

# Cyberbullying among children and adolescents – an overview of epidemiological studies and effective prevention programs

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## Abstract

Bullying is defined as repeated aggressive behavior (Kowalski & Limber, 2007; Olweus, 1993, and as such has been recognized as a significant social issue. Furthermore, we know that the incidence of bullying behaviors increases with the students' age (Cassidy, Jackson & Brown, 2009; Green-Forde, 2014; Kowalski & Limber, 2007). Cyber bullying, electronic/online bullying, or online social cruelty is, according to Kowalski & Limber (2007), a relatively new kind of bullying through email, instant messaging, chat room exchanges, digital messages etc. (Kowalski et al, 2012). The goal of this paper is to give an overview of epidemiological studies and effective cyberbullying prevention aimed at children and adolescents. Some authors state that a student is cyberbullied if it happens two or three times a month, while others suggest that a frequency of once or twice a month is sufficient for the existence of the phenomenon (Olweus, 2012a; Hinduja & Patchin, 2012; Menesini, 2012; Kowalski & Limber, 2007). This difference between these threshold is what accounts for the discrepancies found in the data and results of various studies. Thus, we may talk about 4,5% to 24% of cyberbullied children, as in various international studies. Croatian data are similar, with 4,9 % to 29% of cyberbullied students, depending of the definition (Child Protection Center Zagreb, 2013; Zadravec et al., 2014.; Pregrad et al., 2011). The physical and psychological health, and academic performance in the context of bullying and cyberbullying are sometimes similar (Kowalski & Limber, 2013). Social cognitive theory and media effects model are a theoretical framework used to identify main categories which could explain cyberbullying, noting the following: individual factors, family, school, peers and media (Felson, 1996). Cyberbullying behaviors are connected to perception problems, hyperactivity, anger, aggression, problems of behavior control, low sociability, feeling of revenge and feeling insecure at school (Sourander et al., 2010; Nixon, 2014). School-based intervention/prevention programs for traditional bullying are often successful and could be used in modified forms for cyberbullying prevention programs (Ttofi & Farrington, 2011 in Slonje, Smith & Frisen, 2013). In Croatia, several preventive programs are being implemented, aimed at bullying in schools, designed for implementation in local communities and financed by local governments or the national administration (Zadravec et al., 2014). These cyberbullying programs are still not, though they should be, part of some broader anti-bullying programs. The aim of conducting effective preventive programs, including cyberbullying interventions, is to decrease bullying and cyberbullying in schools and improve the school climate. The goal is also to reduce students' hyperactivity, anger, aggression and problems of behavior control and initiate better self-efficacy.

**Keywords:** cyberbullying, bullying, students, peers, preventive programs

## **Introduction**

Bullying is defined as repeated aggressive behavior (Kowalski & Limber, 2007) and has been recognized as a significant social issue. Research has shown that bullying behaviors tend to increase with the age of students (Cassidy, Jackson & Brown, 2009; Green-Forde, 2014; Kowalski & Limber, 2007). Bullying is aggressive and intentional behavior, repeated over time, combined with power aggression (Olweus, 1993; Heiman & Olenik-Shemesh, 2015), and has to involve the following four criteria – repetition, intent, harm, and power differential (Patchin & Hinduja, 2015). For the past several decades, researchers have extensively investigated the impact of bullying on students.

Cyberbullying is a relatively new kind of bullying which involves the use of electronic devices or other information technologies through email, instant messaging, chat room exchanges, Web site posts, digital messages or images sent to a cellular phone (Burton, Florell & Wygant, 2013; Kowalski et al, 2012; Heiman & Olenik-Shemesh, 2015). The main difference between bullying and cyberbullying is the anonymity of the bullies (Beran & Li, 2007; Kowalski & Limber, 2007; Kowalski et al, 2012; Olweus, 1993; Shariff & Gouin, 2006; Slonje & Smith, 2008). Additionally, cyberbullying is less prevalent than bullying, according to one of the latest meta-analyses, looking at cyber and traditional bullying on a sample of 80 studies (Modecki et al, 2014). This is why some authors talk about cyberbullying as a type of traditional bullying (Dehue et al, 2012; Dooley, Pyzalski & Cross, 2009; Erdur-Baker, 2010; Riebel, Jäger & Fischer, 2009; Ryan & Curwen, 2013; Wang, Iannotti & Nansel, 2009).

Cyberbullying can take various forms: flaming – online fights using electronic messages with angry and vulgar language; harassment – repeatedly sending mean, insulting messages; cyberstalking - repeated, intense harassment that includes threats or creates significant fear; denigration – spreading rumors online and/or sending or posting gossip about a person to damage his/her reputation or friendships; impersonation – pretending to be someone else and sending or posting material to get that person in trouble or danger, or damage that person's reputation or friendships; outing - sharing someone's secrets or embarrassing information or images online; trickery - tricking someone into revealing secrets or embarrassing information and sharing it online; and exclusion - intentionally excluding someone from an online group (Menesini & Nocentini, 2009, Cantone et al., 2015; Slonje & Smith, 2008). Instant messaging, chat rooms and e-mails are the most common tools of cyberbullying (Kowalski & Limber, 2007).

Anxiety, self-esteem, self-reported health problems, but also absences from school, leaving school because of illness, and lower grades are all related to students' involvement in cyberbullying others, being cyberbullied, bullying or being bullied through traditional forms (Bonano & Hymel, 2013; Kowalski & Limber, 2013; Selkie, Kota, Chan & Moreno, 2015). The strongest correlations were found between cyber victimization and depression, traditional victimization and anxiety, and traditional victimization and health problems (Bonano & Hymel, 2013; Kowalski & Limber, 2013; Selkie, 2015).

Bullied students tend to have lower self-esteem and their relationships with other students are poor. They do not feel secure, they are afraid of going to school, have psychosomatic problems, and face higher chances of future depression (Pregrad et al., 2011; Heiman & Olenik-Shemesh, 2015). Consequences of cyberbullying may be even worse because of the anonymity of the bullies.

They are not able to see the emotional reactions of the bullied student and can skip the witnessing of the actual harm they are causing to someone (Kowalski & Limber, 2007). Besides that, cyberbullying is much wider in effects. After the bullies wrote their messages or posted pictures on line, the victim can be bullied repeatedly every time someone sees that message or picture. Additionally, some forms of online communication can hardly be removed from cyber space at all (Pregrad et al., 2011; Heiman & Olenik-Shemesh, 2015).

### **Prevalence of cyberbullying**

There is no coherent definition of cyberbullying. There is agreement in the literature concerning the definition, as authors see it as a type of bullying that involves the use of electronic devices or other information technologies (Heiman & Olenik-Shemesh, 2015; Hinduja & Patchin, 2012; Kowalski & Limber, 2007; Menesini, 2012; Olweus, 2012b; Pregrad et al., 2011). However, some authors claim that a student is cyberbullied if it happens two or three times a month, while others say they are cyberbullied if it happens once or twice a month (Olweus, 2012b; Hinduja & Patchin, 2012; Menesini, 2012; Kowalski & Limber, 2007). This definitional difference accounts for some of the discrepancies in the data on cyberbullying. That is why may currently be talking about 4,5% to 24% of cyberbullied children (Hinduja & Patchin, 2012; Kowalski & Limber, 2007; Menesini, 2012; Olweus, 2012a).

Olweus (2012a; 2012b) claims it is an overstatement to talk about cyberbullying almost as if it were an epidemic among students, but other authors (Hinduja & Patchin, 2012; Kowalski & Limber, 2007) argue that Olweus's studies, which are showing 4,5% of cyberbullied students, are not realistic. Hinduja and Patchin (2012) claim 24% of students are cyberbullied, while Menesini (2012) talks about 7,6%, Ybarra and Mitchell 19% and Kowalski and Limber (2007) suggest 11% of cyber victims. The samples and questionnaires used in these studies are not the same, but there is also a discrepancy in the way that cyberbullying is defined. While Olweus (2012a) claims that a student is cyberbullied if cyberbullying happens two or three times a month, Hinduja and Patchin (2012) state that the student is cyberbullied if the aggression happens once or twice a month. The difference is enormous and makes for those discrepancies in the prevalence figures. If we talk about cyberbullying as something that happens two or three times a month, we get 4,5% to 7,6% of cyberbullied students, but the percentage is 19% or even 24% among the authors whose definition of cyberbullying includes the frequency of one or twice a month.

Two studies representative of the whole population in primary and high schools have been conducted in Croatia. The results of the two differ and are hardly comparable. In the study of The Brave Phone and The Child Protection Center of Zagreb in 2013 (<http://www.poliklinika-djeca.hr/english/>), the research was conducted at the national level. The study was about the experiences and behaviors of children on the internet generally, and on Facebook in particular. The results are based on a sample of 1489 children aged 11 to 18, and indicate that one in five of them has received hurtful messages or comments via Facebook and 46% of children experienced it at least once. In the study by UNICEF Croatia (Pregrad et al., 2011), the results were based on a sample of 5215 children aged 10 to 15, and indicated that 4,9 % of children were cyberbullied more than twice a month, 29% once or twice a month while 66,2% never experienced cyberbullying.

The aim of this paper is to identify the importance of having proper data concerning prevalence of cyberbullying in Croatia and to assess the most effective preventive programs that could be adapted and implemented in Croatian schools, as the school is the place where most of the interactions between peers occurs (Due et al, 2005).

### **Theories of bullying and cyberbullying**

Cyberbullying is a problem that has existed for almost 20 years. The prevalence of cyberbullying has been increasing over the past 15 years, not only as an experienced phenomenon, but also as a topic of media coverage (Olweus, 2012a; Olweus, 2012b). Because of the permanent presence in the media, some authors (Olweus, 2012b) think the problem of cyberbullying is overrated. Others claim it is a serious problem that needs a comprehensive preventive program (Hinduja & Patchin, 2012, Menesini, 2012). But as Patchin and Hinduja (2015) say, the definitional debate is not important for bullied or cyberbullied students.

Social cognitive theory describes human functioning as an interaction of personal, behavioral, and environmental influences (Michie, et al, 2014). According to that theory, "the environment, behavior, and personal and cognitive factors all interact as determinants of each other" (Michie et al, 2014 p. 359). The theory has been applied in the study of traditional bullying (Hymel, Rocke-Henderson & Bonanno, 2005) in order to understand the social nature of bullying.

Cyberbullying is part of individuals' social behavior, which can be explained by personal and environmental factors (Xiao & Wong, 2013). Additionally, the media effects model suggests that media can affect human thoughts and behaviors, including having an effect on aggressive behaviors (Felson, 1996), especially with younger children who might imitate violent behaviors without understanding the context and consequences of their acts. Simultaneously, according to Felson (1996, p. 124) the "media directs viewers' attention to novel forms of violent behavior they might not otherwise consider". In addition to that, Festl, Scharkow and Quandt (2013) suggest that individuals' use of the media can affect their involvement in cyberbullying. Thus, the social cognitive theory and media effects model are theoretical framework used to identify main categories that explain cyberbullying: individual factors, family, school, peers and media (Chen & Nanyang, 2016).

Bilić (2003) and Bilić, Buljan-Flander & Hrpka (2012) are discussing some risk factors for cyberbullying, as listed in Table 1. Females are more likely than males to be the victims of bullying, while males are more likely to act in aggressive manner (Floros et al, 2013; Heiman & Olenik-Shemesh, 2015; Karlsson et al., 2014; Silva et al, 2013; Vandebosch, & Van Cleemput, 2008; Wong, Chan & Cheng, 2014). Bullying and cyberbullying can also be influenced by genetic factors (Ball et al, 2008), and obese students are at higher risk for peer victimization, which includes cyberbullying (DeSmet et al, 2014). The number of hours per day that students use the computer is also found to be a risk factor, as is giving passwords to a friend (Mishna et al, 2013).

There is a strong positive relationship between cyberbullying behaviors and externalizing problems, as in hyperactivity, anger, aggression, problems of behavior control, low sociability, feelings of vengefulness, frequent use of alcohol and cigarettes, and feeling insecure at school (Deniz, 2015; Sourander et al., 2010; Nixon, 2014; Tanrikulu, 2015).

Bullied students often experience the internalizing of problems, reflected in a lack of self-confidence, anxiety, depression, fear of people, feeling ashamed (Nixon 2014; Tanrikulu, 2015). They can have perception difficulties, emotional or relationship difficulties, insomnia, headaches, recurrent abdominal pain, and they often feel unsafe at school (Nixon, 2014; Sourander et al, 2010). Goebert et al. (2011) discovered that the use of addictive drugs by cyber victims is more common than cases of depression and suicide. Cyber victims can also have aversion to virtual technology, avoiding responsibility and avoiding school (Schneider et al, 2012).

**Table 1. Risk factors for cyberbullying (Bilić, 2003; Bilić, Buljan-Flander & Hrpka, 2012)**

Individual characteristics	Traumatized, violent, impulsive, frustrated, self-reported health problems, feeling insecure, having psychosomatic problems
Family	Bad relationships, violence, lack of control, physical punishments
School	Bad relationships, lack of respect, poor control in school environment, no clear rules, absences from school, lower grades
Peers	Bad relationships with peers, bad influence of peer groups
Media	Violent contents on TV, internet, video games, movies

No matter how widespread the problem of cyberbullying is – 4,5% as suggested by Olweus (2012a) or as high as Hinduja and Patchin’s (2012) assessment of 24%, cyber victims are suffering serious consequences. Cyberbullying influences students’ mental health, but also the school climate (Cantone et al, 2015). The authors’ assumptions are that all the public policies should consider cyberbullying as a serious problem and should be willing to participate in solving it. As no comparable epidemiological studies have been conducted in Croatia, some of future study ought to focus on providing such studies, as there should also be further study of the implementation of prevention interventions which are aimed at decreasing the incidence of cyberbullying and improving the school climate.

**Table 2. Institutions and policy makers interested in solving the problem of cyberbullying and/or conducting the epidemiological studies about the prevalence of cyberbullying in Croatian schools**

Health institutions (local and national)	fewer problems with depression, mental problems, anxiety, self-esteem, self-reported health problems related to cyberbullying
School	fewer absences and drop-outs from school, leaving school because of illness and grades, better school climate
NGOs	will have a good starting position when applying to national and EU funding for preventive programs
Scientific community	Will have the data about cyberbullying in Croatia and possibility sufficient data to create a comprehensive preventive program
Policy	based on the prevalence of the problem, will be able to have a school and health policy concerning cyberbullying

All the mentioned institutions (Table 2) have an interest in solving the problem of cyberbullying and could be interested in providing the funds for the epidemiological study or preventive program that should follow. The theme of cyberbullying is very popular and there are lots of different studies all over the world that have been conducted in the last two decades (Olweus, 2012a; Olweus, 2012b; Hinduja & Patchin, 2012; Menesini, 2012; Kowalski & Limber, 2007). Although it is hard not to be heard when talking about this problem, trying to convince the policy makers to provide the funding for the research is simultaneously the biggest problem. Policy makers might not be willing to pay for new studies about prevalence of cyberbullying because there are already some kind of epidemiological studies about cyberbullying in Croatia, and that there are also preventive

programs. However, paying for preventive programs which are not founded in theory and have not been proven as valid in scientific studies is really a waste of public money on programs the effectiveness of which has not been ascertained.

### **Effective preventive strategies and programs**

Beran and Li (2007) propose considering cyberbullying as another form of bullying, claiming it is an indirect form of bullying where bullies do not harass in a face to face interaction. Since there have been school-based intervention/prevention programs for traditional bullying, with reasonable success rates for several decades (Ttofi & Farrington, 2011 in Slonje et al., 2013), some authors recommend that cyberbullying issues should be incorporated into the existing bullying programs as part of anti-bullying school policy with anti-bullying approach and curriculum-based activities (Ryan & Curwen, 2013; Slonje et al., 2013; Vandebosch, Poels & Deboutte, 2014).

An example of a successful anti-bullying program is the KiVa program in Finland, which includes computer based classroom activities, and support for victims from high-status peers. Although primarily designed with traditional bullying in mind, evaluations have thus far shown that KiVa is as effective in reducing cyberbullying as it is for a range of traditional forms of bullying (Salmivalli, Kärna, & Poskiparta, 2011; Salmivalli & Poskiparta, 2012). KiVa's main effects are found in the decrease of bullying, self-efficacy, anxiety, depression, cyberbullying, cyber victimization and in the simultaneous increase in well-being at school and empathy toward victims. As Cantone et al (2015) suggest, KiVa may be an effective intervention to reduce the incidence of cyberbullying and cyber victimization. However, it depends on the age of the students. It is effective among elementary school students and to some degree, among middle school youth. The program consists of universal and selective actions, including classroom based lessons and between-lesson activities, such as computer games which develop the skills related to the lessons. It also includes actions related to specific incidents, through support for the victim, individual and group discussions with both the victim and the bullies, and the identification, guided by the teacher, of ways in which the victim's classmates can support their classmate in case of future incidents. The results of the studies demonstrate the effectiveness of the KiVa program in reducing the levels of bullying and victimization. At the same time, several internalized symptoms, such as anxiety and depression were also found to decrease. The KiVa program appears effective in the reduction of cyberbullying and cyber victimization too, especially when applied with younger children (Williford et al, 2013).

Other programs dealing with bullying suggest that it is important for the bully to understand what s/he has done (Pikas, 1989 in Slonje et al., 2013), something that is particularly important when we compare cyberbullying and bullying behaviors. In addition to that, new technical developments may help. A U.K. charity, Beatbullying, launched a new form of virtual peer support called CyberMentors in 2009. Students were trained as cybermentors, after which they would log on and mentor on demand. Cybermentors can also refer mentees on to senior cybermentors and counselors for further support. This program has been evaluated positively by Banerjee, Robinson and Smalley (2010) and Thompson and Smith (2011).

In sum, programs dealing with traditional bullying can often be extended to deal with cyberbullying. Furthermore, new technical developments can be taken advantage of (as in cybermentoring),

and specific interventions can be devised for cyberbullying - as in films and information brochures or websites (Slonje et al., 2013).

## **Conclusions**

Cyberbullying is traditionally considered a school problem (Beran & Li, 2007) and is more likely to start in school (Cassidy, Jackson & Brown, 2009). This form of bullying is not happening only in the school yards because of the shapes in which it occurs – flaming, online harassment, cyberstalking, outing, exclusion - it can happen anywhere and anytime (Beran & Li, 2007). However, school climate is one of the most important risk or protective factors for cyberbullying (Silva et al, 2013). Croatian teachers and school staff are also concerned because of the increasing occurrence of cyberbullying in schools (Puzić, Baranović & Doolan, 2011).

As Beringer (2011) suggests, schools, families, and the community should try to prevent and resolve the problem of cyberbullying. But there are still no established standardized procedures to detect, reduce, or prevent cyberbullying (Wong, 2014). Silva et al (2013) suggest prevention strategies that include gender roles as a priority because boys and girls are prone to different types of bullying and/or cyberbullying.

In Croatia, the first step before implementing the prevention interventions aimed at decreasing the incidence of cyberbullying among students ought to be the conducting of an epidemiological study. By conducting an epidemiological study about cyberbullying in primary and high schools, we could collect valid and reliable data about prevalence of cyberbullying in Croatia. This would enable the implementation of an effective preventive program aimed at decreasing the prevalence of cyberbullying and improving the school climate in Croatian schools.

The information we do have about cyberbullying and its manifestations in Croatia is valuable and provides a good starting position for determining where to start and which information we do not have. First, all the studies that have been conducted have different samples. Thus, one of the demands for the future is to find out which kind of epidemiological study should be conducted among the students to find out the prevalence of cyberbullying in Croatian schools.

There are several preventive programs in Croatia which are aimed at bullying in schools, made in local communities and paid for by local governments or national administration (Zadravec et al., 2014) but without comprehensive epidemiological study these programs are “a shot in the dark”. Thus, it is vital that this phenomenon be thoroughly explored with a diverse sample, to gain a greater understanding of the prevalence and impact of cyberbullying (Mishna et al, 2010).

The next step would be the implementation of one of the effective preventive programs. Finland’s KiVa program is a good example, initially created for bullying interventions and afterwards extended to incorporate also the preventive needs related to. The program comprises both universal and selective actions for decreasing bullying and cyberbullying, but also those aimed at self-efficacy, anxiety and depression, and improving school climate.

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