Bullying and Victim of Cyber Forgery subscales, there was no statistically significant difference between males and females.

Table 6. Gender differences in cyberbullying perpetration and cybervictimization

	Mean (SD)		Mann-Whitney U	Significance
	Males	Females		
<b>Verbal Cyber Bullying</b>	10.39 (5.26)	8.81 (2.96)	1152.00	.00
<b>Hiding Identity</b>	6.54 (3.06)	6.03 (1.66)	1568.00	.02
<b>Cyber Forgery</b>	11.15 (5.58)	9.15 (2.97)	1152.50	.00
<b>Scale of Cyber Bullying</b>	28.09 (12.35)	23.99 (6.35)	1047.50	.00
<b>Victim of Verbal Cyber Bullying</b>	11.2 (4.99)	10.93 (4.36)	1712.00	.88
<b>Victim of Hiding Identity</b>	7.27 (6.54)	7.55 (5.62)	1266.00	.01
<b>Victim of Cyber Forgery</b>	14.14 (12.35)	13.76 (6.35)	1454.50	.16
<b>Scale of Cyber Victim</b>	32.59 (13.21)	32.24 (11.34)	1439.00	.19

### 2.2.3. Discussion.

The prevalence of cyberbullying shows an increasing rate in Hungary (Domonkos & Ujhelyi, 2014; Várnai & Zsíros, 2014), thus cyberbullying have become a pressing/serious problem for high school students, teachers, parents, and professionals. On account of the growing prevalence and problems there is a greater need for cyberbullying research (e.g. to discover the dynamics, individual and social factors that lead to cyberbullying engagement), although there is little research regarding this topic in Hungary so far (Domonkos & Ujhelyi, 2014, 2015; Zsila et al., 2017). The reason for lack of research might be the absence of a reliable measure that would enable more research. Thus, the aim of our study was to develop and test the psychometric properties of the Hungarian adaptation of the Cyber Victim and Bullying Scale (CVBS-HU).

The reliability tests of the two scales (Scale of Cyber Bullying and Scale of Cyber Victim) and all the subscales (Cyber Verbal Bullying, Hiding Identity, Cyber Forgery, Victim of Cyber Verbal Bullying, Victim of Hiding Identity, and Victim of Cyber Forgery) supported good or

excellent internal consistency, as well as indicated that the items are not redundant. Although, the results demonstrated that the ninth items in both scales did not measure the same type of cyberbullying/cybervictimization as the other items, therefore they are not included in the final version of the Hungarian adaptation of CBVS. The results of the confirmatory factor analyses showed an acceptable but objectionable fitting of the Hungarian adaptation of the CVBS to the original factor structure. One explanation might be that the items contributing to the third factor (Cyber Forgery) cover more than one type of cyberbullying perpetration and cybervictimization therefore resulting in a mixed, indefinable subscale. Further, the variability of the answers was low, as well as the prevalence of engagement in cyberbullying acts was also low in the sample. Although, to reliably and validly determine the fitting indices of the factor structure on the Hungarian sample, more participants engaging in cyberbullying acts would be needed.

Our results of the criterion validity testing are in line with previous research outcomes (Aricak & Ozbay, 2016; İcellioğlu & Özden, 2014), showing that Anger/Out is associated with both cyberbullying perpetration and cybervictimization as well as with all of their subtypes (verbal cyber bullying, hiding identity, cyber forgery, victimization of verbal cyber bullying, victimization of hiding identity, and victimization of cyber forgery). Further, Anger/In was found to be associated with cybervictimization that was also previously supported by Siderman (2013). According to the research conducted so far (Brewer & Kerslake, 2015; Kokkinos et al., 2014; Pettalia et al., 2013; Shultze-Krumbholz & Scheithauer, 2009), cybervictims show better empathic skills, whereas cyberbullies have difficulties with feeling vicarious emotions and taking others' perspective, i.e. empathy. The results of the criterion validity testing showed similar patterns of association among empathy, cyberbullying perpetration and cybervictimization as cybervictimization and victimization of cyber forgery were positively associated with fantasy, whereas verbal cyber bullying and cyberbullying perpetration were negatively associated with empathy and perspective taking. According to the reports of students engaged in cyberbullying act, their schools' environment is unsupportive, unsafe, and negative in general (Benders, 2012; Hinduja & Patchin, 2010). Although, in our study only cybervictims reported the school environment to be negative. Regarding the gender differences in cyberbullying engagement, boys were found to be more likely engage in cyberbullying acts as perpetrators (Erdur-Baker, 2009; Li, 2006), whereas girls as victims (Slonje & Smith, 2008; Smith et al., 2008; Smith et al., 2006). Similarly to these results, our results showed that boys engaged more likely in verbal cyber bullying, hiding identity, and cyber forgery than girls, while girls became victims of hiding identity more likely than boys.

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.

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)**

In the second study, our aim was to develop the Hungarian adaptation of the European Cyberbullying Intervention Project Questionnaire (ECIPQ, see Appendix 5). The ECIPQ was chosen as an alternative of the CVBS because it is used in several European countries (Poland, Spain, Italy, Germany, Greece, and United Kingdom), further it measures cyberbullying in general. The ECIPQ measures two dimensions of cyberbullying that are cyberbullying perpetration and cybervictimization. The ECIPQ includes repetition from the definitional criteria, as well as power imbalance implicitly with the inclusion of the perpetrator's better ICT skills and the victim's low level of Internet safety (e.g. "*Someone hacked into my account and pretended to be me (e.g. through instant messaging or social networking accounts)*") (Del Rey et al., 2015).

The ECIPQ's psychometric analyses were conducted in six European countries (Poland, Spain, Italy, Germany, Greece, and United Kingdom), with participants aged between 11 and 23 years. The reliability scores of both scales, that are the scale measuring cyberbullying perpetration and the scale measuring cybervictimization, could be considered high (Cronbach's  $\alpha = .93$  and Cronbach's  $\alpha = .97$ , respectively). Additionally, both the exploratory and confirmatory factor analyses showed appropriate factor structure and an adequate fitting with the whole sample and with the subsamples of the different countries (Del Rey et al., 2015).



### **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, see Appendix 5) measures cyberbullying perpetration and cybervictimization with 11-11 items. Participants indicated on a five-point scale (0 = never, 1 = once or twice, 2 = once a month, 3 = once a week, 4 = more times a week) how often they engaged in cyberbullying in the past year.

The Interpersonal Reactivity Index (Davis, 1983 trans. Kulcsár, 1998, see Appendix 2) measures empathy and was previously described in the first study (see 2.2.1.2. section).

The Hungarian adaptation of Multidimensional Scale of Perceived Social Support (Zimet et al., 1988 trans. Papp-Zipernovszky et al., 2017, see Appendix 6) measures perceived social support with 10 items. The scale measures perceived support from family (Cronbach's  $\alpha = .93$ ), from friends (Cronbach's  $\alpha = .94$ ), and from a significant other (Cronbach's  $\alpha = .93$ ) with three subscales. Participants indicated on a 7-point Likert-scale (1 = very strongly disagree, 7 = very strongly agree) how much support they perceived from their family, friends, and significant other.

The Child Behaviour Checklist (Achenbach & Edelbrock, 1991 trans. Rózsa et al., 1999, see Appendix 7) measures emotional and behavioural problems in children. The measure has six subscales which are Social Problems (Cronbach's  $\alpha = .80$ ), Anxious/Depressed (Cronbach's  $\alpha = .86$ ), Somatic Complaints (Cronbach's  $\alpha = .84$ ), Attention Problems (Cronbach's  $\alpha = .74$ ), Rule-Breaking Behaviour (Cronbach's  $\alpha = .68$ ), and Aggressive Behaviour (Cronbach's  $\alpha = .76$ ). By using the sum of the scores of the Social Problems and Anxious/Depressed subscales, internalizing problems can be measured (Cronbach's  $\alpha = .90$ ). Further by using the sum of the scores of Rule-Breaking Behaviour and Aggressive Behaviour subscales, externalizing problems can be measured (Cronbach's  $\alpha = .84$ ). Participants answered on a three-point scale

(0 = not true, 1 = somewhat or sometimes true, 2 = very true or often true) how likely the items are characteristic of them.

### ***2.3.1.3. Procedure.***

After the ethical approval in conducting this study was granted from the Hungarian United Ethical Review Committee for Research in Psychology (reference number: 2019-97), the same process was used to select participants for the study as described on account of the Cyber Bullying and Victim Scale's validation.

### ***2.3.1.4. Statistical Analyses.***

To test the ECIPQ's psychometric properties, reliability and normality tests, as well as confirmatory factor analyses were used. For the evaluation of the fitting indices, Hu and Bentler's (1999) criteria was used. The data showed non normal distribution, therefore non parametric tests were used to test the ECIPQ's criterion validity. Spearman correlations were used to test the relationship among cyberbullying perpetration, empathy, perceived social support, externalizing problems, and internalizing problems. Further, Mann-Whitney U test was used to test whether there are gender differences in cyberbullying perpetration and cybervictimization.

## **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  $\alpha = .91$ ) and cybervictimization (Cronbach's  $\alpha = .89$ ), can be considered high. Although based on the item-total correlations, in the dimension of cyberbullying perpetration the first ( $r = .53$ ), second ( $r = .53$ ), and tenth ( $r = .61$ ) items do not fit the with the other items well. Similarly, in the dimension of cybervictimization the first ( $r = .56$ ), second ( $r = .64$ ), and tenth ( $r = .57$ ) 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 (see Table 7).

Table 7. Descriptive statistics, reliability scores, and estimates of skewness and kurtosis of the European Cyberbullying Intervention Project Questionnaire (ECIPQ)

	<b>Mean Score (SD)</b>	<b>Cronbach's <math>\alpha</math></b>	<b>Skewness</b> <i>Estimate (SD)</i>	<b>Kurtosis</b> <i>Estimate (SD)</i>
<b>ECIPQ – cyberbullying perpetration</b>	8.55(3.68)	.94	3.11(0.07)	20.19(0.13)
<b>ECIPQ - cybervictimization</b>	9.67(4.43)	.89	2.26(0.07)	9.08(0.13)

### ***2.3.2.2. Confirmatory Factor Analyses.***

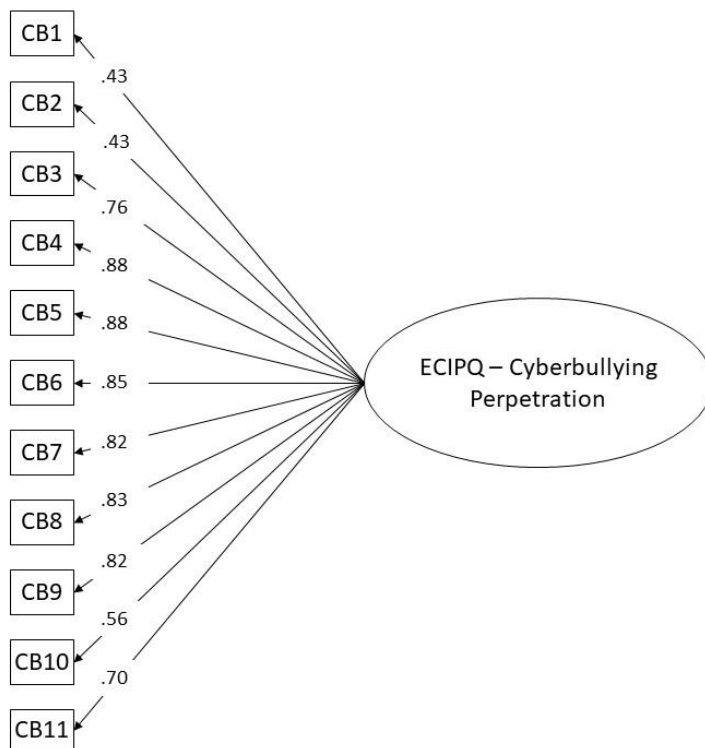
#### *2.3.2.2.1. The Dimension of Cyberbullying Perpetration.*

The results of the original scale's confirmatory factor analysis showed an inadequate approximation in the Hungarian sample (see Table 8). Based on the results of the item-total correlations and the items' factor loadings, the scale was further tested without the first ( $\beta = .43$ ), second ( $\beta = .43$ ), and tenth ( $\beta = .56$ ) 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 8 and Figure 3).

Table 8. Fitting indices of the ECIPQ's dimension of cyberbullying perpetration

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

Figure 3. Result of the confirmatory factor analysis of ECIPQ's cyberbullying perpetration dimension



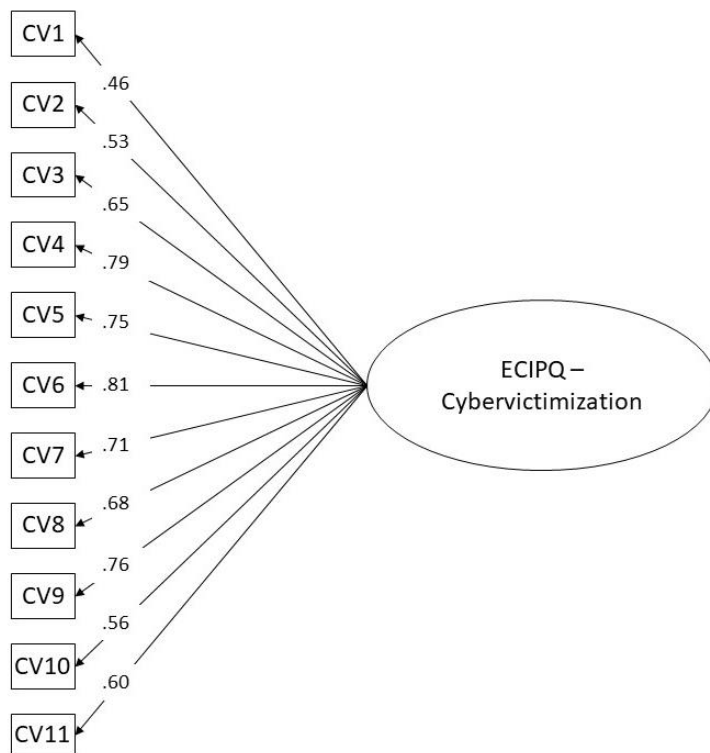
2.3.2.2.2. *The Dimension of Cybervictimization.*

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 9). 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 9 and Figure 4).

Table 9. Fitting indices of the ECIPQ's dimension of cybervictimization

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

Figure 4. Result of the confirmatory factor analysis of ECIPQ's cybervictimization dimension



### 2.3.2.3. Criterion Validity.

According to the results of Spearman correlations, cyberbullying perpetration correlated statistically significantly with internalizing problems ( $\rho = .20, p < .001$ ) and externalizing problems ( $\rho = .41, p < .001$ ) as well. Cybervictimization also correlated statistically significantly with both internalizing ( $\rho = .27, p < .001$ ) and externalizing problems ( $\rho = .39, p < .001$ ). Cyberbullying perpetration was negatively correlated with empathic concern ( $\rho = -.13, p = .02$ ), but there was no other significant correlation among the empathy subscales, cyberbullying perpetration, and cybervictimization. Further, cyberbullying perpetration correlated statistically significantly with perceived social support from family ( $\rho = -.12, p = .02$ ) and friends ( $\rho = -.10, p = .05$ ). Cybervictimization also correlated statistically significantly and negatively with perceived social support from family ( $\rho = -.23, p < .001$ ).

### 2.3.2.4. Gender Differences.

According to the results of the Mann-Whitney U tests, there is no significant difference between males and females regarding cyberbullying perpetration ( $U = 17428.50, p = .27$ ) and cybervictimization ( $U = 17166.50, p = .21$ ).

### **2.3.3. Discussion.**

As the research of cyberbullying have become exceedingly important in Hungary, for both researchers and practitioners, the adaptation of a valid and reliable questionnaire measuring cyberbullying engagement have also come to be of great significance. As the CVBS-HU showed irreducible limitations, with the adaptation of the ECIPQ we aimed to have such measure.

The reliability analyses showed that the scales have good or excellent internal consistency, as well as the items were not redundant. Based on the item-total correlation, factor loading, and error covariance estimates we propose that the questionnaire should be used without the first, second, and tenth items as they show little consistency with the other items and the scales.

Similarly to previous research (Bonanno & Hymel, 2013; Garaigordobil & Machimbarrena, 2019; Hinduja & Patchin, 2007; Patchin & Hinduja, 2010), we have found that both cyberbullying perpetration and cybervictimization is associated with internalizing and externalizing problems. Further, previous research (Brewer & Kerlake, 2015; Shultze-Krumbholz & Scheithauer, 2009) found cyberbullies to have difficulties with empathy. In addition, our results also showed association between cyberbullying perpetration and difficulties with affective empathy. As showed by previous research (Baldry et al., 2015; Bayraktar et al., 2015; Calvete et al., 2010; Fanti et al., 2012; Fridh et al., 2015; Heerde & Hemphill, 2018; Kowalski et al., 2014; Martins et al., 2016; Solecki et al., 2014; Wang et al., 2009; Williams and Guerra, 2007), we found that both cyberbullying perpetration and cybervictimization are associated with lower levels of perceived social support from family, additionally cyberbullying perpetrators reported a lower level of social support from friends as well. Previous studies showed an inconsistency regarding the gender differences in cyberbullying engagement. Some studies have found a significant difference between boys and girls (Hinduja & Patchin, 2008; Juvonen & Gross, 2008; Li, 2006; Patchin & Hinduja, 2006; Williams & Guerra, 2007; Ybarra et al., 2007), i.e. boys engaging more likely in cyberbullying perpetration, and girls more likely in cybervictimization. Whereas, other studies (Dehue et al., 2008; Kowalski & Limber, 2007; Ybarra et al., 2007; Ybarra & Mitchell, 2008) have found no significant difference between the genders. Our results supported the latter. Overall, there is more research needed to establish whether there are gender differences in cyberbullying engagement, in order to have reliable results there is a need for the establishment of cyberbullying's definition as the inconsistent results might arise from the different definitional criteria that the studies are based on.

The most prominent strength of ECIPQ is its excellent psychometric properties. 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 limitation is that the first, second, and tenth items are not consistent with the other items of the scales, thus we propose to use the questionnaire without these items.

#### **2.4. Overall Discussion of Study 1**

In the first study, the psychometric analyses of the Cyber Victim and Bullying Scale's (CVBS-HU) and the European Intervention Project Questionnaire's (ECIPQ) Hungarian adaptations were conducted. 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. Both measures can be used for the investigation of cyberbullying either in middle school or adolescence. Both measures have the self-administered nature and the lack of test-retest reliability as limitations. The CVBS-HU's confirmatory factor analyses showed an inadequate fitting of the data to the original factor structure. Whereas, the ECIPQ's confirmatory factor analyses showed an adequate approximation of the Hungarian adaptation, but the first, second, and tenth items are not consistent with the other items and the scales. Although, these results are based on a non-representative study, thus we propose to adjust to the purpose of the study whether these items are or are not included in the questionnaire when used (for the summary see Table 10).

In the future longitudinal research should be pursued, that would enable to test the test-retest reliability, as well as the causal relations of cyberbullying with certain individual and social factors (e.g. family and peer effects, social skills, aggression, etc.). Further, a representative study about the prevalence of cyberbullying and cybervictimization is necessary in order to determine the need for prevention/intervention programs in Hungary.

Overall, the first study aimed to develop the Hungarian adaptations of two questionnaires measuring cyberbullying perpetration and cybervictimization. Based on the psychometric analyses, the CVBS-HU is a more limited measure, 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.



Table 10. Summary of the psychometric properties, strengths and limitations of the CVBS-HU and the ECIPQ

	CVBS-HU	ECIPQ
<b>Definitional criteria included in the measures</b>	Intentional Harm  Power Imbalance  Anonymity	Repetition  Power Imbalance
<b>Means of cyberbullying</b>	Internet	Mobile Phone  Internet
<b>Age</b>	14-19 years	11-19 years
<b>Subscales</b>	Scale of Cyber Bullying <ul style="list-style-type: none"> <li>• Verbal Cyber Bullying</li> <li>• Hiding Identity</li> <li>• Cyber Forgery</li> </ul> Scale of Cyber Victim <ul style="list-style-type: none"> <li>• Victim of Verbal Cyber Bullying</li> <li>• Victim of Hiding Identity</li> <li>• Victim of Cyber Forgery</li> </ul>	Scale regarding cyberbullying perpetration  Scale regarding cybervictimization
<b>Fitting Indices</b>	<p><b>Scale of Cyber Bullying:</b> SRMR=.05; <math>\chi^2/df=4.99</math>; NFI=.89; TLI=.89; CFI=.91; RMSEA=.08 (90% CI=.07; .09)</p> <p><b>Scale of Cyber Victim:</b> SRMR=.07; <math>\chi^2/df=4.35</math>; NFI=.88; TLI=.89; CFI=.91; RMSEA=.07 (90% CI=.07; .08)</p>	<p><b>Scale regarding cyberbullying perpetration:</b> <i>Complete scale:</i> SRMR=.04; <math>\chi^2/df=8.94</math>; NFI=.97; TLI=.96; CFI=.97; RMSEA=.08 (90%CI=.07; .08)</p> <p><i>Without items 1, 2, and 10:</i> SRMR=.01; <math>\chi^2/df=3.92</math>; NFI=.99; TLI=.99; CFI=.99; RMSEA=.05 (90%CI=.03; .06)</p>

**Reliability**

**Scale of Cyber Bullying:**

*Cronbach's  $\alpha = .92$*

- Verbal Cyber Bullying:

*Cronbach's  $\alpha = .86$*

- Hiding Identity:

*Cronbach's  $\alpha = .89$*

- Cyber Forgery:

*Cronbach's  $\alpha = .76$*

**Scale of Cyber Victim:**

*Cronbach's  $\alpha = .89$*

- Victim of Verbal Cyber Bullying:

*Cronbach's  $\alpha = .82$*

- Victim of Hiding Identity:

*Cronbach's  $\alpha = .78$*

- Victim of Cyber Forgery:

*Cronbach's  $\alpha = .84$*

**Limitations**

Self-administered nature

Missing test-retest reliability

Fitting indices

**Scale regarding cybervictimization:**

**Complete scale:** SRMR=.05;  
 $\chi^2/df=10.38$ ; NFI=.95; TLI=.94;  
CFI=.96; RMSEA=.08  
(90%CI=.07; .09)

**Without items 1, 2, and 10:**

SRMR=.02;  $\chi^2/df=5.04$ ; NFI=.99;  
TLI=.98; CFI=.99; RMSEA=.05  
(90%CI=.04; .07)

**Scale regarding cyberbullying perpetration:**

*Cronbach's  $\alpha = .94$*

**Scale regarding cybervictimization:**

*Cronbach's  $\alpha = .89$*

Self-administered nature

Missing test-retest reliability

Items 1, 2, and 10

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

#### **3.1. Introduction**

The effect of family and peers is crucial during the course of adolescence as they influence both adolescents' developing socio-emotional skills and behaviour (Eberly & Montemayor, 1998; Henry et al., 1996; Laible, 2007; Laninga-Wijnen et al., 2018; Olson et al., 1979; Padilla-Walker et al., 2016; Steinberg & Silk, 2002; You & Kim, 2016). Consequently, family relationships, adaptation to the changes during adolescence, family communication, perceived social support from family and friends might influence adolescents' cyberbullying engagement as well. Thus in the second study, our aim was to explore the direct and indirect effects (via emotion regulation) of family functioning and perceived social support from family and friends on cyberbullying engagement.

#### **3.1.1. The Role of Social Support in Cyberbullying Involvement.**

Past studies have shown that social support might be an effective protective factor in mitigating the negative consequences associated with cyberbullying (Cho & Yoo, 2017; Hellfeldt et al., 2020; Olenik-Shemesh & Heiman, 2017). Social support is seen as a coping source provided by one's interpersonal relationships, that can help to endure stressful situations and to buffer against the negative effects of these (Cooke et al., 1988; Hirsch, 1981; McCubbin et al., 1980; Zimet et al., 1988). More specifically, family and peer support play an important role in the process whether adolescents are able to cope with cyberbullying and to reduce the associated harmful effects of cyberbullying and to seek help (Banerjee et al., 2010; Mesch, 2009; Thompson & Smith, 2011). Previous studies demonstrated that both parental and peer social support can affect youngsters' aggressive emotional impulses (Dodge et al., 2007; Jenkins & Demaray, 2012; López et al., 2008; Shahar & Henrich, 2016) and their cyberbullying involvement (Baldry et al., 2015; Bayraktar et al., 2015; Calvete et al., 2010; Fanti et al., 2012; Fridh et al., 2015; Heerde & Hemphill, 2018; Kowalski et al., 2014; Martins et al., 2016; Solecki et al., 2014; Wang et al., 2009; Williams & Guerra, 2007). The poor perceived peer support increases the likelihood of involvement in both cyberbullying perpetration (Baldry et al., 2015; Bayraktar et al., 2015; Calvete et al., 2010; Fanti et al., 2012; Heerde & Hemphill, 2018) and cybervictimization (Baldry et al., 2015; Fridh et al., 2015; Kowalski et al., 2014; Williams & Guerra, 2007). Similar effect was observed with the family variables, the perception of poor parental support is strongly associated with both cyberbullying perpetration (Calvete et

al., 2010; Fanti et al., 2012; Solecki et al., 2014; Wang et al., 2009) and cybervictimization (Fanti et al., 2012; Fridh et al., 2015; Kowalski et al., 2014; Martins et al., 2016; Williams & Guerra, 2007). In sum, poor peer and family support are risk factors of cyberbullying involvement. Although, we do not know whether their effect is direct or mediated by another variable, since previous studies did not investigate mediating factors. The investigation of mediating variables would be crucial to further understand the relationship between social support and cyberbullying involvement and to explore whether a specific mediating variable carries the effect of social support on cyberbullying involvement.

### **3.1.2. The Role of Family Communication, Cohesion and Adaptability in Cyberbullying Involvement.**

Recently, many studies have begun to investigate how family variables affect adolescents' subsequent involvement in cyberbullying behaviours. Such a family variable is family communication that provides information on the family members' listening and speaking skills, self-disclosure, respect, and regard (Olson, 2000). The family communication plays a role in preventing cyberbullying, both in terms of perpetration and victimization. Positive, open and empathetic family communication seems to be a protective factor and reducing the risk of involvement in cyberbullying behaviours (Buelga et al., 2017; 2016; Cross et al., 2015; Fanti et al., 2012; Mesch, 2009; Perren et al., 2012). Whereas, negative, offensive, and avoidant communication increases the risk of both cyberbullying perpetration and cybervictimization (Buelga et al., 2017; 2016; Elgar et al., 2014; Larranga, et al., 2016). There is also an agreement among the findings derived from studies on family cohesion (Buelga et al., 2017; Ortega-Barón et al., 2016). Family cohesion is '*the emotional bonding that family members have towards one another*' (Olson, 2000, pp. 145). Poor, dysfunctional, conflictive family relationships and lack of emotional link among family members increase the problems of social adjustment during adolescence, which contributes to the odds of engagement in cyberbullying perpetration (Buelga et al., 2017; Hemphill & Heerde, 2014; Ybarra & Mitchell, 2004). Likewise, family cohesion is also a considered predictor of cybervictimization, adolescents becoming victims tend to obtain lower scores on family cohesion scales (Ortega-Barón et al., 2016). Relatively, little is known about the relationship between family adaptability and cyberbullying. Adaptability is a '*family's ability to change its power structure, role relationships and rules*' (Place et al., 2005, pp. 215.) in response to the adolescent member's developmental needs. It seems that the characteristics of family adaptability may affect youngsters' aggressive behaviour (Steinberg, 2000). Indeed, if the family's hierarchical system, rules, and roles do not

change accordingly to the developmental changes and needs of the adolescent member, it may increase the likelihood of adolescents' delinquent (Cashwell & Vacc, 1996), as well as aggressive behaviour (Pérez-Fuentes et al., 2019). In sum, the growing body of studies investigating the role of the dynamic family variables have found evidence that the family communication and family cohesion is deeply associated with the adolescents' cyberbullying behaviour. However, there is a need to specify the factors that may mediate the link between family variables and cyberbullying involvement, since the studies so far have not explored possible mediating factors. The investigation of mediating variables would help to investigate whether another variable carries the effect of family factors on cyberbullying involvement. Such a deeper understanding of this relationship would enable the development of more effective prevention and intervention programs.

### **3.1.3. The Influence of Emotion Regulation on Cyberbullying Involvement.**

Apart from the social factors, research also shows that involvement in cyberbullying is associated more broadly with emotion regulation during adolescence (Baroncelli & Ciucci, 2014; den Hamer & Konijn, 2016; Giancesini & Brighi, 2015). Emotion regulation is a socio-emotional skill that is needed for successful social relationships (Gross & John, 2003), social competence (Eisenberg & Fabes, 1992), psychological well-being (Quoidbach et al., 2010) and regulating aggressive tendencies (Robertson et al., 2012). Negative and maladaptive emotion regulation strategies increase the risk of becoming both a perpetrator of cyberbullying (Baroncelli & Ciucci, 2014; den Hamer & Konijn, 2016; Giancesini & Brighi, 2015) and a cybervictim (Giancesini & Brighi, 2015; Vranjes et al., 2018). Additionally, the relationship between emotion regulation strategies and the dynamics of cyberbullying might produce a vicious circle as the Cyclic Process Model (den Hamer & Konijn, 2016) suggested: If cybervictimized youngsters use maladaptive emotion regulation strategies to cope with the negative emotions following cyberbullying incidents, this maladaptive coping enhances the likelihood of their subsequent cyberbullying behavior on the Internet (den Hamer & Konijn, 2016). However, emotion regulation may not only have a direct link with cyberbullying. It may serve as the mediating factor between social factors and cyberbullying involvement.

### **3.1.4. Emotion Regulation as a Possible Mediating Factor.**

Children who grow up in a dysfunctional family with low emotional communication are not given with a model of how to accurately understand and respond to emotional situations. These children are not encouraged to verbalize and display their feelings in an adaptive way, therefore

they do not learn understanding and regulating their own emotions (Eisenberg et al., 1998; Rutherford et al., 2015). However parents set the groundwork for emotion regulation across childhood, in adolescence the family still influences youngsters' emotion regulation. For example, the way how parents balance between their supervision and the adolescents' greater needs for autonomy, is a guide for interpreting and determining how to regulate their feelings (Morris et al., 2007). Based on this developmental link and the studies' (Banerjee et al., 2010; Mesch, 2009; Thompson & Smith, 2011) results showing supporting evidence on the role of parental factors in adolescents' coping with the emotional consequences of cyberbullying, emotion regulation may serve as the mediating factor that carries the effect of family factors on cyberbullying involvement.

Further, as peer relationships become more important during this period, peers also have an impact on adolescents' developing emotion regulation (Steinberg & Silk, 2002). The association between emotion regulation and peer relationships is twofold: Emotion regulation influences adolescents' social competences and functioning (Eisenberg & Fabes, 1992; Gross & John, 2003), as well as the development and maintenance of peer relationships (Sroufe et al., 1984). Also, adolescents might seek support from peers in emotionally distressing situations as a means of emotion regulation strategies (Gottman & Mettetal, 1986). Further, youngsters regulate the intensity of the expression of emotions strategically to enhance the access to this social support (Dunn & Brown, 1991). Through this mechanism, peers have an effect on the success or failure of emotion regulation strategies. Since there is supporting evidence on both the developmental link between peer support and emotion regulation and peer support's association with cyberbullying involvement (Cho & Yoo, 2016; Hellfeldt et al., 2020; Olenik-Shemesh & Heiman, 2017), emotion regulation may possibly mediate the relationship between peer support and cyberbullying involvement.

### **3.1.5. Aim and Hypotheses.**

Taken together, the above 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 youth 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 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 conflictive 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 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 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.

## **3.2. Materials and Methods**

### **3.2.1. 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). 1.7% of the participants were living in the capital, 9.1 % were living the chief town of a county, 57 % were living in rural cities, and 32.1% were living in villages. 54.3% of the students were attending a high school, 12 % were attending vocational school, 1.7% were attending technical college, and 22.9% were attending elementary school. In case of 9% of the participants, there were no information on the type of school. It is important to note that the sample was not representative of the country's adolescent population. 1.6% of the students were cyberbullying perpetrators, 7.1% were victims of cyberbullying, 4.9% were bully-victims and 86.4% were not involved in cyberbullying. Ethical approval in conducting this study was granted from the Hungarian United Ethical Review Committee for Research in Psychology (reference number: 2019-99).

### **3.2.2. Materials.**

We used quantitative correlational design by means of four anonymous self-report questionnaires (For the mean scores, standard deviations and Cronbach's Alphas see Table 1):

The European Cyberbullying Intervention Project Questionnaire (ECIPQ, Del Rey et al., 2015, see Appendix 5) measures both cyberbullying perpetration and cybervictimization. It includes the cyberbullying criteria of repetition and the imbalance of power. The questionnaire measures cyberbullying perpetration with 11 items, e.g. *'I said nasty things to someone or called them names using texts or online messages'* and it also measures cybervictimization with 11 items, e.g. *'Someone said nasty things to me or called me names using texts or online messages'*. Participants answered on a 5-point Likert scale (0=never, 1=once or twice, 2=once a month, 3=once a week, 4=more times a week) to indicate how often they engage in cyberbullying behaviours or become victims of it. Higher scores meant that the participants engaged in cyberbullying more frequently. The original questionnaire was psychometrically tested with participants aged between 11 and 23 years in six European countries, showing adequate reliability (Cronbach's  $\alpha$  of the cyberbullying perpetration factor = .93; Cronbach's  $\alpha$  of the cybervictimization factor = .97; Del Rey et al., 2015). Both scales showed an adequate reliability on our sample as well (Cronbach's  $\alpha$  of the cyberbullying perpetration factor = .91; Cronbach's  $\alpha$  of the cybervictimization factor = .90).

The Difficulties in Emotion Regulation Questionnaire (DERS, Gratz & Roemer, 2004, see Appendix 8) evaluates difficulties in emotion regulation consisting of 36 items. The DERS measures difficulties in the following aspects of emotion regulation: (a) acceptance of emotions (non-acceptance); (b) ability to engage in goal-directed behaviour when experiencing negative emotions (goals); (c) refraining from impulsive behaviour (impulse); (d) awareness of emotions (awareness); (e) accessing effective emotion regulation strategies when experiencing negative emotions (strategies); (f) understanding of emotions (clarity). Participants answered on a 5-point Likert scale (1=almost never, 0-10%; 2=sometimes, 11-35%; 3=about half the time, 36-65%; 4=most of the time, 66-90%; 5=almost always, 91-100%) to indicate how often the different emotion regulation difficulties characterize them. If participants scored high on the subscales, it meant that they had difficulties regulating their emotions during distressing times. The original questionnaire was psychometrically analysed with participants aged between 18 and 55 years, all the subscales showing adequate reliability (Cronbach's  $\alpha$  of nonacceptance = .85, Cronbach's  $\alpha$  of goals = .89, Cronbach's  $\alpha$  of impulse = .86, Cronbach's  $\alpha$  of awareness = .80, Cronbach's  $\alpha$  of strategies = .88, Cronbach's  $\alpha$  of clarity = .84; Gratz & Roemer, 2004). The DERS subscales showed adequate or near adequate reliability on our sample as well (Cronbach's  $\alpha$  of nonacceptance = .86, Cronbach's  $\alpha$  of goals = .82, Cronbach's  $\alpha$  of impulse



= .83, Cronbach's  $\alpha$  of awareness = .77, Cronbach's  $\alpha$  of strategies = .87, Cronbach's  $\alpha$  of clarity = .77).

The Family Adaptability and Cohesion Evaluation Scale IV. (FACES IV, Olson, 2011, see Appendix 9) is a self-report measure to assess the following family dimensions: cohesion, flexibility, communication and satisfaction consisting of 62 items. The FACES IV assesses balanced cohesion and flexibility as well as the high and low extremes of both cohesion (enmeshed and disengaged) and flexibility (rigid and chaotic). Participants answer on a five-point Likert scale (1=strongly disagree; 2=generally disagree; 3=undecided; 4=generally agree; 5=strongly agree). Higher scores on the subscales meant that the specific family functioning type (e.g. enmeshed family cohesion) characterized the participants' family. Moreover the FACES IV contains two additional scales: Family Communication Scale and Family Satisfaction Scale. Both scales consist of 10 items and participants implied on a five-point Likert scale (1=very dissatisfied; 2=somewhat dissatisfied; 3=generally satisfied; 4=very satisfied; 5=extremely satisfied) to what extent they are satisfied with the functioning of the family and communication among family members. Higher scores on these two scales meant that the participants were satisfied with the family's communication style and with their family's overall functioning. The original scale was psychometrically tested with a sample aged between 18 and 59 showing adequate reliability for all the subscales (Cronbach's  $\alpha$  of enmeshed cohesion = .77, Cronbach's  $\alpha$  of disengaged cohesion = .87, Cronbach's  $\alpha$  of balanced cohesion = .89, Cronbach's  $\alpha$  of chaotic adaptability = .86, Cronbach's  $\alpha$  of balanced adaptability = .84, Cronbach's  $\alpha$  of rigid adaptability = .82; Olson, 2011). However, there were previous studies (Baiocco et al., 2013; Koutra et al., 2013) that adapted the scale with adolescents. In both studies lower than adequate reliability scores were found for the subscales: Baiocco and colleagues (2013) found reliability scores ranging from .63 to .73, disengaged showing the lowest score. Whereas in Koutra and colleagues' study (2013) the reliability scores ranged from .59 to .79, enmeshed cohesion showing the lowest reliability score. Most of the subscales showed adequate or near adequate reliability in our sample (Cronbach's  $\alpha$  of disengaged cohesion = .77, Cronbach's  $\alpha$  of balanced cohesion = .83, Cronbach's  $\alpha$  of chaotic adaptability = .72, Cronbach's  $\alpha$  of balanced adaptability = .78, Cronbach's  $\alpha$  of rigid adaptability = .73, Cronbach's  $\alpha$  of communication = .85, Cronbach's  $\alpha$  of satisfaction = .93) but one scale, i.e. enmeshed cohesion, showed lower reliability (Cronbach's  $\alpha$  = .67).

The Multidimensional Scale of Perceived Social Support (MSPSS, Zimet et al., 1988, see Appendix 6) is a 12-item scale that assesses perceived support from three sources: family,

friends and significant other. Participants answered on a seven-point Likert scale (1=very strongly disagree; 7=very strongly agree) to indicate the level of perceived social support from the different sources. The higher scores meant that the participant perceived higher levels of social support from friends, family and/or significant other. The original scale was tested psychometrically with adolescents showing adequate reliability (Cronbach's  $\alpha$  of family = .81, Cronbach's  $\alpha$  of friends = .92, Cronbach's  $\alpha$  of significant other = .83; Zimet et al., 1990). The scale showed adequate reliability scores on our sample as well (Cronbach's  $\alpha$  of family = .92, Cronbach's  $\alpha$  of friends = .89, Cronbach's  $\alpha$  of significant other = .88).

### **3.2.3. Procedure.**

After the ethical approval was granted, the study was taking place in the second semester of the 2018/19 school year. The population of the study was Hungarian secondary school students, so we have sent out e-mails with our research proposal to 12 secondary schools. Nine schools agreed to participate in the research, but in the end only seven schools' students participated in the study. The choice of schools was based on accessibility and the university's connections. After the school principal agreed to participate in the study, the schools' head teachers were informed that they could volunteer to participate in the study with their classes. In two schools, no head teacher applied voluntarily. In the remaining seven schools, research assistants recruited students in the volunteer head teachers' classes during school hours. The recruitment included a short introduction about the study (e.g. what the topic of the research was, what they had to do during the research) and the research assistants handed out the parental consent forms. Volunteering students could participate in the study if their parents gave informed consent. The study was conducted during school hours in the students' classroom with the supervision of their teachers and/or our research assistants (undergraduate students, PhD students). The students completed the questionnaires anonymously by paper-pencil or online, via Google Forms after giving their informed consent to participate in the research.

### **3.2.4. Statistical Analysis.**

IBM SPSS Statistics 23 was used to analyse, whereas IBM SPSS Amos 20 was used to conduct the path analyses.

We created four cyberbullying groups to see the frequency of cyberbullying involvement in our sample using the mean scores and standard deviations (for the mean scores and standard deviation see Table 1). Students were considered cyberbullies if they scored higher than the

sum of the mean and one standard deviation on the cyberbullying perpetration scale of ECIPQ. Students scoring higher than the sum of the mean and one standard deviation on the cybervictimization scale of ECIPQ were considered cybervictims. Students scoring higher than the sum of the mean and one standard deviation on both cyberbullying and cybervictimization scales of the ECIPQ were considered bully-victims. At last, students who scored lower than the mean on both the cyberbullying perpetration and the cybervictimization scale of the ECIPQ were considered outsiders.

First, descriptive statistics were calculated (see Table 11 and 12). The skewness and kurtosis values showed that some of the variables were not normally distributed, i.e. cyberbullying perpetration (ECIPQ), cybervictimization (ECIPQ), social support from friends, family and a significant other (MSPSS), disengaged family cohesion, balanced family cohesion, rigid family adaptability and chaotic family adaptability (FACES IV). Although, with large sample sizes (> 30 or 40) parametric procedures can be used even if the data violates the normality assumption (Altman & Bland, 1995; Elliott & Woodward, 2007; Ghasemi & Zahediasl, 2012). Consequently, first linear regression analyses with stepwise extension were used to find the variables that are significantly associated with cyberbullying perpetration and cybervictimization to include only these variables later, in the path analyses. A linear regression analyses with stepwise extension was conducted to determine the predictors of cyberbullying perpetration with difficulties in emotion regulation (non-acceptance, goals, impulse, awareness, strategies and clarity), perceived social support (friend and family support) and family functioning (enmeshed, disengaged and balanced cohesion, rigid, chaotic and balanced flexibility, communication and satisfaction) as independent variables. Another linear regression analyses with stepwise extension was used to test the predictors of cybervictimization as well with the same independent variables as previously. Based on the significant results of the linear regression analyses, path analyses were used to test models of cyberbullying perpetration and cybervictimization. 95% confidence intervals and bootstrapping with 2000 resamples were used. According to Hu and Bentler (1999), the following criteria were used for the fitting indices:  $\chi^2/df < 2$ , RMSEA  $< .06$ , NFI  $> .95$ , TLI  $> .95$ , CFI  $> .95$ .

Table 11. Descriptive statistics of the second study

	Score Range	Mean score	Std. deviation	Cronbach's Alpha	Skewness (Std. error)	Kurtosis (Std. error)
Cyberbullying perpetration (ECIPQ)	0-44	12.79	5.27	.91	2.24(0.07)	14.53(0.15)
Cybervictimization (ECIPQ)	0-44	14.51	6.22	.90	1.55(0.07)	6.29(0.15)
Non-acceptance (DERS)	6-30	12.91	5.63	.86	0.81(0.07)	0.19(0.15)
Goals (DERS)	5-25	14.40	4.88	.82	0.12(0.07)	-0.67(0.15)
Impulse (DERS)	6-30	14.62	5.50	.83	0.51(0.07)	-0.40(0.15)
Awareness (DERS)	6-30	16.87	4.88	.77	0.25(0.07)	-0.16(0.15)
Strategies(DERS)	8-40	19.00	7.42	.87	0.62(0.07)	-0.30(0.15)
Clarity (DERS)	5-25	11.26	4.18	.77	0.43(0.07)	-0.37(0.15)
Enmeshed family cohesion (FACES IV)	7-35	14.81	4.18	.67	0.63(0.07)	0.85(0.15)
Balanced family cohesion (FACES IV)	7-35	28.24	4.94	.83	-1.15(0.07)	1.61(0.15)
Disengaged family cohesion (FACES IV)	7-35	13.51	4.59	.77	1.21(0.07)	1.99(0.15)
Rigid family adaptability (FACES IV)	7-35	16.01	4.80	.73	0.56(0.07)	1.05(0.15)
Balanced family adaptability (FACES IV)	7-35	25.33	5.12	.78	-0.59(0.07)	0.30(0.15)
Chaotic family adaptability (FACES IV)	7-35	12.68	4.45	.72	1.31(0.07)	2.73(0.15)
Family communication (FACES IV)	10-50	37.88	7.01	.85	-0.80(0.07)	0.63(0.15)
Family satisfaction (FACES IV)	10-50	36.19	8.58	.93	-0.61(0.07)	0.20(0.15)
Social support from friends (MSPSS)	5-35	29.59	5.75	.89	-1.45(0.07)	2.13(0.15)
Social support from family (MSPSS)	4-28	23.49	5.16	.92	-1.52(0.07)	2.12(0.15)
Social support from significant other (MSPSS)	3-21	25.16	4.19	.88	-2.04(0.07)	4.53(0.15)

Table 12. Descriptive data of the cyberbullying groups' scores on the DERS, FACES IV, and MSPSS

	Cyberbullying Perpetrators (n=18) M(SD)	Cybervictims (n=78) M(SD)	Bully- victims (n=54) M(SD)	Outsiders (n=955) M(SD)
Cyberbullying perpetration (ECIPQ)	21.61(3.35)	13.92(2.29)	28.37(8.71)	11.65(3.27)
Cybervictimization (ECIPQ)	14.06(3.96)	25.14(5.22)	29.56(7.86)	12.80(3.73)
Non-acceptance (DERS)	10.78(5.53)	15.33(5.94)	16.76(5.69)	12.54(5.48)
Goals (DERS)	14.33(5.58)	16.61(5.26)	16.09(4.12)	14.12(4.82)
Impulse (DERS)	14.67(5.30)	17.64(5.61)	18.80(4.55)	14.14(5.38)
Awareness (DERS)	16.83(4.77)	17.49(4.95)	19.17(4.90)	16.69(4.85)
Strategies(DERS)	17.44(6.74)	24.42(8.54)	23.81(6.35)	18.31(7.11)
Clarity (DERS)	10.17(4.00)	13.26(4.59)	15.02(4.24)	10.91(3.99)
Enmeshed family cohesion (FACES IV)	14.22(4.58)	15.81(4.46)	17.07(5.18)	14.61(4.04)
Balanced family cohesion (FACES IV)	27.94(5.68)	27.41(5.84)	25.07(5.26)	28.50(4.77)
Disengaged family cohesion (FACES IV)	14.67(3.76)	14.87(5.34)	16.00(5.08)	13.23(4.45)
Rigid family adaptability (FACES IV)	14.89(5.09)	17.33(4.28)	17.56(5.03)	15.84(4.79)
Balanced family adaptability (FACES IV)	25.00(4.74)	23.69(6.10)	22.09(4.95)	25.65(4.96)
Chaotic family adaptability (FACES IV)	13.72(5.07)	14.60(5.46)	15.93(5.59)	12.32(4.16)
Family communication (FACES IV)	34.83(9.76)	35.90(8.73)	33.57(6.81)	38.34(6.68)
Family satisfaction (FACES IV)	36.17(8.48)	33.78(9.54)	33.52(8.37)	36.53(8.47)
Social support from friends (MSPSS)	30.28(4.91)	27.26(7.27)	24.87(6.97)	30.03(5.38)
Social support from family (MSPSS)	23.67(5.63)	21.08(6.62)	19.63(5.72)	23.90(4.83)
Social support from significant other (MSPSS)	26.22(2.78)	23.94(5.13)	21.11(5.62)	25.46(3.89)

### **3.3. Results**

For the descriptive data, i.e. mean scores, standard deviations, reliability scores, skewness and kurtosis estimates see Table 11. Further, Table 12 provides information on how the four cyberbullying groups (cyberbullying perpetrators, cybervictims, bully-victims and outsiders) scored on the scales (DERS, FACES IV, MSPSS).

#### **3.3.1. Determinants of Cyberbullying Perpetration.**

According to the results of the linear regression analysis with stepwise extension, perceived friend support ( $\beta = -.13$ ,  $p < .001$ ), 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 ( $\beta = .08$ ,  $p = .01$ ) accounted for 1 % of the variance in cyberbullying perpetration ( $F(1, 1099) = 6.18$ ,  $p = .01$ ). Further, cyberbullying perpetration was most strongly affected by perceived friend support ( $F(1, 1103) = 47.84$ ,  $p < .001$ ,  $\beta = -.20$ ,  $p < .001$ ), which accounted for 4.2 % of the variance. (For more detailed results see Table 13).

#### **3.3.2. Determinants of Cybervictimization.**

According to the results of the linear regression analysis with stepwise extension, perceived support from friends ( $\beta = -.10$ ,  $p < .001$ ) and family ( $\beta = -.15$ ,  $p < .001$ ), enmeshed family cohesion ( $\beta = .14$ ,  $p < .001$ ), difficulties in refraining from impulsive behaviour ( $\beta = .10$ ,  $p = .01$ ), in understanding of emotions ( $\beta = .09$ ,  $p = .01$ ) and in accessing effective emotion regulation strategies when experiencing negative emotions ( $\beta = .10$ ,  $p = .01$ ) accounted for 1 % of the variance in cybervictimization ( $F(1, 1098) = 7.63$ ,  $p = .01$ ). 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. (For more detailed results see Table 14).

Table 13. Results of linear regression analyses with stepwise extension with cyberbullying perpetration as dependent variable and family factors, perceived social support and difficulties with emotion regulation as independent variables

\*p<.05, \*\*p<.01

<b>Model 1</b>	<b>R<sup>2</sup></b>	<b>F</b>	<b>df</b>	<b>β</b>	<b>t</b>
Friend Support	.04	47.84**	1, 1103	-.20**	-6.92**
<b>Model 2</b>	<b>R<sup>2</sup></b>	<b>F</b>	<b>df</b>	<b>β</b>	<b>t</b>
Friend Support	.02	27.22**	1, 1102	-.18**	-6.24**
Impulse				.15**	5.22**
<b>Model 3</b>	<b>R<sup>2</sup></b>	<b>F</b>	<b>df</b>	<b>β</b>	<b>t</b>
Friend Support	.01	9.85**	1, 1101	-.18**	-6.16**
Impulse				.15**	4.98**
Enmeshed Cohesion				.09**	3.14**
<b>Model 4</b>	<b>R<sup>2</sup></b>	<b>F</b>	<b>df</b>	<b>β</b>	<b>t</b>
Friend Support	.01	13.53**	1, 1100	-.14**	-4.49**
Impulse				.14**	4.62**
Enmeshed Cohesion				.12**	4.02**
Balanced Cohesion				-.12**	-3.68**
<b>Model 5</b>	<b>R<sup>2</sup></b>	<b>F</b>	<b>df</b>	<b>β</b>	<b>t</b>
Friend Support	.01	6.18*	1, 1099	-.13**	-4.20**
Impulse				.10**	3.26**
Enmeshed Cohesion				.12**	3.98**
Balanced Cohesion				-.11**	-3.56**
Clarity				.08*	2.49*

Table 14. Results of linear regression analyses with stepwise extension with cybervictimization as dependent variable and family factors, perceived social support and difficulties with emotion regulation as independent variables

\*p<.05, \*\*p<.01

<b>Model 1</b>	<b>R<sup>2</sup></b>	<b>F</b>	<b>df</b>	<b>β</b>	<b>t</b>
Strategies	.08	89.14**	1, 1103	.27**	9.44**
<b>Model 2</b>	<b>R<sup>2</sup></b>	<b>F</b>	<b>df</b>	<b>β</b>	<b>t</b>
Strategies	.03	36.00**	1, 1102	.25**	8.51**
Friend Support				-.17**	-6.00**
<b>Model 3</b>	<b>R<sup>2</sup></b>	<b>F</b>	<b>df</b>	<b>β</b>	<b>t</b>
Strategies	.01	14.01**	1, 1101	.22**	7.53**
Friend Support				-.13**	-4.09**
Family Support				-.12**	-3.74**
<b>Model 4</b>	<b>R<sup>2</sup></b>	<b>F</b>	<b>df</b>	<b>β</b>	<b>t</b>
Strategies	.02	23.18**	1, 1100	.20**	6.81**
Friend Support				-.11**	-3.49**
Family Support				-.16**	-4.87**
Enmeshed Cohesion				.14**	4.82**
<b>Model 5</b>	<b>R<sup>2</sup></b>	<b>F</b>	<b>df</b>	<b>β</b>	<b>t</b>
Strategies	.01	10.82**	1, 1099	.15**	4.58**
Friend Support				-.10**	-3.30**
Family Support				-.15**	-4.52**
Enmeshed Cohesion				.14**	4.78**
Clarity				.11**	3.29**
<b>Model 6</b>	<b>R<sup>2</sup></b>	<b>F</b>	<b>df</b>	<b>β</b>	<b>t</b>
Strategies	.01	7.63**	1, 1098	.10*	2.52*
Friend Support				-.10**	-3.21**
Family Support				-.15**	-4.58**
Enmeshed Cohesion				.14**	4.72**
Clarity				.09**	2.84**
Impulse				.10**	2.76**

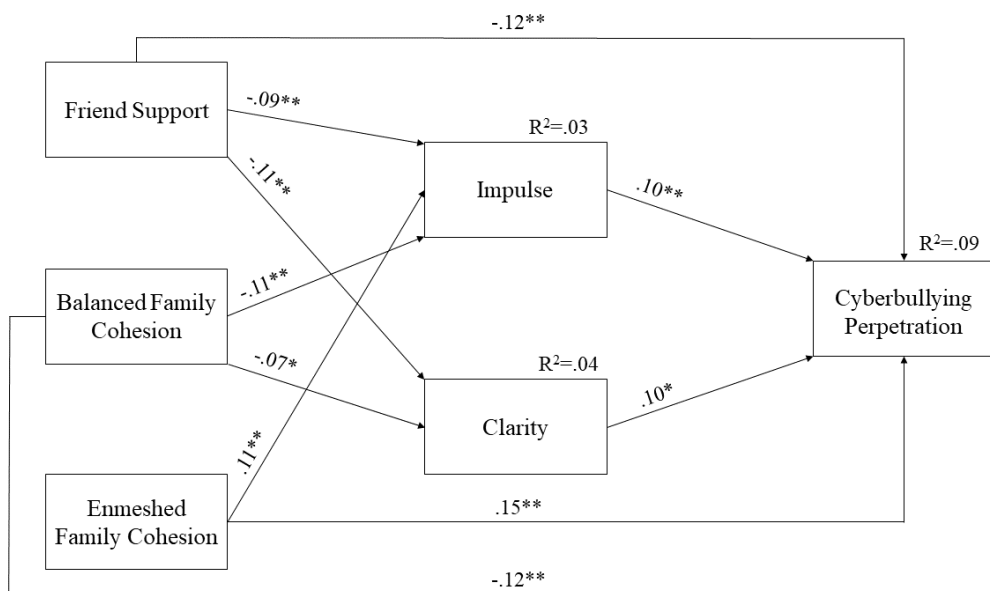


### 3.3.3. Model of Cyberbullying Perpetration.

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,  $\chi^2(1)= 3.32$ ,  $p=.07$ , RMSEA= .05 (90% CI: .00; .10), NFI= .99, TLI= .94, CFI= .99. Enmeshed family cohesion ( $\beta= .01$ ,  $p< .01$ , 95% CI= .002; .02), balanced family cohesion ( $\beta= -.02$ ,  $p< .01$ , 95% CI= -.03; -.01), and perceived friend support ( $\beta= -.02$ ,  $p < .01$ , 95% CI= -.04; -.01) had significant total indirect effects on cyberbullying perpetration. Figure 5 shows the standardized path coefficients and standardized R squared estimates. The relationships were significant, except for the association between enmeshed family cohesion and difficulties in understanding of emotions ( $\beta= .06$ ,  $p= .07$ ). The specific indirect effect of perceived friend support was mediated by difficulties in refraining from impulsive behaviour ( $\beta= -.01$ ,  $p< .001$ ). Perceived friend support also had a specific indirect effect on cyberbullying perpetration through difficulties in understanding of emotions ( $\beta= -.01$ ,  $p< .001$ ). The specific indirect effect of balanced family cohesion was also mediated by both difficulties in refraining from impulsive behaviour ( $\beta= -.01$ ,  $p< .001$ ) and difficulties in understanding of emotions ( $\beta= -.01$ ,  $p< .001$ ). The specific indirect effect of enmeshed family cohesion was mediated by difficulties in refraining from impulse behaviour ( $\beta= .01$ ,  $p= .01$ ).

Figure 5. Model of Cyberbullying Perpetration

\* $p<.05$ , \*\* $p<.01$

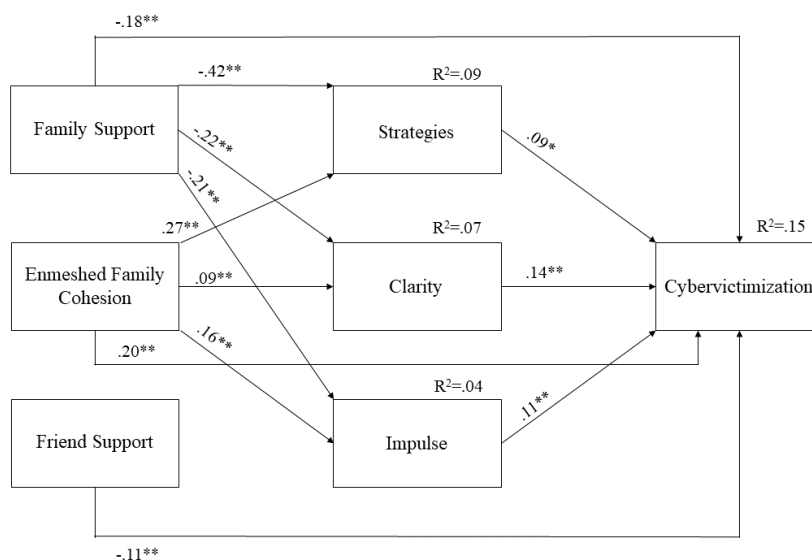


### 3.3.4. Model of Cybervictimization.

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,  $\chi^2(3)=6.99$ ,  $p= .07$ , RMSEA= .04 (90% CI: .00; .07), NFI= .99, TLI= .98, CFI= .99. Perceived support from family ( $\beta= -.09$ ,  $p< .001$ , 95% CI= .03; .08) and enmeshed family cohesion ( $\beta= .05$ ,  $p< .001$ , 95% CI= -.13; -.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 ( $\beta= -.06$ ,  $p= .06$ ), difficulties in accessing effective emotion regulation strategies when experiencing negative emotions ( $\beta= -.05$ ,  $p= .22$ ) and difficulties in understanding of emotions ( $\beta= -.04$ ,  $p= .06$ ). Figure 6 shows the standardized path coefficients and standardized R squared estimates. The specific indirect effect of perceived social support from family was mediated by difficulties in accessing effective emotion regulation strategies ( $\beta= -.04$ ,  $p< .001$ ), by difficulties in understanding of emotions ( $\beta= -.03$ ,  $p< .001$ ) and by difficulties in refraining from impulsive behaviour ( $\beta= -.02$ ,  $p< .001$ ). The specific indirect effect of enmeshed family cohesion was mediated by difficulties in accessing effective emotion regulation strategies when experiencing negative emotions ( $\beta= .02$ ,  $p< .001$ ), by difficulties in understanding emotions ( $\beta= .01$ ,  $p< .001$ ) and by difficulties in refraining from impulsive behaviour ( $\beta= .02$ ,  $p< .001$ ).

Figure 6. Model of Cybervictimization

\* $p<.05$ , \*\* $p<.01$



### **3.4. 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.

Enmeshed family cohesion is a risk factor for cyberbullying perpetration, it affected cyberbullying behaviour directly and also indirectly through difficulties in refraining from impulsive behaviour. Based on the results of earlier research (Buelga et al., 2017; Hemphill & Heerde, 2014; Morris et al., 2007; Ybarra & Mitchell, 2004), family relationships influence both the development of emotion regulation and involvement in cyberbullying behaviours. According to these results, poor, dysfunctional family relationships and lack of emotional link among family members contribute to cyberbullying perpetration (Buelga et al., 2017; Hemphill & Heerde, 2014; Ybarra & Mitchell, 2004). On the contrary, our results showed that a different type of family cohesion – enmeshed family cohesion - increased the chance of cyberbullying perpetration. In families with enmeshed family cohesion, there is an extreme amount of emotional closeness in the family, the family members are extremely dependent, and there is a lack of personal separateness, little private space. This pattern of family relationships also had a negative effect on the adolescents' impulse control and this emotion regulation difficulty contributed to cyberbullying behaviour. An explanation of this result might be that this closeness among family members is the result of a maladaptive adaptation from the family to the adolescent member's need for more autonomy and independence. Consequently, adolescents use the Internet as an escape from this dependence among family members, to practice control and autonomy, as well as youngsters cyberbully others with the purpose to canalize their unregulated impulses. Our results also supported that balanced cohesion, when the family is able to adapt flexibly to the adolescent's needs and the adolescent is able to be

both independent from the family and connected to it, is a protective factor against cyberbullying perpetration.

Enmeshed family cohesion is also a risk factor in cybervictimization. This type of family cohesion had direct effect and indirect effect through difficulties in refraining from impulsive behaviour, in understanding of emotions and in using effective emotion regulation strategies when experiencing negative emotions on cybervictimization. Previous studies demonstrated that balanced family cohesion might be a protective factor against cybervictimization (Ortega-Barón et al., 2016; Taiariol, 2010; Buelga et al., 2017), as well as emotion regulation was suggested to play a role in cybervictimization (Gianesini & Brighi, 2015). Our model also supported these previous results as the extreme emotional closeness and dependence among family members – an unbalanced form of family cohesion - made youngsters vulnerable to cyberbullying on the Internet and affected their emotion regulation development negatively. As in these types of families there are no boundaries, no private spaces, youngsters from these families might share videos, pictures, comments and personal information without boundaries on the Internet and this unlimited sharing makes them more vulnerable to cybervictimization (Walrave & Heirman, 2011; Mishna et al., 2012; Kowalski et al., 2014; Álvarez-García et al., 2015). Further, in these types of families adolescents might have less individual resources which can lead to the emotion regulation difficulties – ineffective emotion regulation strategies, uncontrollable impulses – and this can cause a higher degree of exposure to cybervictimization (Buelga et al., 2017; Van Dijk et al., 2014). In sum, our results showed both the risk and protective characteristics of relationships among family members.

Friend support is a protective factor against cyberbullying. Poor perceived peer support not only directly increased the chance of becoming a cyberbullying perpetrator but also had an indirect effect on cyberbullying through emotion regulation difficulties like difficulties in refraining from impulsive behaviour and in understanding of emotions. It was previously suggested that peers have an effect on the developing emotion regulation strategies during adolescence (Steinberg & Silk, 2002), as well as ineffective emotion regulation influences the involvement in cyberbullying perpetration (Baroncelli & Ciucci, 2014; den Hamer & Konijn, 2016; Gianesini & Brighi, 2015). Further, earlier research (Baldry et al., 2015; Bayraktar et al., 2015; Calvete et al., 2010; Fanti et al., 2012; Heerde & Hemphill, 2018) supported that poor peer support increases the chance of becoming a perpetrator of cyberbullying. In our study, we managed to combine these factors into a model. Our results showed a pattern of perceived peer support, difficulties in refraining from impulsive behaviour and in understanding of emotions

underlying cyberbullying perpetration. An interpretation of this model might be that in the absence of supporting peer relationships as a means of emotion regulation, adolescents are not able to adaptively regulate their impulses and understand their emotions. Consequently, they turn to cyberbullying to deal with these negative emotional states through aggressive behaviours.

Additionally, perceived social support from friends and family are protective factors against cybervictimization. Whereas, peer support had only a direct effect on cybervictimization, social support from family had both a direct and indirect effects through difficulties in refraining from impulsive behaviour, in using effective emotion regulation strategies when experiencing negative emotions and in understanding of emotions. Previous studies (Baldry et al., 2015; Fanti et al., 2012; Fridh et al., 2015; Martins et al., 2016; Kowalski et al., 2014; Williams and Guerra, 2007) found that both poor parental support and lack of peer support increase the likelihood of cybervictimization. Our model also supported these results, furthermore, on account of perceived parental support we found a dynamic effect through ineffective emotion regulation. All in all, in absence of parental support that helps the development of emotion regulation during adolescence (Morris et al., 2007), ineffective emotion regulation makes youngsters vulnerable to cybervictimization (Gianesini & Brighi, 2015). Also, marginalized adolescents – who experience poor peer support – are more endangered to become cybervictimized.

At last, emotion regulation difficulties are risk factors in both cyberbullying perpetration and cybervictimization. This is in line with previous findings (Baroncelli & Ciucci, 2014; den Hamer & Konijn, 2016; Gianesini & Brighi, 2015) showing that cyberbullying perpetrators, as well as cybervictims have difficulties with regulating their affective states. Furthermore, our findings demonstrated specific emotion regulation difficulties that have both direct and mediating effects on cyberbullying engagement. Cyberbullying perpetrators have difficulties in refraining from impulsive behaviours and in understanding emotions. As they are unable to process their emotions adaptively, they might use cyberbullying behaviours as means to canalize their unregulated emotions to an external subject. Whereas, difficulties in refraining from impulsive behaviour, in understanding of emotions and in accessing effective emotion regulation strategies when experiencing negative emotions increase the risk of cybervictimization. Adaptive emotion regulation strategies contribute to better social competence and functioning (Eisenberg & Fabes, 1992; Gross & John, 2003, Sroufe et al., 1984). Lacking adaptive social skills, youngsters might behave inadequately on the Internet (e.g. by limitlessly sharing pictures and/or videos), therefore their behaviour might result in

greater disclosure and increased risk of cybervictimization (Álvarez-García et al., 2015; Kowalski et al., 2014).

### **3.4.1. Limitations.**

Some limitations of our study shall be noted. On account of opportunity sampling, our sample is not representative of the country's adolescent population. Although anonymity should have lowered the risk of socially desirable answers, adolescents might have underreported their involvement in cyberbullying. However, another reason of underreported cyberbullying involvement might be that in some cases teachers were also present when the study was conducted. Further, it is important to be noted that the R squared and standardized beta estimates are weak both in the linear regression analyses and the path model analyses, though the models show significant results and excellent fitting indices. This implies that though there is a relationship among the variables, the independent variables do not predict the dependent variables precisely. This can be a consequence of high variability in the dataset, and that the data violates the normality assumptions. The reliability score of enmeshed family cohesion (FACES IV) was also quite low, this also could affect the R squared and standardized beta estimates. Thus the results regarding this scale should be interpreted carefully. Additionally, the low frequency of cyberbullying involvement in our sample can also be a possible cause of the weak R squared and standardized beta estimates. Moreover, on account of the cross-sectional design of our study we couldn't examine the long term effects of family and peer factors as well as emotion regulation. In order to have a better understanding of how family cohesion and adaptation changes during the course of adolescence and how these dynamics affect cyberbullying involvement longitudinal research design is needed. Further, it would be important to examine the parents' knowledge about technology, their strategies to restrict or mediate the youngsters' Internet use, this could also contribute to a better understanding of our results.

### **3.4.2. Conclusions.**

Overall, our results demonstrated the importance of family cohesion, perceived parental and peer support and emotion regulation in both cyberbullying perpetration and cybervictimization. Consequently, our results support the importance of involving family and peer relationships in the prevention/intervention programs. Education of parents about the use of new technologies, how to help their children in the use of Internet, whether to control, mediate or co-use, seems to be essential for prevention programs. As well as, it is important to help adolescents to

understand their emotions and to regulate their impulses in order to prevent their turning to the Internet and/or to cyberbullying behaviours to canalize their impulses. Additionally, our results contribute to a more dynamic viewpoint of cyberbullying behaviours and might help the beginning of a new direction in cyberbullying research.

## **4. THIRD STUDY – CYBERVICTIMIZATION AND CYBERBULLYING: THE ROLE OF SOCIO-EMOTIONAL SKILLS**

### **4.1. Introduction**

Socio-emotional skills have a significant role in traditional bullying, e.g. empathy (Caravita et al., 2009) and moral disengagement (Perren & Gutzwiller-Helfenfinger, 2012). Further, they also have an effect on adolescents' cyberbullying engagement, but the studies conducted so far, show inconsistencies regarding the role of empathy, maladaptive emotion regulations strategies and moral disengagement that need to be clarified. Thus, our third study aims to explore whether they also contribute to engagement in cyberbullying activities.

#### **4.1.1. The Role of Socio-Emotional Skills in Cyberbullying Engagement.**

A large body of literature (Ang & Goh, 2010; Barlinska et al., 2013; Brewer & Kerslake, 2015; Del Rey, et al., 2016; Schulze-Krumbholz & Scheitauer, 2009; Steffgen et al., 2009, 2011) confirm that lack of empathy could explain cyberbullying behaviour among adolescents. Empathy helps individuals to take others' perspective, to feel congruent but not identical vicarious emotions by witnessing another person's experiences, emotions or suffering (Batson et al., 1987). Cyberbullies are unable to understand and feel the vicarious emotions of others (Brewer & Kerslake, 2015; Steffgen et al., 2009, 2011). Moreover, cyberbullies not only show low empathy in the affective domain but they tend to lack the skill to take others' perspective (Ang & Gogh, 2010; Del Rey et al., 2016). Further on, cybervictims also lack the skill of taking others' perspective and feeling others' emotions (Schultze-Krumbholtz & Scheitauer, 2009). Although, the link between cybervictimization and empathic skills seems to be more complicated. For instance, in some studies (Brewer & Kerlslake, 2015; Renati et al., 2012; Zych et al., 2019), findings show that empathy does not explain cybervictimization among adolescents. Further, other studies (Almeida et al., 2012; Casas et al., 2013; Del Rey et al., 2016) suggest that cybervictims show empathic sensitivity to others' affective states. Taken together, previous studies have showed a consensus on the lack of empathic skills characterizing cyberbullies, whereas the role of empathy in cybervictimization is unclear.

Emotion regulation also can serve as an important factor in cyberbullying. If youngsters are unable to use adaptive forms of emotion regulation strategies, the risk of engagement in cyberbullying increases (Baroncelli & Ciucci, 2014; Gianesini & Brighi, 2015). The adaptive regulation of emotions has crucial role in successful social functioning (Gross & John, 2003), social competence (Eisenberg & Fabes, 1992), emotional and cognitive well-being (Quoidbach



et al., 2010), and regulation of aggression (Robertson et al., 2012). Indeed, adolescents who dysregulate their negative emotions are more at risk to become cyberbullies (Baroncelli & Ciucci, 2014). Cybervictims also show problems with regulating their emotions (Gianesini & Brighi, 2015). Based on the Cyclic Process Model (den Hamer & Konijn, 2016), if cybervictimized adolescents are not able to regulate the wide range of negative emotions – i.e. heightened levels of anger, depression, distress – that can be the antecedent of their tendency to become cyberbullies. Previous studies suggested that maladaptive emotion regulation explains perpetration of cyberbullying. Yet, it is not clear which of the maladaptive emotion regulatory strategies - blaming others, rumination, catastrophizing or self-blame (Garnefski et al., 2001) - have a role in cyberbullying or cybervictimization.

Cyberbullies may use selective activation and disengagement of internal and moral standards – i.e. moral disengagement (Bandura et al., 1996) – to avoid feelings of guilt in the lack of socio-emotional skills. Moral disengagement is a set of cognitive strategies that reconstruct cruel behaviour as serving socially worthy or moral purposes (social and moral justification), exploit the contrast principle (advantageous comparison), use language to make the behaviour socially acceptable (euphemistic language), reduce accountability for the behaviour (displacement and diffusion of responsibility), ignore, minimize or distort the consequences of the act (disregarding and denial of injurious effects) or blame the victim for the behaviour (dehumanizing, attribution of blame) (Bandura, 1999). Cyberbullies frequently use moral disengagement strategies to justify their aggressive online behaviour (Bussey et al., 2015; Renati, et al., 2012; Robson & Witenberg, 2013; Wang et al., 2016). Specifically, cyberbullies use diffusion of responsibility, distortion of consequences and attribution of blame to minimize the feelings of guilt and the consequences of their acts (Renati et al., 2012; Robson & Witenberg, 2013). Additionally, both cyberbullies and bully-victims manipulate the reconstruction of their behaviour to be seen as socially acceptable by using moral justification, euphemistic labelling and advantageous comparison (Renati et al., 2012). Although, most of the previous studies have used a generalized method to measure moral disengagement strategies (Bandura et al., 1996), whereas they lack the use of a specified method (e.g. Cyber Bullying Moral Disengagement Scale, Bussey et al., 2015) that measures moral disengagement in cyberbullying situations and might lead to a more specific conclusion about the role of moral disengagement in cyberbullying.

In sum, the findings from previous studies suggest a relationship between socio-emotional skills and cyberbullying (Ang & Goh, 2010; Barlinska et al., 2013; Baroncelli & Ciucci, 2014; Brewer

& Kerslake, 2015; Del Rey et al., 2016; den Hamer & Konijn, 2016; Giancesini & Brighi, 2015; Schulze-Krumbhulz & Scheitauer, 2009; Steffgen et al., 2009, 2011). Empathy, adaptive emotion regulation and lack of use of moral disengagement strategies could be possible protective factors against cyberbullying behaviour. However, findings for associations between socio-emotional competences and cybervictimization are less consistent. Previous studies reported contradictory findings from the no relationship to the high empathy associated to cybervictimization. Additionally, the specific maladaptive emotion regulation strategies cybervictims use are also unclear. Further research is necessary to understand whether impaired socio-emotional competence is responsible for the use of moral disengagement in cyberbullying.

#### **4.1.2. 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.

## **4. 2. Methods**

### **4.2.1. Participants.**

The participants were 524 Caucasian adolescents from one, rural and urban high school (40.84% boys,  $M=15.73$ ,  $SD=1.30$ ; 59.16% girls,  $M=15.72$ ,  $SD=1.20$ ), aged 12-19 years ( $M=15.73$ ,  $SD=1.24$ ). The choice of school and students was incidental based on accessibility. 6.9 % of the students were cyberbullies, 13.5 % were cybervictimized, 5.2 % were bully-victims and 74.4 % were outsiders. Ethical approval in conducting this study was granted from the

Hungarian United Ethical Review Committee for Research in Psychology (reference number: 2017/96).

#### **4.2.2. Materials.**

We used a quantitative comparative correlational design by means of four anonymous self-administered questionnaires (For the mean scores, standard deviations and Cronbach's alphas see Table 1):

Short version of the Cyber Victim and Bullying Scale (CVBS-S, Arató et al., unpublished, see Appendix 10) is an abbreviated form of the Cyber Victim and Bullying Scale (Cetin et al., 2011). The Cyber Victim and Bullying Scale measures both cyberbullying perpetration and cybervictimization with 22 items. The Scale of Cyber Bullying has three subscales: cyber verbal bullying, hiding identity and cyber forgery. The Scale of the Cyber Victim has the same three subscales reworded to measure cybervictimization. Using Item Response Theory (IRT) and confirmatory factor analysis we created a shorter adaptation for both scales, 11 items remaining in both scales designed to measure cyberbullying perpetration and cybervictimization without subscales. The participants of the adaptation procedure were 632 high school students (261 men, mean age=16.47, SD=1.50). Since this scale had not been used or validated before, confirmatory factor analyses was used to test whether the items reliably reflected cyberbullying. The results confirmed an acceptable model fit: CMIN/DF=2.66; RMSEA=0.06 (90% CI=0.05;0.06); SRMR=0.07; TLI=0.92; CFI=0.094. Cronbach Alpha for the scale of cyberbullying perpetration was 0.83, for the scale of cybervictimization it was 0.87. Participants answered on a five-point scale (1=never, 2=rarely, 3=occasionally, 4=frequently, 5=always) to indicate how often they engaged in cyberbullying activities or became victims of it in the last one year.

The Empathy Questionnaire for Children and Adolescents (EmQue-CA, Overgaauw et al., 2017, see Appendix 11) is a self-report measure consisting of 14 items and three scales: (1) affective empathy measuring the extent to which someone is feeling other's distress, (2) cognitive empathy measuring the extent to which someone understands why others are in distress, (3) intention to comfort measuring the extent to which someone wants to help distressed others. The participants answered on a three-point Likert-type scale (1 - not true, 2 - somewhat true, 3 - true) whether the empathy-related descriptions were true for them.

The Cognitive Emotion Regulation Questionnaire (CERQ, Garnefsky & Kraaij, 2007 trans. by Miklósi et al., 2011, see Appendix 12) consist of 36 items and has nine scales. Five scales

measure adaptive emotion regulation strategies: acceptance, positive refocusing, planning, positive reappraisal and putting into perspective. An additionally four scales measure maladaptive emotion regulation strategies: self-blame, rumination, catastrophizing and other blame. The CERQ uses a five-point Likert-type scale to measure the extent, subjects use the different emotion regulation strategies after a stressful event.

The Cyber Bullying Moral Disengagement Scale (CBMDS, Bussey et al., 2015, see Appendix 13) is a one factor scale consisting of 8 items. Each item refers to cyberbullying and one item represents each of the moral disengagement mechanisms: moral justification, euphemistic language, advantageous comparison, displacement of responsibility, diffusion of responsibility, distorting consequences, attribution of blame and dehumanizing. Participants implied on a four-point Likert-scale (1 - don't agree, 4 - totally agree) to what extent they agreed with the statements.

#### **4.2.3. Procedure.**

After the school principal agreed to participate in the study, parents' consent were asked. The students completed the questionnaires by paper-pencil during school hours supervised by teachers or research assistants.

#### **4.2.4. Statistical Analysis.**

We created four cyberbullying groups to test the differences between cyberbullies, cybervictims, bully-victims and outsiders (students not involved in cyberbullying) using the mean scores and standard deviations (for the mean scores and standard deviation see Table 15 & 16). Students were considered cyberbullies if they scored higher than the sum of the mean and one standard deviation on cyberbullying perpetration scale of CVBS-S. Students scoring higher than the sum of the mean and one standard deviation on the cybervictimization scale of CVBS-S were considered as cybervictims. Students scoring higher than the sum of the mean and one standard deviation on both the cyberbullying perpetration and the cybervictimization scales of the CVBS-S were considered as bully-victims. Consequently, those scoring lower than the mean on both the cyberbullying perpetration and the cybervictimization scales of the CVBS-S were considered as outsiders.

Normality tests showed that the variables are normally distributed. Consequently, Pearson correlations, multivariate analyses of variance (MANOVAs) and linear regression analyses were used to test the associations among the variables. Pearson correlations were conducted to

explore the relationship among cyberbullying perpetration, cybervictimization, empathy, adaptive and maladaptive cognitive emotion regulation strategies and moral disengagement scales. Based on the correlational analyses we ran linear regression analyses. A regression analysis with stepwise extension was conducted to determine the predictors of cyberbullying perpetration with other blame, affective and cognitive empathy, intention to comfort and moral disengagement as independent variables. Another regression model with stepwise extension was tested to determine the predictors of cybervictimization with self-blame, rumination, acceptance, planning and cognitive empathy as predictor variables. Multivariate analyses of variance (MANOVAs) with Bonferroni-corrected post-hoc tests were performed to discover differences among the cyberbullying groups in empathy, moral disengagement and emotion regulation.

Table 15. Descriptive statistics and Spearman correlation for the variables

\*p<.05, \*\*p<.01

	Cyberbullying perpetration	Cybervictimization	Mean score	Std. deviation	Cronbach's Alpha
(1) Cyberbullying perpetration (CVBS-S)	1	.27**	13.54	4.08	.83
(2) Cybervictimization (CVBS-S)	.27**	1	23.45	8.53	.87
(3) Affective empathy (EmQue- CA)	-.24**	-.01	12.21	2.65	.66
(4) Cognitive empathy (EmQue- CA)	-.20**	.16**	7.39	1.45	.72
(5) Intention to comfort (EmQue- CA)	-.23**	.04	12.86	2.10	.74
(6) Self-blame (CERQ)	-.04	.18**	10.41	3.51	.81
(7) Rumination (CERQ)	-.08	.17**	11.62	4.00	.83
(8) Catastrophizing (CERQ)	.02	.00	8.06	3.83	.74
(9) Other blame (CERQ)	.15**	.02	8.53	2.89	.75
(10) Acceptance (CERQ)	-.02	.17**	11.24	3.33	.65
(11) Positive refocusing (CERQ)	-.04	.06	10.91	4.20	.88
(12) Planning (CERQ)	-.06	.17**	13.40	3.70	.81
(13) Positive reappraisal (CERQ)	-.05	.03	11.98	3.85	.78
(14) Putting into perspective (CERQ)	-.05	.00	11.29	3.52	.73
(15) Moral disengagement (CBMDS)	.46**	.04	13.45	4.13	.73

Table 16. Descriptive data about the prevalence of cyberbullying and cybervictimization in gender and age groups

	<b>Girls (n=309) M (SD)</b>	<b>Boys (n=214) M (SD)</b>	<b>12-14 years olds (n=79) M (SD)</b>	<b>15-16 years olds (n=309) M (SD)</b>	<b>17-19 years olds (n=135) M (SD)</b>
<b>Cyberbullying perpetration (CVBS-S)</b>	12.66 (3.12)	14.80 (4.92)	13.61 (4.79)	13.33 (3.81)	13.96 (4.24)
<b>Cybervictimization (CVBS-S)</b>	22.98 (8.14)	24.14 (9.05)	21.66 (9.48)	23.22 (8.50)	24.83 (7.47)
	<b>Prevalence – girls (%)</b>	<b>Prevalence – boys (%)</b>	<b>Prevalence – 12-14 years olds (%)</b>	<b>Prevalence - 15-16 years olds (%)</b>	<b>Prevalence - 17-19 years olds (%)</b>
<b>Cyberbullies</b>	2.60	13.10	6.30	5.50	10.40
<b>Cybervictims</b>	13.90	13.10	15.20	13.90	11.90
<b>Bully-victims</b>	2.90	8.40	3.80	5.20	5.90
<b>Outsiders</b>	80.60	65.40	74.70	75.50	71.90

### **4.3. Results**

For the descriptive data, prevalence of cyberbullying and cybervictimization in gender and age groups see Table 15 and 16.

#### **4.3.1. 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 (for mean scores and standard deviations see Table 17). 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 (for the mean scores and standard deviation see Table 17). 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 (for mean scores and standard deviations see Table 17).

#### **4.3.2. 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 (for the mean scores and standard deviations see Table 17).

#### **4.3.3. 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 (for mean scores and standard deviations see Table 17). 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 (for mean scores and standard deviations see Table 17). 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 (for mean scores and standard deviations see Table 17). 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 (for mean scores and standard deviations see Table 17). 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 (for mean cores and standard deviations see Table 17).

Table 17. Results of MANOVAs

O: outsiders, V: victims, B: cyberbullies, B/V: bully-victims

\* $p < .05$ , \*\* $p < .01$

	Outsiders ( <i>n</i> =390) M (SD)	Victims ( <i>n</i> =71) M (SD)	Perpetrators ( <i>n</i> =36) M (SD)	Bully- victims ( <i>n</i> =27) M (SD)	F	df	$\eta_p^2$	Significant Post Hoc
Self-blame	10.21 (3.48)	11.65 (3.71)	10.03 (3.58)	10.00 (2.76)	3.66*	3, 502	.02	V-O
Acceptance	11.16 (3.35)	11.99 (3.53)	9.97 (3.13)	11.89 (2.46)	3.31*	3, 502	.02	V-B
Rumination	11.49 (4.01)	13.14 (3.90)	10.74 (3.95)	11.00 (3.63)	4.39**	3, 502	.03	V-B, V-O
Positive refocusing	10.91 (4.02)	10.82 (4.69)	10.66 (4.41)	10.85 (4.38)	0.05	3, 502	.00	-
Planning	13.25 (3.67)	14.32 (3.51)	12.03 (4.09)	13.74 (3.31)	3.40*	3, 502	.02	V-B
Positive reappraisal	12.03 (3.82)	12.00 (3.87)	10.91 (4.11)	12.07 (3.37)	0.92	3, 502	.01	-
Putting into perspective	11.29 (3.48)	11.45 (3.68)	10.14 (3.32)	11.63 (3.48)	1.37	3, 502	.01	-
Catastrophizing	8.05 (3.52)	8.34 (3.24)	8.06 (2.74)	8.04 (3.39)	0.14	3, 502	.00	-
Other blame	8.48 (2.84)	8.01 (2.45)	9.23 (3.91)	9.93 (2.83)	3.61*	3, 502	.02	B/V-V
Affective empathy	12.40 (2.69)	12.38 (2.45)	10.80 (2.51)	10.56 (2.10)	7.78**	3, 502	.04	V-B, V-B/V, O-B, O-B/V
Cognitive empathy	7.41 (1.37)	7.89 (1.27)	6.77 (1.80)	6.74 (1.68)	7.14**	3, 502	.04	V-B, V-B/V
Intention to comfort	13.06 (2.04)	12.94 (1.71)	11.46 (2.59)	11.74 (2.33)	9.35**	3, 502	.05	V-B, O-B/V, O-B
Moral disengagement	13.07 (3.74)	12.44 (4.15)	16.63 (4.32)	18.56 (4.19)	26.32**	3, 502	.14	B-V, B-O, B/V-V, B/V- O

#### **4.3.4. Determinants of cyberbullying perpetration and cybervictimization.**

Based on the results of Pearson correlations (see Table 15) we conducted two linear regression analyses with stepwise extension to discover which variables could predict cyberbullying perpetration and cybervictimization. The final model of cyberbullying perpetration could account for 21% of the variability ( $F [5, 515] = 136.24, p < .001$ ). Moral disengagement ( $\beta = .46, p < .001$ ) was found to have the most influential, significant effect on cyberbullying perpetration (for detailed results see Table 18). Further, the final model of cybervictimization could account for 3% of the variability ( $F [5, 512] = 17.35, p < .001$ ). Self-blame ( $\beta = 0.18, p < .001$ ) was found to have the most influential, significant effect on cybervictimization (for detailed results see Table 18).

Table 18. Results of linear regression analyses with stepwise extension

\*p<.05, \*\*p<.01

Linear regression models of cyberbullying perpetration						Linear regression models of cybervictimization					
Model 1	R <sup>2</sup>	F	df	Beta	t	Model 1	R <sup>2</sup>	F	df	Beta	t
Moral disengagement	.21	136.24**	1,515	.46**	11.67	Self-blame	.03	17.35**	1,512	.18**	4.15
Model 2	R <sup>2</sup>	F	df	Beta	t	Model 2	R <sup>2</sup>	F	df	Beta	t
Moral disengagement	.02	75.64**	1,514	.43**	10.73	Self-blame	.02	13.15**	1,511	.16**	3.51
Intention to comfort				-.14**	-3.48	Cognitive empathy				.13**	2.97
Model 3	R <sup>2</sup>	F	df	Beta	t	Model 3	R <sup>2</sup>	F	df	Beta	t
Moral disengagement	.01	52.72*	1,513	.41**	10.33	Self-blame	.01	10.52*	1,510	.12**	2.65
Intention to comfort				-.14**	-3.55	Cognitive empathy				.12**	2.60
Other blame				.09*	2.36	Planning				.10**	2.25

#### **4.4. Discussion**

The main goal of our 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 a base for prevention/intervention programs. Our results demonstrated a pattern of socio-emotional skills underlying cybervictimization and cyberbullying perpetration. We showed that cybervictims do not lack empathic skills. Further, they regulated their emotions in both adaptive and maladaptive ways. Moreover, moral disengagement characterized cyberbullies and bully-victims whereas they had difficulties with understanding others' emotions and perspective.

Our first hypothesis was that cybervictims have the same problems concerning empathic skills as cyberbullies. However, our results demonstrated that cybervictims and cyberbullies differ in empathic competences. This is in line with previous findings (Ang & Goh, 2010; Brewer & Kerlake, 2015; Del Rey et al., 2016; Steffgen, et al., 2009, 2011) showing that cyberbullies are unable to take others' perspective or feel vicarious emotions. In contrast, cybervictims did not show the same deficit in affective and cognitive empathy or intention to comfort. Cybervictims were more focused on others' distress and had a stronger tendency to help others than cyberbullies and bully-victims. This result can serve as an explanation why bully-victims are engaged in cyberbullying as both perpetrators and victims. Bully-victims' difficulties in understanding others' emotions and perspective can be a risk factor why after cybervictimization, instead of adaptively coping with their negative experiences, bully-victims turn to cyberbullying. Whereas, cybervictims' better empathic skills can be a protective factor against their subsequent cyberbullying perpetration. It is possible that the experience of being victimized leads adolescents to pay more attention to others' feelings. Also, such social sensibility could be an antecedent of cybervictimization. In all, further longitudinal research could help understand more about the role of empathy. As well as empathy could serve as a base for programs against cyberbullying to help prevent cybervictims' subsequent cyberbullying behaviour and to prevent cyberbullies' repeated aggressive acts.

Our second hypothesis was that moral disengagement plays a crucial role in cyberbullying. We showed that moral disengagement is indeed associated with cyberbullying perpetration. This is consistent with previous studies (Bussey, et al., 2015; Renati et al., 2012; Robson & Witenberg, 2013; Wang et al., 2016) showing a link between cyberbullying and the use of moral

disengagement strategies. A previous study (Renati et al., 2012) found that only cyberbullies are characterized by affective empathy deficit and heightened use of moral disengagement. In contrast, our results showed that moral disengagement characterized not only cyberbullies but also bully-victims. Cyberbullies and bully-victims used these strategies more often compared to cybervictims and outsiders. Whereas bully-victims and cyberbullies used cognitive strategies to suppress the feelings of guilt, they were unable to understand other people's emotions and perspective. An explanation may be that cyberbullies and bully-victims disengage from moral standards in the absence of certain socio-emotional skills. They are unable to understand others' emotions and their own affective states. Without these socio-emotional skills, cyberbullies and bully-victims will use alternative strategies to regulate their negative emotions. Further, bully-victims used other blame as an emotion regulation strategy that is also a way of moral disengagement such as attribution of blame and dehumanization. Consequently, using less moral disengagement strategies may lead to an opportunity for cyberbullies and bully-victims to learn how to understand their own and others' emotional states.

The third aim of the current study was to find the specific emotion regulation strategies that characterize cybervictims. Our results showed that bully-victims used other blame to regulate their affective states compared to victims. According to the Cyclic Process Model (den Hamer & Konijn, 2016) there is a risk of using maladaptive emotion regulation strategies for cybervictims to deal with their anger and distress. As a consequence of using maladaptive emotion regulation strategies, another risk of becoming a cyberbully emerges for cybervictims. Indeed, other blame may be the maladaptive emotion regulation strategy underlying cybervictims' cyberbullying perpetration. Although previous results state that both cyberbullies and cybervictims are unable to adaptively regulate emotions (Baroncelli & Ciucci, 2014; Ganesini & Brighi, 2015), our results showed specific emotion regulation strategies characterizing cybervictims but not cyberbullies. Cybervictims used a set of adaptive and maladaptive emotion regulation strategies, e.g. rumination, self-blame, acceptance and planning, compared to cyberbullies and outsiders. One possible explanation could be that cybervictims first use maladaptive emotion regulation strategies but then they switch to using adaptive ones. This shifting might be the result of their better empathic skills, or they receive social support helping them to regulate their distress adaptively. Furthermore, self-blame had a predictive role in cybervictimization. Thus, cybervictims who blame themselves for what happened to them will deem themselves victims of cyberbullying. Consequently, they will be

in risk of substance use, depressive symptoms, anxiety, self-harming behaviour etc. (Goebert et al., 2011).

Some limitations of our study shall be noted. First, although anonymity should have lowered the risk of socially desirable answers, adolescents might have underreported their involvement in cyberbullying. On account of opportunity sampling, our sample was not representative of the Hungarian adolescent population. Further, it is important to be noted that the estimates of partial eta squared are weak, though the multivariate analysis of variance showed significant differences between the cyberbullying groups. Moreover, on account of the cross-sectional design of our study we could not test whether cybervictims regulate their emotions first by negative emotion regulation strategies and later shift to adaptive regulation. Without longitudinal data we can only hypothesize the temporal change in the use of cybervictims' affect regulation. Also, our research did not include traditional bullying that could have been informative being highly correlated with cyberbullying. Finally, we used an unpublished scale to measure cyberbullying engagement.

Overall, our results demonstrated the importance of empathy, emotion regulation strategies and moral disengagement in both cyberbullying perpetration and cybervictimization. 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 might serve as a base for prevention/intervention programs. Higher levels of affective and cognitive empathy, intention to comfort others and adaptive emotion regulation could be protective factors against cyberbullying.

## **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. Introduction**

The aim of the fourth study was to explore the role of moral reasoning, moral disengagement, social desirability, emotion regulation, and empathy in cyber bystander behaviour and cyberbullying engagement. Our aim was to explore further how moral development, besides socio-emotional skills, affects cyberbullying engagement and cyber bystanders' reactions. As, it is yet understudied how moral development, especially prosocial moral reasoning, influences cyber bystander behaviour and cyberbullying engagement. Further, we aimed to explore the combined effect of moral reasoning and socio-emotional skills on cyber bystander behaviour and cyberbullying engagement.

#### **5.1.1. The Role of Moral Reasoning, Moral Disengagement, Social Desirability, Emotion Regulation, and Empathy in Cyber Bystander Behaviour.**

The three types of cyber bystander behaviour were described previously (see 1.3.4.), i.e. assisting or reinforcing the cyberbullying perpetrator, remaining passive, and/or intervening (Mazzone, 2020; Moxey & Bussey, 2020). Further, cyber bystander intervention can be categorized as prosocial (e.g. constructive intervention toward the victim or the bully) and as antisocial (e.g. aggressively reacting to the bully) in nature (Moxey & Bussey, 2020). Given the Internet's specific features (e.g. anonymity), these cyber bystander behaviours are fluid, i.e. one can remain passive when seeing a cyberbullying act, then in another cyberbullying situation act prosocially (DeSmet et al., 2014). Although, the type of cyber bystander behaviour is not only influenced by the Internet's characteristics, but by the bystander effect, behavioural, contextual, and personal factors as well (Allison & Bussey, 2016).

The bystander effect was first defined by Latané and Darley (1968/1970); they proposed that it takes 5 steps for bystanders to intervene: (1) noticing the situation; (2) recognizing the need for assistance; (3) feeling personal responsibility; (4) believing in the ability to help; (5) consciously deciding to help. Given the specific circumstances of cyberbullying incidents (e.g. lack of non-verbal cues, victim's reaction is hidden), these steps might be different for cyber bystanders. *Noticing* cyberbullying amidst online distractions (e.g. pop-up advertisements, streaming music) and during multitasking might be harder (Allison & Bussey, 2016; Fischer et al. 2011). Further, without others' reactions and because of situational ambiguity (i.e.



uncertainty over what qualifies as cyberbullying and the cybervictim's reaction is self-censored or not immediately visible), it is harder for cyber bystanders to *recognize* the victim's need for intervention (Anderson et al., 2014; Bastiaensens et al., 2014, 2015; Holfeld, 2014; Smith, 2012). Given the broad audience of cyberbullying incidents (Kwan & Skoric, 2013), adolescents might feel less responsible for intervening thus they stay passive more likely (Huang & Chou, 2010; Van Cleemput et al., 2014) and/or attribute the burden of *responsibility* to others (e.g. victim's friends or more popular others) (DeSmet et al., 2012, 2014; Machácková et al., 2013; Price et al., 2014). Additionally, adolescents' self-efficacy (DeSmet et al., 2012, 2016), the intervention's offline implications (DeSmet et al., 2012; Machácková et al., 2013), and cultural norms and values (Bastiaensens et al., 2014) also influence cyber bystanders' behaviour. If adolescents believe that they lack the *abilities*, self-efficacy or they feel that their online acts will have offline consequences (e.g. judgement for deviating from the passive norm or possible retaliation from the bully) they will less likely intervene during cyberbullying incidents. In addition, there are further behavioural, contextual and personal factors that affect cyber bystander behaviour.

One of the personal influencing factors of cyber bystander behaviour may be morality. Previous research investigating bystander behaviour during traditional bullying incidents showed that morality affects how bystanders choose to behave in bullying situations (Levasseur et al., 2017; Thornberg & Jungert, 2013). Indeed, adolescents who have higher moral sensitivity were more likely to support or defend victims and less likely to assist or reinforce the bully (Levasseur et al., 2017; Thornberg & Jungert, 2013). Although, there is little existing research investigating the effect of morality on cyber bystander behaviour. A qualitative research (Price et al., 2014) showed that adolescents are more likely to offer support and/or help for the victim if they feel morally responsible in the cyberbullying situation. Further, participants described an explicit societal law or norm, that 'Cyberbullying is bad'. Therefore, they believed that cyber bystanders have universal responsibility to help the cybervictim, i.e. acting on the conventional stage of moral reasoning (Kohlberg, 1984; Price et al., 2014). Further, higher levels of moral reasoning, like perspective-taking and using moral absolutes, were found to be connected to defending and constructively intervening cyber bystander behaviour. Although, perspective-taking reasoning was also used by passive bystanders to justify their lack of action (Graeff, 2014). However, the role of moral development (e.g. development of prosocial moral reasoning) on cyber bystander behaviour needs more exploration and clarification as we still know little based on the few existing studies.

Another influencing personal factor, which is related to morality and moral reasoning, is moral disengagement. Indeed, moral disengagement might be the cognitive mechanism that enables cyber bystanders to excuse or to justify their actions that can be assisting or reinforcing the bully, remaining passive or intervening aggressively. Previous research (DeSmet et al., 2012, 2014; Van Cleemput et al., 2014) have showed that adolescents use moral disengagement mechanisms, such as attribution of blame, diffusion of responsibility and dehumanisation, to justify their reaction in cyberbullying incidents. By attributing the blame to the victim, bystanders can justify why they do not help the cybervictim or why they assist/reinforce the cyberbullying perpetrator (DeSmet et al., 2012; Holfeld, 2014). Further, by attributing the responsibility to others - friends of the victim, popular peers – being a passive bystander is reframed as a legitimized reaction from cyber bystanders (DeSmet et al., 2012, 2014; Machácková et al., 2013; Price et al., 2014). Another strategy to justify the passive cyber bystander reaction in cyberbullying incidents, it to downplay or underestimate the severity and the consequences of cyberbullying (Bastiaensens et al., 2014; Huang & Chou, 2010). Moral disengagement is also a predictor of aggressive intervention in cyberbullying incidents. Adolescents with higher moral disengagement are more likely to fight the cyberbullying perpetrator using aggressive tactics, e.g. making threats or spreading rumours (Bussey et al., 2020; Moxey & Mussey, 2020). On the other hand, when moral disengagement is low, adolescents are more prone to help, support and/or defend the cybervictim (Bastiaensens et al., 2014; DeSmet et al., 2012, 2014; Patterson et al., 2016; Song & Oh, 2018). Adolescents with low moral disengagement have sensitive empathic skills and are prone to behave prosocially (Paciello et al., 2013), further they are characterized by higher levels of moral evaluation and reasoning (Patterson et al., 2016; Schultz et al., 2014; Van Cleemput et al., 2014), thus they do not shift the responsibility to help the victim to others but take responsibility in intervening (Song & Oh, 2018).

The development of social-emotional competence is highly associated with the development of morality during adolescence (Davis, 2018; Eisenberg et al., 1998; Eisenberg et al., 2018). Consequently, besides morality and moral disengagement socio-emotional skills can also affect cyber bystanders' reaction. Empathy - as a crucial socio-emotional skill - is important in social relationships (Chow et al., 2013; Gleason et al., 2009), in prosocial behaviour (Davis, 2018; Eisenberg et al., 2018; Gano-Overway, 2013), and in cyber bystander behaviour as well. Indeed, studies (Machácková et al., 2015; Price et al., 2014; Van Cleemput et al., 2014) have showed that adolescents were more likely to intervene as cyber bystanders if they were characterized

by higher levels of empathic reasoning. That is, adolescents feeling higher levels of empathic concern helped, supported or comforted the cybervictim, or advised the cyberbullying perpetrator to apologize (Machácková et al., 2015; Price et al., 2014; Van Cleemput et al., 2014). On the other hand, adolescents with lower levels of empathy were more likely to assist or reinforce the cyberbullying perpetrator or remain passive during the cyberbullying incidents (Van Cleemput et al., 2014). Additionally, Schultze-Krumbholz and colleagues (2020) have found both higher cognitive and higher affective empathy to increase the chance of prosocial cyber bystander behaviour and decrease negative bystander behaviour, i.e. assisting the cyberbullying perpetrator. Although, the results about the role of empathy in cyber bystander behaviour seem to be contradictory. A study (Barlinska et al., 2015) showed that cognitive empathy inhibits bystanders' motivation to engage as cyber bystanders. Further, Schultz and colleagues (2014) demonstrated that there was no difference between defenders and passive bystanders regarding empathic skills. In contrast, Machácková & Pfetsch (2016) found that affective empathy, but not cognitive empathy, predicted prosocial bystander behaviour. Whereas, Barlinska and colleagues (2018) found cognitive empathy, but not affective empathy, as a predictive personal factor of supporting bystander behaviour. In sum, the effect of empathy is not yet clarified and needs further research to get a deeper understanding.

Emotion regulation is another socio-emotional competence that is important for forming and maintaining social relationships, and for acting positively in situations that require prosocial intervention (Eisenberg, 2000; Eisenberg & Fabes, 1992; Gross & John, 2003). Although, emotion regulation was not yet examined as a personal factor influencing cyber bystander behaviour. We know so far that feeling upset after witnessing cyberbullying incidents enhances defending behaviour (Machacková et al., 2013; Price et al., 2014). Examining the role of emotion regulation in cyber bystander reactions might help us to understand the dynamics behind the aforementioned result. As we already know, emotion regulation is important in prosocial behaviour. Indeed, in order to help others in need, bystanders have to regulate the personal distress they are feeling by witnessing others' suffering or humiliation first. If the personal distress is not regulated adaptively, bystanders more likely ignore the incident, in order to avoid the overwhelming negative feelings and distress evoked by the situation (Eisenberg, 2000).

Social context and social norms can also influence bystander behaviour. Peer group morality and norms influence adolescents' moral behaviour, as well as their reaction in cyberbullying incidents: If passive bystanding is the normative in the peer group, adolescents will less likely

to defend cybervictims and more prone to stay passive and ignore cyberbullying incidents (Gini et al., 2015). Additionally, when adolescents perceive that online acts have offline implications, e.g. the bystanders know the cyberbullying perpetrator and by helping or defending the cybervictim they would be judged for deviating from the group norm, adolescents are less likely to intervene prosocially (Allison & Bussey, 2020). If the group norm emphasizes the support of in-group members and social conventions of friendships, adolescents are more likely to defend cybervictims (DeSmet et al., 2012, 2014; Price et al., 2014). In addition, other pressures might influence cyber bystander behaviour, like societal expectations and stereotypes. Such a stereotype is that females are more prosocial and more likely to help others in need. Indeed, studies have found that females are more likely to help cyber victims (Bastiaensens et al., 2014). Although, previous research showed that group norms affect cyber bystander behaviour, there is no existing research on how social desirability affects cyber bystander behaviour. As this conformity to the group's norms may be influenced by social desirability. Therefore, besides moral and socio-emotional skill's effect on cyber bystanders' reaction, the role of social desirability may help to further understand the psychological dynamics influencing bystanders' behaviour.

### **5.1.2. The Role of Moral Reasoning, Moral Disengagement, Emotion Regulation, and Empathy in Cyberbullying Engagement.**

The role of moral disengagement in cyberbullying perpetration has been supported previously (Bussey et al., 2015; Renati, et al., 2012; Robson & Witenberg, 2013; Wang et al., 2016). Indeed, perpetrators of cyberbullying acts use selective activation and/or disengagement of moral standards to justify their aggressive behaviour. Additionally this cognitive strategy is not only used by cyberbullying perpetrators, but by bully-victims as well, who are both victims and perpetrators in cyberbullying situations (Renati et al., 2012). Hence, cyberbullying perpetrators and bully-victims use cognitive strategies that justify their cyberbullying acts, reframe their behaviours as socially acceptable by using linguistic techniques, replace the responsibility for their behaviour, blame the victims of cyberbullying, or distort, ignore, or minimize the consequences of cyberbullying (Bussey et al., 2015; Renati, et al., 2012; Robson & Witenberg, 2013; Wang et al., 2016). The use of these moral disengagement strategies might be an indicator of deficit regarding cyberbullying perpetrators' and bully-victims' moral development.

There has been little research investigating the association between morality and cyberbullying engagement (Perren & Gutzwiller-Helfenfinger, 2012). According to the results so far, cyberbullying perpetrators are often not morally aware that they are harming others online

(Teasley, 2014). Further, with low commitment to moral values and low feelings of remorse (like guilt or shame) adolescents are likely to perpetrate cyberbullying acts (Perren & Gutzwiller-Helfenfinger, 2012). Feelings of remorse are indicators that someone is aware of the consequences of his or her negative acts (Tangney et al., 2007). Without feelings of remorse, we might assume that cyberbullying perpetrators commit cyberbullying acts because they lack of moral values. Further, the fact that cyberbullying perpetrators have difficulties with the anticipation of the negative emotional states caused by their acts can be associated with their lack of empathic skills and difficulties with perspective taking (Perren & Gutzwiller-Helfenfinger, 2012).

Indeed, several studies investigated the association between cyberbullying engagement and empathy so far (Ang & Goh, 2010; Barlinska et al., 2013; Brewer & Kerslake, 2015; Del Rey, et al., 2016; Schulze-Krumbholz & Scheitauer, 2009; Steffgen et al., 2009, 2011). There seems to be a consensus regarding cyberbullying perpetrators' empathic skills. That is, cyberbullying perpetrators lack empathic skills, are unable to take others' perspective, or feel others' vicarious emotions (Brewer & Kerslake, 2015; Steffgen et al., 2009, 2011). In sum, they have difficulties with both affective and cognitive empathy (Ang & Goh, 2010; Del Rey et al., 2016). However, the link between empathy and cybervictimization needs further research. As the results regarding cybervictimized adolescents' empathic skills are rather inconsistent. Some studies have found the same deficit concerning cybervictims' empathic skills as cyberbullying perpetrators' (Schulze-Krumbholtz & Scheitauer, 2009). That is, cybervictims having difficulties with feeling others' vicarious emotions and taking others' perspective, i.e. affective and cognitive empathy. Whereas other studies (Brewer & Kerlslake, 2015; Renati et al., 2012; Zych et al., 2018) have found no such deficits in cybervictims' empathic skills. In fact, some studies have found that cybervictims are rather sensitive to others' emotional states (Almeida et al., 2012; Casas et al., 2013; Del Rey et al., 2016).

Adolescents' developing moral standards and moral disengagement is not only associated with empathy, but also with self-regulatory processes (Hardy et al., 2015). The internal moral standards regulate adolescents' behaviour by the evaluation of the potential consequences of certain acts (Perren & Gutzwiller-Helfenfinger, 2012). Emotion regulation is also a self-regulatory process that develops further during the course of adolescence and influences adolescents' behaviour (Archibald et al., 2003; Eisenberg, 2000; Giedd, 2004; Giedd et al., 1999; Robertson et al., 2012; Zeman et al., 2006). Indeed, emotion regulation processes influence cyberbullying involvement (Baroncelli & Ciucci, 2014; den Hamer & Konijn, 2016;

Gianesini & Brighi, 2015). Both cyberbullying perpetrators and cybervictims show problems with emotion regulation: If adolescents have emotion regulation difficulties or use maladaptive emotion regulation strategies, there is a heightened risk of cyberbullying involvement. (Baroncelli & Ciucci, 2014; den Hamer & Konijn, 2016; Gianesini & Brighi, 2015; Vranjes et al., 2018). Further, emotion regulation difficulties might be the reason behind why cybervictims perpetrate cyberbullying acts subsequent of their victimization (Cyclic Process Model, den Hamer & Konijn, 2016).

### **5.1.3. 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 regulating 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. 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.**

The developmental level of prosocial moral reasoning and cyber bystander behaviour were assessed by an altered version of Carlo, Eisenberg, and Knight's (1992) Objective Measure of Prosocial Moral Reasoning (see Appendix 14). The original prosocial moral reasoning dilemmas were designed to invoke conflict between the actor's needs, will, and desires and others' needs. We used the same principle but redesigned the stories used to fit the aim of our study. Therefore, we created moral dilemma situations that are related to cyberbullying:

1. Abuse via picture uploading: *When logging into Facebook, you see that one of your closest friends changed his profile picture to his girlfriend's sexual/suggestive picture. You know that your friend does not like to be told how he should behave. Therefore, if you would tell him to delete the picture, he would quarrel with you and even your friendship would be at stake. This happened only a few second ago, so there are no reactions to the picture yet. What would you do?*
2. Exclusion from a group: *Your classmates formed a new group on Facebook where you can talk about school stuff. Although they only invite those who they think are cool and funny. If someone does not participate in the class fun, they exclude him or her from the group. In the school corridor, you overhear a conversation about not letting one of your classmates into this group because they think it is funny to decline his join requests. What would you do?*

3. Abusing messages: *You are part of a group chat, only the most popular and cool ones can get an invitation to this group chat. If you are excluded, you cannot get back. When you enter this group, you see that one member shared screen shots of a private conversation where the other person shared intimate things about him or herself that he/she would not like to be out for everyone to know. Although, if you would tell them not to share these private things you would be excluded from this group. What would you do?*

4. Hacking/abusing of profile: *You are in a confectionery with your friends when one of you goes to the bathroom and leaves his or her phone unlocked on the table. A friend of yours thinks that it would be a great idea to write to your other friend's crush messages, but you know that this friend would be furious about this. Although if you would stop the others they would find you a loser and a coward. What would you do?*

After reading the situations, the participants' first task was to decide what they would do in the described situations. They had three options: joining in on the abusive act (e.g. *"I find the choice of the new profile picture funny and I would share it with others as well."*), helping the one in need (e.g. *"I would ask my friend to take the picture down."*), and ignoring the situation at hand (e.g. *"I would not care about it."*). Following this decision they were asked to rate the importance of six reasons why they would decide to help or not help in the situations on a five-point scale (1 = not at all important; 5 = very important). Each given reason represented a certain developmental level of prosocial moral reasoning, that were hedonistic reasoning (e.g. *"It depends how funny the situations is"*), needs-oriented reasoning (e.g. *"It depends whether the other one needs help or not."*), approval-oriented reasoning (e.g. *"It depends whether your friends/family would approve of your decision."*), stereotypic reasoning (e.g. *"It depends what you think would be decent behaviour."*), and perspective taking reasoning (e.g. *"It depends how would you feel about yourself if you would help or not."*). The sixth reasoning choice was a nonsense item (e.g. *"It depends whether you believe in humanity's power."*). For the mean scores, standard deviations and Cronbach's alphas see Table 19.

The European Cyberbullying Intervention Project Questionnaire (ECIPQ, Del Rey et al., 2015, see Appendix 5) measures both cyberbullying perpetration and cybervictimization with 22 items. Participants answered on a 5-point Likert scale (0 = never, 1 = once or twice, 2 = once a month, 3 = once a week, 4 = more times a week) to indicate how often they engage in cyberbullying behaviours or become victims of it (For the mean scores, standard deviations and Cronbach's alphas see Table 19).



The Cyber Bullying Moral Disengagement Scale (CBMDS, Bussey et al., 2015, see Appendix 13) is a one factor scale consisting of 8 items. Each item refers to cyberbullying and one item represents each of the moral disengagement mechanisms: moral justification, euphemistic language, advantageous comparison, displacement of responsibility, diffusion of responsibility, distorting consequences, attribution of blame and dehumanizing. Participants implied on a four-point Likert-scale (1 - don't agree, 4 - totally agree) to what extent they agreed with the statements (For the mean scores, standard deviations and Cronbach's alphas see Table 19).

The Interpersonal Reactivity Index (Davis, 1983 trans. Kulcsár, 1998, see Appendix 2) measures empathy with 28 items. The scale has four subscales: Fantasy, Empathic Concern, Perspective Taking, and Personal Distress. Participants answered on a five-point scale (0 = does not describe me well; 4 = describes me very well) to indicate how much the items describe their thoughts and feelings in a variety of situations (For the mean scores, standard deviations and Cronbach's alphas see Table 19).

The Difficulties in Emotion Regulation Scale Short Form (DERS-SF, Kaufman et al., 2015, see Appendix 15) evaluates difficulties in emotion regulation consisting of 18 items. The DERS-SF measures difficulties in the following aspects of emotion regulation: (a) acceptance of emotions (non-acceptance); (b) ability to engage in goal-directed behaviour when experiencing negative emotions (goals); (c) refraining from impulsive behaviour (impulse); (d) awareness of emotions (awareness); (e) accessing effective emotion regulation strategies when experiencing negative emotions (strategies); (f) understanding of emotions (clarity). Participants answered on a 5-point Likert scale (1 = almost never, 0-10%; 2 = sometimes, 11-35%; 3 = about half the time, 36-65%; 4 = most of the time, 66-90%; 5 = almost always, 91-100%) to indicate how often the different emotion regulation difficulties characterize them (For the mean scores, standard deviations and Cronbach's alphas see Table 19).

The Social Desirability Scale - 17 (SDS – 17, Stöber, 2001, see Appendix 16) is a short and up-to-date version of the Marlowe-Crowne Scale, that measures social desirability with 17 items. Participants had to indicate on a dichotomous scale whether the items are describing them or not (0 = false, 1 = true) (For the mean scores, standard deviations and Cronbach's alphas see Table 19).

### **5.2.3. Procedure.**

After the ethical approval was granted from the Hungarian United Ethical Review Committee for Research in Psychology (reference number: 2020-93), the accessible schools' school

principals were asked whether they agree to participate in the study. After the approval from the school principals, parents' consent were asked. The students also were asked to approve of participating in the study, and then they completed the questionnaires by paper-pencil or via the Internet during school hours supervised by teachers or research assistants.

#### **5.2.4. Statistical Analyses.**

*Scoring and coding of the prosocial reasoning stories.* First, for each participant, the decisions that corresponded to one of the three types of cyber bystander reactions (antisocial, prosocial, and ignoring) were summed across the four situations to obtain a frequency score. Based on these frequency scores we created groups for each cyber bystander reaction. The criterion of antisocial and ignoring bystander reaction was at least one answer on both types of reactions, since this reaction is against basic social norms, consequently even one answer is a manifestation of the neglect of moral conduct. Those participants, who responded at least one time antisocially, belonged to the antisocial bystander reaction group (N = 81), the rest of the participants, who never responded antisocially across the situations, belonged to the not antisocial group (N = 426). The participants, who responded at least one time neutrally, belonged to the ignoring bystander reaction group (N = 266), the participants who never reacted neutrally across the situations, belonged to the not ignoring group (N = 240). The criterion of prosocial bystander reaction was slightly different, because this reaction was the socially accepted decision to the moral dilemma presented in the situations, consequently most participants choose the prosocial option across all situations (N = 211). Therefore, to get a clearer picture on the prosocial answers, we added the criteria that only those prosocial answers counted as prosocial where the reasoning associated with the decision was not hedonistic. If the reasoning coupled with the prosocial answer was hedonistic then we did not count that answer as prosocial. After recoding the prosocial answers according to the criterion, the participants who responded at least one time prosocially, belonged to the prosocial bystander reaction group (N = 391), the participants who never responded prosocially across the situations belonged to the not prosocial group (N = 115). Second, for each participant, the ratings that corresponded to one of the five types of prosocial moral reasoning (hedonistic, need oriented, approval oriented, stereotypic, and perspective taking) were summed across the stories to obtain a frequency score. A frequency score was also obtained for the nonsense items.

*Statistical analyses of the predictors of cyber bystander behaviour.* Binary logistic regressions were performed to ascertain the effects of age, empathy (personal distress, empathic concern,

fantasy, and perspective taking), emotion regulation difficulties (difficulties with acceptance of emotions, with ability to engage in goal-directed behaviour when experiencing negative emotions, with refraining from impulsive behaviour, with awareness of emotions, with accessing effective emotion regulation strategies when experiencing negative emotions, and with understanding of emotions), moral disengagement and levels of prosocial moral reasoning (hedonistic reasoning, needs-oriented reasoning, approval-oriented reasoning, stereotypic reasoning, and perspective taking reasoning) on the likelihood of antisocial, prosocial, and ignoring cyber bystander behaviour.

*Statistical analyses of the predictors of cyberbullying engagement.* Pearson correlations were conducted to explore the associations among cyberbullying perpetration, cybervictimization, empathy (personal distress, empathic concern, fantasy, and perspective taking), emotion regulation difficulties (difficulties with acceptance of emotions, with ability to engage in goal-directed behaviour when experiencing negative emotions, with refraining from impulsive behaviour, with awareness of emotions, with accessing effective emotion regulation strategies when experiencing negative emotions, and with understanding of emotions), moral disengagement, and the levels of prosocial moral reasoning (hedonistic reasoning, needs-oriented reasoning, approval-oriented reasoning, stereotypic reasoning, and perspective taking reasoning). Based on the results of Pearson correlations, empathy was not included in the further analysis of cyberbullying engagement's determinants. Multinomial logistic regression analysis was used to determine which of the independent variables (age, emotion regulation difficulties, moral disengagement, and levels of prosocial moral reasoning) affected the different cyberbullying roles (cyberbullying perpetrator, cyber victim, bully-victim, and outsiders). As this analysis predicted cyberbullying perpetration and cybervictimization poorly, additional linear regression analyses were conducted to examine which of the independent variables (age, emotion regulation difficulties, moral disengagement, and levels of prosocial moral reasoning) affected cyberbullying perpetration and cybervictimization.

Table 19. Descriptive statistics and Spearman correlation for the variables

\*p<.05, \*\*p<.01

	Cyberbullying perpetration	Cybervictimization	Mean score (SD)	Cronbach's $\alpha$
Cyberbullying perpetration	1	.60**	14.12(4.93)	.90
Cybervictimization	.60**	1	16.35(6.24)	.88
DERS-strategies	.10*	.24**	8.17(2.82)	.66
DERS-non-acceptance	.10*	.23**	7.58(2.85)	.63
DERS-impulse	.16**	.16**	7.21(3.24)	.87
DERS-goals	.003	.08	9.89(3.10)	.83
DERS-awareness	.10*	.04	8.53(1.38)	.79
DERS-clarity	.15**	.23**	7.66(2.91)	.75
Moral disengagement	.57**	.36**	12.55(3.90)	.77
IRI-fantasy	-.05	.02	17.24(4.99)	.73
IRI-perspective taking	-.14**	-.03	16.48(3.94)	.64
IRI-empathic concern	-.15**	-.02	16.79(3.84)	.63
IRI-personal distress	.10*	.16**	13.51(4.24)	.68
Hedonistic reasoning	.21**	.06	7.26(3.59)	.77
Needs oriented reasoning	-.12**	-.12**	15.28(3.31)	.71
Approval oriented reasoning	-.03	-.04	14.30(4.27)	.83
Stereotypic reasoning	-.19**	-.21**	15.65(3.20)	.75
Perspective taking reasoning	-.11*	-.11*	15.14(3.54)	.82

### 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 ( $\chi^2 [17] = 94.74, p < .001$ ), it explained 29.2 % of the overall variance in the dependent variable (Nagelkerke  $R^2 = .29$ ) and correctly classified 85.6 % of cases. Age ( $p < .001, OR = 1.45, 95\% CI = 1.19; 1.77$ ), moral disengagement ( $p = .02, OR = 1.08, 95\% CI = 1.01; 1.15$ ), 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 (for the effect of all variables see Table 20).

Table 20. Determinants of antisocial cyber bystander behaviour

\* $p < .05$ , \*\* $p < .01$

	OR	95% CI	
		Lower	Upper
Age	1.45**	1.19	1.77
DERS-strategies	1.04	0.90	1.20
DERS-non-acceptance	1.02	0.90	1.15
DERS-impulse	0.95	0.86	1.05
DERS-goals	1.03	0.93	1.16
DERS-awareness	1.04	0.85	1.28
DERS-clarity	1.02	0.91	1.14
Moral disengagement	1.08*	1.01	1.15
IRI-fantasy	1.03	0.96	1.09
IRI-perspective taking	0.95	0.87	1.03
IRI-empathic concern	0.96	0.87	1.06
IRI-personal distress	0.98	0.90	1.06
Hedonistic reasoning	1.25**	1.16	1.35
Needs oriented reasoning	0.87*	0.78	0.98
Approval oriented reasoning	1.00	0.92	1.08
Stereotypic reasoning	0.91	0.80	1.03
Perspective taking reasoning	1.17*	1.03	1.33

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

The model was statistically significant ( $\chi^2 [17] = 274.75, p < .001$ ), it explained 63.5 % of the overall variance in the dependent variable (Nagelkerke  $R^2 = .64$ ) 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 ( $p < .001, OR = 0.55, 95\% CI = 0.49; 0.61$ ) and fantasy ( $p = .04, OR = 0.93, 95\% CI = 0.86; 1.00$ ) decreased the likelihood of prosocial cyber bystander behaviour. Additionally, difficulties with refraining from impulsive behaviour marginally significantly ( $p = .06, OR = 1.12, 95\% CI = 1.00; 1.26$ ) increased, while moral disengagement marginally significantly ( $p = .08, OR = 0.93, 95\% CI = 0.87; 1.01$ ) decreased the likelihood of prosocial cyber bystander behaviour (for the effect of all the variables see Table 21).

Table 21. Determinants of prosocial cyber bystander behaviour

\* $p < .05$ , \*\* $p < .01$

	OR	95% CI	
		Lower	Upper
Age	1.10	0.88	1.38
DERS-strategies	0.93	0.80	1.10
DERS-non-acceptance	0.98	0.85	1.12
DERS-impulse	1.12	0.99	1.26
DERS-goals	1.09	0.96	1.24
DERS-awareness	0.89	0.69	1.13
DERS-clarity	1.01	0.88	1.14
Moral disengagement	0.93	0.87	1.01
IRI-fantasy	0.93*	0.86	0.99
IRI-perspective taking	1.02	0.93	1.13
IRI-empathic concern	1.09	0.97	1.21
IRI-personal distress	1.05	0.96	1.15
Hedonistic reasoning	0.55**	0.49	0.61
Needs oriented reasoning	1.03	0.90	1.17
Approval oriented reasoning	1.04	0.95	1.14
Stereotypic reasoning	1.20*	1.05	1.38
Perspective taking reasoning	0.99	0.87	1.14

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

The model was statistically significant ( $\chi^2 [17] = 115.72, p < .001$ ), it explained 27.3 % of the overall variance in the dependent variable (Nagelkerke  $R^2 = .27$ ) and correctly classified 68.2 % of cases. Moral disengagement ( $p < .001, OR = 1.13, 95 \% CI = 1.06; 1.20$ ) and hedonistic prosocial moral reasoning ( $p = .02, OR = 1.08, 95 \% CI = 1.01; 1.14$ ) 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 (for the effect of all the variables see Table 22).

Table 22. Determinants of ignoring/neutral cyber bystander behaviour

\* $p < .05$ , \*\* $p < .01$

	OR	95% CI	
		Lower	Upper
Age	0.99	0.86	1.14
DERS-strategies	1.03	0.93	1.14
DERS-non-acceptance	1.03	0.94	1.12
DERS-impulse	0.99	0.92	1.07
DERS-goals	1.08	0.99	1.17
DERS-awareness	1.02	0.88	1.19
DERS-clarity	1.02	0.94	1.11
Moral disengagement	1.13**	1.06	1.20
IRI-fantasy	1.03	0.98	1.08
IRI-perspective taking	0.97	0.91	1.03
IRI-empathic concern	0.98	0.92	1.05
IRI-personal distress	0.96	0.90	1.02
Hedonistic reasoning	1.08*	1.01	1.14
Needs oriented reasoning	0.86**	0.79	0.93
Approval oriented reasoning	0.96	0.91	1.01
Stereotypic reasoning	0.96	0.88	1.04
Perspective taking reasoning	0.96	0.89	1.03

### 5.3.2. Determinants of Cyberbullying Engagement.

According to the results of Pearson correlations, both cyberbullying perpetration and cybervictimization were statistically significantly associated with emotion regulation difficulties, but the Pearson correlation coefficients were small (for detailed results see Table 19). However, the association was somewhat stronger between cybervictimization and difficulties with accessing effective emotion regulation strategies when experiencing negative

emotions ( $r = .24, p < .001$ ), difficulties with acceptance of emotions ( $r = .23, p < .001$ ), and difficulties with understanding of emotions ( $r = .23, p < .01$ ). Further, both cyberbullying perpetration ( $r = .57, p < .001$ ) and cybervictimization ( $r = .36, p < .001$ ) had a statistically significant positive association with moral disengagement. Both cyberbullying perpetration and cybervictimization had statistically significant relationship with empathy, but the Pearson correlation coefficients were very low (see Table 19). At last, both cyberbullying perpetration and cybervictimization were statistically significantly associated with the developmental levels of prosocial moral reasoning; although the Pearson correlation coefficients were also very small (see Table 19). Although the relationship was somewhat stronger between cyberbullying perpetration and hedonistic reasoning ( $r = .21, p < .001$ ) and between cybervictimization and stereotypic reasoning ( $r = -.21, p < .01$ ).

#### ***5.3.2.1. Determinants of Cyberbullying Roles.***

According to the results of the multinomial logistic regression analysis, the model fit the data well ( $\chi^2 [df] = 155.04 (39), p < .001$ ). 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 (for all the variable effects see Table 23). 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 (for the effect of all the variables see Table 24). Further, moral disengagement ( $p < .01, OR = 1.17, 95\% CI = 1.06; 1.30$ ) 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 (for the effect of all the variables see Table 25). 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 (for the effect of all the variables see Table 26).

Table 23. Determinants of cyberbullying roles: Results of likelihood ratio tests

	Significance
Age	.03
DERS-strategies	.06
DERS-non-acceptance	.75
DERS-impulse	.89
DERS-goals	.02
DERS-awareness	.41
DERS-clarity	.20
Moral disengagement	< .001
Hedonistic reasoning	.19
Needs oriented reasoning	.35
Approval oriented reasoning	.52
Stereotypic reasoning	.07
Perspective taking reasoning	.85

Table 24. Determinants of cyberbullying perpetration compared to outsiders  
\* $p < .05$ , \*\* $p < .01$

	OR	95% CI	
		Lower	Upper
Age	1.50	0.95	2.37
DERS-strategies	1.22	0.87	1.70
DERS-non-acceptance	1.03	0.77	1.38
DERS-impulse	1.10	0.87	1.40
DERS-goals	0.76	0.57	1.01
DERS-awareness	1.29	0.81	2.05
DERS-clarity	1.10	0.85	1.44
Moral disengagement	1.35**	1.16	1.57
Hedonistic reasoning	0.98	0.81	1.19
Needs oriented reasoning	0.90	0.68	1.20
Approval oriented reasoning	1.13	0.90	1.42
Stereotypic reasoning	0.87	0.65	1.16
Perspective taking reasoning	0.95	0.70	1.29

Table 25. Determinants of cybervictimization compared to outsiders

\*p<.05, \*\*p<.01

	OR	95% CI	
		Lower	Upper
Age	1.08	0.85	1.37
DERS-strategies	1.19	0.99	1.41
DERS-non-acceptance	1.07	0.93	1.23
DERS-impulse	0.99	0.88	1.13
DERS-goals	0.92	0.80	1.07
DERS-awareness	1.03	0.80	1.33
DERS-clarity	1.12	0.97	1.28
Moral disengagement	1.17**	1.05	1.30
Hedonistic reasoning	0.89	0.78	1.01
Needs oriented reasoning	0.92	0.80	1.05
Approval oriented reasoning	1.02	0.93	1.13
Stereotypic reasoning	0.91	0.79	1.05
Perspective taking reasoning	1.01	0.88	1.16

Table 26. Determinants of the bully-victim role compared to the outsider role

\*p<.05, \*\*p<.01

	OR	95% CI	
		Lower	Upper
Age	1.72**	1.15	2.58
DERS-strategies	1.31*	1.00	1.72
DERS-non-acceptance	1.10	0.86	1.40
DERS-impulse	1.01	0.82	1.23
DERS-goals	0.72**	0.56	0.92
DERS-awareness	1.33	0.91	1.95
DERS-clarity	1.20	0.96	1.50
Moral disengagement	1.49**	1.30	1.71
Hedonistic reasoning	1.05	0.90	1.22
Needs oriented reasoning	1.11	0.88	1.41
Approval oriented reasoning	1.09	0.92	1.30
Stereotypic reasoning	0.75*	0.60	0.95
Perspective taking reasoning	0.89	0.69	1.16

### 5.3.2.2. Determinants of Cyberbullying Perpetration.

The model (age, emotion regulation difficulties, morel disengagement, developmental level of prosocial moral reasoning) significantly affected cyberbullying perpetration ( $R^2 = .38$ ,  $F [13, 493] = 22.96$ ,  $p < .001$ ). Age ( $\beta = .14$ ,  $t = 3.70$ ,  $p < .001$ ), difficulties with the ability to engage in goal-directed behaviour when experiencing negative emotions ( $\beta = -.15$ ,  $t = -3.35$ ,  $p = .001$ ), moral disengagement ( $\beta = .53$ ,  $t = 13.69$ ,  $p < .001$ ) and stereotypic prosocial moral reasoning ( $\beta = -.10$ ,  $t = -2.03$ ,  $p = .04$ ) statistically significantly affected cyberbullying perpetration. Whereas, difficulties with accessing effective emotion regulation strategies when experiencing negative emotions ( $\beta = .09$ ,  $t = 1.80$ ,  $p = .07$ ) and understanding of emotions ( $\beta = .08$ ,  $t = 1.82$ ,  $p = .07$ ) marginally significantly affected cyberbullying perpetration (for the effect of all the variables see Table 27).

Table 27. Determinants of cyberbullying perpetration

\* $p < .05$ , \*\* $p < .01$

	$\beta$	t
Age	.14**	3.70
DERS-strategies	.09	1.80
DERS-non-acceptance	.03	0.76
DERS-impulse	.04	1.03
DERS-goals	-.15**	-3.35
DERS-awareness	.04	1.11
DERS-clarity	.08	1.82
Moral disengagement	.53**	13.69
Hedonistic reasoning	.04	1.05
Needs oriented reasoning	.05	0.97
Approval oriented reasoning	.04	0.98
Stereotypic reasoning	-.10*	-2.03
Perspective taking reasoning	.00	-0.01

### 5.3.2.3. Determinants of Cybervictimization.

The model (age, emotion regulation difficulties, morel disengagement, developmental level of prosocial moral reasoning) significantly affected cybervictimization ( $R^2 = .24$ ,  $F [13, 493] = 12.18$ ,  $p < .001$ ). Age ( $\beta = .109$ ,  $t = 2.18$ ,  $p = .03$ ), difficulties with accessing effective emotion regulation strategies when experiencing negative emotions ( $\beta = .19$ ,  $t = 3.47$ ,  $p = .001$ ), with the acceptance of emotions ( $\beta = .12$ ,  $t = 2.35$ ,  $p = .02$ ), with the ability to engage in goal-directed behaviour when experiencing negative emotions ( $\beta = -.13$ ,  $t = -2.62$ ,  $p = .01$ ), and with understanding of emotions ( $\beta = .10$ ,  $t = 2.10$ ,  $p = .04$ ), moral disengagement ( $\beta = .34$ ,  $t = 7.85$ ,

p < .001), and stereotypic prosocial moral reasoning ( $\beta = -.16$ ,  $t = -3.03$ ,  $p < .01$ ) statistically significantly affected cybervictimization (for the effect of all the variables see Table 28).

Table 28. Determinants of cybervictimization

\* $p < .05$ , \*\* $p < .01$

	$\beta$	t
Age	.09*	2.18
DERS-strategies	.19**	3.47
DERS-non-acceptance	.12*	2.35
DERS-impulse	.01	0.16
DERS-goals	-.13**	-2.62
DERS-awareness	-.01	-0.18
DERS-clarity	.10*	2.10
Moral disengagement	.34**	7.85
Hedonistic reasoning	-.07	-1.57
Needs oriented reasoning	.02	0.36
Approval oriented reasoning	.04	0.96
Stereotypic reasoning	-.16**	-3.03
Perspective taking reasoning	-.02	-0.40

## 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. Our results showed a pattern of prosocial moral developmental stages, moral disengagement, and empathic skills underlying cyber bystanders' reaction. Further, the results demonstrated how prosocial moral reasoning, moral disengagement, and emotion regulation difficulties affect cyberbullying involvement.

### 5.4.1. Determinants of Cyber Bystander Behaviour.

We hypothesized that those students, who use lower levels of prosocial moral reasoning and moral disengagement strategies, whereas they lack empathic and emotion regulation skills, are more likely to react antisocially in cyberbullying situations. Our results demonstrated, in line with our assumptions, that older adolescents, who use hedonistic moral reasoning and moral disengagement strategies to justify their actions are more likely to respond antisocially in cyberbullying situations. Adolescents using hedonistic moral reasoning are more self-centred, less able to take others' perspective (Palmer, 2005). Thus, they do not consider others' needs in

cyberbullying situations; they behave in a way that benefits them. They may join the cyberbullying perpetrator for several self-oriented reasons: They know the cyberbullying perpetrator in their offline environment and fear of retaliation or of their own victimization (Allison & Bussey, 2016). Further, if others also join the bully, they will also reinforce the perpetrator, acting according to the peer group's norms (Gini et al., 2015). They also may redirect their own, unregulated frustration and negative emotional states towards the cybervictim by joining the perpetrator. However, our results failed to show evidence on the effect of emotion regulation difficulties on antisocial cyber bystander behaviour. Antisocially reacting cyber bystanders tend to use moral disengagement strategies to make their antisocial behaviours look less harmful by blaming the victim, distorting the consequences of cyberbullying, or relocating the responsibility (Wang et al., 2016). A quite surprising result is that perspective taking prosocial moral reasoning, the most advanced level of prosocial moral reasoning, also increased the likelihood of an antisocial reaction. Although, a previous study (Graeff, 2014) has showed that perspective-taking reasoning can also be used to justify passivity in cyberbullying situation. Indeed, paired with moral disengagement, perspective-taking reasoning might be used to justify antisocial behaviour as well by blaming the victim or minimizing the emotional harm caused in the victim by the antisocial acts. Further, needs oriented prosocial moral reasoning decreased the likelihood of antisocial reaction. Indeed, needs oriented reasoning is associated with empathic attitude towards others in need (Carlo et al., 1992). Consequently, it may enhance prosocial response to cybervictims' humiliation and decrease the likelihood of joining the cyberbullying perpetrator as our results have showed. According to our results, besides emotion regulation, social desirability and empathy had no effect on antisocial bystander reaction.

We assumed that adolescents, who use advanced levels of prosocial moral reasoning and have better empathic and emotion regulation skills are more likely to respond in prosocial ways in cyberbullying situations. In line with our assumptions, hedonistic moral reasoning and moral disengagement decreased the likelihood of helping behaviour toward the cybervictim. Indeed, previous studies (Patterson et al., 2016; Schultz et al., 2014; Van Cleemput et al., 2014) have supported this result as well, showing that bystanders with low moral disengagement tend to defend and comfort the victim. Self-focused prosocial moral reasoning, i.e. hedonistic and approval oriented moral reasoning, enhance prosocial behaviour that is beneficial for the self, while more advanced levels of prosocial moral reasoning reinforce altruistic helping behaviour (De Caroli & Sagone, 2014). This partly supports our result, demonstrating that hedonistic

moral reasoning decreases supporting behaviour toward victims of cyberbullying. Although, stereotypic, approval oriented moral reasoning increased the likelihood of prosocial response from bystanders. According to our and De Caroli and Sagone's (2014) results, adolescents act in a prosocial way because the peer group's morality and norms influence their behaviour (Gini et al., 2015). Surprisingly, difficulties with refraining from impulsive behaviour increased and a component of cognitive empathy, i.e. fantasy, decreased the likelihood of prosocial bystander reaction. Perspective taking skills, with high moral disengagement might be used to justify passive or aggressive behaviour by blaming or dehumanizing the victim (Graeff, 2014). This mechanism might serve as an explanation why a component of cognitive empathy decreased the likelihood of a prosocial bystander response. On the other hand, impulsivity might drive adolescents to act in prosocial ways in situations like cyberbullying. We did not find evidence supporting the role of social desirability in prosocial cyber bystander behaviour.

At last, we hypothesized that students, who use lower levels of prosocial moral reasoning and moral disengagement strategies, as well as lack empathic and emotion regulation skills are likely to ignore cyberbullying situations. In line with our predictions, our results showed that hedonistic moral reasoning, moral disengagement and difficulties with the ability to engage in goal-directed behaviour when experiencing negative emotions increased the likelihood of lack of intervention from cyber bystanders. Hedonistic moral reasoning is used by adolescents who are unable to take others' perspective and are self-focused (Palmer, 2005). Thus, if behaving in prosocial ways does not benefit them, they remain passive, as our results have showed. Further, they use moral disengagement strategies as well, to justify their passivity and ignorance. This is in line with previous studies' results (Bastiaensens et al., 2014; DeSmet et al., 2012, 2014; Huang & Chou, 2010; Machácková et al., 2013; Price et al., 2014) that have also showed the role of moral disengagement behind bystanders' passivity. In order to be able to help others in need, adolescents need to regulate the feelings of personal distress that they feel because of witnessing someone else's distress. If they are not able to regulate their negative feeling adaptively, they ignore or avoid the situation that evoked the negative feelings (Eisenberg, 2000). This mechanism explains why difficulties with the ability to engage in goal-directed behaviour when experiencing negative emotions prevents adolescents from intervening in cyberbullying situations. Further, needs oriented prosocial moral reasoning decreased the likelihood of ignoring reaction. As needs oriented moral reasoning is associated with heightened empathic feelings (Carlo et al., 1992), concern for others' needs and sympathy guide adolescents' behaviour. Hence, their behaviour is more prosocial than those adolescents' who

use hedonistic reasoning. However, our results showed no significant effect of empathy, nor social desirability on passive or ignoring cyber bystander behaviour.

#### **5.4.2. Determinants of Cyberbullying Roles.**

We hypothesized that low levels of moral development, difficulties regarding empathic and emotion regulation skills, and the use of moral disengagement strategies are risk factors of cyberbullying perpetration. In line with our assumptions, our results demonstrated that older adolescents who use moral disengagement strategies, have difficulties with accessing effective emotion regulation strategies when experiencing negative emotions, and with understanding of emotions are at risk to engage in cyberbullying as perpetrators. Previous studies have showed evidence on cyberbullying perpetrators' emotion regulation difficulties (Baroncelli & Ciucci, 2014; den Hamer & Konijn, 2016; Giancesini & Brighi, 2015; Vranjes et al., 2018), as well as on their heightened levels of moral disengagement (Bussey et al., 2015; Renati, et al., 2012; Robson & Witenberg, 2013; Wang et al., 2016). Moreover, our results showed the specific emotion regulation difficulties that cyberbullying perpetrators experience: Adolescents who cannot understand, process, and regulate their emotions are likely to act out, redirect their negative emotions towards others, i.e. the victim of their cyberbullying behaviour. Further, they might use moral disengagement strategies not just to justify their acts, but also to avoid feelings of guilt and shame that they are unable to process and regulate. Further, adolescents who have difficulties with the ability to engage in goal-directed behaviour when experiencing negative emotions and use stereotypic prosocial moral reasoning are less likely to engage in cyberbullying as perpetrators. Although previous studies (Baroncelli & Ciucci, 2014; den Hamer & Konijn, 2016; Giancesini & Brighi, 2015; Vranjes et al., 2018) have found that emotion regulation difficulties increase the risk of cyberbullying perpetration, our results showed that one specific difficulty (i.e. difficulties with the ability to engage in goal-directed behaviour when experiencing negative emotions) decreases the likelihood of cyberbullying perpetration. As bullying can be considered as a proactive, goal-directed aggressive behaviour (Coie et al., 1991), this result might implicate that when an adolescent has a specific goal (e.g. higher social status, humiliate a certain person), unregulated negative emotions prevent him or her from behaving aggressively. Stereotypic, approval oriented prosocial reasoning also prevents adolescents from perpetrating cyberbullying. As adolescents' concern is to be approved, and their behaviour to be accepted and praised, they will not behave in ways that would evoke disapproval in others. Although previous studies have demonstrated lack of empathic skills characterizing cyberbullying perpetrators (Ang & Gogh, 2010; Brewer & Kerslake, 2015; Del

Rey et al., 2016; Steffgen et al., 2009, 2011), our results showed no evidence supporting the role of empathy in cyberbullying perpetration. Probably, morality and emotion regulation difficulties have a more prominent role in cyberbullying perpetration than empathy.

We assumed that as cyberbullying perpetrators, cybervictims also lack socio-emotional skills, i.e. empathic and emotion regulation skills. Whereas, morality and moral disengagement do not influence cybervictimization. Although, our results showed that older age, moral disengagement, and difficulties with accessing effective emotion regulation strategies when experiencing negative emotions, with understanding of emotions, and with acceptance of emotions increased the risk of cybervictimization. Similarly to previous results (Gianesini & Brighi, 2015), we have also found that adolescents who are unable to understand, accept, and regulate their emotions are more likely to be cybervictimized. Emotion regulation is crucial to successfully fit in social groups (Eisenberg & Fabes, 1992; Gross & John, 2003), consequently lacking adaptive emotion regulation skills might result in risk behaviours like oversharing, talking about personal information, etc. Others might use these information and sensitive content against adolescents, resulting in their cybervictimization. Contrary to our assumptions, moral disengagement also increases the risk of cybervictimization. Previous studies (Renati et al., 2012; Marín-López et al., 2020) have also found higher levels of moral disengagement in cybervictims. Victims might use moral disengagement strategies to justify others' behaviour towards them, relocate the responsibility or avoid the feelings of guilt and shame. The high levels of moral disengagement in cybervictims might be the reason why they retaliate by subsequently perpetrating cyberbullying (Eraslan-Çapan & Bakioğlu, 2020). Additionally, difficulties with the ability to engage in goal-directed behaviour when experiencing negative emotions and stereotypic prosocial moral reasoning serve as protective factors against cybervictimization. Our results demonstrated that those adolescents who are unable to act when they are experiencing negative emotions, e.g. post about it online, are less likely to be cybervictimized. In addition, stereotypic, approval oriented moral reasoning is also a protecting factor. As adolescents focus on behaving in ways that others approve of, others are less likely to pick on them, i.e. cyberbullying them. In contrast to our hypothesis, our results showed no evidence on the role of empathy in cybervictimization. Indeed, results regarding the role of empathy in cybervictimization are inconsistent. Some studies have found that cybervictims have difficulties concerning empathic skills (e.g. Schultze-Krumbholtz & Scheitauer, 2009), others have found that they are rather sensitive to others' emotional states (Almeida et al., 2012;



Casas et al., 2013; Del Rey et al., 2016). Thus, the association between empathy and cybervictimization still needs further research.

At last, our results showed that older adolescents with high moral disengagement, having difficulties with accessing effective emotion regulation strategies when experiencing negative emotions are at risk of engaging in cyberbullying as both perpetrators and victims. This result is in line with our hypothesis, as our results demonstrate that emotion regulation difficulties and moral disengagement serve as a link between cyberbullying perpetration and cybervictimization. Indeed, the inability to regulate one's negative emotions, the justification of immoral acts, and the avoidance of feelings of guilt and shame might explain why cybervictimized adolescents perpetrate cyberbullying subsequently (den Hamer & Konijn, 2016). Our results also support previous results that have found moral disengagement linking cybervictimization to cyberbullying perpetration (Eraslan-Çapan & Bakioğlu, 2020; Renati et al., 2012). In addition, difficulties with the ability to engage in goal-directed behaviour when experiencing negative emotions and stereotypic moral reasoning served as protective factors against engaging in cyberbullying as both perpetrators and victims. Indeed, if adolescents are prone to behave in ways that others approve of and they are not able to engage in acts while experiencing negative emotions, they are not likely to engage in cyberbullying both as perpetrators and victims. As cyberbullying is a behaviour that causes disapproval in others (Pabian et al., 2016) and it can be a goal-oriented, proactive aggressive behaviour (Coie et al., 1991), they would be unable to carry out while experiencing overwhelming negative emotions. However, empathy had no significant effect on engagement in cyberbullying as both perpetrators and victims. Hence, the association between cyberbullying and empathy still needs further clarification and research using a strict definitional criteria and standardized measures.

### **5.4.3. Limitations.**

Although, our results demonstrated relevant information about adolescents' cyber bystander and cyberbullying behaviours, some limitations of our research need to be addressed. First, because of opportunity sampling the participants were not representative of Hungary's adolescent population. In addition, the findings are based on a cross-sectional design study that limited the exploration of the developmental effects. Second, a pilot study of the modified PROM (Carlo et al., 1992) would have helped to avoid some limitations of the method, concerning its reliability and validity. The participants did not give consistent answers throughout the four situations on how they would react to the situations. As adolescents' moral

behaviour depends on the perceived severity of the situation (Smetana & Turiel, 2003), we should have explored how they perceive the seriousness of the situations used and we should have ensured that all the situations are considered the same in their seriousness by adolescents. The subscales measuring hedonistic reasoning, needs oriented reasoning and stereotypic reasoning also showed quite low reliability. Additionally, the different cyber bystander types assessed by this method were limited as there are several more responses possible from cyber bystanders (e.g. antisocial intervention defending the victim, Moxey & Bussey, 2020). Thus, further research should investigate more elaborated types of cyber bystander reactions and their associations with morality and socio-emotional skills. As well as, the modified PROM needs more elaboration and research in order to be reliably used in future research. Further, the reliability of the Cyber Bullying Moral Disengagement Scale, the Interpersonal Reactivity Index, and four subscales of Difficulties with Emotion Regulation Scale, i.e. strategies, non-acceptance, awareness and clarity was also quite low. The low reliability scores could affect the results of the analyses: The multinomial logistic regression model predicted cybervictimization and cyberbullying perpetration poorly. Additionally, the correlation estimates among the tested variables were also weak, though the linear regression models showed stronger results. However, the results regarding the scales with low reliability scores should be interpreted carefully.

#### **5.4.4. Conclusions.**

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

The aim of my doctoral studies was to find the psychological and social factors that influence cyberbullying engagement in adolescence. The studies focused mainly on the effect of socio-emotional skills (i.e. empathy, emotion regulation), morality (i.e. moral disengagement and moral development), and social relationships (i.e. family and peers).

In the first study, we adapted two questionnaires to enable us to study cyberbullying engagement on 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. As an outcome of the study, we managed to develop the Hungarian adaptation of the chosen questionnaires. According to our results, both questionnaires have strengths and limitations which should be considered before using them in research. Although, CVBS-HU is a more limited measure, whereas ECIPQ has excellent psychometric properties. The results of this research enabled us to further investigate cyberbullying engagement.

In the second study, we aimed to explore the influence of family functioning, perceived social support from friends and family, and emotion regulation on cyberbullying engagement. During this second research we tested models of cyberbullying perpetration and cybervictimization to explore whether the role of the social factors is direct or is mediated by emotion regulation difficulties. We showed evidence on the importance of family cohesion, perceived parental and peer support and emotion regulation in both cyberbullying perpetration and cybervictimization. Further, our results even supported models of both type of cyberbullying engagement: Lack of support from peers and imbalanced family cohesion, i.e. enmeshed family cohesion are risk factors of cyberbullying perpetration. Both have a direct effect and also influence cyberbullying perpetration through emotion regulation difficulties, i.e. difficulties with refraining from impulsive behaviour and difficulties with understanding of emotions. Whereas balanced family cohesion seems to be a protective factor against cyberbullying perpetration. Lack of support from peers is also a risk factor in cybervictimization. Additionally, lack of support from family and imbalanced family cohesion, i.e. enmeshed family cohesion also increase the risk of cybervictimization. Both of the latter two have a direct effect on cybervictimization and also an indirect effect through emotion regulation difficulties, i.e. difficulties with refraining from impulsive behaviour, understanding of emotions and accessing effective emotion regulation strategies when experiencing negative emotions. Friend support only has a direct effect on cybervictimization.

In the third study, we had several research aims: We aimed to clarify the role of empathy in cybervictimization as previous results were inconsistent and unclear. We also aimed to find the specific maladaptive cognitive emotion regulation strategies that risk cyberbullying engagement. At last, our aim was to explore whether moral disengagement strategies are used by cyberbullying perpetrators in the absence of adequate socio-emotional skills. Our results demonstrated a pattern of socio-emotional skills underlying cyberbullying engagement: Cyberbullying perpetrators lack empathic skills while they are prone to use moral disengagement and maladaptive emotion regulation strategies, i.e. other blame. Cybervictims are also likely to use maladaptive emotion regulation strategies, i.e. self-blame. However, they also use adaptive strategies (i.e. planning) and have quite sensitive empathic skills. Additionally, bully-victims also are prone to use moral disengagement strategies while they lack sensitive empathic skills.

In the fourth study, besides the socio-emotional skills we aimed to explore the role of morality in cyberbullying engagement as well. Further, we also aimed to investigate socio-emotional and moral skills' influence on cyber bystander behaviour. Our results demonstrated that lower levels of moral development, i.e. hedonistic moral reasoning and moral disengagement are risk factors of antisocial cyber bystander behaviour. Hedonistic moral reasoning and moral disengagement also predispose ignorant cyber bystander behaviour, similarly to difficulties with the ability to engage in goal-directed behaviour when experiencing negative emotions. Whereas, stereotypic, approval oriented moral reasoning and impulsivity increase the likelihood of a prosocial cyber bystander behaviour. Additionally, our results also showed socio-emotional and moral skills' effect on cyberbullying perpetration and cybervictimization. Older adolescents who use moral disengagement strategies and have emotion regulation difficulties, i.e. difficulties with accessing effective emotion regulation strategies when experiencing negative emotions, and with understanding of emotions are prone to become cyberbullying perpetrators. Whereas, older age, moral disengagement, and emotion regulation difficulties, i.e. difficulties with accessing effective emotion regulation strategies when experiencing negative emotions, with understanding of emotions, and with acceptance of emotions increased the risk of cybervictimization. Our results also showed the factors that predispose engagement in cyberbullying as both perpetrators and victims: Moral disengagement and emotion regulation difficulties, i.e. difficulties with accessing effective emotion regulation strategies when experiencing negative emotions increase the likelihood of involvement in cyberbullying as both perpetrator and victim.

## **6.1. Implications for cyberbullying prevention and intervention**

The results of my doctoral studies showed patterns of individual and social factors underlying cyberbullying engagement and cyber bystander behaviour. These outcomes have implications not only for future research, but also for the practice because the results of specifically targeted research can help the development of prevention and intervention programs. Such programs became exceedingly important as cyberbullying presents a greater challenge for adolescents, their parents and schools.

Our results showed evidence on lack of empathic skills characterizing both cyberbullying perpetrators and bully-victims. These results suggest that targeted empathy training can prevent engagement in cyberbullying both as perpetrators and as bully-victims. Trying to enhance empathic feelings and perspective taking of cyberbullying perpetrators may prevent them from repeating their harmful acts. Cybervictims' empathy training may prevent their subsequent cyberbullying perpetration, i.e. becoming a bully-victim. If they become able to feel the vicarious emotions of others that may avert them from later engagement in harmful acts. Empathy training has already been showed to be an essential part of anti-bullying programs. Previous studies have showed that as a results of empathy training, traditional bullying behaviours decreased among students (Garandeanu et al., 2021; Sahin, 2012b; Stanbury et al., 2009) and this effect was still present after 60 days from the educational program (Sahin, 2012b). Thus, based on the results of research and the evaluation of empathy training in traditional bullying prevention, empathy based programs could be an effective tool in cyberbullying intervention as well.

According to our results, difficulties with emotion regulation and maladaptive emotion regulation strategies affect cyberbullying engagement: cyberbullying perpetrators, cybervictims and bully-victims all have problems related to the understanding and regulation of emotional states. Social emotional learning (SEL) includes empathy training, emotion management training, social competence training, and social problem solving training. With the help of SEL students can learn social and emotional skills that help them to cope with the challenges of their social environments (Smith & Low, 2013). SEL and emotional intelligence training were shown to decrease students' their engagement in traditional bullying behaviours both as perpetrators and victims (Espelage et al., 2015; Lang, 2018). One reason of these programs' effectiveness is that they help students to understand and manage their emotional states so they won't engage in alternative behaviours (e.g. bullying) to cope in maladaptive

ways with their unregulated emotional states. Hence, based on the aforementioned knowledge, SEL and emotional intelligence training could help the emotion regulation difficulties in cyberbullying related programs as well.

The results of our studies showed moral disengagement having a prominent role both in cyberbullying engagement and cyber bystander behaviour. Cyberbullying perpetrators, cybervictims, bully-victims, antisocial and ignorant cyber bystanders all seems to be characterized by the usage of moral disengagement strategies. Furthermore, antisocial and ignorant bystanders also lack higher levels of moral reasoning. Consequently, the inclusion of moral thinking could help tackling cyberbullying and enhance prosocial reaction from cyber bystanders. Morality is already involved in anti-bullying programs implicitly: The main principles of bullying prevention include developing feelings of personal responsibility in bystanders, so they feel prone to intervene when bullying incidents happen. Additionally, the programs contain the establishment of anti-bullying norms and rules that apply for everyone in the class and in the school (Feinberg, 2003). However, morality could be explicitly used in anti-bullying programs as well, as Webber (2017) suggested: Classical moral theories could be used to analyse anti-bullying videos, to establish anti-bullying rules and to help the development of moral thinking during adolescence using cooperative learning techniques. By helping moral thinking, bystanders' feelings of responsibility to help cybervictims could evolve. Whereas, by decreasing the use of moral disengagement strategies cyberbullying perpetrators would feel the moral consequences of their act, e.g. feelings of guilt, which could prevent them from engaging in cyberbullying acts repeatedly. This could be a new direction to be included in anti-cyberbullying programs.

Besides the individual factors, our results showed the importance of social environment, i.e. family and peers in cyberbullying involvement. Based on our and the previous studies' results both peers and family should be involved in anti-cyberbullying programs. As during adolescence peers have a significant role (Hartup & Stevens, 1997), their involvement in the anti-bullying programs could enhance their effectiveness. Indeed, peer mediation, peer support and positive bystander intervention seem to be helping to tackle bullying in schools (Ttofi & Farrington, 2012). If peers would be able to give support to cope with the consequences of cyberbullying, cybervictims subsequent cyberbullying perpetration could be avoided. Further, if they could prosocially intervene, it could prevent cyberbullying perpetrators from repeating their aggressive behaviours. So, the inclusion of peers in anti-cyberbullying programs could avert the severe consequences of cyberbullying engagement. Moreover, education of parents

could also help anti-cyberbullying programs. Parents should give space to the adolescents to have bigger autonomy, whereas they also should monitor them from a safe distance: Digital parenting principles advice parents to create Internet usage rules together with their children, include them in the decision making about these rules, help them to recognize the dangers of the Internet, show them the safety and privacy setting but leave them to try to use the Internet responsively. Over controlling the Internet usage could lead to resistance and rebellious behaviour in adolescents. Controlling also carries the message that parents lack digital knowledge hence they fear for their children. As a result of this digital parenting style, adolescents are less likely to ask for help when they experience negative incidents on the Internet and they are more likely to engage in risk behaviours (Blum-Ross & Livingstone, 2017; Livingstone & Byrne, 2018; Livingstone et al., 2017). Consequently, the digital education of parents could be a critical part of anti-cyberbullying programs, so parents learn how to prevent their children's cyberbullying engagement and so they become able to provide them support (both emotional and material) subsequent of their involvement in cyberbullying.

## **6.2. Overall Limitations**

The design of the studies does not enable us to generalize our results: The participants of our research were not representative of the Hungarian adolescent population. Additionally, all the studies were cross-sectional, so we do not have information on how the temporal developmental changes affect cyberbullying engagement. Besides these methodological issues it is important to note that there is a debate on the assessment of cyberbullying engagement, a clear consensual definition of cyberbullying has not been established so far, several measures exist to assess cyberbullying engagement (Berne et al., 2013). We used CVBS-HU and ECIPQ but both of these questionnaires have limitations and do not operationalize all of the characteristics of cyberbullying. We did not manage to clarify the role of empathy as in the third research we found it to be a significant factor in cyberbullying engagement but in the fourth study empathy had no effect. The reason of these inconsistent results can lie in the different measurement used in the two studies: Different operationalisations of cyberbullying engagement were used in the two studies. As well as, the Interpersonal Reactivity Index has quite low reliability that also could influence our results. Moreover, the reliability of the scales used was a limitation in almost all of our studies as some subscales and/or scales were less reliable than others and this could influence the results throughout the studies and to be the cause behind the low estimates in the correlations and regression analyses.



### **6.3. Final Conclusion**

Despite the limitations of the studies, they 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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## APPENDICES

### *Appendix 1: Cyber Victim and Bullying Scale (Cetin et al., 2011)*

**Please, read the following items carefully. Indicate on a 5-point scale how often you did the described acts, where:**

**1= Never**

**2= Rarely**

**3= Occasionally**

**4= Frequently**

**5= Always**

1. I spread rumours on the Internet.	1 2 3 4 5
2. I used nicknames on the Internet in a disturbing way.	1 2 3 4 5
3. I used offensive symbols on the Internet.	1 2 3 4 5
4. I mocked someone on the Internet.	1 2 3 4 5
5. I made fun of shared information on the Internet.	1 2 3 4 5
6. I wrote offensive comments about news on websites.	1 2 3 4 5
7. I used humiliating expressions on the Internet.	1 2 3 4 5
8. I used someone's identity without his/her permission on the Internet.	1 2 3 4 5
<del>9. I hid my identity on the Internet.</del>	<del>1 2 3 4 5</del>
10. I entered someone's private page without permission on the Internet.	1 2 3 4 5
11. I hacked someone's private webpage without permission.	1 2 3 4 5
12. I sent infected file/program via e-mails.	1 2 3 4 5
13. I shared videos without permission on the Internet.	1 2 3 4 5
14. I shared someone's photos without permission on the Internet.	1 2 3 4 5
15. I edited photos in offensive manner on the Internet.	1 2 3 4 5
16. I forced someone to talk about sexual issues on the Internet.	1 2 3 4 5
17. I used sexual symbols while chatting on the Internet.	1 2 3 4 5
18. I shared images with sexual content on the Internet.	1 2 3 4 5
19. I used abusive/insulting language in e-mails.	1 2 3 4 5
20. I used the Internet as a slandering tool.	1 2 3 4 5
21. I used the Internet as a propaganda tool for my own benefit.	1 2 3 4 5
22. I used the Internet for fraudulent acts.	1 2 3 4 5

**Please, read the following items carefully. Indicate on a 5-point scale how often did the described acts happen to you, where:**

**1= Never**

**2= Rarely**

**3= Occasionally**

**4= Frequently**

**5= Always**

1. Someone spread rumours about me on the Internet.	1 2 3 4 5
2. Someone used nicknames against me on the Internet in a disturbing way.	1 2 3 4 5
3. Someone used offensive symbols against me on the Internet.	1 2 3 4 5
4. Someone mocked me on the Internet.	1 2 3 4 5
5. Someone made fun of my shared information on the Internet.	1 2 3 4 5
6. Someone wrote offensive comments about news on websites.	1 2 3 4 5
7. Someone used humiliating expressions against me on the Internet.	1 2 3 4 5
8. Someone used my identity without my permission on the Internet.	1 2 3 4 5
<del>9. They hide their identity on the Internet.</del>	<del>1 2 3 4 5</del>
10. Someone entered my private page without permission on the Internet.	1 2 3 4 5
11. Someone hacked my private webpage without permission.	1 2 3 4 5
12. Someone sent me infected file/program via e-mails.	1 2 3 4 5
13. Someone shared videos of me without my permission on the Internet.	1 2 3 4 5
14. Someone shared my photos without permission on the Internet.	1 2 3 4 5
15. Someone edited my photos in offensive manner on the Internet.	1 2 3 4 5
16. Someone forced me to talk about sexual issues on the Internet.	1 2 3 4 5
17. Someone used sexual symbols while chatting with me on the Internet.	1 2 3 4 5
18. Someone shared images with me with sexual content on the Internet.	1 2 3 4 5
19. Someone used abusive/insulting language against me in e-mails.	1 2 3 4 5
20. Someone used the Internet as a slandering tool.	1 2 3 4 5
21. Someone used the Internet as a propaganda tool for their own benefit.	1 2 3 4 5
22. Someone used the Internet for fraudulent acts.	1 2 3 4 5

## Appendix 2: Interpersonal Reactivity Index (Davis, 1983)

The following statements inquire about your thoughts and feelings in a variety of situations. For each item, indicate how well it describes you by choosing the appropriate letter on the scale at the top of the page: 0, 1, 2, 3, or 4. READ EACH ITEM CAREFULLY BEFORE RESPONDING. Answer as honestly as you can.

Answer scale: 0 = does not describe me well; 4 = describes me very well

1. I daydream and fantasize, with some regularity, about things that might happen to me.	0	1	2	3	4
2. I often have tender, concerned feelings for people less fortunate than me.	0	1	2	3	4
3. I sometimes find it difficult to see things from the "other guy's" point of view.	0	1	2	3	4
4. Sometimes I don't feel very sorry for other people when they are having problems.	0	1	2	3	4
5. I really get involved with the feelings of the characters in a novel.	0	1	2	3	4
6. In emergency situations, I feel apprehensive and ill-at-ease.	0	1	2	3	4
7. I am usually objective when I watch a movie or play, and I don't often get completely caught up in it.	0	1	2	3	4
8. I try to look at everybody's side of a disagreement before I make a decision.	0	1	2	3	4
9. When I see someone being taken advantage of, I feel kind of protective towards them.	0	1	2	3	4
10. I sometimes feel helpless when I am in the middle of a very emotional situation.	0	1	2	3	4
11. I sometimes try to understand my friends better by imagining how things look from their perspective.	0	1	2	3	4
12. Becoming extremely involved in a good book or movie is somewhat rare for me.	0	1	2	3	4
13. When I see someone get hurt, I tend to remain calm.	0	1	2	3	4
14. Other people's misfortunes do not usually disturb me a great deal.	0	1	2	3	4
15. If I'm sure I'm right about something, I don't waste much time listening to other people's arguments.	0	1	2	3	4
16. After seeing a play or movie, I have felt as though I were one of the characters.	0	1	2	3	4
17. Being in a tense emotional situation scares me.	0	1	2	3	4
18. When I see someone being treated unfairly, I sometimes don't feel very much pity for them.	0	1	2	3	4
19. I am usually pretty effective in dealing with emergencies.	0	1	2	3	4
20. I am often quite touched by things that I see happen.	0	1	2	3	4
21. I believe that there are two sides to every question and try to look at them both.	0	1	2	3	4
22. I would describe myself as a pretty soft-hearted person.	0	1	2	3	4
23. When I watch a good movie, I can very easily put myself in the place of a leading character.	0	1	2	3	4
24. I tend to lose control during emergencies.	0	1	2	3	4
25. When I'm upset at someone, I usually try to "put myself in his shoes" for a while.	0	1	2	3	4
26. When I am reading an interesting story or novel, I imagine how I would feel if the events in the story were happening to me.	0	1	2	3	4
27. When I see someone who badly needs help in an emergency, I go to pieces.	0	1	2	3	4
28. Before criticizing somebody, I try to imagine how I would feel if I were in their place.	0	1	2	3	4

### **Appendix 3: Anger Expression Scale (Spielberger et al., 1985)**

Everyone feels angry or furious from time to time, but people differ in the ways that they react when they are angry. A number of statements are listed below which people use to describe their reactions when they feel angry or furious. Read each statement and then indicate how often you generally react, or behave in the manner described when you are feeling angry or furious. There are no right or wrong answers. Do not spend too much time on any one statement.

- 1= Almost never
- 2= Sometimes
- 3= Often
- 4= Almost always

When angry or furious...

- |  |   |   |   |   |
|--|---|---|---|---|
| 1. I control my temper.  | 1 | 2 | 3 | 4 |
| 2. I express my anger.   | 1 | 2 | 3 | 4 |
| 3. I control my urge to express my angry feelings.               | 1 | 2 | 3 | 4 |
| 4. I fly off the handle.   | 1 | 2 | 3 | 4 |
| 5. I pout or sulk.   | 1 | 2 | 3 | 4 |
| 6. I withdraw from people.                                       | 1 | 2 | 3 | 4 |
| 7. I make sarcastic remarks to others.                           | 1 | 2 | 3 | 4 |
| 8. I keep my cool.   | 1 | 2 | 3 | 4 |
| 9. I do things like slamming doors.                              | 1 | 2 | 3 | 4 |
| 10. I boil inside but I don't show it.                           | 1 | 2 | 3 | 4 |
| 11. I argue with others.   | 1 | 2 | 3 | 4 |
| 12. I tend to harbour grudges that I don't tell anyone about.    | 1 | 2 | 3 | 4 |
| 13. I strike out at whatever infuriates me.                      | 1 | 2 | 3 | 4 |
| 14. I am secretly quite critical of others.                      | 1 | 2 | 3 | 4 |
| 15. I am angrier than I am willing to admit.                     | 1 | 2 | 3 | 4 |
| 16. I reduce my anger as soon as possible.                       | 1 | 2 | 3 | 4 |
| 17. I say nasty things.  | 1 | 2 | 3 | 4 |
| 18. I'm irritated a great deal more than people are aware of.    | 1 | 2 | 3 | 4 |
| 19. I lose my temper.  | 1 | 2 | 3 | 4 |
| 20. If someone annoys me, I'm apt to tell him or her how I feel. | 1 | 2 | 3 | 4 |

**Appendix 4:** School climate questions (Twemlow & Sacco, 2012)

Circle the number to show how much your school is like each statement.

1: I don't agree at all; 2: I agree a little; 3: I agree a lot; 4: I completely agree

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1. I like my school.	1	2	3	4
2. It is easy to be myself at school.	1	2	3	4
3. My teachers treat me with respect.	1	2	3	4
4. I feel in tune with the people around me at school.	1	2	3	4
5. I feel the teachers know me well at school.	1	2	3	4
6. No one really knows me well at school.	1	2	3	4
7. I feel like I belong or fit in at school.	1	2	3	4
8. Students in my school are very competitive in grades.	1	2	3	4
9. Students in my school are very competitive in sports or other after-school activities.	1	2	3	4
10. I feel a lot of pressure to make good grades.	1	2	3	4
11. I often feel I am lost among all the other students.	1	2	3	4
12. I feel a lot of pressure to do well at sports or other after-school activities.	1	2	3	4
13. I feel that my teacher understands me.	1	2	3	4
14. If you are not the best at something, you do not matter much at school.	1	2	3	4
15. I wish I could go to another school.	1	2	3	4

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**Appendix 5: European Cyberbullying Intervention Project Questionnaire (Del Rey et al., 2015)**

In the last one year, how often did the following situations happened to you?

- 0 = never
- 1 = once or twice
- 2 = once a month
- 3 = once a week
- 4 = more times a week

1. Someone said nasty things to me or called me names using texts or online messages	0	1	2	3	4
2. Someone said nasty things about me to others either online or through text messages	0	1	2	3	4
3. Someone threatened me through texts or online messages	0	1	2	3	4
4. Someone hacked into my account and stole personal information (e.g. through email or social networking accounts)	0	1	2	3	4
5. Someone hacked into my account and pretended to be me (e.g. through instant messaging or social networking accounts)	0	1	2	3	4
6. Someone created a fake account, pretending to be me (e.g. on Facebook or MSN)	0	1	2	3	4
7. Someone posted personal information about me online	0	1	2	3	4
8. Someone posted embarrassing videos or pictures of me online	0	1	2	3	4
9. Someone altered pictures or videos of me that I had posted online	0	1	2	3	4
10. I was excluded or ignored by others in a social networking site or internet chat room.	0	1	2	3	4
11. Someone spread rumours about me on the internet	0	1	2	3	4

In the last one year, how often did you engage in the following activities?

- 0 = never
- 1 = once or twice
- 2 = once a month
- 3 = once a week
- 4 = more times a week

1. I said nasty things to someone or called them names using texts or online messages	0	1	2	3	4
2. I said nasty things about someone to other people either online or through text messages	0	1	2	3	4
3. I threatened someone through texts or online messages	0	1	2	3	4
4. I hacked into someone's account and stole personal information (e.g. through email or social networking accounts)	0	1	2	3	4
5. I hacked into someone's account and pretended to be them (e.g. through instant messaging or social networking accounts)	0	1	2	3	4
6. I created a fake account, pretending to be someone else (e.g. on Facebook or MSN)	0	1	2	3	4
7. I posted personal information about someone online	0	1	2	3	4
8. I posted embarrassing videos or pictures of someone online	0	1	2	3	4
9. I altered pictures or videos of another person that had been posted online	0	1	2	3	4
10. I excluded or ignored someone in a social networking site or internet chat room	0	1	2	3	4
11. I spread rumours about someone on the internet	0	1	2	3	4

**Appendix 6:** Multidimensional Scale of Perceived Social Support (Zimet et al., 1988, 1990)

Please read every item very thoroughly and decide to what degree they are true of you .	Very strongly disagree							Strongly agree
1. There is a special person who is around when I am in need.	1	2	3	4	5	6	7	
2. There is a special person with whom I can share my joys and sorrows.	1	2	3	4	5	6	7	
3. My family really tries to help me.	1	2	3	4	5	6	7	
4. I get the emotional help and support I need from my family.	1	2	3	4	5	6	7	
5. I have a special person who is a real source of comfort to me.	1	2	3	4	5	6	7	
6. My friends really try to help me.	1	2	3	4	5	6	7	
7. I can count on my friends when things go wrong.	1	2	3	4	5	6	7	
8. I can talk about my problems with my family.	1	2	3	4	5	6	7	
9. I have friends with whom I can share my joys and sorrows.	1	2	3	4	5	6	7	
10. There is a special person in my life who cares about my feelings.	1	2	3	4	5	6	7	
11. My family is willing to help me make decisions.	1	2	3	4	5	6	7	
12. I can talk about my problems with my friends.	1	2	3	4	5	6	7	



## Appendix 7: Child Behavior Check List (Achenbach & Edelbrock, 1991)

You can read items about youth's behaviour. Please, indicate how much these items apply to you.

	Not true	Somewhat or sometimes true	Very true or often true
1. I argue a lot.	1	2	3
2. I have trouble concentrating or paying attention.	1	2	3
3. I have trouble sitting still.	1	2	3
4. I am too dependent on adults.	1	2	3
5. I feel lonely.	1	2	3
6. I feel confused or in a fog.	1	2	3
7. I cry a lot.	1	2	3
8. I am mean to others.	1	2	3
9. I daydream a lot.	1	2	3
10. I try to get a lot of attention.	1	2	3
11. I destroy my own and others' things.	1	2	3
12. I disobey my parents and at school.	1	2	3
13. I don't get along with other kids.	1	2	3
14. I am afraid I might thin or do something bad.	1	2	3
15. I feel that no one loves me.	1	2	3
16. I feel that others are out to get me.	1	2	3
17. I feel worthless or inferior.	1	2	3
18. I get in many fights.	1	2	3
19. I get teased a lot.	1	2	3
20. I hang around with ids who get in trouble.	1	2	3
21. I act without stopping to think.	1	2	3
22. I would rather be alone than with others.	1	2	3
23. I lie or cheat.	1	2	3
24. I am nervous or tense.	1	2	3
25. I am not liked by other kids.	1	2	3
26. I am too fearful or anxious.	1	2	3
27. I feel dizzy or lightheaded.	1	2	3
28. I feel overtired without good reason.	1	2	3
29. I have headaches without known medical cause.	1	2	3
30. I have nausea/feel sick without known medical cause.	1	2	3
31. I have stomachaches without known medical cause.	1	2	3
32. I vomit/throw up without known medical cause.	1	2	3
33. I physically attack people.	1	2	3
34. My school work is poor.	1	2	3
35. I would rather be with older kids than kids of my own age.	1	2	3
36. I refuse to talk.	1	2	3
37. I am too shy or timid.	1	2	3
38. I steal at home or from other places.	1	2	3
39. I swear or use dirty language.	1	2	3
40. I have a hot temper.	1	2	3
41. I cut classes or skip school.	1	2	3
42. I am unhappy, sad, or depressed.	1	2	3
43. I keep from getting involved with others.	1	2	3
44. I worry a lot.	1	2	3

## Appendix 8: Difficulties in Emotion Regulation Scale (Gatz & Roemer, 2004)

Please indicate how often the following statements apply to you by writing the appropriate number from the scale below on the line beside each item.

1. almost never (0-10%)
2. sometimes (11-35%)
3. about half the time (36-65%)
4. most of the time (66-90%)
5. almost always (91-100%)

---

1. I am clear about my feelings.	1	2	3	4	5
2. I pay attention to how I feel.	1	2	3	4	5
3. I experience my emotions as overwhelming and out of control.	1	2	3	4	5
4. I have no idea how I am feeling.	1	2	3	4	5
5. I have difficulty making sense out of my feelings.	1	2	3	4	5
6. I am attentive to my feelings.	1	2	3	4	5
7. I know exactly how I am feeling.	1	2	3	4	5
8. I care about what I am feeling.	1	2	3	4	5
9. I am confused about how I feel.	1	2	3	4	5
10. When I'm upset, I acknowledge my emotions.	1	2	3	4	5
11. When I'm upset, I become angry with myself for feeling that way.	1	2	3	4	5
12. When I'm upset, I become embarrassed for feeling that way.	1	2	3	4	5
13. When I'm upset, I have difficulty getting work done.	1	2	3	4	5
14. When I'm upset, I become out of control.	1	2	3	4	5
15. When I'm upset, I believe that I will remain that way for a long time.	1	2	3	4	5
16. When I'm upset, I believe that I will end up feeling very depressed.	1	2	3	4	5
17. When I'm upset, I believe that my feelings are valid and important.	1	2	3	4	5
18. When I'm upset, I have difficulty focusing on other things.	1	2	3	4	5
19. When I'm upset, I feel out of control.	1	2	3	4	5
20. When I'm upset, I can still get things done.	1	2	3	4	5
21. When I'm upset, I feel ashamed at myself for feeling that way.	1	2	3	4	5
22. When I'm upset, I know that I can find a way to eventually feel better.	1	2	3	4	5
23. When I'm upset, I feel like I am weak.	1	2	3	4	5
24. When I'm upset, I feel like I can remain in control of my behaviors.	1	2	3	4	5
25. When I'm upset, I feel guilty for feeling that way.	1	2	3	4	5
26. When I'm upset, I have difficulty concentrating.	1	2	3	4	5
27. When I'm upset, I have difficulty controlling my behaviors.	1	2	3	4	5
28. When I'm upset, I believe there is nothing I can do to make myself feel better.	1	2	3	4	5
29. When I'm upset, I become irritated at myself for feeling that way.	1	2	3	4	5
30. When I'm upset, I start to feel very bad about myself.	1	2	3	4	5
31. When I'm upset, I believe that wallowing in it is all I can do.	1	2	3	4	5
32. When I'm upset, I lose control over my behavior.	1	2	3	4	5
33. When I'm upset, I have difficulty thinking about anything else.	1	2	3	4	5
34. When I'm upset I take time to figure out what I'm really feeling.	1	2	3	4	5
35. When I'm upset, it takes me a long time to feel better.	1	2	3	4	5
36. When I'm upset, my emotions feel overwhelming.	1	2	3	4	5

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**Appendix 9: FACES IV (Olson)**

Fill in the corresponding number in the blank provided before each question using the table above each section. Please use only one number.

1	2	3	4	5
Strongly Disagree	Generally Disagree	Undecided	Generally Agree	Strongly Agree

- \_\_\_ 1. Family members are involved in each other's lives.
- \_\_\_ 2. Our family tries new ways of dealing with problems.
- \_\_\_ 3. We get along better with people outside our family than inside.
- \_\_\_ 4. We spend too much time together.
- \_\_\_ 5. There are strict consequences for breaking the rules in our family.
- \_\_\_ 6. We never seem to get organized in our family.
- \_\_\_ 7. Family members feel very close to each other.
- \_\_\_ 8. Parents equally share leadership in our family.
- \_\_\_ 9. Family members seem to avoid contact with each other when at home.
- \_\_\_ 10. Family members feel pressured to spend most free time together.
- \_\_\_ 11. There are clear consequences when a family member does something wrong.
- \_\_\_ 12. It is hard to know who the leader is in our family.
- \_\_\_ 13. Family members are supportive of each other during difficult times.
- \_\_\_ 14. Discipline is fair in our family.
- \_\_\_ 15. Family members know very little about the friends of other family members.
- \_\_\_ 16. Family members are too dependent on each other.
- \_\_\_ 17. Our family has a rule for almost every possible situation.
- \_\_\_ 18. Things do not get done in our family.
- \_\_\_ 19. Family members consult other family members on important decisions.
- \_\_\_ 20. My family is able to adjust to change when necessary.
- \_\_\_ 21. Family members are on their own when there is a problem to be solved.
- \_\_\_ 22. Family members have little need for friends outside the family.
- \_\_\_ 23. Our family is highly organized.
- \_\_\_ 24. It is unclear who is responsible for things (chores, activities) in our family.
- \_\_\_ 25. Family members like to spend some of their free time with each other.
- \_\_\_ 26. We shift household responsibilities from person to person.
- \_\_\_ 27. Our family seldom does things together.
- \_\_\_ 28. We feel too connected to each other.
- \_\_\_ 29. Our family becomes frustrated when there is a change in our plans or routines.
- \_\_\_ 30. There is no leadership in our family.
- \_\_\_ 31. Although family members have individual interests, they still participate in family activities.
- \_\_\_ 32. We have clear rules and roles in our family.
- \_\_\_ 33. Family members seldom depend on each other.
- \_\_\_ 34. We resent family members doing things outside the family.
- \_\_\_ 35. It is important to follow the rules in our family.
- \_\_\_ 36. Our family has a hard time keeping track of who does various household tasks.
- \_\_\_ 37. Our family has a good balance of separateness and closeness.
- \_\_\_ 38. When problems arise, we compromise.
- \_\_\_ 39. Family members mainly operate independently.
- \_\_\_ 40. Family members feel guilty if they want to spend time away from the family.
- \_\_\_ 41. Once a decision is made, it is very difficult to modify that decision.
- \_\_\_ 42. Our family feels hectic and disorganized.
- \_\_\_ 43. Family members are satisfied with how they communicate with each other.
- \_\_\_ 44. Family members are very good listeners.
- \_\_\_ 45. Family members express affection to each other.
- \_\_\_ 46. Family members are able to ask each other for what they want.
- \_\_\_ 47. Family members can calmly discuss problems with each other.
- \_\_\_ 48. Family members discuss their ideas and beliefs with each other.
- \_\_\_ 49. When family members ask questions of each other, they get honest answers.
- \_\_\_ 50. Family members try to understand each other's feelings.
- \_\_\_ 51. When angry, family members seldom say negative things about each other.
- \_\_\_ 52. Family members express their true feelings to each other.

1	2	3	4	5
Very Dissatisfied	Somewhat Dissatisfied	Generally Satisfied	Very Satisfied	Extremely Satisfied

How satisfied are you with:

- \_\_\_ 53. The degree of closeness between family members.
- \_\_\_ 54. Your family's ability to cope with stress.
- \_\_\_ 55. Your family's ability to be flexible.
- \_\_\_ 56. Your family's ability to share positive experiences.
- \_\_\_ 57. The quality of communication between family members.
- \_\_\_ 58. Your family's ability to resolve conflicts.
- \_\_\_ 59. The amount of time you spend together as a family.
- \_\_\_ 60. The way problems are discussed.
- \_\_\_ 61. The fairness of criticism in your family.
- \_\_\_ 62. Family members' concern for each other.

**Appendix 10:** Short version of the Cyber Victim and Bullying Scale

Please, read the following items carefully. Indicate on a 5-point scale how often you did the described acts, where:

- 1= Never
- 2= Rarely
- 3= Occasionally
- 4= Frequently
- 5= Always

- |  |   |   |   |   |   |
|--|---|---|---|---|---|
| 1. I used offensive symbols on the Internet.                             | 1 | 2 | 3 | 4 | 5 |
| 2. I mocked someone on the Internet.                                     | 1 | 2 | 3 | 4 | 5 |
| 3. I wrote offensive comments about news on websites.                    | 1 | 2 | 3 | 4 | 5 |
| 4. I used humiliating expressions on the Internet.                       | 1 | 2 | 3 | 4 | 5 |
| 5. I used someone's identity without his/her permission on the Internet. | 1 | 2 | 3 | 4 | 5 |
| 6. I hacked someone's private webpage without permission.                | 1 | 2 | 3 | 4 | 5 |
| 7. I shared someone's photos without permission on the Internet.         | 1 | 2 | 3 | 4 | 5 |
| 8. I edited photos in offensive manner on the Internet.                  | 1 | 2 | 3 | 4 | 5 |
| 9. I used abusive/insulting language in e-mails.                         | 1 | 2 | 3 | 4 | 5 |
| 10. I used the Internet as a slandering tool.                            | 1 | 2 | 3 | 4 | 5 |
| 11. I used the Internet for fraudulent acts.                             |   |   |   |   |   |

Please, read the following items carefully. Indicate on a 5-point scale how often did the described acts happen to you, where:

- 1= Never
- 2= Rarely
- 3= Occasionally
- 4= Frequently
- 5= Always

- |   |   |   |   |   |   |
|---|---|---|---|---|---|
| 12. Someone wrote offensive comments about news on websites.              | 1 | 2 | 3 | 4 | 5 |
| 13. Someone used humiliating expressions against me on the Internet.      | 1 | 2 | 3 | 4 | 5 |
| 14. Someone used my identity without my permission on the Internet.       | 1 | 2 | 3 | 4 | 5 |
| 15. They hide their identity on the Internet.                             | 1 | 2 | 3 | 4 | 5 |
| 16. Someone shared videos of me without my permission on the Internet.    | 1 | 2 | 3 | 4 | 5 |
| 17. Someone used sexual symbols while chatting with me on the Internet.   | 1 | 2 | 3 | 4 | 5 |
| 18. Someone shared images with me with sexual content on the Internet.    | 1 | 2 | 3 | 4 | 5 |
| 19. Someone used abusive/insulting language against me in e-mails.        | 1 | 2 | 3 | 4 | 5 |
| 20. Someone used the Internet as a slandering tool.                       | 1 | 2 | 3 | 4 | 5 |
| 21. Someone used the Internet as a propaganda tool for their own benefit. | 1 | 2 | 3 | 4 | 5 |
| 22. Someone used the Internet for fraudulent acts.                        | 1 | 2 | 3 | 4 | 5 |

**Appendix 11:** Empathy Questionnaire for Children and Adolescents (Overgaauw et al., 2017)

Please rate to what extent the following descriptions are true for you. Use the following scale to indicate your answer:

- 1=not true;
- 2=somewhat true;
- 3=true

- |   |   |   |   |
|---|---|---|---|
| 1. If my mother is happy, I also feel happy.                      | 1 | 2 | 3 |
| 2. I often feel sad when I watch a sad movie.                     | 1 | 2 | 3 |
| 3. When a friend is upset, I feel upset too.                      | 1 | 2 | 3 |
| 4. When a friend cries, I cry myself.                             | 1 | 2 | 3 |
| 5. If someone in my family is sad, I feel really bad.             | 1 | 2 | 3 |
| 6. I feel awful when two people quarrel.                          | 1 | 2 | 3 |
| 7. When a friend is angry, I tend to know why.                    | 1 | 2 | 3 |
| 8. If a friend is sad, I understand mostly why.                   | 1 | 2 | 3 |
| 9. If a friend cries, I often understand what has happened.       | 1 | 2 | 3 |
| 10. If a friend is sad, I like to comfort him/her.                | 1 | 2 | 3 |
| 11. I would like to help when a friend gets angry.                | 1 | 2 | 3 |
| 12. If a friend has an argument, I try to help.                   | 1 | 2 | 3 |
| 13. I want everyone to feel good.                                 | 1 | 2 | 3 |
| 14. If a friend is sad, I want to do something to make it better. | 1 | 2 | 3 |

**Appendix 12: Cognitive Emotion Regulation Questionnaire (Garnefski & Kraaij, 2007)**

Everybody experiences negative or difficult situations from time to time and everybody copes with these in different ways. Please, indicate on a scale from 1 to 5 how often you think about the following things when something bad happens to you.

	Almost never				Always
1. I feel that I am the one to blame for it.	1	2	3	4	5
2. I think that I have to accept that this has happened.	1	2	3	4	5
3. I often think about how I feel about what I have experienced.	1	2	3	4	5
4. I think of nicer things than what I have experienced.	1	2	3	4	5
5. I think of what I can do best.	1	2	3	4	5
6. I think I can learn something from the situation.	1	2	3	4	5
7. I think that it all could have been much worse.	1	2	3	4	5
8. I often think that what I have experienced is much worse than what others have experienced.	1	2	3	4	5
9. I feel that others are to blame for it.	1	2	3	4	5
10. I feel that I am the one who is responsible for what has happened.	1	2	3	4	5
11. I think that I have to accept the situation.	1	2	3	4	5
12. I am preoccupied with what I think and feel about what I have experienced.	1	2	3	4	5
13. I think of pleasant things that have nothing to do with it.	1	2	3	4	5
14. I think about how I can best cope with the situation.	1	2	3	4	5
15. I think that I can become a stronger person as a result of what has happened.	1	2	3	4	5
16. I think that other people go through much worse experiences.	1	2	3	4	5
17. I keep thinking about how terrible it is what I have experienced.	1	2	3	4	5
18. I feel that others are responsible for what has happened.	1	2	3	4	5
19. I think about the mistakes I have made in this matter.	1	2	3	4	5
20. I think that I cannot change anything about it.	1	2	3	4	5
21. I want to understand why I feel the way I do about what I have experienced.	1	2	3	4	5
22. I think of something nice instead of what has happened.	1	2	3	4	5
23. I think about how to change the situation.	1	2	3	4	5
24. I think that the situation also has its positive sides.	1	2	3	4	5
25. I think that it hasn't been too bad compared to other things.	1	2	3	4	5
26. I often think that what I have experienced is the worst that can happen to a person.	1	2	3	4	5
27. I think about the mistakes others have made in this matter.	1	2	3	4	5
28. I think that basically the cause must lie within myself.	1	2	3	4	5
29. I think that I must learn to live with it.	1	2	3	4	5
30. I dwell upon the feelings the situation has evoked in me.	1	2	3	4	5
31. I think about pleasant experiences.	1	2	3	4	5
32. I think about a plan of what I can do best.	1	2	3	4	5
33. I look for the positive sides to the matter.	1	2	3	4	5
34. I tell myself that there are worse things in life.	1	2	3	4	5
35. I continually think how horrible the situation has been.	1	2	3	4	5
36. I feel that basically the cause lies with others.	1	2	3	4	5

**Appendix 13:** Moral Disengagement Cyber Bullying Scale (Bussey et al., 2015)

How much do you agree with each statement?

1 = Disagree; 4 = Totally agree

It's alright to send a mean message using a mobile phone or the internet to someone if they have poked fun at your friends	1	2	3	4
If kids are annoying it is their own fault if they get sent a mean message on their mobile phones or through the internet	1	2	3	4
Sending a mean message about someone using mobile phones or the internet is just a way of joking around	1	2	3	4
It's okay to send a mean message to another kid using a mobile phone or email because posting it on Facebook for everyone to see is worse	1	2	3	4
A kid who only suggests sending a mean message using a mobile phone or the internet to another kid should not be blamed if other kids go ahead and do it	1	2	3	4
Kids cannot be blamed for sending mean comments using mobile phones or the internet when everyone else is doing it	1	2	3	4
Sending mean comments about other kids using mobile phones or the internet does not really harm them	1	2	3	4
Some kids who are cyberbullied deserve to be treated like animals	1	2	3	4

## Appendix 14: Modified PROM

1. When logging into Facebook, you see that one of your closest friends changed his profile picture to his girlfriend's sexual/suggestive picture. You know that your friend does not like to be told how he should behave. Therefore, if you would tell him to delete the picture, he would quarrel with you and even your friendship would be at stake. This happened only a few second ago, so there are no reactions to the picture yet. What would you do?

- A) I would ask my friend to take the picture down.
- B) I find the choice of the new profile picture funny and I would share it with others as well.
- C) I would not care about it.

Rate the importance of the following six reasons in your decision about helping or not helping in this situation on this scale where 1=not at all important; 5=very important.

It depends how funny the situations is.	1	2	3	4	5
It depends whether the other one needs help or not.	1	2	3	4	5
It depends whether your friends/family would approve of your decision.	1	2	3	4	5
It depends what you think would be decent behaviour.	1	2	3	4	5
It depends how would you feel about yourself if you would help or not.	1	2	3	4	5
It depends whether you believe in humanity's power.	1	2	3	4	5

2. Your classmates formed a new group on Facebook where you can talk about school stuff. Although they only invite those who they think are cool and funny. If someone does not participate in the class fun, they exclude him or her from the group. In the school corridor, you overhear a conversation about not letting one of your classmates into this group because they think it is funny to decline his join requests. What would you do?

- A) I would make recommendations who should be next excluded from the group.
- B) I would pretend that I did not hear the conversation.
- C) I would point out that this is not right.

Rate the importance of the following six reasons in your decision about helping or not helping in this situation on this scale where 1=not at all important; 5=very important.

It depends how funny the situations is.	1	2	3	4	5
It depends whether the other one needs help or not.	1	2	3	4	5
It depends whether your friends/family would approve of your decision.	1	2	3	4	5
It depends what you think would be decent behaviour.	1	2	3	4	5
It depends how would you feel about yourself if you would help or not.	1	2	3	4	5
It depends whether you believe in humanity's power.	1	2	3	4	5



3. You are part of a group chat, only the most popular and cool ones can get an invitation to this group chat. If you are excluded, you cannot get back. When you enter this group, you see that one member shared screen shots of a private conversation where the other person shared intimate things about him or herself that he/she would not like to be out for everyone to know. Although, if you would tell them not to share these private things you would be excluded from this group. What would you do?

- A) I would ask them to delete the screen shots and not to share them.
- B) I would not do anything.
- C) I would remember that I have similar screen shots and I would share these with the group.

Rate the importance of the following six reasons in your decision about helping or not helping in this situation on this scale where 1=not at all important; 5=very important.

It depends how funny the situations is.	1	2	3	4	5
It depends whether the other one needs help or not.	1	2	3	4	5
It depends whether your friends/family would approve of your decision.	1	2	3	4	5
It depends what you think would be decent behaviour.	1	2	3	4	5
It depends how would you feel about yourself if you would help or not.	1	2	3	4	5
It depends whether you believe in humanity's power.	1	2	3	4	5

4. You are in a confectionery with your friends when one of you goes to the bathroom and leaves his or her phone unlocked on the table. A friend of yours thinks that it would be a great idea to write to your other friend's crush messages, but you know that this friend would be furious about this. Although if you would stop the others they would find you a loser and a coward. What would you do?

- A) I would help to write the message.
- B) I would stop the others.
- C) I would just sit there and see how things work out.

Rate the importance of the following six reasons in your decision about helping or not helping in this situation on this scale where 1=not at all important; 5=very important.

It depends how funny the situations is.	1	2	3	4	5
It depends whether the other one needs help or not.	1	2	3	4	5
It depends whether your friends/family would approve of your decision.	1	2	3	4	5
It depends what you think would be decent behaviour.	1	2	3	4	5
It depends how would you feel about yourself if you would help or not.	1	2	3	4	5
It depends whether you believe in humanity's power.	1	2	3	4	5

**Appendix 15:** Short form of Difficulties in Emotion Regulation Scale (Kaufman et al., 2016)

Please indicate how often the following statements apply to you by writing the appropriate number from the scale below on the line beside each item.

1. almost never (0-10%)
2. sometimes (11-35%)
3. about half the time (36-65%)
4. most of the time (66-90%)
5. almost always (91-100%)

1. I pay attention to how I feel.	1	2	3	4	5
2. I have no idea how I am feeling.	1	2	3	4	5
3. I have difficulty making sense out of my feelings.	1	2	3	4	5
4. I care about what I am feelings.	1	2	3	4	5
5. I am confused about how I feel.	1	2	3	4	5
6. When I'm upset, I acknowledge my emotions.	1	2	3	4	5
7. When I'm upset, I become embarrassed for feeling that way.	1	2	3	4	5
8. When I'm upset, I have difficulty getting work done.	1	2	3	4	5
9. When I'm upset, I become out of control.	1	2	3	4	5
10. When I'm upset, I believe that I will end up feeling very depressed.	1	2	3	4	5
11. When I'm upset, I have difficulty focusing on other things.	1	2	3	4	5
12. When I'm upset, I feel guilty for feeling that way.	1	2	3	4	5
13. When I'm upset, I have difficulty concentrating.	1	2	3	4	5
14. When I'm upset, I have difficulty controlling my behavior.	1	2	3	4	5
15. When I'm upset, I believe there is nothing I can do to make myself feel better.	1	2	3	4	5
16. When I'm upset, I become irritated at myself for feeling that way.	1	2	3	4	5
17. When I'm upset, I lose control over my behavior.	1	2	3	4	5
18. When I'm upset, it takes me a long time to feel better.	1	2	3	4	5

**Appendix 16:** Social Desirability Scale (Stöber, 2001)

Below you will find a list of statements. Please read each statement carefully and decide if that statement describes you or not. If it describes you, check the word "true"; if not, check the word "false".

	True	False
1. I sometimes litter.	<input type="checkbox"/>	<input type="checkbox"/>
2. I always admit my mistakes openly and face the potential negative consequences.	<input type="checkbox"/>	<input type="checkbox"/>
3. In traffic I am always polite and considerate of others.	<input type="checkbox"/>	<input type="checkbox"/>
4. I have tried illegal drugs (for example, marijuana, cocaine, etc.).	<input type="checkbox"/>	<input type="checkbox"/>
5. I always accept others' opinions, even when they don't agree with my own.	<input type="checkbox"/>	<input type="checkbox"/>
6. I take out my bad moods on others now and then.	<input type="checkbox"/>	<input type="checkbox"/>
7. There has been an occasion when I took advantage of someone else.	<input type="checkbox"/>	<input type="checkbox"/>
8. In conversations I always listen attentively and let others finish their sentences.	<input type="checkbox"/>	<input type="checkbox"/>
9. I never hesitate to help someone in case of emergency.	<input type="checkbox"/>	<input type="checkbox"/>
10. When I have made a promise, I keep it--no ifs, ands or buts.	<input type="checkbox"/>	<input type="checkbox"/>
11. I occasionally speak badly of others behind their back.	<input type="checkbox"/>	<input type="checkbox"/>
12. I would never live off other people.	<input type="checkbox"/>	<input type="checkbox"/>
13. I always stay friendly and courteous with other people, even when I am stressed out.	<input type="checkbox"/>	<input type="checkbox"/>
14. During arguments I always stay objective and matter-of-fact.	<input type="checkbox"/>	<input type="checkbox"/>
15. There has been at least one occasion when I failed to return an item that I borrowed.	<input type="checkbox"/>	<input type="checkbox"/>
16. I always eat a healthy diet.	<input type="checkbox"/>	<input type="checkbox"/>
17. Sometimes I only help because I expect something in return.	<input type="checkbox"/>	<input type="checkbox"/>

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## Doktori értekezés benyújtása és nyilatkozat a dolgozat eredetiségéről

Alulírott

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születési hely, idő: Tapolca, 1992. 11. 05.

The Role of Socio-Emotional Skills in Cyberbullying Engagement  
című doktori értekezésemet a mai napon benyújtom a(z)

Pszichológia  
Doktori Iskola  
Fejlődés és Klinikai Pszichológia  
Programjához

Témavezető neve: Dr. habil. Lábadi Beatrix

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- fokozatszerzési eljárásra jelentkezésemet két éven belül nem utasították el,
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- értekezésem önálló munka, más szellemi alkotását sajátomként nem mutattam be, az irodalmi hivatkozások egyértelműek és teljeseek, az értekezés elkészítésénél hamis vagy hamisított adatokat nem használtam.

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