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**TITLE**

**Implementation and evaluation of an intervention program aimed at cyberbullying and cybervictimization prevention: Combining the ecological system theory and the threat assessment approach**

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## Abstract

The main aim of the present study is to evaluate the effectiveness of the Tabby Improved cyberbullying and cybervictimization prevention program, developed by combining the ecological system theory (Bronfenbrenner, 1977, 1979) and the threat assessment approach (Borum et al, 1999; Fein & Vossekuil, 1998, 1999; Fein Vossekuil, & Holden, 1995).

To this aim, a short-term longitudinal study was carried out involving 622 Italian students aged between 10 and 17, attending five public middle and high schools in Campania.

Participants were random assigned to one of the three conditions provided by the research (experimental, control with risk profile, and control without risk profile), via their classes. All students filled in the Tabby Improved checklist (whose psychometric characteristics were analysed) prior and six months after the intervention (T1 and T2).

Results showed a significant decrease in cyberbullying and in cybervictimization among students in the experimental group in comparison with the control group. In particular, the increased awareness about cyberbullying and risky online behaviours mediated the decrease in cyberbullying observed in the experimental group.

Findings were discussed in the light of the related literature.

**Keywords:** cyberbullying prevention program, risk factors, threat assessment approach, ecological system theory

## Chapter 1: Cyberbullying

### 1.1 Defining cyberbullying: still an open debate

The increased availability of the Internet and the new communication technologies among children and adolescents, using mobile or smart phones, personal computers, web pages, and social networks, has improved adolescents' access to information and created more stimulating learning environments for students (Wendland, 2003). The Internet and the new communication technologies has also enriched teenagers' social world by allowing them to keep in touch with friends and acquaintances or make new ones they would have never met or heard about. However, there is also a dark side related to the Internet use, which has to do with the risk of living in a web 2.0 digital era. The abusive and unsafe use of electronic communication expose adolescents to a new form of bullying known as '*cyberbullying*' (Patchin & Hinduja, 2006).

From 2005 to date, several cyberbullying definitions were created and used in order to assess its diffusion, generating a growing debate in literature about the absence of a unique and universally shared definition of cyberbullying among researchers. As underlined by Kowalski, Limber, and Agatston (2008), Dooley, Pyszalski, and Cross (2009) and Langos (2012), cyberbullying has been proven difficult to define.

Belsey (2005) defined cyberbullying as "*the use of information and communication technologies to support deliberate, repeated, and hostile behavior by an individual or group that is intended to harm others*". Patchin and Hinduja (2006, p. 152) considered cyberbullying as "*Wilful and repeated harm inflicted through the medium of electronic text*". Willard (2007, p.1) described cyberbullying as "*sending or posting harmful or cruel texts or images using the Internet or other digital communication devices*", while according to Juvonen and Gross (2008, p. 497) cyberbullying is "*the use of the Internet or other digital communication devices to insult or threaten someone*". Smith et al. (2008, p.376) defined

cyberbullying as “*an aggressive and intentional act, carried out by a group or an individual, using electronic forms of contact, repeatedly over time against a victim who cannot easily defend himself/herself*”. In his review, Tokunaga (2010) provided the following definition of cyberbullying “*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 others..... 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). This latter part of the definition provided by Tokunaga (2010) suggests that due to the use of the new communication technologies, cyberbullying cannot be considered as the electronic extension of school bullying but a separate phenomenon, occurring in a separate environment (online), which allows to cyberbullies the opportunity to hide their identity. In particular, the main feature that differentiate cyberbullying from school bullying is the accessibility of the target (Tokunaga, 2010; Slonje & Smith, 2008; Patchin & Hinduja, 2006). Langos (2012) distinguished between direct and indirect cyberbullying in order to understand how repetition, power imbalance and intention to harm, should be applied to the cyberspace.

Direct cyberbullying occurs when “*the cyberbully directs the electronic communications directly at the victim..... Direct cyberbullying occurs in the private domain*” while indirect cyberbullying occurs when the cyberbully “*does not direct the electronic communication that constitutes the bullying at his/her victim directly. Instead, the bully posts them on MySpace, Facebook, a specially created Website or blog, or some other reasonably public area of cyberspace*” (Langos, 2012, p.286).

However, due to the Internet and the new communication technologies features, some definitional criteria such as repetition and imbalance of power are still not easily applicable to



cyberbullying (Slonje, Smith and Frisé, 2013; Smith & Slonje, 2010; Menesini & Nocentini, 2009).

In order to investigate the role of five definitional criteria for cyberbullying, Menesini et al., (2012) carried out a cross-cultural study involving 2.257 students from six European countries (Italy, Spain, Germany, Sweden, Estonia, and France). To this aim, thirty-two different scenarios were presented, and for each of them participants have to determine if it was cyberbullying or not. Results showed that students considered a scenario as cyberbullying when it was characterized by imbalance of power and intentionality, but not repetition, which may be less relevant in cyberbullying.

According to Langos (2012), the imbalance of power and the intention to harm can be applied to both private and public contexts. According some researchers, cyberbullies' power may lead in the expertise in using the new technologies (Vandabosch & Cleemput, 2008) and/or in a higher rank position of the bully in a virtual community (Menesini & Nocentini, 2009) and/or in the difficulties faced by cybervictims in removing the harmful or offensive materials from the Internet (Wolak Mitchell and Finkelhor, 2007). While according to Dooley, Pyzalsky and Cross (2009) the imbalance of power may lead in cybervictim difficulty to avoid cyberbullying, thus making the victim feeling powerless.

Furthermore, it can be possible that cyberbully' anonymity may contribute to the imbalance of power in cyberbullying (Thomas et al., 2014). On the contrary, according to, Wolak et al. (2007) cybervictims are in a position of power, and differently from traditional bullying that occurs in the schoolyard, online victims can more easily escape, or defend themselves to stop cyberbullying.

With regard to the repetition criteria, according to Langos (2012) it seemed to be a key element in direct cyberbullying, while in indirect cyberbullying the only diffusion of threatening, harmful or embarrassing materials in a public arena is considered as a repeated behaviour *per se*. From this point of view also a single cyberbullying

behaviour which involves an online community can be considered as implying possible repetitive harm (Hinduja & Patchin, 2014; 2008), given its potential of going viral and reaching potentially an infinite number of people.

However, as pointed out by Gradinger, Strohmeier, and Spiel (2009) the assessment of this operational criteria differs among studies, for examples in some cases the repetitive nature of cyberbullying is encapsulated within the definition provided by researchers to participants, while in other cases repeated cyberbullying and cybervictimization behaviours are measured by the rating format of the items measuring such conducts. Establishing a clear cut-off criteria to measure repetition in cyberbullying could be difficult; some studies adopted a lenient cut-off score (at least once) while others adopted a more conservative cut-off criteria (at least sometimes) as the one used for school bullying (Patchin & Hinduja, 2006) to try to assess this cyberbullying feature.

In addition to the above-mentioned difficulties in defining and measuring cyberbullying, there is still a debate in the literature, on the operational criteria through which cyberbullying typologies should be defined and measured (Thomas et al., 2014). Some researchers, among whom Wang, Iannotti, and Luk (2012), consider cyberbullying as a type of school bullying, as physical, relational and verbal bullying are. While according to Ybarra, Mitchell and Espelage (2012), the '*online dimension*' can be considered as an "*environment*" as it is the school, from this point of view cyberbullying should be treated as a "*disruptive communication mode, a distinct and meaningful category, separate from school (traditional) bullying*" (Ybarra, Boyd, Korchmaros & Oppenheim, 2012, p.2).

Some studies distinguished between Internet and mobile phone bullying (e.g., Ortega, Elipe, Mora-Merchan, Calmaestra, & Vega, 2009), others investigated cyberbullying using a range of specific media (Smith et al., 2008; Hinduja & Patchin, 2010); while others looked at the type of action or its content (Huang & Chou, 2010;

Rivers & Noret, 2010; Willard, 2007). For example, Willard (2007) described seven cyberbullying typologies, which are independent of the media used. In her taxonomy, Willard (2007) identified the following cyberbullying typologies:

- Flaming (angry, rude, vulgar messages about a person to an online group or to that person via email or other text messaging), Online harassment (repeatedly sending offensive messages via email or other text messaging to a person);
- Cyberstalking (online harassment that includes threats of harm or is excessively intimidating), Denigration (Sending harmful, untrue, or cruel statements about a person to other people or posting such material online);
- Masquerade or Impersonation (pretending to be someone else and sending or posting material that makes that person look bad);
- Outing or Trickery (sending or posting material about a person that contains sensitive, private, or embarrassing information, including forwarding private messages or images);
- Exclusion (cruelly excluding someone from an online group).

This latter way of considering and measuring cyberbullying, focusing on what is done, might be more useful also in relation to the constant change of technology and environment. It might make it difficult to compare studies in time if they only refer to the means used, as for instance, text messages or email might have been a possible mean of cyberbullying whereas nowadays they are obsolete.

In conclusion, what emerges analysing the literature related to cyberbullying definitions and typologies, is that for more than a decade, studies on cyberbullying have been carried out using different definitions, operational criteria and measurement instruments, thus making difficult to make comparisons between studies (Del Rey et al., 2015; Patchin & Hinduja, 2015; Thomas et al., 2014; Baldry et al., 2016). Nowadays there is a general consensus among researchers in adopting the definition provided by Smith et al. (2008), for cyberbullying measurement, suggesting that

cyberbullying can be considered under the more general definition of school bullying (Thomas et al., 2014; Menesini & Nocentini, 2009).

## **1.2 Measuring cyberbullying**

Due to the still ongoing debate in the literature on cyberbullying definitions, sub-types and relationship with school bullying, numerous and different measuring instruments have been developed. Even if cyberbullying can be measured using one single question (item) or multiple questions aimed at investigating specific cyberbullying/cybervictimization behaviours (Katzner et al., 2009; Ybarra, Diener-West & Leaf, 2007), several differences among the existing studies in measurement strategies, exist. For example, the existing studies differ in the way they operationalize cyberbullying. Some measure it by using a single overall item while others investigate cyberbullying by adopting a list of behaviours or context of online risky behaviours of media devices (Ybarra et al., 2012; Katzner et al., 2009; Ybarra et al., 2007). Using a definition-based approach, posed or read for instance, at the beginning of a questionnaire, or in the class by the researcher or teacher, it requires some precautions when prevalence rates are analysed. The definition adopted could not fit students' experience of cyberbullying and/or cybervictimization, researchers could assume that all participants understood the definition provided, and that all of them share the same meaning of the term "cyberbully" and "cybervictim" (Ybarra et al., 2012). On the other hand, even if, using a list of items is better than to adopt a single general question to assess cyberbullying and cybervictimization (Ovejero, Yubero, Larrañaga and de la V. Moral, 2016; Smith et al., 2008) this measurement strategy is not without drawbacks. Ovejero et al. (2016) underlined the absence among researchers of consensus about the specific conducts to include, while according to Ybarra et al. (2012) behavioural lists should be constantly updated in order to consider the continuous changes in

technologies, furthermore they should be not constrained to be considered as universal across cultures and environments.

Consensus among researcher is needed also with regard to students' allocation in one or another cyberbullying category (at least once or twice, sometimes, etc.) (Kowalski et al. 2014; Modecki et al. 2014) and with regard to the reference period that should be used prior to data collection (Baldry, Farrington & Sorrentino, 2016). Moreover, different authors use different criteria to classify students as belonging to one or another cyberbullying category, some use a 4 level category (only cyberbullies, only cybervictims, cyberbully/cybervictims, and not involved), others use a dichotomous criterion (yes/no) regardless of the others categories (Baldry et al., 2016). The absence of a shared agreement on how often cyberbullying takes place, makes difficult to make comparisons between studies (Del Rey et al., 2015; Patchin & Hinduja,2015).

By reviewing the existing instruments, what emerges is they reflect the author(s)' conceptualization of cyberbullying and its features. Berne et al. (2013) in their review on cyberbullying measurement instruments found that 40 of the 44 instruments analysed in the study, included in the definition used to assess cyberbullying, the criterion of intention to harm. Twenty-five of the forty-four, included repetition and 13 of the 44 contained the criterion imbalance of power. However, also instrument not measuring cyberbullying but other types of online aggression and Internet harassment were included (21 of the 44). The existing measurement instruments, also differ with regard to the questions used to investigate the different types of cyberbullying behaviours, some researchers such as Smith et al. (2008), distinguished cyberbullying sub-types based on the communication devices used for cyberbullying; while others, such as Willard (2007) used youths' reported behaviours to measure cyberbullying.

In Table 1, the main instruments used for cyberbullying and/or cybervictimization assessment are reported. Instruments not specifically measuring cyberbullying but cyber-aggression or cyber

harassment were excluded from this review. Six of the 22 instruments included, are specific for cybervictimization-only, two of them investigate cyberbullying- only involvement, while the remaining 14 include specific items both for cyberbullying and cybervictimization. All the 22 instruments have subscales to measure cyberbullying and/or cybervictimization. However, subscales' items varies considerably across the different instruments, twelve of the 22 instruments assessed cyberbullying and/or cybervictimization based on reported behaviour, while the remaining 10 assessed these issues based on communication devices used. Among these, types of devices/media used to assess cyberbullying and/or cybervictimization vary considerably (Berne et al. 2013), also because of the continuous evolution of technology. A confirmatory and/or exploratory factor analysis has been conducted for 20 of the 24 instruments. For all the 22 instruments Cronbach's  $\alpha$  (internal consistency) was reported, while in 21 of the 22 instruments no other forms of reliability have been reported. Only one study (Garaigordobil, 2015) reported test-retest reliability, this underlining the lack and the need of longitudinal studies.

If, since 2005 cyberbullying and cybervictimization items were added to the revised OBVQ (Olweus, 2012), to date, the majority of instruments developed to assess cyberbullying and/or cybervictimization diffusion, lack the minimum psychometric standards of scale development (Thomas et al., 2014; Vessey, Strout, Di Fazio, & Walker, 2014; Berne et al., 2013). This could be related to the fact that cyberbullying is a relatively new issue in scientific literature; however it seems necessary to work at the implementation of instruments characterized by good psychometric proprieties. The development of such instrument could represent a milestone in cyberbullying investigation, making direct comparison across studies and cultures possible.

**Table 1: Psychometric characteristics of cyberbullying measurement instruments**

Instrument	N	Study	Method	N° of items	Reliability	EFA/ CFA <sup>1</sup>
		Age				
Cyber-aggression and cyber-victimization (CAV) scale* Shapka & Maghsoudi (2017) Canada	609	11-13	Survey	12 for CB 12 for CV	CB $\alpha$ =.83 CV $\alpha$ =.90	CFA
Greek Cyber-bullying/victimization Experiences Questionnaire (CBVEQ-G)* Antoniadou et al. (2016) Greece	1.097	12-17	Survey	12 forCB 12 forCV	CB $\alpha$ =.89 CV $\alpha$ =.80	CFA
Bullying and Cyberbullying Behaviors Questionnaire* Coelho et al. (2016) Purtugal	1.039	M=12 (SD = 1.4)	Survey	3 for CB 3 for CV	CB $\alpha$ =.81 CV $\alpha$ =.56	EFA
Students' needs assessment survey* Baldry et al. (2016)/ Willard (2007) Italy	5.058	M=15.6 (SD=2.9)	Survey	5 for CB 5 for CV	Total items $\alpha$ =.74	-
Cybervictimization Questionnaire (CBV)** Álvarez-García et al. (2015). Spain	2.490	11-19	Survey	26 for CV	CV $\alpha$ =.85	CFA
European Cyberbullying Intervention Project Questionnaire** Del Rey et al. (2015)/ Brighi et al. (2012) Spain, Germany, Italy, Poland, United Kingdom, and Greece	5.679	11-23	Survey	11 for CB- 11 for CV	CB $\alpha$ =.93 CV $\alpha$ =.97	EFA/CFA
Cyberbullying Test* Garaigordobil (2015) Spain	3.026	12-18	Survey	15 forCB 15 forCV	CB $\alpha$ =.91 CV $\alpha$ =.82	EFA/CFA
Multidimensional Offline and Online Peer Victimization Scale (MOOPV)* Sumter et al. (2015) The Netherlands	1.124	9-18	Survey	5 for CB 5 for CV	CB $\alpha$ =.82 CV $\alpha$ =.88	EFA/CFA
Cyber Victimization Survey* Brown et al. (2014) USA	108	6-8 grades	Survey	15 forCV	CV $\alpha$ =.92	CFA

E-Victimisation Scale (E-VS) E-Bullying Scale (E-BS)* Lam & Li (2014) China	349	M=13.5 (s.d. = 0.9)	Survey	6 for CB 5 for CV	CB $\alpha$ =.92 CV $\alpha$ =.96	EFA/CFA
Berlin Cyberbullying/Cybervictimization Questionnaire (BCyQ)* Müller et al. (2014)/Schultze-Krumbholz & Scheithauer (2009) Germany	934	10-17	Survey	12 forCB 13 forCV	CB $\alpha$ =.85 CV $\alpha$ =.87	CFA
Cyberbullying Scale (CBS)** Stewart et al. (2014) USA	736	6 to 12 grades	Survey	14 forCV	CV $\alpha$ =.94	EFA/CFA
Cyberbullying Experiences Survey (CES)** Doane et al. (2013) USA	638	M = 20.8, SD=4.8	Survey	20 forCB 21 forCV	All CB items $\alpha$ >.70 All CV items $\alpha$ >.70	EFA/CGA
Cyber victim and bullying Scale* Çetin et al (2011) Turkey	404	14-18	Survey	22 forCB 22 forCV	CB $\alpha$ =.89 CV $\alpha$ =.89	EFA/CFA
Cyberbullying Scale (CS) ** Palladino et al. (2012)/ Menesini et al. (2011) Italy	1.092	11-18	Survey	18 forCB 18 forCV	CB $\alpha$ =.79 CV $\alpha$ =.80	CFA
Cyberbullying Questionnaire* Ang & Coh (2010) Singapore	396	12-18	Survey	9 for CB	CB $\alpha$ =.83	EFA/CFA
Cyberbullying Questionnaire (CBQ)* Calvete et al. (2010) Spain	1.431	12-17	Survey	16 forCB	CB $\alpha$ =.96	CFA
Cyberbullying Victimization Scale ** Hay & Meldrum (2010) USA	426	10-21	Survey	3 for CV	Total items $\alpha$ =.80	CFA
Peer aggression/victimization Questionnaire** Pornari & Wood. (2010) U.K.	339	12-14	Survey	4 for CB 5 for CV	CB $\alpha$ =.82 CV $\alpha$ =.76	-
Revised Cyberbullying Inventory** Topcu & Erdur-Baker (2010) Turkey	339	13-21	Survey	14 for CB 14 for CV	CB $\alpha$ =.82 CV $\alpha$ =.75	EFA/CFA
The cyber-victimization Scale of RPEQ**	1.684	11-16	Survey	4 for CV	CV $\alpha$ =.74	CFA



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Dempsey et al. (2009)							
USA							
Victimization in chat room**	1.700	5-11 grades	Survey	9 for CV	CV $\alpha=.86$		CFA
Katzer et al. (2009)							
Germany							

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Note: <sup>†</sup>Exploratory Factor Analysis/Confirmatory Factor Analysis

\*Instrument based on reported behavior CB/CV; \*\*Instrument based on communication devices used for CB/CV

### **1.3 Prevalence of Cyberbullying**

By bearing in mind the above mentioned difficulties related to the assessment and measurement of cyberbullying and cybervictimization prevalence rates, it should be stressed that cyberbullying is an increasing problem among adolescents (Zych, Ortega-Ruiz, & Del Rey, 2015; Wolak et al., 2007). Even if direct comparisons between studies are not always possible, looking at the prevalence rates they provided, what emerges is that even if prevalence rates vary across countries, cyberbullying is a widespread phenomenon involving a significant number of children and adolescents as both cyberbullies and cybervictims.

Cybervictimization prevalence rates range between from 9% and 72% (Ybarra et al., 2012), cyberbullying incidence ranges between 5% to 35%. While cyberbullying/cybervictimization co-occurrence rates range from 3% to 14% (Aricak et al., 2008; Brown, Jackson, & Cassidy, 2006; Kowalski & Limber, 2007; Li, 2006, 2007a, 2007b; Patchin & Hinduja, 2006; Slonje & Smith, 2008; Sourander et al., 2010; Ybarra et al., 2007; Ybarra, Espelage, & Mitchell, 2007; Ybarra & Mitchell, 2004; Wade & Beran, 2011).

One of the earliest study carried out by Ybarra & Mitchell (2004) between 1999 and 2000 showed that 19% of Internet users (N= 1.501) were involved in cyberbullying either as cyberbullies, cybervictims or both. Kowalski & Limber (2007) found that 11% of youth reported they had cyberbullied others while 4% had been cybervictimized and 7% had been involved in cyberbullying as both a bully and a victim. In the same year, Raskauskas & Stoltz (2007) found higher cyberbullying prevalence rates. In fact, 49% of the students that they surveyed (N= 84) reported that they were cybervictims, and 21% stated that they were involved as cyberbullies. Slonje & Smith (2008) surveyed 360 Swedish adolescents to investigate the extent and nature of cyberbullying. Results highlighted that 11.7% of the whole sample reported being a

cybervictim and 10.3% reported being a cyberbully. Beran & Li (2008), in Canada, found that about 58% of the students they surveyed had experienced cyberbullying (37% were cybervictims, 26% were cyber bullies), in their life course. In the same year, Hinduja & Patchin (2008), in line with Ybarra, Diener-West & Leaf (2007), found that about 35% of the adolescents participating in their research had been cybervictimized at least once in their life course. Wang, Iannotti & Nansel (2009) carried out a study involving 7.182 US students, results highlighted that 13.6% of the sample was involved in cyberbullying; of this percentage 27.4% were cyberbullies, 40% were cybervictims, and 32.6% were cyberbully/cybervictims. Ortega et al. (2009) carried out a study on victims' emotive outcomes, finding that 25% of Spanish youth participating in the study were victims of some kind of bullying, with 5% of them reporting cybervictimization.

McGuckin, Cummins & Lewis (2010) surveyed 3.699 primary school students in Northern Ireland about their life experiences of school bullying and cyberbullying. Data were collected between 2008 and 2009 and showed that about one student in ten (10.3%) was cybervictimized and 3.4% of all respondents reported they were cyberbullies.

Mishna, Khoury-Kassabri, Gadalla & Daciuk (2012) in Canada examined the frequency of cyberbullying in the previous three months, among 2.186 middle and high school students. Results showed that 23.8% of participants were only-cybervictims, 8.0% were only-cyberbullies while about one in four students (25.7%) were cyberbully/victims. Kowalski & Limber (2013) found by surveying 931 US students that 9.9% of participants were only-cybervictims, 6.1% were only-cyberbullies and 5.3% were cyberbully/victims. Kowalski, Morgan & Limber (2012) investigated the relationship occurring between school bullying and cyberbullying, by surveying 2.273 US youth. Results showed that 37.8% of participants were school victims and 17.3% were

cybervictims, while 31.8% were school bullies and 10.9% were cyberbullies.

In Italy, Menesini et al. (2012) found in their study involving 707 students aged between 11-21 years, that the most common cyberbullying behaviours in the previous 2 months were silent phone calls (36.6%) and insults on instant messaging (22.9%). The same pattern was found for cybervictimization, respectively 44.5% and 20.6% of students experienced at least once silent phone call and were insulted on instant messaging.

Mura & Diamantini (2013) analyzed cyberbullying prevalence in Colombia by surveying 359 adolescents, with the aim to investigate cyberbullying issue in developing countries such as Colombia. Results showed that over 2/3 of students reported being involved in cyberbullying (69% as cybervictim, 62% as cyberbully). Sticca, Ruggieri, Alsaker & Perren (2013) found that 14% of their Swiss respondents were involved in cyberbullying and 22% reported some form of cybervictimization in the past four months.

Van Cleemput, Vandebosch & Pabian (2014) found that 11.1% (N=2.333) of the Flemish students they surveyed were cyberbullies, and the same percentages reported cybervictimization, during the previous 6 months' period. Vieno, Gini, Lenzi, Pozzoli, Canale, & Santinello (2014) surveyed 24.099 Italian middle school students (M=13.6, S.D. =0.5) about their experiences of cybervictimization in the previous 2 months, results highlighted that 11.8% of the students declared that they have been cybervictimized (8.7% occasionally and 3.1% frequently).

Yang et al. (2014) found that about 19.2% of the 1.173 Korean students participating in the study were cybervictims. In Hong Kong, China, Wong, Chan, & Cheng (2014) surveyed 1.917 secondary students to explore the prevalence of cyberbullying. Results showed that 31.5% of participants reported being involved in cyberbullying and 23% reported being cybervictimized. Callaghan, Kelly & Molcho (2015) surveyed 318 Irish students about their experience of school bullying and cyberbullying, and found that 14.3% and 9.8%

were respectively traditional victims and cybervictims, while 9.5% were involved victimized both at school and in cyberspace.

In Israel, Tarabulus, Heiman & Olenik-Shemesh (2015) surveyed 458 junior high school students to investigate the overlap between school bullying and cyberbullying. Results highlighted that 22.2% of students were both school and cybervictims, and that 25% of them were involved both as school bullies and cyberbullies.

Waasdorp & Bradshaw (2015) carried out a large study involving 28,104 US adolescents and found that 4.6% were cybervictims-only, while 50.3% of participants reported experiencing all the four forms of victimization considered (verbal, physical, relational and cyber). Baldry et al. (2016) found that respectively 24.0% and 26.2% of their Italian participants (N=2.419) have been involved in cyberbullying and cybervictimization in the previous 6 months. In a further study involving a larger Italian sample of 5.058 students, Baldry et al. (2016) found that respectively 12.1% and 7.4% of students were involved in both school bullying and cyberbullying and in school victimization and cybervictimization:

Palermi, Servidio, Bartolo, & Costabile (2017) in their study involving 438 students aged 10-20 years found that 11.0% were involved in cyberbullying (occasional, 9%; severe, 2%), and 15.4% were cybervictims (occasional, 13.1%; severe, 2.3%).

Looking at those studies what emerges is that cyberbullying rates across countries range between 3.4% and 26.0%, while with regard to cybervictimization, its prevalence ranges between 4.0% and 49.0%.

**Table 2. Studies on cyberbullying and prevalence rates**

Study	Method	N	Age range	Location	Reference period	Percentages of cyberbullying			
						CV	CB	CB/CV	NI
Ybarra & Mitchell (2004)	Telephone survey	1.501	10-17	U.S.	Past 12 months	4.0%	12.0%	3.0%	81.0%
Kowalski & Limber (2007)	Self-report survey	3.767	11-14	U.S.	Past couple of months	11.1%	4.1%	6.8%	78.0%
Ybarra et al.(2007)	Telephone survey	1.588	10-15	U.S.	Past 12 months	35.0%	-	-	65.0%
Raskauskas &Stoltz (2007)	Self-report survey	84	13-18	U.S.	Current school year	49.0%	21.0%	-	-
Beran & Li (2008)	Self-report survey	432	12-15	Canada	In participants experience	58.0%	26.0%	-	-
Hinduja & Patchin (2008)	Online survey	1.378	< 18	Online sample	In participants experience	34.6%	16.8%	-	-
Slonje & Smith (2008)	Self-report survey	360	12-20	Sweden	Past couple of months	11.7%	10.3%	-	-
Smith et al. (2008)	Self-report survey	553	11-16	UK	From never to the last week or month	17.3%	12.4%	-	-
Ortega et al. (2009)	Self-report survey	1.671	12-17	Spain	Past 2 months	10.0%	-	-	90.0%
Wang et al. (2009)	Self-report survey	7.182	11-16 s	U.S.	Past couple of months	5.3%	3.8%	4.5%	86.4%
Mc Guckin et al. (2010)	Self-report survey	3.699	11	North Ireland	In participants experience	10.3%	3.4%	-	-
Kowalski et al.(2012)	Self-report survey	4.531	11-19	U.S.	Past couple of months	17.3%	10.9%	-	-
Mishna et al. (2012)	Self-report survey	2.186	10-17	Canada	Past 3 months	23.8%	8.0%	25.7%	42.5%
Mura & Diamantini (2013)	Self-report survey	359	14-19	Colombia	Past 6 months	16.0%	9.0%	53.0%	22.0%
Kowalski & Limber (2013)	Self-report survey	931	11-19	U.S.	Past couple of months	9.9%	6.1%	5.3%	78.7%
Sticca et al. (2013)	Self-report survey	835	12-13	Swiss	Past 4 months	22.0%	14.0%	-	-
Van Cleemput et al. (2014)	Self-report survey	2.333	9-16	Belgium	Past 6 months	11.1%	11.1%	3.8%	-
Vieno et al. (2014)	Self-report survey	24.099	13	Italy	Past couple of months	11.8%	-	-	88.2%
Yang et al. (2014)	School survey	1.173	13	Korea	Not mentioned	19.2%	-	-	-
Wong et al. (2014)	Self-report survey	1.917	12-15	China	Past month	23.0%	31.5%	-	-
Callaghan et al. (2015)	Self-report survey	318	15-18	Ireland	Past couple of months	9.8%	-	-	66.3%
Tarablus et al. (2015)	Self-report survey	458	11-13	Israel	Past couple of months	8.9%	5.4%	-	85.7%
Waasdorp & Bradshaw (2015)	Self-report survey	28.104	14-18	U.S.	Past month	4.6%	-	-	77.3%
Baldry et al. (2016)	Self-report survey	2.419	12-20	Italy	Past 6 months	26.2%	23.7%	-	-
Palermi et al. (2017)	Self-report survey	428	10-20	Italy	Not reported	15.4%	11.0%	-	-

Note. Studies not reporting the cyberbully/cybervictim category (-) means that in those studies authors reported the percentages of cyberbullying (yes/no) and cybervictimisation (yes/no) without reporting the categories of only cyberbully, only cybervictim and of the overlap group.

Source: Baldry et al. (2016) with modification

These results underline how assessing and comparing cyberbullying and cybervictimization prevalence rates across studies and countries could be complex. This complexity could be explained by considering the different samples characteristics, such as the number of students involved (which range from 84 to 28.104 participants), and the different age group considered across studies (which ranges between 9 and 20 years), in the majority of the cases studies on cyberbullying and cybervictimization diffusion focused only middle and/or high school students. However, the main difficulty lie in the existing differences across studies in the methodology and measures used. With regard to the methodology, almost all studies gathered data using self-report instruments, only two of the 25 considered collected data from structured interviews on the telephone (Ybarra & Mitchell, 2004; Ybarra et al., 2007). Self-report instruments seem to be the most used method to assess cyberbullying and cybervictimization. Their use has several advantages, such as researchers can easily administer a self-report instrument to collect data on large samples in a relatively short period, if compared with other data collection methods (Streiner & Norman, 2008), however what emerges by looking at cyberbullying literature, is that the self-report measures used differs across studies. The most important differences across the cyberbullying self-instruments, lie, as noticed above in the reference period and in the cut-off score adopted to assess cyberbullying and cybervictimization prevalence rates.

In addition to the reported difficulties in comparing cyberbullying and cybervictimization prevalence across studies; to date, fewer studies were carried out adopting a cross-cultural or a cross-national prospective. Adopting a cross-cultural or a cross-national prospective, could be necessary in order to consider the role that culture could have in influencing youngsters' involvement in cyberbullying and cybervictimization (Barlett et al., 2014) and to

compare cyberbullying and cybervictimization prevalence rates across countries.

In order to report the main studies in the literature, cross-national or cross-cultural studies that did not adopted the same questionnaire to compare cyberbullying and cybervictimization rates across countries, were not reported (see Table 3 for details).

As far as we know, the Eu Kids Online is the largest European cross-national study, which involved 25.142 students from 25 European countries. Results showed that about 1 in 5/6 kids in Europe were cybervictimized, underlining the presence of high-risk countries such as Poland and low-risk countries such as Belgium. This first study contributed to our understanding of EU kids' online habits and online risky behaviours (Hasebrink, Livingstone, & Haddon, 2008). Afterwards, Lobe, Livingstone, Ólafsson, & Vodeb (2011) reported that respectively 6% and 3% of students of the total sample were cybervictims and cyberbullies, with Romanian and Estonian youngsters reporting the highest cyberbullying involvement prevalence rates, and overcoming one of the previous study limits (Hasebrink, Livingstone, & Haddon, 2008), that is the lack of countries comparison with regard to youth involvement in cyberbullying .

In 2008, Li carried out the first study comparing Western (Canadian) and non-Western (Chinese) students, aimed at analysing and comparing cyberbullying diffusion between these two samples. Results showed that more Canadian students than Chinese reported they have cyberbullied others, while no significant differences were found with regard to cybervictimization. Although this was the first cross-cultural study carried out, one of its most important limitations was to not consider the role that other cultural, individual, familial and school level variables could have in explain these differences.

Also Mura, Topcu, Erdur-Baker & Diamantini (2011) carried out a cross-cultural study comparing Italian and Turkish university students' experiences of cyberbullying and cybervictimization. Even if some differences were found comparing the two samples,



cyberbullying and cybervictimization experiences across these two cultures were explained referring to students' frequency of ICT use, rather than to possible cultural factors.

Ortega et al. (2012) compared cybervictimization rates between English, Italian and Spanish students, founding that Italian and English students reported the highest mobile phone frequent cybervictimization compared to Spanish students, while English students the reported highest Internet frequent cybervictimization compared to Italian and Spanish students.

Ang, Huan, & Florell (2013) compared U.S. and Singaporeans youth experiences of being involved in cyberbullying, founding no significant differences across nationalities, in fact, respectively 17.9% and 16.4% of students were involved in cyberbullying, at least once or twice in the current school year.

Barlett et al. (2014) carried out a cross-cultural research (comparing US and Japanese students) with the aim to address some previous studies limitations, such as the lack of a theoretical framework and the need of longitudinal design in order to assess cross-cultural change in cyberbullying. However, the study provide very interesting results showing that cultural differences moderate the relationship between positive attitudes towards cyberbullying, in interdependent self-construal, and cyberbullying frequency, it has some limitations related to the measures used.

In their work on the validation at a cross-national level of the European Cyberbullying Intervention Project Questionnaire (ECIPQ; Brighi et al., 2012), Del Rey et al. (2015), gathered data from students from six European countries (Spain, Germany, Italy, Poland, United Kingdom, and Greece). Results related to cross-national comparison highlighted that Greek, Italian and Polish students reported higher prevalence rates in both cyberbullying and cybervictimization.

Jaghoory, Björkqvist, & Österman (2015) surveyed 630 Iranian and 620 Finnish adolescents in order to investigate the existence of differences in youth involvement in cyberbullying and cybervictimization, founding that Iranian students scored higher in

both cyberbullying and cybervictimization. To explain these results, authors hypothesized that Iranian students could be characterized by higher levels of aggressiveness as result of the psychological challenge they are exposed in their society. However, the study did not provide support for this hypothesis since students' aggressiveness was not measured.

Tsitsika et al. (2015) in their cross-sectional study, involving students from Spain, Poland, the Netherlands, Romania, Iceland and Greece found similar to Del Rey et al. (2015) and Lobe et al. (2011) that cybervictimization rates were highest in Romania (37.3%) and Greece (26.8%).

Wright et al. (2015) compared data on cyberbullying and cybervictimization gathered from 1.637 Indian, Chinese and Japanese students. Results revealed that Indian students had the highest levels of cyberbullies compared to Chinese and Japanese adolescents. The same was found with regard to students' experience of being cybervictimized, Indian students reported higher rates of cybervictimization.

**Table 3: Cyberbullying and cybervictimization cross-national/cross-cultural comparisons**

Nation	Study	Sample size, age, method, time frame	Instrument	Criteria CB/CV	Main results	
Poland, Spain, Italy, England, Germany and Greece	Del Rey et al. (2015)	5.679 11-23 years Self-report questionnaire Not reported	The European Cyberbullying Intervention Project Questionnaire (Brighi et al., 2012) 11 for CB and 11 for CV on a 5-point Likert scale (from Never to several times a week)	At least once a month	Cybervictimization rates: 10.14% (GR), 8.04% (IT), 6.37% (U.K.), 6.11% (PL), 4.65% (E) and 4.13 (D)	Cyberbullying rates: 7.82% (GR), 6.85% (D), 6.77% (PL), 5.52% (IT), 5.12% (E) and .94% (U.K.)
Iran and Finland	Jaghoory et al. (2015)	1.250 M age=12.7 (SD =2.1) Self-reported questionnaire Not reported	The Mini-Direct & Indirect Aggression Scales (Österman, 2008) 6 for CB and 6 for CV on a 5-point Likert scale (from Never to several times a week)	Not reported	All types of cybervictimization behaviours were significantly higher among Iranian students. The same applies for cyberbullying, Iranian adolescents performed more cyberbullying, of all kinds, than Finnish adolescents	With regard to cybervictimization in both countries, girls were more exposed to nasty telephone communications and nasty e-mails, while boys were more exposed to being filmed while someone else was evil against them.
Spain, Poland, the Netherlands, Romania, Iceland and Greece	Tsitsika et al. (2015)	10.930 14-17 years Self-reported questionnaire Past 12 months	Questionnaire developed by the EU NET ADB consortium (Tsitsika et al., 2013) 1 for CV with 3 response options: “no”, “yes” and “do not know/prefer not to say”	Not reported	21.4% of the students reported cybervictimization in the past 12 months.	Cybervictimization prevalence is highest in Romania (37.3%) and Greece (26.8%) and lowest in Iceland (13.5%) and Spain (13.3%).
China, India, and Japan	Wright et al. (2015)	1.637 11-15 years Self-reported questionnaire	Cyber Aggression Involvement 9 for CB and 9 for CV on a 5-point Likert scale	At least once or twice	Indian adolescents reported greater cyberbullying (M= 1.86; SD = 0.74) and cyber	

		During the school years	(from 'Never' to several times a week)		victimization (M = 1.79; SD = 0.86) than adolescents from China and Japan.	
Japan and USA	Barlett et al. (2014)	980 M age= 20.51 Self-reported questionnaire The past year	Cyber behavior questionnaire (Ybarra et al., 2007) 3 items for CB	At least once or twice	U.S. students reported higher involvement in cyberbullying than Japanese ones	Both U.S. and Japanese males students scored higher on cyberbullying involvement than females
U.S.A. and Singapore	Ang et al. (2013)	757 11-17 years Self-reported questionnaire The current school term	Cyberbullying Questionnaire (Ang & Goh, 2010). 9 items for CB on a 5-point Likert scale (from 'Never' to 'A few times every week')	At least once or twice	Respectively 17.9% and 16.4% of United States and Singapore students were involved in cyberbullying	
England, Italy and Spain	Ortega et al. (2012)	5.862 8-10-12 grades Self-reported questionnaire Past 2 months	DAPHNE Questionnaire (Genta et al., 2012) 12 for mobile phones CV and 12 for internet CV on a 5-point Likert scale (from 'Never' to several times a week)	At least once or twice	Mobile phone frequent victimization: 2.0% (U.K.) 2.2% (IT) 0.5% (ES)	Internet frequent victimization: 2.6% (U.K.), 1.9% (IT) 1.3% (ES)
Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, France, Finland, Germany, Greece, Hungary, Ireland, Italy, Lithuania, the Nederland, Norway, Poland,	Lobe et al. (2011)	25.142 9-16 years Face to face interview In the last 12 months	EU Kids Online Survey 2 for CB and CV with 3 response options: "no" or "yes"	Not reported	In Romania (14.0%) and Estonia (13.0%), cyberbullying is more than twice the average. Cyberbullying rates are lower in some Southern European countries such as (Portugal, Italy, Turkey and Greece) and the Netherlands.	With regard to the total sample, 6% of participants were cybervictimized while 3% were ctberbullies

Portugal, Romania, Spain, Slovenia, Sweden, Turkey, and United Kingdom Italy and Turkey	Mura et al. (2011)	337 IT=18-33 years TR=18-36 years Self-reported questionnaire Past 6 months	Items were based on the Revised CyberBullying Inventory (RCBI; Topcu & Erdur -Baker, 2010) 8 for CB and 8 for CVon 3-point scale (from 'Never' to '3 times or more')	At least once	The most common types of cybervictimization were gossip for Italian students (30.5%) and prank calls (42.9%) for Turkish students	With regard to cyberbullying, Italian students reported higher rates of gossiping (27.8%) publication of private messages (19.0%) and embarrassing photo (7.0%). Turkish students reported higher levels of prank calls (21.7%) and mean threatening email/ text (13.7%)
Canada and China	Li (2008)	354 7 <sup>th</sup> grade Self-reported questionnaire Not reported	Survey 3 for CB and 4 for CV from 'Less than 4 times to 'Over 10 times'	At least one – three times	Respectively 25.0% and 33.0% of Canadian and Chinese students reported cybervitctimization	Respectively 15.0% and 7.0% of Canadian and Chinese students reported cyberbullying

Source: Baldry, Blaya & Farrington (2017)

By reviewing the existing literature, it emerges that studies adopting a cross-national or a cross-cultural prospective are rare and often they did not develop a methodology (including cultural free surveys, materials and standardized procedures to collect data) aimed at making cyberbullying and cybervictimization rates comparable across different countries. This stress the need to have more cross-national studies (Walrave & Heirman, 2011) in order to better understand, compare and generalize cyberbullying and cybervictimization diffusion and experience among different countries. The majority of the existing studies did not provide explanations of the differences found across counties, and/or did not include in their questionnaires measures able to explain such differences in terms of cultural influences. Furthermore, one of the main problems when carrying out cross-national or cross-cultural studies lies in the fact that both participants' countries and students participating in these researches are often selected on convenience, and this could hinder the extent to which the possible impact of cross-national or cross-cultural differences can have on studies' findings (Ortega et al., 2012).

However, despite the possible methodological and sampling difficulties, consistent with Hasebrink, Livingstone, & Haddon (2008), we stress the importance to adopt a cross-national prospective. Adopting such prospective could be crucial not only to investigate children and teens use of the new technologies, as well as the risk they face online, such as cyberbullying and cybervictimization, but also make possible comparisons and generalize at an European level cyberbullying prevention and intervention policies.

#### **1.4 The relationship between school bullying and cyberbullying**

In the first decade of the 21st century, a new phase in school bullying research started (Sánchez & Ortega, 2010), researchers begun to show interest in harmful attitudes involving the use of the

information and communication technologies, that were very similar to indirect bullying (Ortega, Elipe, & Monks, 2012; Ortega et al., 2009), that is in cyberbullying. The first studies on cyberbullying considered this phenomenon as a new type of indirect bullying (Ortega-Ruiz & Núñez, 2012). However, in 2004 Ybarra and Mitchell found that some victims of school bullying used the Internet and the new technologies to harass others and take revenge against those who bullied them in school, thus inaugurating a new research field related to the nature of cyberbullying and to the conceptual and empirical relationship existing between school bullying and cyberbullying. Studies conducted within this research field have produced controversial results, which led the researchers to support opposite positions with regard to the nature of cyberbullying and its relation with school bullying.

We can distinguish these studies' results according two main "*hypothesis*":

- (1) *Role continuity* – cyberbullying and cybervictimization can be considered as an extension of the schoolyard experiences, with school bullies continuing to harass their victims also in the cyberspace;
- (2) *Role inversion* - some students victimized at school could use the Internet and the new technologies as means to harass and to take revenge against those who bully them at school (Ybarra & Mitchell, 2004).

Table 4 & 5, summarise the main research findings. In particular, in Table 4 are reported percentages of involvement in bullying and cyberbullying, while in Table 5 are summarized the studies' main results concerning the relationship between school bullying and cyberbullying.

**Table 4: Percentages of involvement in school and cyberbullying across studies.**

Study	Sample size, method, time frame	Percentages for school bullying				Percentages for cyberbullying			
		NI	V	B	BV	NI	CV	CB	CBV
Ybarra & Mitchell (2004a) USA	1.501 Telephone survey At least once in the past 12 months	-	†	-	-	81.0*	4.0*	12.0*	3.0*
Ybarra, Diener-West, & Leaf (2007) USA	1.588 Online survey At least once in the past 12 months	-	†	-	-	65.0 <sup>a</sup>	35.0 <sup>a</sup>	-	-
Raskauskas & Stoltz (2007) USA	84 Self-reported survey At least once within the current school years	-	71.4 <sup>+</sup>	64.3 <sup>+</sup>	-	-	48.8 <sup>+</sup>	21.4 <sup>+</sup>	-
Li (2007a) Canada	177 Self-reported survey At least once in participants experience	-	53.7 <sup>+</sup>	31.1 <sup>+</sup>	-	-	24.9 <sup>+</sup>	14.5 <sup>+</sup>	-
Li (2007b) Canada and China	264 Self-reported survey At least once in participants experience	-	†	†	†	-	28.9 <sup>c</sup>	17.8 <sup>c</sup>	-
Beran & Li (2008) Canada	432 Self-reported questionnaire At least once	-	†	-	-	42.0 <sup>c</sup>	58.0 <sup>c</sup>	26.0 <sup>c</sup>	-
Smith, et al. (2008) UK	533 Self-reported questionnaire At least once in the past year	-	58.1 <sup>+</sup>	25.7 <sup>+</sup>	-	-	17.3 <sup>+</sup>	12.4 <sup>+</sup>	-
Hinduja & Patchin (2008) USA	1.378 Online survey At least once in participants' experience for cyberbullying.	-	†	†	-	-	34.6 <sup>+</sup>	16.8 <sup>+</sup>	-



	At least once in the previous 6 months for bullying									
Riebel, Jäger and Fischer (2009) Germany	1.987 Online questionnaire At least one per week in the last 2 months	-	†	†	-	-	5.5 <sup>+</sup>	3.9 <sup>+</sup>	-	
Sourander et al. (2010) Finland	2.215 Longitudinal study At least sometimes in the past six months	†	33.2 <sup>b</sup>	33.0 <sup>b</sup>	†	82.4 <sup>b</sup>	4.8 <sup>b</sup>	7.4 <sup>b</sup>	5.4 <sup>b</sup>	
Michna, et al (2012) Canada	2.186 Self-reported questionnaire At least once in the previous 3 months for cyberbullying At least once in the last month for bullying	-	-	56.3 <sup>*</sup>	-	42.5 <sup>*</sup>	23.8 <sup>*</sup>	8.0 <sup>*</sup>	25.7 <sup>*</sup>	
Del Rey, Elipe & Ortega-Ruiz (2012) Spain	274 Longitudinal study At least once or twice in the previous 2 months	†	†	†	†	†	†	†	†	†
Salmivalli & Pöyhönen (2012) Finland	21.364 Online survey At least 2-3 times a month in the past couple of months	†	†	†	-	†	2.0 <sup>+</sup>	1.0 <sup>+</sup>	-	
Kowalski and Limber (2013) USA	931 Anonymous survey At least 2-3 times a month in the past couple of months	48.9 <sup>b</sup>	14.6 <sup>b</sup>	17.3 <sup>b</sup>	19.2 <sup>b</sup>	78.7 <sup>b</sup>	9.9 <sup>b</sup>	6.1 <sup>b</sup>	5.3 <sup>b</sup>	
Jang, Song & Kim (2014) North Korea	16.190 Longitudinal study At least once in the last year	-	†	†	†	-	-	43.0 <sup>d</sup>	-	
Kubiszewski, Fontaine, Potard, & Auzoult (2015) France	1.422 Anonymous interview	74.0 <sup>b</sup>	15.0 <sup>b</sup>	8.0 <sup>b</sup>	3.0 <sup>b</sup>	73.0 <sup>b</sup>	18.0 <sup>b</sup>	4.0 <sup>b</sup>	5.0 <sup>b</sup>	

		At least once or twice in the past 2-3 months								
Tarablus, Heiman & Olenik-Shemesh (2015) Israel	458 Self-reported questionnaire At least once in the past year	†	13.0 <sup>+</sup>	20.0 <sup>+</sup>	-	†	8.9 <sup>+</sup>	5.4 <sup>+</sup>	-	
Antoniadou, Kokkinos & Markos (2016) Greece	146 Self-reported questionnaire -	61.0 <sup>b</sup>	13.7 <sup>b</sup>	15.1 <sup>b</sup>	10.3 <sup>b</sup>	68.5 <sup>b</sup>	8.9 <sup>b</sup>	10.3 <sup>b</sup>	15.1 <sup>b</sup>	

*Note:* - Data not applicable; † Information not provided in the article; \* percentages refers to the all 4 cyberbullying categories (not involved, only cyberbully, only cyber victim, cyberbully/victims); <sup>+</sup> percentages refers to only victim, only bully, only cybervictim, only cyberbully; <sup>a</sup> percentages refers to cybervictims only; <sup>b</sup> percentages refers to the all 4 bullying (not involved, only bully, only victim, bully/victims) and cyberbullying categories (not involved, only cyberbully, only cyber victim, cyberbully/victims); <sup>c</sup> Percentages refers to only cyberbullies and only cybervictims; <sup>d</sup> percentages refers to only victim and only cyberbully.

**Table 5. Overlap between cyberbullying and school bullying categories.**

Study	Sample and method/ Criteria	Percentages and comparisons for each category								
		B/CB	V/CV	V/CB	B/CV	BV/CB	BV/CV	BV/CBV	B/CBV	V/CBV
Ybarra & Mitchell (2004)*	1.501 Telephone survey At least once in the past 12 months	-	44% of cybervictims were also school victims	49% of cyber bullies were also victims	-	-	-	56% of cyberbully /victims reported also being school victims	-	56% of cyberbully /victims reported also being school victims
Ybarra, Diener- West, & Leaf (2007) <sup>a</sup>	1.588 Online survey At least once in the past 12 months	-	47.1% of frequent school victims were cybervictims, while 8.6% of cybervictims were not school victims	-	-	-	-	-	-	-

		<b>B/CB</b>	<b>V/CV</b>	<b>V/CB</b>	<b>B/CV</b>	<b>BV/CB</b>	<b>BV/CV</b>	<b>BV/CBV</b>	<b>B/CBV</b>	<b>V/CBV</b>
Raskauskas & Stoltz (2007) <sup>+</sup>	84 Self-reported survey At least once within the current school years	School bully status emerged as significant predictors of cyberbully (20.2%), while 1.2% of cyber bullies were not school bullies	School victim status emerged as a significant predictor of cybervictimization (41.7%), while 7.1% of cybervictims were not school victims	School victim status did not predict cyber perpetration	School bully status did not predict cybervictimization	-	-	-	-	-
Li (2007a) <sup>+</sup>	177 Self-reported survey At least once in participants experience	29.8% of bullies were also cyber bullies	31.9% of victims were also cybervictims	16.7% of victims were also cyber bullies	27.3% of bullies were also cybervictims	-	-	-	-	-
Li (2007b) <sup>c</sup>	264 Self-reported survey At least once in participants experience	School bullies were 2.81 times more at risk of being cyber bullies	School victims were 2.46 times more likely to be cybervictims	-	-	Bully/victims were 2.76 times more likely to be cyber bullies	Bully/victims were 1.91 times more likely to be cybervictims	-	-	-
Beran & Li (2007) <sup>c</sup>	432 Self-reported questionnaire At least once	-	School victims are more likely to be cybervictims (r=.52, p=.05)	-	-	-	-	-	-	-
Smith, et al (2008) <sup>+</sup>	533 Self-reported questionnaire At least once in the past year	9.0% of bullies were also cyber bullies, while 3.0% of cyber bullies were not school bullies	14.0% of victims were also cybervictims, while 3.0% of cybervictims were not school victims	7.9% of victims were also cyberbullies	-	-	-	-	-	-

		<b>B/CB</b>	<b>V/CV</b>	<b>V/CB</b>	<b>B/CV</b>	<b>BV/CB</b>	<b>BV/CV</b>	<b>BV/CBV</b>	<b>B/CBV</b>	<b>V/CBV</b>
Hinduja & Patchin (2008) <sup>+</sup>	1.378 Online survey At least once cyberbullying At least once in the previous 6 months bullying.	School bullies were more than 2.59 times as likely to bully others online	Victims of school bullying were more than 2.67 times as likely to be cybervictims	-	-	-	-	-	-	-
Riebel, Jäger and Fischer (2009) <sup>+</sup>	1.987 Online questionnaire At least one per week in the last 2 months	Of 77 cyber bullies, 63 reported being a bully, 0.7% of cyber bullies were not school bullies	18.2% of cybervictims were also school victims, while 0.9% of cybervictims were not school victims	-	-	-	-	-	-	-
Sourander et al (2010) <sup>b</sup>	2.215 Longitudinal study At least sometimes in the past six months	44.0% of school bullies were also cyberbullying	29.9% of school victims were Cybervictims	6.6% of school victims were also cyberbullies-	2.8% of school bullies were cybervictims	24.9% of bully/victims were cyber bullies	13.6% of bully/victims were cybervictims	32.8% of cyberbully/victims were also school bully/victim	12.2% of school bullies were cyberbully/victims	8.0% of victims were cyberbully/victims
Mishna, et al (2012) <sup>*</sup>	2.186 Self-reported questionnaire At least once previous 3 months for cyberbullying At least once in the last month for bullying	Cyber bullies were 4.84 times more likely to be bullies	-	-	Cybervictims were 1.79 times more likely to be bullies	-	-	-	Cyberbully/victims were 6.71 times more likely to be bullies	-

		<b>B/CB</b>	<b>V/CV</b>	<b>V/CB</b>	<b>B/CV</b>	<b>BV/CB</b>	<b>BV/CV</b>	<b>BV/CBV</b>	<b>B/CBV</b>	<b>CB/CV</b>
Del Rey, Elipe & Ortega-Ruiz (2012) <sup>+</sup>	274 Longitudinal study At least once or twice in the previous 2 months	Involvement as cyberbully at T1 correlate with involvement as school bully at T2 (r=.16, p=.05)	School victimization at T1 is associated to cyber victimization at T2 (r=.22, p=.01)	Victimization at T1 is not associated with the involvement as cyberbullies in T2	Involvement as cybervictim at T1 is associated with the involvement as school bullies at T2 (r=.15, p=.05)	-	-	-	-	-
Salmivalli & Pöyhönen (2012) <sup>+</sup>	21.364 Online survey At least 2-3 times a month in the past couple of months.	School bullying related to cyberbullying (Spearman's rank order correlation .18 to .32)	School victimization correlated positively with cybervictimization (r=.30)	-	-	-	-	-	-	-
Kowalski & Limber (2013) <sup>b</sup>	931 Anonymous survey At least 2-3 times/month in past couple months.	1,8% of bullies were also cyber bullies	1,6% of victims were also cybervictims	0.1% of victims were also cyberbullies	0,1% of bullies were also cybervictims	0.1% of bully/victims were cyberbullies	0.6% of bully/victims were cybervictims	1,1% of bully/victims were also cyberbully/victims	0.2% of bullies were also cyberbully/victims	0.2% of victims were cyberbully/victims
Jang, Song & Kim (2014) <sup>d</sup>	16.190 Longitudinal study At least once in the last year.	-	-	Victims are 8.33 times more likely to be involved as cyberbullies	-	-	-	-	-	-
Kubiszewski, Fontaine, Potard, & Auzoult (2015) <sup>b</sup>	1.422 Anonymous interview At least once or twice in the past 2-3 months.	22.0% of bullies were also cyberbullies	26.0% of victims were also cybervictims	-	-	-	-	13.0% of bully/victims were also cyberbully/Victims	-	-

		<b>B/CB</b>	<b>V/CV</b>	<b>V/CB</b>	<b>B/CV</b>	<b>BV/CB</b>	<b>BV/CV</b>	<b>BV/CBV</b>	<b>B/CBV</b>	<b>CB/CV</b>
Tarablus, Heiman & Olenik-Shemesh (2015) <sup>+</sup>	458 Self-reported questionnaire At least once in the past year	Involvement in school bullying is associated with cyberbullying ( $\chi^2(1)=26.15$ , $p<.001$ )	There's a significant association between school cyberbullying and cybervictimization ( $\chi^2(1)=13.24$ , $p<.001$ )	-	-	-	-	-	-	-
Antoniadou, Kokkinos & Markos (2016) <sup>b</sup>	146 Self-reported questionnaire	2.74% of students school bullying also cyberbullies	1.37% of school victims were also involved as cybervictims	-	-	-	-	4.79% of bully/victims were also cyberbully/victims	-	-

-Note: \* percentages refers to the all 4 cyberbullying categories (not involved, only cyberbully, only cyber victim, cyberbully/victims); <sup>+</sup> percentages refers to only victim, only bully, only cybervictim, only cyberbully, <sup>a</sup> percentages refers to only cybervictim; <sup>b</sup> percentages refers to all 4 forms of school bullying (not involved, only bully, only victim, bully/victims) and cyberbullying categories (not involved, only cyberbully, only cyber victim, cyber bully/victims); <sup>c</sup> Percentages refers to only cyberbullies and only cybervictims; <sup>d</sup> Percentages refers to only victim and only cyberbully.

According to some studies, school bullying and cyberbullying are related phenomena, characterized by a substantial role continuity. For example, Raskauskas & Stoltz (2007) found that 85% of cybervictims were also school victims, and 94% of cyber bullies were school bullies. Hinduja & Patchin (2008) found that youth victims of school bullying were more than 2.5 times as likely to be cybervictims, and there was a similar overlap for those youths who bullied others at school. This supports their previous conclusion that “*bullies move beyond the schoolyard*” (Patchin & Hinduja, 2006).

Smith et al. (2008), consistent with Raskauskas and Stoltz (2007), found a substantial continuity of the roles of bullies and victims. Cybervictims were more often involved in school bullying as victims, while cyberbullies were involved in bullying as bullies.

Riebel, Jäger & Fischer (2009) surveyed 1,987 German students aged 6-19 years using an online questionnaire to assess participants' bullying and cyberbullying experiences. Overall, a small proportion of respondents reported cybervictimization (5.5%) and 3.9% reported cyberbullying. The study showed that 18.2% of cybervictims were also school victims, while 0.9% of cybervictims were not school victims, and that, out of 77 cyberbullies, 63 were also school bullies (81%). According to the authors, cyberbullying can be considered as a subcategory of school bullying (Riebel et al., 2009).

Sourander et al. (2010) carried out a population-based study on a sample of 2,215 Finnish adolescents aged 13 to 16 years in order to collect information about adolescents' experiences of cyberbullying and cybervictimization. Results showed that 4.8% of the surveyed students were only cybervictims, 7.4% were only cyberbullies, and 5.4% were cyber bully-victims. Researchers found the existence of an overlap between school and cyber bullying. The involvement in school bullying as victims is associated with a similar involvement in cyberbullying and, similarly school bullies are more likely to be involved in cyberbullying as aggressors (see Table 5 for details).

Over the years, studies that report a substantial continuity of roles in bullying and cyber bullying have multiplied. Salmivalli & Pöyhönen (2012), in their research carried out with 17.627 Finnish students, found that “*cyberbullying and cybervictimization are almost always accompanied by other, more traditional, forms of bullying and victimization*” (Salmivalli & Pöyhönen, 2012, p. 65). In line with the above-cited studies, also Kowalski & Limber (2013) and Tarablus, Heiman & Olenik-Shemesh (2015) also found a substantial overlap between adolescents’ involvement in school bullying and cyberbullying.

According to other studies, however, school bullying and cyberbullying are different phenomena. In particular, there can be a *role inversion* with school victims becoming cyberbullies. For example, Mishna, Khoury-Kassabri, Gadalla & Daciuk (2012) suggested that some cyberspace’ features could facilitate not only youngsters’ involvement in cyberbullying but also the possibility to shift boundaries between the roles of cyberbullies and cybervictims. Jang, Song and Kim (2014) found that one of the most important factors explaining students’ involvement in cyberbullying was school bullying victimization.

Kubiszewski, Fontaine, Potard, & Auzoult (2015) found very little overlap between school bullying and cyberbullying. Less than a quarter of students were involved in the same role both in school bullying and cyberbullying, and in the majority of the cases, students involved in cyberbullying were not the same as those involved in school bullying. Similarly, Antoniadou, Kokkinos, & Markos (2016) classified students according to their role in both traditional bullying and cyberbullying. Results showed that only 8.9% of students reported involvement in both phenomena in the same role, whereas respectively 15.1% and 24.7% of them reported to be involved in both school and cyberbullying but in an opposite role and to be involved in only one of the two phenomena.

In conclusion, what emerges analysing the existing literature on cyberbullying and school bullying relationship is that researchers are



divided with regard to these two phenomena co-occurrence and overlap. In particular, very few studies (Baldry, Farrington, & Sorrentino, (under review); Antoniadou, Kokkinos & Markos, 2016; Kubiszewski et al., 2015; Kowalski & Limber, 2013; Sourander et al., 2010), analysed the overlap between school bullying and cyberbullying by comparing the 4 level categories of involvement (only- bullies, only-victims, bully/victims, and not involved) for both school bullying and cyberbullying. The majority of studies had often neglected to analyse the role that the so-called *overlap group* (cyber-bully/cybervictim and school-bully/school-victim) could have in explaining the contradictory positions existing in literature.

Furthermore, considering that involvement in school bullying had been proven to be a significant risk factor for cyberbullying (Baldry, Farrington, & Sorrentino, 2015; Cross et al., 2015; Zych, Ortega-Ruiz, & Del Rey, 2015; Kowalski et al., 2014), to shed light on the relationship existing between these two phenomena, could be a key point to plan effective anti-cyberbullying programs.

## **Chapter 2: Cyberbullying in search of a theoretical model**

### **2.1 Introduction**

Cyberbullying literature is characterized on one hand by the presence of numerous studies and research related to the phenomenon diffusion and features, while on the other hand it is connoted by a lack of conceptual and theoretical background (Tokunaga, 2010; Slonje, Smith & Frisé, 2013).

To date, several attempts to overcome this limitation exist.

According to Hay, Meldrum, & Mann (2010) and Hinduja & Patchin (2010), students' involvement in cyberbullying can be explained by adopting the General Strain Theory (Agnew, 1992).

In 2012, Heirman and Walrave applied the Theory of Planned Behavior (Ajzen, 1991) to explain and predict students' involvement in cyberbullying. Kowalski et al. (2014), in their extensive review, adopted the General Aggression Model (GAM), a framework integrating theories about aggression (based on theories by Bandura, 1986a; Crick & Dodge, 1994), in order to explain and organize factors related to youths' involvement in cyberbullying and/or cybervictimization. In their review on cyberbullying among adolescents, Mehari, Farrell, and Le (2014) addressed the lack of a unified theoretical framework in these studies, by suggesting to consider cyberbullying within the theoretical context of aggression in adolescence rather than considering it as a distinct type of aggression.

Bronfenbrenner's ecological theory of development (Bronfenbrenner, 1977, 1979) can be considered another useful approach to investigate, to design prevention and intervention programs and to explain children and youngsters' involvement in cyberbullying and cybervictimization. This approach extensively used in the context of school bullying to investigate factors influencing children and youths' involvement in school bullying (Hong and Espelage, 2012), had been also applied to explain children

and youngsters' involvement in cyberbullying and/or cybervictimization (Baldry et al., 2015; Cross et al., 2015).

## **2.2 The ecological system theory**

Bronfenbrenner's ecological theory of development (Bronfenbrenner, 1977, 1979) can be considered a useful approach to investigate and design prevention and intervention programs and explain children and youngsters' involvement in cyberbullying and cybervictimization (Baldry et al., 2015; Cross, et al., 2015), as it is successfully applied also to investigate factors influencing children and youth involvement in school bullying (Hong & Espelage, 2012). According to Bronfenbrenner's theory (1977, 1979), in human development we can observe a "*progressive accommodation, throughout the life span, between the growing human organism and the changing environments in which it actually lives and grows*" (Bronfenbrenner, 1977 p.513), in this sense there is a bidirectional relationship between the individual and the different social contexts in which the individual grows. The social contexts, an individual encounters in the course of his/her development, are both formal and informal, and they include not only the immediate setting in which the individual grows, but also larger social contexts. These different settings and social contexts are embedded, the bidirectional relationships existing between the individual and the different social contexts are conceived in systems terms (Bronfenbrenner, 1977). In other words, human development is influenced by and influence in turn the different and overlapped ecological systems of which the individual has experience as he/she grows. This mutual and bidirectional influence between systems and individuals, results in behaviours (Bronfenbrenner, 1979, 2005).

The ecological systems properties are explained by Bronfenbrenner (1977) thought a series of propositions:

- "*The ecology of human development is the scientific study of the progressive, mutual accommodation, throughout the life span,*

*between a growing human organism and the changing immediate environments in which it lives, as this process is affected by relations obtaining within and between these immediate settings, as well as the larger social contexts, both formal and informal, in which the settings are embedded” (Bronfenbrenner, 1977, p.514).*

- *“The ecological environment is conceived topologically as a nested arrangement of structures, each contained within the next” (Bronfenbrenner, 1977, p.514).*

At the most immediate level, children have direct interactions with the microsystem, described as *“the complex of relations between the developing person and environment in an immediate setting containing that person (e.g., home, school, workplace, etc.)”* (Bronfenbrenner, 1977, p. 514). The influences that those different environments have on the individual development constitute the mesosystem, that *“comprises the interrelations among major settings containing the developing person at a particular point in his or her life.....In sum, stated succinctly, a mesosystem is a system of microsystems”* (Bronfenbrenner, 1977, p. 515).

At a higher level, there is the exo-system, which can be considered as *“an extension of the mesosystem embracing other specific social structures, both formal and informal, that do not themselves contain the developing person but impinge upon or encompass the immediate settings in which that person is found, and thereby influence, delimit, or even determine what goes on there”* (Bronfenbrenner, 1977, p. 515).

Finally, Bronfenbrenner (1977, p. 515) describes it as the *“overarching institutional patterns of the culture or subculture, such as the economic, social, educational, legal, and political systems, of which micro-, meso-, and exosystems are the concrete manifestations”*.

The ecological system theory seems to provide a comprehensive framework of the extent to which an individual’s involvement in

cyberbullying and/or cybervictimization is affected by several factors: the students involved in, their families, peers, school, and community. The theory focuses on the connections existing between the various direct and indirect factors, on their interaction and connection explaining how they can encourage or on the contrary, discourage an individual's involvement in cyberbullying and/or in cybervictimization (Gasior, 2009; Epstein & Kazmierczak, 2007; Espelage & Swearer, 2004).

### **2.3 The threat assessment approach**

The threat assessment approach is a theoretical and a scientific-based framework for the identification, assessment and management of people considered at risk for involvement in criminal violent behaviour and has been used mainly for juvenile offenders (Baldry & Sorrentino, 2017). With the term “*threat assessment*” are described a set of techniques useful to identify, assess, and manage the risks of targeted violence and its potential perpetrators (Fein et al., 1995). The main aims of the threat assessment approach are: the perpetrator identification, assessment of the risks of violence posed by the perpetrator at a given time, and perpetrator and possible victim management.

With the emergence of the threat assessment approach, dangerousness is conceptualized in a new way, that is the risk that an individual has to be involved in such behaviours is contextual (it depends on circumstances), dynamic (it can change) and continuous (it is influenced by a continuum of probability) (Borum et al., 1999). Another innovative aspect of this approach is that an individual's involvement in violent behaviours is considered as the result of the interactions between individual, situational and environmental risk factors, from this point of view is not possible to identify a single “type” or to define a profile of perpetrators (Fein et al., 1995).

The threat assessment approach is guided by several operational principles, and it is based on some key questions that research suggests to be investigated for the purposes to assess the risk of a certain individual involvement in violent behavior (Borum et al, 1999; Fein & Vossekuil, 1998, 1999; Fein, Vossekuil and Holden, 1995).

The two fundamental principles that underlie this approach are:

- I. *“Violence is a process, as well as an act. Violent behaviour does not occur in a vacuum. Careful analysis of violent incidents shows that violent acts often are the culmination of long-developing, identifiable trails of problems, conflicts, disputes, and failures”* (Fein et al., 1995, p.3).
- II. *“Violence is the product of an interaction among three factors: a) The individual who takes violent action, b) Stimulus or triggering conditions that lead the subject to see violence as an option, “way out,” or solution to problems or life situation, c) a setting that facilitates or permits the violence, or at least does not stop it from occurring”* (Fein et al., 1995, p.3).

This means that in order to prevent violent and/or criminal behaviours, it would be crucial to assess perpetrators’ history, his/her coping resources, and the presence of traumatic or stressful events. Alongside this you would also assess the response to stressful/traumatic events, the current situation, the targeted victim(s) and his/her environment. In this context it’s also key to assess if the perpetrator is being supported, accepted, ignored or disapproved in relation to his/her threat of violence (Borum, Fein, Vossekuil & Berglund, 1999).

*“A key to investigation and resolution of threat assessment cases is identification of the subject’s “attack-related” behaviours. Perpetrators of targeted acts of violence engage in discrete behaviours that precede and are linked to their attacks; they*

*consider, plan, and prepare before engaging in violent actions*” (Fein et al., 1995, p.3). Identify and analyse those “*attack-related*” behaviours is a critical point for the correct threat and risk assessment (Borum, et al., 1999).

According to this theoretical framework in order to identify, assess and manage individuals at risk of being involved in violent behaviours, it could be necessary to assess the level of threat posed by the individual at a given time. This means investigate the subject's behaviour and examine the patterns of his/her conduct that may result in an attack on a particular target(s).

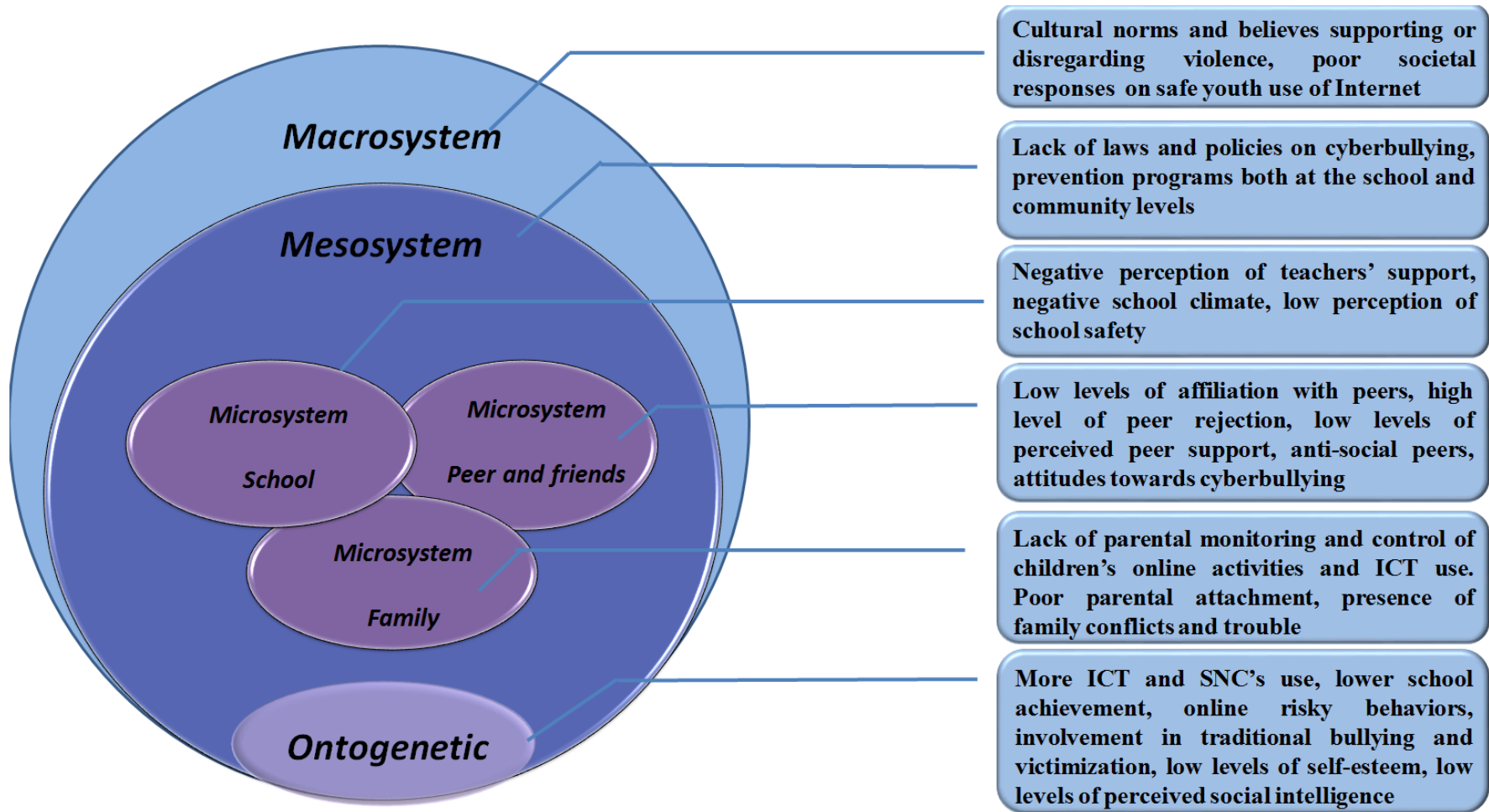
Although the threat assessment approach was developed by the U.S. Secret Service with the aim to protect the President of the United States and other U.S. and foreign leaders, this approach had been successfully applied to other form of violence (Borum et al., 1999) such as school violence (Fein, Vossekuil, Pollack, Borum, Modzeleski & Reddy, 2002). For these reasons, it could be a useful framework for studying and assessing the risk of aggressive behaviours among children and youth such as cyberbullying and cybervictimization. Applying this method to investigate these issues means to evaluate, the presence of those risk factors, that the international literature, suggest to be significant for students’ involvement in cyberbullying, this assessment is necessary because their presence and interactions appears to increase the credibility of the threat: that is student’s likelihood of being involved in these phenomena.

#### **2.4 Combining the ecological system theory and the threat assessment approach to cyberbullying and cybervictimization**

In order to combine the two theories adopted to explain youths’ involvement in cyberbullying and/or cybervictimization dynamics, the same approach used by Baldry et al. (2015) was adopted.

*Ecological Level of identification of Risk Factors*

*Cyberbullying/victimization risk factors*



**Fig.1: Risk factors for cyberbullying and cybervictimization according to the ecological framework (Source: Baldry et al., 2015; Bronfenbrenner, 1979 with modification).**



In particular, the attempt to put together these two apparently unrelated theoretical frameworks is guided by the belief that one can compensate for the other.

The threat assessment approach allows to have a clear picture of the risk factors for involvement in cyberbullying and or cybervictimization, while the ecological systems theory allows to identify the ecological levels where those risk factors act, and influence each other, promoting the involvement of a certain subject in these aggressive behaviours.

To this aim, dimensions identified by reviewing the international literature, as risk factors for cyberbullying and/or cybervictimization were classified accordingly to the ecological systems identified by (Bronfenbrenner, 1977, 1979).

By adopting this classification, it is possible to look at the relationship between risk factors and involvement in cyberbullying and cybervictimization and evaluate a certain individual likelihood of being at risk, assessing and evaluating the presence of risk factors at one or more of the four ecological levels identified by Bronfenbrenner (1977, 1979) (Baldry et al., 2015).

## **2.5 Risk factors for involvement in cyberbullying**

### 2.5.1 Individual level risk factors ('ontogenetic')

**Gender.** Gender role in cyberbullying involvement was investigated by several studies, which led to mixed results. Some researchers found no significant differences between genders (Gradinger, Strohmeier, & Spiel, 2009; Mishna et al.; 2012; Hinduja & Patchin, 2008; Smith et al., 2008), while others reported the existence of significant gender differences in cyberbullying. The majority of studies found that males are more likely to cyberbullying (Lapidot-Lefler

& Dolev-Cohen, 2015; Barlett & Coyne, 2014; Erdur-Baker, 2010; Sourander et al., 2010; Huang & Chou, 2010; Katzer, Fetchenhauer & Belschak, 2009; Li, 2006). However, also studies reporting opposite results exist, Pornari & Wood (2010) and Kowalski & Limber (2007) found that females were more likely to be involved as cyberbullies.

**SES.** Wang, Iannotti, and Nansel (2009) analysing data from 7.182, grade 6–10 students, found a positive relationship between SES (socio-economic status) and cyberbullying.

**School commitment.** Low school commitment had been found as a significant risk factor for youth' involvement in cyberbullying (Chen, Ho & Lwin, 2016; Hemphill & Heerde, 2014; Kowalski & Limber, 2013; Ybarra & Mitchell, 2004)

**Use, perceived expertise, and risky behaviours on the Internet.** Several studies found a significant association between Internet frequency use and cyberbullying, meaning the more children and adolescents spent their time online, the more there are at risk of being involved in cyberbullying (Chen, Ho & Lwin, 2016; Gámez-Guadix, Borrajo & Almendros, 2016; Kowalski et al., 2014; Casas, Del Rey, & Ortega-Ruiz, 2013; Sticca, et al., 2013; Mishna, et al., 2012; Walrave & Heirman, 2011; Erdur-Baker, 2010; Hinduja & Patchin, 2008; Ybarra & Mitchell, 2004). Also adolescents' ICT perceived expertise is associated with involvement in cyberbullying as found by Sticca, Ruggieri, Alsaker, and Perren (2013) in their longitudinal study conducted with 835 Swiss students, by Walrave and Heirman (2011) in Belgium surveying 1.378 students and by Hinduja and Patchin (2008) in the US. Some studies also analysed the role of online risk behaviours such as communicating and/or meeting in social networks unknown people, could have in cyberbullying involvement. For example, Gámez-Guadix, Borrajo & Almendros (2016), found in their longitudinal study with 888 Spanish adolescents, that both problematic Internet use and

meeting strangers online were associated to cyberbullying. Kowalski et al. (2014) provide similar conclusion in their review. The existence of a significant association between online risky behaviours and involvement in cyberbullying was also supported by the results achieved by Casas et al. (2013), Mishna et al. (2012) and Erdur-Baker (2010).

**Personality.** With regard to children and adolescents personality, the most cited and studied risk factors for involvement in cyberbullying are low empathy (Brewer & Kerslake 2015; Kowalski et al., 2014; Casas et al., 2013; Topçu and Erdur-Baker, 2012; Steffgen, König, Pfetsch, & Melzer, 2011; Ang & Goh, 2010) and low level of self-esteem (Modecki, Barber, and Vernon, 2013; Patchin & Hinduja, 2010).

In their meta-analysis Chen, Ho & Lwin (2016) found that narcissism and self-efficacy are significant predictors of cyberbullying, while Bayraktar et al. (2014) in their study involving 2.092 students from Czech Republic found that cyberbullies reported lower levels of self-control compared to non-cyberbullies. Jang, Song & Kim (2014), in their study involving 3.238 Korean students, found that low level of self-control was a significant risk factor for cyberbullying.

**Values.** Numerous studies in literature have analysed and reported the existence of an association between cyberbullying and higher levels of moral disengaged behaviours (Kowalski et al., 2014; Gini, Pozzoli, & Hymel, 2014; Cappadocia, Craig, & Pepler, 2013; Menesini, Nocentini, & Camodeca, 2013; Pozzoli, Gini, & Vieno, 2012; Bauman, 2010; Pornari & Wood, 2010).

Sticca et al. (2013) found in their longitudinal study that rule-breaking behaviour is a risk factor for cyberbullying. Williams and Guerra (2007) found a significant association between moral approval of bullying and involvement in cyberbullying, while also normative beliefs about aggression

have been found related to cyberbullying (Kowalski et al., 2014).

**Bullying in school.** The relationship existing between school bullying and cyberbullying had been analysed by several studies. Most of them, reported the existence of a significant co-occurrence and overlap between these two phenomena, concluding that school bullying can be considered as a risk factor for cyberbullying (Chen, Ho & Lwin, 2016; Hemphill and Heerde, 2014; Modecki et al., 2013; 2014, Kowalski et al., 2014, Cappadocia et al., 2013, Kowalski & Limber, 2013; Sticca et al., 2013; Del Rey, et al., 2012; Mishna et al., 2012; Gradinger, et al., 2009; Vandebosch & Van Cleemput, 2009; Hinduja & Patchin, 2008; Smith et al., 2008; Raskauskas & Stoltz 2007). On the other hand, other studies had found that also being a school victim (Jang et al., 2014; Kowalski, Morgan, & Limber, 2012; Ybarra & Mitchell, 2004) and being involved as cybervictim (Kowalski et al., 2014; Wright & Li, 2013; Vandebosch & Van Cleemput, 2009) could be considered risk factors for cyberbullying.

#### 2.5.2 Interpersonal level risk factors (microsystem)

**Peer group risk factors.** Several studies had investigated the role that peers norms and influences could have in cyberbullying. Jang et al. (2014) and Cappadocia et al. (2013) in their longitudinal studies found that students who are exposed to fewer prosocial peer influences and to close delinquent peers were at risk of being involved in cyberbullying.

Also peer rejection was found to be a risk factor for involvement in cyberbullying as showed Bayraktar et al. (2014) and Wright and Li (2013) studies. Furthermore, students at risk of being cyberbullies also reported low levels of perceived peer support (Calvete, Orue, Estévez, Villardón, & Padilla, 2010; Williams & Guerra, 2007)

**Family risk factors.** With regard to family related risk factors, numerous studies highlighted, as the lack of clear rules and any forms of monitoring of their children's online activities is a significant risk factor for cyberbullying. Poor parental involvement in their children Internet use was a significant predictor of cyberbullying (Zhou, Tang, Tian, Wei, Zhang & Morrison, 2013; Mesch, 2009; Vandebosch & Van Cleemput, 2009).

Also low levels of perceived parental support (Hemphill & Heerde, 2014; Wang et al., 2009) and poor family management (meaning the lack of rules and monitoring of their children activities) (Kowalski et al., 2014; Ybarra & Mitchell, 2004) are considered risk factors for cyberbullying

### 2.5.3 Community level risk factors (mesosystem)

**School risk factors.** At this level, the most significant risk factor associated with cyberbullying is school climate. Perceived negative school climate was found to be a risk factor for cyberbullying in the studies carried out by Casas et al. (2013) involving 893 Spanish adolescents, by Williams and Guerra (2007) with 3.339 U.S. students and by Kowalski et al. (2014) in their review. Also, perceiving not being connected or bonded to the school (Williams & Guerra, 2007), and general lack of school safety (Kowalski et al., 2014), were found risk factors for cyberbullying.

**Table 6. Summary of risk factors for cyberbullying according to the ecological framework's levels**

Study	Sample			Method	Individual-level risk factor	Positive association with cyberbullying
	N	Age/grade	Nationality			
Lapidot-Leffler & Dolev-Cohen (2015)	465	7-12 grade	Israel	Online survey	Gender	Being a boy
<b>Barlett &amp; Coyne (2014)*</b>	Review of 109 studies			Meta-analysis		Being a boy
Grading, et al. (2009)	761	14-19 years	Austria	Self-report questionnaire		No gender differences
Mishna et al. (2012)	2.186	10-17 years	Canada	Self-report questionnaire		No gender differences
Sourander et al (2010)	2.215	13-16 years	Finland	Questionnaire		Being a boy
Pornari & Wood (2010)	339	7-9 grade	UK	Questionnaire		Being a girl
Erdur-Backer (2010)	276	10-14 years	Turkey	Self-report questionnaire		Being a boy
Huang & Chou (2010)	545	7-9 grade	Taiwan	Anonymous survey		Being a boy
Hinduja & Patchin, (2008)	1.378	<18 years	USA	Online survey		No gender differences
Smith et al. (2008)	533	11-16 years	UK	Self-report questionnaire		No gender differences
Kowalski & Limber (2007)	3.767	6-8 grade	USA	Self-report questionnaire		Being a girl
Li (2006)	264	7-9 grade	Canada	Anonymous survey		Being a boy
Wang, et al. (2009)	7.182	6-10 grade	USA	Health Behavior in School-Aged Children 2005 Survey	SES	Positive relationship with SES
<b>Chen et al. (2016)*</b>	Review of 81 studies			Meta-analysis	School commitment	Low school commitment
Hemphill & Heerde (2014)	927	10-11 years	Australia	Longitudinal study		Low school commitment
Kowalski & Limber (2013)	931	6-12 grade	USA	Anonymous survey		Low school commitment
Ybarra & Mitchell (2004a)	1.501	10-17 years	USA	Interview via telephone		Low school commitment
					Technology use	
					Self-reported ICT expertise	
Sticca, et al. (2013)	835	M =13.2	Swiss	Longitudinal study		Higher self-reported ICT expertise
Warlave & Heirman (2011)	1.318	12-18 years	Belgium	Self-reported survey		Higher self-reported ICT expertise
Hinduja & Patchin (2008)	1.378	<18 years	USA	Online survey		Higher self-reported ICT expertise
<b>Chen et al (2016)*</b>	Review of 81 studies			Meta-analysis	Internet use	Reported more Internet use

Gámez-Guadix et al. (2016)	888	M=15.42	Spain	Longitudinal study	Risky online behaviours	Reported more Internet use
<b>Kowalski et al. (2014)*</b>	Review of 131 studies			Meta-analysis		Reported more Internet use
Casas, et al.(2013)	893	11-19 years	Spain	Self-report questionnaire		Internet addiction
Sticca et al. (2013)	835	M =13.2	Swiss	Longitudinal study		Reported more Internet use
Mishna et al. (2012)	2.186	10-17 years	Canada	Self-report questionnaire		Reported more Internet use
Walrave & Heirman (2011)	1.318	12-18 years	Belgium	Self-report questionnaire		Reported more Internet use
Erdur-Backer (2010)	276	10-14 years	Turkey	Self-report questionnaire		Girls reported more frequent use
Hinduja & Patchin (2008)	1.378	<18 years	USA	Online survey		Reported more Internet use
Ybarra & Mitchell (2004)	1.501	10-17 years	USA	Interview via telephone		Reported more Internet use
Gámez-Guadix et al. (2016)	888	M=15.42	Spain	Longitudinal study		Personality
<b>Kowalski, et al. (2014)*</b>	Review of 131 studies			Meta-analysis	Reported more risky internet use	
Casas et al. (2013)	893	11-19 years	Spain	Self-report questionnaire	Reported more risky internet use	
Mishna et al. (2012)	2.186	10-17 years	Canada	Self-report questionnaire	Reported more risky internet use	
Erdur-Backer (2010)	276	10-14 years	Turkey	Self-report questionnaire	Boys reported more risky internet use	
Empathy						
Brewer & Kerlake (2015)	90	16-18 years	U.K.	Self-report questionnaire	Cognitive empathy	Low levels of empathy
<b>Kowalski et al. (2014)*</b>	Review of 131 studies			Meta-analysis		Low empathy
Casas et al. (2013)	893	11-19 years	Spain	Self-report questionnaire	Affective empathy	Low empathy
Topcu & Erdur-Baker (2012)	795	13-18 years	Turkey	Self-report questionnaire		Boys with low levels of empathy
Steffengen et al. (2011)	2.070	7-13 grade	Luxemburg	Self-report questionnaire		Low empathy
Ang &Goh (2010)	396	12-18 years	Singapore	Self-report questionnaire	Narcissism	Girls with low levels of cognitive empathy
Steffengen &König (2009)	2.070	7-13 grade	Luxemburg	Self-reported survey		Boys with low levels of both cognitive and affective empathy
<b>Chen et al. (2016)*</b>	Review of 81 studies			Meta-analysis	Self-esteem	Low empathy
Brewer & Kerlake (2015)	90	16-18 years	U.K.	Self-report questionnaire		High levels of narcissism
Modecki et al. (2013)	1.364	12-14 years	Australia	Longitudinal study	Self-control	Low levels of self-esteem
Patchin & Hinduja (2010)	1.963	10-16 years	USA	Self-report questionnaire		Low levels of self-esteem
Bayraktar, et al. (2014)	2.092	12-18 years	Czech Republic	Online survey		Low levels of self-control
Jang et al. (2014)	3.238	8th grade	Korea	Longitudinal study		Having delinquent peers

<b>Chen et al. (2016)*</b>		Review of 81 studies		Meta-analysis		Self-efficacy	Low levels of self-efficacy
						Values	
						Moral disengagement	
<b>Kowalski et al. (2014)*</b>		Review of 131 studies		Meta-analysis			High levels of moral disengagement
<b>Gini et al. (2014)</b>		Review of 27 (4 on cyberbullying)		Meta-analysis			High levels of moral disengagement
Cappadocia et al. (2013)	1.972	9-12 grade	Canada	Longitudinal study			High levels of antisocial
Menesini et al. (2013)	390	14-18 years	Italy	Self-report questionnaire			Immoral and disengaged behaviours
Pozzoli et al. (2012)	663	M=9	Italy	Self-report questionnaire			High levels of moral disengagement
Bauman (2010)	221	5-8 grade	USA	Self-report questionnaire			High levels of moral disengagement
Pornari & Wood (2010)	339	7-9 grade	UK	Questionnaire			High levels of moral disengagement
						Rule braking	
Sticca et al. (2013)		835	M =13.2	Swiss	Longitudinal study		High levels of moral disengagement
						Normative beliefs about aggression	
<b>Kowalski et al. (2014)*</b>		Review of 131 studies		Meta-analysis			Presence of normative beliefs about aggression
						Moral approval of bullying	
Williams & Guerra (2007) <sup>+</sup>	3.339	5,8,11 grade	USA	Electronic questionnaire			High levels of moral approval of bullying
						Bullying	
						Bullies	
<b>Chen et al. (2016)*</b>		Review of 81 studies		Meta-analysis			Being a school bully
Hemphill & Heerde (2014)		927	10-11 years	Australia	Longitudinal study		Being a school bully
<b>Kowalski et al. (2014)*</b>		Review of 131 studies		Meta-analysis			Being a school bully
<b>Modecki et al.(2014)*</b>		Review of 80 studies		Meta-analysis			Being a school bully
Cappadocia et al. (2013)		1.972	9-12 grade	Canada	Longitudinal study		Being a school bully
Kowalski & Limber (2013)		931	6-12 grade	USA	Anonymous survey		Being a school bully
Sticca et al. (2013)		835	M =13.2	Swiss	Longitudinal study		Being a school bully
Del Rey et al. (2012)		274	12-18 years	Spain	Self-report questionnaire		Being a school bully
Mishna et al. (2012)		2.186	10-17 yeas	Canada	Self-report questionnaire		Being a school bully
Grading et al. (2009)		761	14-19 years	Austria	Self-report questionnaire		Boys involvement as bullies
Vandebosch & Van Cleemput (2009)		2.052	11-18 years	Belgium	Online Survey		Being a school bully
Hinduja & Patchin (2008)		1.378	<18 years	USA	Online survey		Being a school bully
Smith et al (2008)		533	11-16 years	UK	Self-report questionnaire		Being a school bully
Raskauskas & Stoltz (2007)		84	13-18 years	USA	Self-report questionnaire		Being a school bully
						Victims	



Jang et al. (2014)	3.238	8th grade	Korea	Longitudinal study		Being a school victim
Kowalski, Morgan & Limber (2012)	4.531	6-12 grade	USA	Survey		Girls victims of school bullying
Ybarra & Mitchell (2004a)	1.501	10-17 years	USA	Interview via telephone	Cyber victims	Being a school victim
<b>Kowalski et al. (2014)*</b>	Review of 131 studies			Meta-analysis		Being a cybervictim
Wright & Li (2013)	261	6-8 grade	USA	Longitudinal study		Being a cybervictim
Vandebosch & Van Cleemput (2009)	2.052	11-18 years	Belgium	Online Survey		Being a cybervictim
Study	Sample		Method		Microsystem	Positive association with cyberbullying
	N	Age/ Grade			Interpersonal-level risk factor	
					Peer group risk factors	
					Antisocial influences	
Jang et al. (2014)	3.238	8th grade	Korea	Longitudinal study		Association with delinquent peers
Cappadocia et al. (2013)	1.972	9-12 grade	Canada	Longitudinal study		Fewer pro-social peer influences
					Peer rejection	
Bayraktar et al. (2014)	2.092	12-18 years	Czech Republic	Online survey		High level of peer rejection
Wright & Li (2013)	261	6-8 grade	USA	Longitudinal study		High level of peer rejection
					Perceived peer support	
Calvete et al. (2010)	1.431	12-17 years	Spain	Self-report questionnaire		Lack of perceived peer support
Williams & Guerra (2007)	3.339	5,8,11 grade	USA	Electronic questionnaire		Lack of perceived peer support
Study	Sample		Method		Microsystem	Positive association with Cyber Perpetration
	N	Age/grade	Nationality		Interpersonal-level risk factor	
					Family risk factors	
					Parental support	
Hemphill & Heerde (2014)	927	10-11 years	Australia	Longitudinal study		Low parental support
Wang et al. (2009)	7.182	6-10 grade	USA	Health Behavior in School-Aged Children (HBSC) 2005 Survey		Low parental support
					Emotional bond	

Ybarra & Mitchell (2004a)	1.501	10-17 years	USA	Interview via telephone		Poor emotional bond with a caregiver
Bayraktar et al (2014)	2.092	12-18 years	Czech Republic	Online survey	Parental attachments	Poor parental attachments
Hemphill & Heerde (2014)	927	10-11 years	Australia	Longitudinal study	Family management (rules and children monitoring)	Poor family management
<b>Kowalski et al. (2014)*</b>	Review of 131 studies			Meta-analysis		Poor family management
Ybarra & Mitchell (2004)	1.501	10-17 years	USA	Interview via telephone		Poor family management (no gender differences explained)
					Parents' involvement with the child's internet use	
Zhou et al. (2013)	1.438	10-12grades	China	Anonymous survey		Poor parental restriction of Internet use
Mesch (2009)	935	12-17 years	USA	Self-reported survey		Poor parental monitoring and restriction of Internet use
Vandebosch & Van Cleemput (2009)	2.052	11-18 years	Belgium	Online Survey		Poor parents involvement
Study		Sample		Method	Mesosystem	Positive association with cyberbullying
	N	Age/grade	Nationality		Community-level risk factor	
					School risk factors	
					Perception of school climate	
<b>Kowalski et al. (2014)*</b>	Review of 131 studies			Meta-analysis		Negative school climate
Casas et al. (2013)	893	11-19 years	Spain	Self-report questionnaire		Lack of teachers support, clear rules and school safety
Williams & Guerra (2007)	3.339	5,8,11 grade	USA	Electronic questionnaire		Negative school climate
					Connection to school	
Williams & Guerra (2007)	3.339	5,8,11 grade	USA	Electronic questionnaire		Low perception of being connected to school
					School safety	
<b>Kowalski et al. (2014)*</b>	Review of 131 studies			Meta-analysis		Low levels of school safety

\* Denotes reviews on risk factors for youngsters' involvement in cyberbullying.

Source: Baldry et al. (2015) with modification

## 2.6 Risk factors for involvement in cybervictimization

Similar to cyberbullying, also risk factors for cybervictimization were analysed by reviewing the existent literature. Dimensions emerged to be significant risk factors for cybervictimization were presented following the three ecological levels: individual, interpersonal and community.

### 2.6.1 Individual level risk factors ('ontogenetic')

**Gender.** Several studies indicate that girls are more likely to become cybervictims than boys. Sampasa- Kanyinga & Hamilton (2015) and Payne & Hutzell (2015) found by surveying respectively 5.329 and 6.547 U.S. adolescents that females are more at risk of being cybervictims than their male counterpart. Bayraktar et al. (2014) in their study reported higher rates of cybervictimization among girls. The same was found by Holt, Fitzgerald, Bossler, Chee, and Ng (2014) in their study with 4.315 students in Singapore. The same gender differences in cybervictimization were also found by Sourander et al. (2010), and Kowalski and Limber (2007).

However, also studies reporting opposite results exist, Zhou et al. (2013) and Erdur-Backer (2010) found that males were more likely to be cybervictimized than girls were.

**SES.** Sampasa- Kanyinga & Hamilton (2015) analysed data from 5.329 U.S. students aged 11-20 years, founding the existence of a relationship between low SES (socio-economic status) and cybervictimization.

**School achievement.** Different studies reported the existence of a relationship between school problems and cybervictimization. For example, Ortega-Baron et al. (2016) found in their study with 1.062 Spanish adolescents, that

students reporting lower academic self-concept were more at risk of being cybervictimised. Payne & Hutzell (2015) found that school avoidance is a significant risk factor for cybervictimization. Hinduja and Patchin (2008) and Wang et al. (2014) found in their studies that cybervictimization is associated with low school achievement. The same was found by Tokunaga (2010) in his review of 25 studies.

**Use, perceived expertise, and risky behaviours on the Internet.** Several studies found a significant association between Internet frequency use and cybervictimization (Álvarez-García et al., 2015; Kowalski et al., 2014; Zhou et al., 2013; Mishna et al., 2012; Erdur-Backer, 2010; Vandebosch & Van Cleemput, 2009; Hinduja & Patchin, 2008; Ybarra & Mitchell, 2004). Some studies also analysed the role of online risk behaviours such as posting online indiscrete/negative information on themselves and or meeting strangers online, could have in predicting cybervictimization.

In their reviews Chen, Ho and Lwin (2016) and Kowalski et al. (2014) found a significant correlation between being involved in the so-called '*risky online behaviour*' and being a cybervictim. Similar results were found in Álvarez-García et al. (2015), Peluchette et al. (2015), Mishna et al. (2012), Walrave and Heirman (2011), Erdur-Baker (2010), Katzer, et al., (2009), Mesch (2009) and Hinduja and Patchin (2008) studies, all reporting that the involvement in online risky behaviours is a risk factor for cybervictimization.

**Personality.** With regard to youngster's personality, the most reported risk factor associated with cybervictimization is low self-esteem. The existence of an association between lower levels of self-esteem and cybervictimization were found in several studies (Brewer & Kerslake, 2015; Bayraktar et al., 2014; Modecki et al., 2013; Kowalski & Limber, 2013; Patchin & Hinduja, 2010; Katzer et al., 2009). Also

perceived social intelligence is considered a risk factor for cybervictimization, as reported by Kowalski et al. (2014) in their review of 131 studies, by Hunt, Peters, and Rapee (2012) in their study conducted with 218 Australian students and by Schultze-Krumbholz and Scheithauer (2009) in their study involving 71 German students. They found that cybervictimization is related to low levels of perceived social intelligence.

Peluchette et al. (2015) in their cross-national study involving 572 U.S. and Australian students assessed the impact of personality on the likelihood of being cybervictimized, founding that some personality traits, such as self-disclosure, openness and extroversion were risk factors for cybervictimization.

The longitudinal studies carried out by Hemphill and Heerde (2014) and Hemphill, Tollit, Kotevski, and Heerde (2014), highlighted that also emotional control can be considered a risk factor for cybervictimization, students characterized by poor emotional control were more at risk of being cybervictimized. Also empathy was found to be a risk factor for being victimized online, as showed the study conducted by Schultze-Krumbholz and Scheithauer (2009).

**Values.** Similar to cyberbullying, also with regard to cybervictimization, Kowalski et al. (2014) found in their review that high level of moral disengagement could be considered risk factors for being victimized online. The same was found by Chen, Ho and Lwin (2016) in their meta-analysis.

**Psychological status.** With regard to youngsters' psychological status, several studies have found that high level of depression is associated with cybervictimization. This relationship have been highlighted by several studies including longitudinal ones, such as that of Cappadocia et al. (2013), Gámez-Guadix et al. (2013) and Modecki et al.

(2013). Chen, Ho and Lwin (2016) found that cybervictimization is related to a high level of depression.

Cross, Lester and Barnes (2015) found in their longitudinal study carried out with 1.504 Australian adolescents aged 13 to 15 years, that low levels of emotional wellbeing were associated with cybervictimization, in particular students at risk of being cybervictimized reported higher scores for emotional difficulties, peers and conduct problems.

Kowalski et al. (2014) in their meta-analysis of 131 studies also identified risk factors for cybervictimization social anxiety and anger. The presence of psychosocial problems is a risk factor for cybervictimization as in the review by Tokunaga (2010).

**Maladaptive behaviours.** Among maladaptive behaviours, substance use seems to be the most cited risk factor for cybervictimization. The relationship between substance use and cybervictimization was highlighted in 2008 by Hinduja and Patchin. Afterward, the longitudinal study carried out by Gámez-Guadix et al. (2013) with 845 Spanish students aged 13–17, confirmed the existence of this association, that is substance use predicted future cybervictimization.

**Bullying in school.** The majority of the existing studies found that involvement in school bullying is a risk factor for cybervictimization in particular, they underline the existence of an overlap between the role of school victim and cybervictim. Chen et al. (2016) and Kowalski et al. (2014) in their reviews found an association between school victimization and cybervictimization. In their longitudinal studies, Hemphill et al. (2014) and Cappadocia et al. (2013) found that being victimized at school predicted cybervictimization. The same relationship was found by Álvarez-García et al. (2015), Holt et al. (2014), Hemphill and Heerde (2014), Del Rey, et al. (2012), Mishna et al. (2012),

Grading et al. (2009) Vandebosch and Van Cleemput (2009) Hinduja and Patchin (2008) Smith et al. (2008) and Raskauskas and Stoltz (2007). However, some studies reporting different results exist, in particular according to those studies school bullies are more likely to be at risk of being cybervictimized (Kowalski et al., 2012; Hinduja & Patchin, 2008; Ybarra and Mitchell, 2004). However, other studies reported that being involved as cyberbullies is a significant risk factor for cybervictimization. Cappadocia et al. (2013), in their longitudinal study with 1.972 Canadian students, found the existence of a significant overlap between cyberbullying and cybervictimization. The same results were also found by Jose, Kljakovic, Scheib, and Notter (2012) and Walrave and Heirman (2011).

#### 2.6.2 Interpersonal level risk factors (microsystem)

**Peer group risk factors.** Several studies investigated the role that peers could have in influencing students' involvement in cybervictimization. Peluchette et al. (2015) in their study involving 572 U.S. and Australian adults Internet users found that having friends that post or share online indiscrete personal information is a significant risk factor for cybervictimization. Hemphill and Heerde (2014) in their longitudinal study conducted with 927 Australian students aged 10-11 years, found that having antisocial friends is associated with cybervictimization. Also peer rejection is associated with cybervictimization, as found by Bayraktar et al. (2014) and Katzer et al. (2009). Ortega-Baron et al. (2016) found by surveying 1.062 Spanish adolescents, that also low level of peer affiliation is a significant risk factor for cybervictimization.

With regard to perceived peer support, Kowalski et al. (2014) in their meta-analysis found that low levels of perceived peer

support are significantly associated with cybervictimization, the same relationship was also found by Wang et al. (2009).

**Family risk factors.** Several studies investigated the relationship existing between parents' influences in their children involvement in cybervictimization. In particular, the majority of studies investigated the role that parental monitoring and supervising their children Internet use and online activities have on cybervictimization

Poor parental mediation and low levels of control of their children online activities have been found significant risk factors for cybervictimization as highlighted by the meta-analysis carried out by Chen et al. (2016) and Kowalski et al.'s (2014). The same relationship was found in Khurana, Bleakley, Jordan & Romer (2015), Aoyama, Utsumi, & Hasegawa (2012) and Mesch (2009) studies, meaning that low levels of parental control were associated with cybervictimization. Furthermore, the lack of parents' rules on allowed online activities is associated with cybervictimization, as found by Navarro, Serna, Martínez, Ruiz-Oliva (2013) and Mesch (2009).

Other risk factors for cybervictimization related to the family level are the lack of communication with parents as Özdemir (2014) found by surveying 337 Turkish students aged 15–18 years. Bayraktar et al. (2014) also underlined the existence of an association between cybervictimization and poor parental attachment; while Ortega-Baron et al. (2016) in their study involving 1.062 Spanish students aged 11-18 years, found that the presence of family trouble and/or conflicts was a risk factor for cybervictimization. The same was found by Tokunaga (2010).



### 2.6.3 Community level risk factors (mesosystem)

**School risk factors.** Few studies investigated the role that some school's dimensions could have in influencing or preventing students' involvement in cybervictimization.

At this level, the most important risk factor for cybervictimization is youngsters' perception of school climate (Kowalski et al., 2014). The same was found by Wang et al. (2014), in their study with 1.023, 5<sup>th</sup> grade U.S. students. Ortega-Baron et al. (2016) found the existence of an association between students' perception of not being supported by their teachers and cybervictimization. Kowalski et al. (2014) found that cybervictimization is related to a low perception of school safety, while Cross et al. (2015) found in their longitudinal study, that also feeling less connected to school was a risk factor for cybervictimization.

**Table 7 Summary of risk factors for cybervictimization according to the ecological framework's levels (adapted from Baldry et al., 2015)**

Study	Sample			Method	Individual-level risk factor	Positive association with cybervictimization
	N	Age/grade	Nationality			
Sampasa- Kanyinga & Hamilton (2015)	5.329	11-20 years	USA	Self-reported survey	Gender	Being a girl
Payne & Hutzell (2015)	6.547	12-18 years	USA	Self-reported survey		Being a girl
Bayraktar et al. (2014)	2.092	12-18 years	Czech Republic	Online survey		Being a girl
Holt et al. (2014)	4.315	Primary/ secondary schools	Singapore	Self-report questionnaire		Being a girl
Zhou et al. (2013)	1.438	10-12 grades-	China	Anonymous survey		Being a boy
Erdur-Backer (2010)	276	14-18 years	Turkey	Self-report questionnaire		Being a boy
Sourander et al. (2010)	2.215	13-16 years	Finland	Questionnaire		Being a girl
Kowalski & Limber (2007)	3.767	6-8 grades	USA	Self-report questionnaire		Being a girl
Sampasa- Kanyinga & Hamilton (2015)	5.329	11-20 years	USA	Self-reported survey	SES	Lower SES
					School problems	
					Academic achievement	
Ortega-Baron et al. (2016)	1.062	11-18 years	Spain	Self-reported questionnaire		Lower academic self-concept
Payne & Hutzell (2015)	6.547	12-18 years	USA	Self-report survey		Predict school avoidance
Hinduja & Patchin (2008)	1.378	<18years	USA	Online survey		More school problems
Wang et al. (2014)	1.023	5 grade	USA	Paper and pencil survey		Lower academic achievement
<b>Tokunaga (2010)*</b>	Review of 25 studies			Meta-analysis		Low academic commitment
					Technology use	
					Internet use	
Álvarez-García et al. (2015)	3.180	11-19 years	Spain	Self-report questionnaire		Reported more Internet use
Kowalski, et al. (2014)	Review of 131 studies			Meta-analysis		Reported more Internet use
Zhou et al. (2013)	1.438	10-12 grade	China	Anonymous survey		Reported more Internet use
Mishna et al. (2012)	2.186	10-17 years	Canada	Self-report questionnaire		Reported more Internet use

Erdur-Backer (2010)	276	14-18 years	Turkey	Self-report questionnaire		Girls reported more internet use
Vandebosch & Van Cleemput (2009)	2.052	11-18 years	Belgium	Online Survey		Reported more Internet use
Hinduja & Patchin (2008)	1.378	<18years	USA	Online survey		Reported more Internet use
Ybarra & Mitchell (2004a)	1.501	10-17 years	USA	Interview via telephone		Reported more Internet use
<hr/>						SNSs use
Álvarez-García et al. (2015)	3.180	11-19 years	Spain	Self-report questionnaire		Use of SNSs and instant messaging programs
Sampasa-Kanyinga & Hamilton (2015)	5.329	11-20 years	USA	Self-report survey		More time spent in using SNSs
Peluchette et al. (2015)	572	Mean=21.98	Australia & USA	Cross-national study		Reported more facebook use
<hr/>						Risky internet use
<b>Chen et al. (2016)*</b>	Review of 81 studies			Meta-analysis		Reported more risky internet use
Álvarez-García et al. (2015)	3.180	11-19 years	Spain	Self-report questionnaire		Reported more risky internet use
Peluchette et al. (2015)	572	Mean=21.98	Australia & USA	Cross-national study		Posted online indiscrete/ negative information on themselves
<b>Kowalski et al. (2014)*</b>	Review of 131 studies			Meta-analysis		Reported more risky internet use
Mishna et al. (2012)	2.186	10-17 years	Canada	Self-report questionnaire		Reported more risky internet use
Walrave & Heirman (2011)	1.318	12-18 years	Belgium	Self-report survey		Reported more risky internet use
Erdur-Backer (2010)	276	14-18 years	Turkey	Self-report questionnaire		Boys reported more risky internet use
Katzer et al. (2009)	1.700	5-11 grade	Germany	Survey		Reported more risky internet use
Mesch (2009)	935	12-17 years	USA	Survey		Reported more risky internet use
Hinduja & Patchin (2008)	1.378	<18years	USA	Online survey		Reported more risky internet use
<hr/>						Personality
<hr/>						Big five personality dimension
Peluchette et al. (2015)	572	Mean=21.98	Australia & USA	Cross-national study		Self-disclosure, openness and extroversion
<hr/>						Perceived social intelligence
Kowalski, et al. (2014)	Review of 131 studies			Meta-analysis		Low perceived social intelligence
Hunt et al. (2012)	218	8-15 years	Australia	Personal Experiences Checklist (PECK)		Low perceived social intelligence
Schultze-Krumbholz & Scheithauer (2009)	71	7-8-10 grade	Germany	Self-report questionnaire		Low perceived social intelligence
<hr/>						Empathy
Schultze-Krumbholz & Scheithauer (2009)	71	7-8-10 grade	Germany	Self-report questionnaire		Low levels of empathy
<hr/>						Self-esteem
Brewer & Kerslake (2015)	90	16-18 years	U.K.	Self-report questionnaire		Low levels of self-esteem

Bayraktar et al. (2014)	2.092	12-18 years	Czech Republic	Online survey		Low levels of self-esteem
Kowalski & Limber (2013)	931	6-12 grade	USA	Anonymous survey		Low levels of self-esteem
Modecki et al. (2013)	1.364	12-14 years	Australia	Longitudinal study		Developmental decrease in self-esteem
Patchin & Hinduja (2010)	1.963	10-16 years	USA	Self-report survey		Low levels of self-esteem
Katzer et al. (2009)	1.700	5-11 grade	Germany	Survey		Low levels of self-concept
						<hr/> Emotional control
Hemphill & Heerde (2014)	927	10-11 years	Australia	Longitudinal study		Poor emotional control
Hemphill et al. (2014)	673	12-13 years	Australia	Longitudinal study		Emotional dysregulation
						<hr/> Values
						<hr/> Moral disengagement
<b>Chen et al. (2016)*</b>	Review of 81 studies			Meta-analysis		High level of moral disengagement
<b>Kowalski et al. (2014)*</b>	Review of 131 studies			Meta-analysis		High level of moral disengagement
						<hr/> Psychological states
						<hr/> Depression
<b>Chen et al. (2016)*</b>	Review of 81 studies			Meta-analysis		High level of depression
Cappadocia et al.(2013)	1.972	9-12 grade	Canada	Longitudinal study		High level of depression
Gómez- Guadix et al. (2013)	845	13-17 years	Spain	Longitudinal study		High level of depression
Kowalski & Limber (2013)	931	6-12 grade	USA	Anonymous survey		High level of depression
Modecki et al.(2013)	1.364	12-14 years	Australia	Longitudinal study		Early depressed mood
						<hr/> Social anxiety
<b>Kowalski et al. (2014)*</b>	Review of 131 studies			Meta-analysis		High level of social anxiety
						<hr/> Anger
<b>Kowalski et al. (2014)*</b>	Review of 131 studies			Meta-analysis		Feeling angry
						<hr/> Psychosocial problem
<b>Tokunaga(2010)*</b>	Review of 25 studies/articles			Meta-analysis		Presence of psychosocial problem
						<hr/> Emotional wellbeing
<b>Cross et al. (2015)</b>	1.504	13-15 years	Australia	Longitudinal study		Reported higher levels of emotional difficulties, peer and conduct problems
						<hr/> Maladaptive behaviors
						<hr/> Substance use
Gómez- Guadix et al. (2013)	845	13-17 years	Spain	Longitudinal study		Substance use
Hinduja & Patchin (2008)	1.378	<18years	USA	Online survey		Substance use
						<hr/> Bullying
						<hr/> Victims
<b>Chen et al. (2016)*</b>	Review of 81 studies			Meta-analysis		Being a school victim
Álvarez-García et al. (2015)	3.180	11-19 years	Spain	Self-report questionnaire		Being a school victim

Hemphill et al. (2014)	673	12-13 years	Australia	Longitudinal study		Being a school victim
Hemphill & Heerde (2014)	927	10-11 years	Australia	Self-report survey		Being a school victim
Holt et al. (2014)	4.315	Primary/ secondary schools	Singapore	Self-report questionnaire		Being a school victim
<b>Kowalski et al. (2014)*</b>	Review of 131 studies			Meta-analysis		Being a school victim
Cappadocia et al.(2013)	1.972	9 -12 grade	Canada	Longitudinal study		Being a school victim
Del Rey et al. (2012)	274	12-18 years	Spain	Self-report questionnaire		Being a school victim
Mishna et al. (2012)	2.186	10-17 years	Canada	Self-report questionnaire		Being a school victim
Gradinger et al.(2009)	761	14-19 years	Austria	Survey		Being a school victim
Vandebosch & Van Cleemput (2009)	2.052	11-18 years	Belgium	Online Survey		Being a school victim
Hinduja & Patchin (2008)	1.378	<18years	USA	Online survey		Being a school victim
Smith et al (2008)	533	11-16 years	UK	Self-report questionnaire		Being a school victim
Raskauskas & Stoltz (2007)	84	13-18 years	USA	Self-report questionnaire		Being a school victim
<b>Kowalski et al. (2012)*</b>	4.531	6 -12grades	USA	Survey	<b>Bullies</b>	Boys involvement as bullies
Hinduja & Patchin (2008)	1.378	<18years	USA	Online survey		Being a school bully
Ybarra & Mitchell (2004)	1.501	ott-17	USA	Interview via telephone	<b>Cyber bullying</b>	Being a school bully
Cappadocia et al. (2013)	1.972	9-12 grades	Canada	Longitudinal study		Being a cyber perpetrator
Jose et al. (2012)	1.700	11-16 years	New Zeland	Longitudinal study		Being a cyber perpetrator
Walrave & Heirman (2011)	1.318	12-18 years	Belgium	Self-report survey		Being a cyber perpetrator
Study	Sample		Method		Microsystem	Positive association with cybervictimization
	N	Age/Grade	Nation		Interpersonal-level risk factor	
					Peer group risk factors	
					Peers' online risky behaviours	Having friends posting indiscrete information
					Antisocial influences	
						Association with antisocial friends
					Peer rejection	
						High level of peer rejection
						Low level of popularity

Study	Sample			Method	Microsystem	Positive association with cybervictimization
	N	Age/Grade	Nationality			
Ortega-Baron et al. (2016)	1.062	11-18 years	Spain	Self-report questionnaire	Peer affiliation	Low levels of affiliation with peers
<b>Kowalski et al. (2014)*</b>	Review of 131 studies			Meta-analysis	Perceived peer support	Low peer support
Wang et al. (2009)	7.182	6-10 grade	USA	Health Behavior in School-Aged Children (HBSC) 2005 Survey		Low peer support
<b>Chen et al. (2016)*</b>	Review of 81 studies			Meta-analysis	Family risk factors	Low levels of parental control
Khurana et al. (2015)	629	12-17 years	USA	Self-report survey	Parental control of technology	Low levels of parental control
Kowalski, et al. (2014)*	Review of 131 studies			Meta-analysis		Low levels of parental control
Aoyama et al. (2012)	133	9-12 grade	Japan	Self-report survey		Low levels of parental control
Mesch (2009)	935	12-17 years	USA	Survey		Low levels of parental web sites monitoring
Navarro et al. (2013)	1.068	10-12 years	Spain	Self-report questionnaire	Parents' rules on allowed online activities	Lack of parental clear rules on allowed online activities
Mesch (2009)	935	12-17 years	USA	Survey		Lack of parental clear rules on allowed online activities
Özdemir (2014)	337	15-18 years	Turkey	Survey	Communication with parents	Less communication with parents
Bayraktar et al. (2014)	2.092	12-18 years	Czech Republic	Online survey	Parental attachment	Poor parental attachment
Katzer et al. (2009)	1.700	5-11 grade	Germany	Survey	Emotional parent-child relationship	Parents anxious concerned
					Family trouble	

Study	N	Sample		Method	Mesosystem	
		Age/grade	Nationality		Community-level risk factor	School risk factors
Ortega-Baron et al. (2016)	1.062	11-18 years	Spain	Self-report questionnaire		Presence of family conflicts and less family cohesion
<b>Tokunaga(2010)*</b>	Review of 25 studies/articles			Meta-analysis		Presence of family trouble
						Positive association with Cyber victimization
Ortega-Baron et al. (2016)	1.062	11-18 years	Spain	Self-report questionnaire		Negative perception of teachers' support
<b>Cross et al. (2015)</b>	1.504	13-15 years	Australia	Longitudinal study		Low perception of being connected to school
<b>Kowalski et al. (2014)*</b>	Review of 131 studies			Meta-analysis		Negative school climate
Wang et al. (2014)	1.023	5 grade	USA	Paper and pencil survey		Poor perception of school climate
<b>Kowalski et al. (2014)*</b>	Review of 131 studies			Meta-analysis		Low perception of school safety

\* Denotes reviews on risk factors for youngsters' involvement in cybervictimization.

Source: Baldry et al. (2015) with modification

## **2.7 Cyberbullying prevention and intervention programs: an overview**

Even if research on cyberbullying is relatively recent in comparison to the 4 decades of research on school bullying, several anti-cyberbullying programs have been developed (see Table 8). However, as far as we know, to date, there have been two meta-analysis and two systematic reviews of cyberbullying programs. In their systematic review Mishna, Cook, Saini, Wu and MacFadden (2011) examined the impact of three school-based interventions in increasing participants' knowledge about the online risky behaviors: I-SAFE ([www.isafe.org](http://www.isafe.org)), The Missing Program and HAHASO (*«Help, Assert, Humor, Avoid, Self-Talk, Own it»*).

I-Safe curriculum (Chibnall, Wallace, Leicht & Lunghofer, 2006) includes five lessons (each of 60 minutes) on Internet safety, cyber community citizenship, cyber security, personal safety, intellectual property, and law enforcement online. The program has proven to be effective, increasing youth safety attitude; however, no outcomes about the program effectiveness in reducing cyberbullying were provided. The Missing Program (Crombie & Trineer, 2003), consists of an interactive game aimed at teaching players how online predators act by becoming police officers who have to solve a series of clues in order to find a missing teenager, who had been cyber-victimized. Effectiveness assessment shows that the participants would publish less personal data online but had no effect on other online risky behaviors such as contacting strangers. HAHASO (*«Help, Assert, Humor, Avoid, Self-Talk, Own it»*) (Salvatore & Weinholtz, 2006) consists of five lessons with students on HAHASO strategy, to address school bullying and cyberbullying. However, neither the specific theoretical approach nor the curriculum of the “Help, Assert Yourself, Humor, Avoid, Self-talk, Own it” program were described (Mishna et al., 2011). The evaluation shows that the program increased youth Internet safety knowledge but does not show any significant effect on cyberbullying.



**Table 8 Anti-cyberbullying programs main features**

<b>Anti-cyberbullying program</b>	<b>Type of intervention</b>	<b>Research design</b>	<b>Objectives</b>	<b>Results achieved</b>
The Missing Program (Crombie & Trineer, 2003) Canada	School -based/ Interactive computer game designed	Pre-test, post-test, control group design	Measure the change in Internet safety behaviours and attitudes after the use of the interactive videogame	The program did not significantly change most of the students' online behavior and attitudes, except for reducing the likelihood of disclosing one's gender, age, school name and photo.
i-Safe: cyber safety program Chibnall et al. (2006) USA	School- based	Pre-test, post-test, control group design	Assess the effectiveness of Internet safety education on children knowledge and behaviour	Students reported an increased Internet safety knowledge.
Help, Assert, Humor, Avoid, Self-Talk, Own it (HAHASO) Salvatore & Weinholtz (2006) USA	School- based	Pre-test, post-test, control group design	Examine the effectiveness of teaching an anti-bullying strategy ("HAHASO") intended to reduce both school bullying and cyberbullying	Students receiving the intervention showed an increased Internet safety knowledge but there were not significant differences between the intervention and the control group with regard to cyberbullying
Beatbullying cybermentors Banerjee, et al. (2010) Thompson & Smith (2011) U.K.	School –based	Pre-test, post-test, control group design	Assess the effectiveness of a peer-mentoring programme. Cybermentors were trained to listen, mentor and support peers in and out of the school (online/virtual support)	CyberMentors were effective in raising students' awareness of bullying and cyberbullying in schools and students' willingness to report cybervictimization and victimization incidents increased.
Kiusaamista Vastaaan (KiVa) Salmivalli et al. (2011) Finland	Whole/community- based	Pre-test, post-test, randomized, controlled design	Assess the effectiveness of the KiVa program on different types of victimization including cybervictimization	Results indicated that the program is successful also in reducing cybervictimization
Noncadiamointrappola (Let's not fall in a trap)	School- based	Pre-test, post-test, control group design	Assess the effectiveness of a peer-led approach to prevent	Students receiving intervention showed significant decreases in

Menesini,et al. (2012)/ Palladino et al. (2012) Italy		Follow-up after 6 months	and reduce bullying and cyberbullying and victimization and cyber victimization	both cyberbullying and cybervictimization
Noncadiamointrappola (Let's not fall in a trap) Palladino et al. (2016) Italy	School- based	Pre-test, post-test, control group design Follow-up after 6 months (only for trial 1)	Assess the program effectiveness in two independent trials	For both trials results showed that students receiving intervention reported significant decreases in both cyberbullying and cybervictimization
ConRed: cyberbullying prevention program Ortega-Ruiz, et al. (2012) Spain	Whole/community-based -	Pre-test, post-test, control group design	Assess the impact of the implemented program on cyberbullying and cybervictimization rates	Students receiving intervention showed significant decreases in both cyberbullying and cybervictimization involvement.
ConRed: cyberbullying prevention program Del Rey et al. (2016) Spain	Whole/community-based -	Pre-test, post-test, control group design	Assess the ConRed program effectiveness on cyberbullying and cybervictimization 1	Results indicated that the program is effective in reducing cyberbullying (among boys' cyberbullies, but not among their females' counterparts) and cybervictimization.
Kiusaamista Vastaan (KiVa) Williford et al. (2013) Finland	Whole/community-based	Pre-test, post-test, randomized, controlled design	Investigates the effectiveness of the KiVa Anti-bullying Program on the frequency of cyberbullying and cybervictimization	Students receiving the intervention reported lower frequencies of cybervictimization at post-test than students in the control group, while the effect of condition on cyberbullying was moderated by age.
Medienhelden(Media Heroes) Wölfer et al. (2014) Germany	School – based	Pre-test, post-test, randomized, controlled design	Assess the effectiveness of a theory-based, built on the theory of planned behaviour, cyberbullying prevention program	Cyberbullying and cybervictimization behaviours decreased in classes that received the intervention.
Medienhelden(Media heroes) Schultze-Krumbholz et al. (2016)	School – based	Pre-test, post-test, randomized, controlled design	Assess the effectiveness of the program and its' long term	The long-term intervention group showed a decreased involvement in cyberbullying

Germany		Follow-up after 6 months	effects on empathy and cyberbullying	and increased levels in cognitive empathy.
Cyber Friendly Schools Project Cross, et al. (2016) Australia	School – based	Pre-test, post-test, randomized, controlled design Follow-up after 12 months	Assess the longitudinal impact of the implemented program on cyberbullying and cybervictimization incidents prevention and intervention	Results indicated a significant decrease of students' ODDS of being involved in both cyberbullying and cybervictimization from pre-test and post-test, however no differences were found between the intervention and the control group.
Social Competence Program (ViSC) Grading et al. (2016) Austria	School – based	Pre-test, post-test, randomized controlled design Follow-up after 12 months	Assess the effectiveness and the sustainability of the program implemented	Students receiving the intervention showed a significant decrease in cyberbullying but not in cybervictimization. While both cyberbullying and cybervictimization increased in the control group at the post-test.

In England, the mentoring program “*Beatbullying*” (<http://www.cybermentors.org.uk/>) (Banerjee, et al., 2010; Thompson & Smith, 2011), showed some significant effectiveness, on raising students’ awareness of online risks and in reducing cybervictimization. The MedienHelden (Media Heroes) developed in Germany by Schultze-Krumbholz, Wölfer, Jäkel, Zagorscak and Scheithauer (2012), includes 10 lessons (4 for the short version) of 90 minutes each, on empathy training and peer-to-peer tutoring on Internet safety, and teachers and parents training. The program aimed at improving participants’ online social skills, increasing their awareness of online safety and changing attitudes toward cybervictims, had proven to be an effective school-based anti-cyberbullying program, improving participants’ social skills, self-esteem, empathy and decreasing cyberbullying incidents (Schultze Krumbholz et al., 2016; Wölfer et al., 2014).

The Spanish intervention “*ConRed*” Cyberbullying Prevention Program, consisted of eight weekly training sessions addressed to students, teachers and parents and was coordinated by external experts. It not only increased students’ awareness of Internet safety issues but also decreased the students’ involvement in cyberbullying and Internet addiction for both cyberbullies and cybervictims (Ortega-Ruiz, Del Rey, & Casas, 2012; Del Rey et al., 2016).

In Italy, Palladino, Nocentini and Menesini (2012) designed the “*Noncadiamointrappola!*” (Let’s not fall into the trap!) program, consisting in the implementation of a peer-led approach to prevent and reduce bullying and cyberbullying and victimization and cybervictimization. The Program aimed at increasing peer support and coping strategies. It also includes the active participation of teachers and classroom activities such as the creation of video clips or posters, the participation to a forum and a Facebook group (Palladino et al., 2012). Evaluations of its effectiveness have shown a significant decrease in both cyberbullying and cybervictimization (Menesini et al., 2012; Palladino et al., 2012; 2016).

In Finland, the KiVa program (Kiusaamista Vastan), originally developed to reduce school bullying and victimization, was evaluated also with regard to its effectiveness in reducing cyberbullying and cybervictimization (Salmivalli et al., 2011; Williford et al., 2013). The KiVa program consists of 13 components including classroom curriculum and rules, teachers training, materials for teachers and parents, the creation of a cooperative group work of teachers to discuss about bullying and cyberbullying. The program has been proved effective in reducing cybervictimization.

In Australia, Cross et al. (2016) assessed the longitudinal impact of the “*Cyber friendly School Program*”, a whole school-based prevention and intervention program to reduce cyberbullying and cybervictimization. Results indicated a significant decrease of students’ likelihood of being involved in both cyberbullying and cybervictimization from pre-test and post-test, however no significant differences were found between the intervention and the control group with regard to cyberbullying and cybervictimization.

Grading, Yanagida, Strohmeier, and Spiel (2016), in Austria evaluated the “Social Competence Program to Prevent Cyberbullying and Cybervictimization” (ViSC) program, using a longitudinal randomized control group design. The program consists of a training for teachers and parents and teachers intervention at class level.

Evaluations of its effectiveness have shown a significant decrease in cyberbullying but not in cybervictimization.

What emerges by looking at studies assessing cyberbullying and cybervictimization prevention and intervention programs’ effectiveness is that even if the majority of them were developed based on anti-school bullying programs, they are often limited and consist of few elements (a curriculum and a training for teachers and/or activities with students) (Van Cleemput, Vandebosch, Bastiaensens, Poels, DeSmet, & De Bourdeaudhuij, 2014).

The most effective programs to prevent and reduce cyberbullying and cybervictimization are the ones that adopt a systemic approach which

aimed at improving the overall school climate and that include genuine participation of the entire school community (Perren, Corcoran, Cowie, Dehue, Mc Guckin, Sevcikova, Francine; Garcia, D'Jamila, Mc Guckin, Sevcikova, Tsatsou & Völlink, 2012; König, Gollwitzer & Steffgen, 2010). Effective cyberbullying intervention and prevention programs should include the active participation of all the actors in various ways involved in the prevention and reduction of cyberbullying and cybervictimization, that is teachers, parents and students. Furthermore, cyberbullying intervention and prevention programs should be improved by including additional curricula on classroom rules, whole school policy, and cooperative group work (Van Cleemput et al., 2014).

## **Chapter 3:**

### **3.1 Study 1: Psychometric proprieties of the Tabby Checklist**

#### **3.2 Abstract**

The review of the international literature related to cyberbullying and cybervictimization instruments highlights the necessity to work at the implementation of instruments characterized by good psychometric proprieties. The development of such instrument can represent a milestone in cyberbullying investigation, making direct comparison across studies and cultures possible. Furthermore, developing an instrument able to address different levels of risk directly related to the individual, his or her personal relationships or at the community/school level could facilitate the identification and the implementation of strategies for the *management* of youngsters at risk of being involved in cyberbullying and/or cybervictimization and prevent the occurrence of any such behaviours (Baldry et al., 2015).

#### **3.3 Objective**

The aim of this study was the development and the investigation of the psychometric features of an actuarial online instrument, for the identification of students at risk of being involved in cyberbullying and/or cybervictimization incidents.

#### **3.4 Method**

##### **3.4.1 Participants**

Four hundred and fifty-five Italian adolescents aged between 10 -16 years ( $M=12.27$ ,  $sd= 1.42$ ), filled in the online actuarial instrument Tabby Improved Checklist. 47.7% of participants were males, 27.0% of them have at least one profile on a social network and 38.0% admitted to spend online from 2 to 4 hours a day.

Participant were recruited from five schools located in the region Campania. Four were middle schools and one was a high school.

Schools were representative of the types of schools for students aged 11-18 in Italy (middle and high schools) and represented a variety of socio-economic statuses. For the description of the sample and other details, see Table 9.

**Table 9: Descriptive statistics of the sample**

	<b>Overall (455)</b>	<b>Min</b>	<b>Max</b>
Gender (males)	47.7% male	0	1
Age	M=12.27(sd=1.42)	10	16
Presence of social network profile(s)	27.0% at least one	0	2
Personally know all friends on social network	6.5% only half	0	4
Parents talk with kid about Internet Safety	7.1% never	0	4
Parents control online activities	25.2% never	0	4
Teachers talk with kid about Internet Safety	16.1% never	0	4
Hours a day online	38.0% 2/4 h	0	4
School achievement	9.0% below average	0	4
School bullying	81.9% never 18.1% at least sometimes	0	4
School victim	58.2% never 41.8% at least sometimes	0	28
Cyberbullying	89.0% never 11 % at least once	0	25
Cybervictimization	64.0% never 36.0% at least once	0	25
Internet addiction	M=10.59 (sd=4.26)	0	20
Moral Disengagement	M=68.58 (sd=21.00)	32	160
Empathy	M=24.93 (sd=10.25)	0	80
Increasing self-awareness of Cyberbullying	M=5.83 (sd=4.87)	0	24
Perceived peer support	M=9.36 (sd=4.99)	4	28
Perceived special person support	M=8.02 (sd=4.34)	4	28
Perceived parents support	M=7.17 (sd=4.13)	4	28
Perceived school climate	M=8.26 (sd=5.42)	0	32

### **3.4.2 Measure: The Tabby Improved Checklist**

The actuarial online Tabby Improved checklist has been developed by:



- Analysing the results derived by the review of the international literature on risk factors for youngsters' involvement in cyberbullying and cybervictimization. This has been carried out by combining the threat assessment approach and the ecological framework in order to identify the main risk factors for cyberbullying and cybervictimization. The aim was to identify how they operate and interact in the different ecological systems in order to determine an individual involvement in cyberbullying and/or in cybervictimization;
- Evaluating the short-term predictive capability of the risk of being involved in cyberbullying and cybervictimization of the actuarial Tabby instrument developed thanks to the "Tabby in Internet " (European Project N° JLS/2009-2010/DAP/AG/1340 AMG) and the "Tabby Trip in Europe" (European Project N° JUST/2011-2012/DAP/AG/3259) projects (project manager: Prof. Anna C. Baldry).

The Tabby Improved checklist consists of 12 scale for a total of 130 items (see Table 10 for details), distributed as follow:

Socio- demographic variables: 5 items were about students' age, sex, country of origin, and type of school and grade attended;

Ontogenetic level risk factors: the following dimension assessing significant risk factors for both cyberbullying and cybervictimization were included in the final version of the Tabby Improved checklist:

- Students' online habits were assessed by utilizing 5 items concerning their use of social network sites (3 items), accepting strangers as friends online (1 item) and frequency of Internet use.
- School achievement was measured by asking respondents to rate their school achievement on a Likert scale from "very poor" to "excellent".
- Previous involvement in cyberbullying and/or cybervictimization (in the previous 6 months) was

measured by adopting the taxonomy proposed by Willard (2007) (flaming, denigration, impersonation, outing and exclusion) (5 items for cyberbullying/ 5 items for cybervictimization). Respondents have to rate their experiences of cyberbullying and cybervictimization on a 5-point Likert scale ranging from “*it has never happened in this period*” to “*it happened several times a week*”. At the end of both cyberbullying and cybervictimization sub-types items, respondents were asked about their involvement as cyberbullies and cybervictims in the previous 6 months using a final global question.

To measure cyberbullying and cybervictimization, the 5 items measuring different types of cyberbullying and cybervictimization were respectively summed. In order to create the cyberbullying and cybervictimization dichotomous variables, a latent cut-off scores was adopted. Students were classified as cyberbully if they had committed any of the behaviours listed at least once or twice in the previous six months. If they never did anything, they were classified as non-cyberbully. The same criteria was used to measure cybervictimisation.

These criteria are questionable due to the debate existing in literature concerning cyberbullying and cybervictimization measurement strategies; however because of the cyberspace’ public nature, also a single act of cyberbullying could be considered as a repeated behavior *per se* (Langos, 2012; Hinduja & Patchin, 2014; 2008).

- Previous involvement in school bullying and/or victimization (in the previous 6 months) was measured similar to cyberbullying and cybervictimization, asking first about respondents’ involvement in each of the 3 school bullying and victimization sub-types (physical, verbal and relational). After completed this part,

respondents have to rate their involvement in both school bullying and victimization in the previous 6 months on a 5-point Likert scale ranging from “*it has never happened in this period*” to “*it happened several times a week*”

- For empathy measurement the Basic Empathy Scale (Albiero, Matricardi, Speltri, & Toso, 2009; Jolliffe & Farrington, 2006) was used.
- To assess students’ recourse to moral disengaged mechanisms, the Moral Disengagement Scale (Bandura, Barbaranelli, Caprara & Pastorelli, 1996) adapted and validated in Italian by Caprara, Bandura, Barbaranelli & Vicino (1996) was used.
- The A–C Addiction–Compulsion sub-scale of the Use, Abuse and Dependence on the Internet (UADI) inventory (Del Miglio, Gamba & Cantelmi, 2001; Gnisci, Perugini, Pedone & Di Conza, 2011) was used to measure student’s Internet Addiction.
- To assess respondents’ awareness of cyberbullying the Increasing self-awareness of Cyberbullying (ISAC) scale was created. The scale consists of 6 items on a 5-point Likert scale ranging from “*Strongly agree*” to “*Strongly disagree*” aimed at evaluating respondents’ awareness of cyberbullying and risky online behaviours and habits.

Microsystem level risk factors at this level both peers and family related risk factors were investigated using the Multidimensional Scale of Perceived Social Support Assessment scale (Zimet, Powell, Farley, Werkman, & Berkoff, 1990; Zimet, Dahlem, Zimet & Farley, 1988;). The scale composed of 12 items scored on a 7-point Likert scale (from “*Very Strongly Disagree*” to “*Very Strongly Agree*”) is a reliable measure to assess respondents’ perception of being supported from both family and peers.

Furthermore, also parental control and monitoring of their children of online activities was measured by asking respondents

how often their parents were involved in their education on safe Internet use, in giving rules monitoring their online activities.

Community level risk factors: At this level, school risk factors were assessed. To this aim a measure of perceived school climate, consisting of 8 items on a five-point Likert scale (from “*Strongly Disagree*” to “*Strongly Agree*”) and 3 items on teachers efforts and involvement in preventing cyberbullying were used.

**Table 10: Measures and items of the Tabby Improved Checklist**

<b>Ecological level</b>	
<b><i>Ontogenetic level risk factors</i></b>	<p>Online habits (5 items)</p> <p>School achievement (1 item)</p> <p>School Bullying (8 items) (<math>\alpha=.68</math>)</p> <p>School Victimization (8 items) (<math>\alpha=.78</math>)</p> <p>Cyberbullying (5 items) (<math>\alpha=.64</math>)</p> <p>Cybervictimization (5 items) (<math>\alpha=.78</math>)</p> <p>A–C Addiction–Compulsion sub-scale (UADI) (Del Miglio, et al., 2001; Gnisci, et al., 2011) (5 item) (<math>\alpha=.73</math>)</p> <p>Basic Empathy Scale (BES) (Jolliffe &amp; Farrington, 2006; Albiero et al., 2009) (20 item) (<math>\alpha=.80</math>)</p> <p>Moral Disengagement Scale (Bandura et al., 1996; Caprara et al., 1996) (32 item) (<math>\alpha=.90</math>)</p> <p>ISAC (Increasing self-awareness of Cyberbullying) (6 items) (<math>\alpha=.75</math>)</p>
<b>Microsystem</b>	
<b><i>Peer group risk factors</i></b>	Multidimensional Scale Of Percieved Social Support Assessment (Zimet et al., 1990) (8 item) ( $\alpha=.87$ )
<b><i>Family risk factors</i></b>	<p>Multidimensional Scale Of Percieved Social Support Assessment (Zimet et al., 1990) (4 item) (<math>\alpha=.84</math>)</p> <p>Parental control and monitoring online activities (3 item) (<math>\alpha=.75</math>)</p>
<b>Meso-system</b>	
<b><i>School level risk factors</i></b>	<p>Perceived school climate (8 items) (<math>\alpha=.89</math>)</p> <p>Teachers efforts and involvement in preventing cyberbullying (3 item) (<math>\alpha=.72</math>)</p>

Since the Tabby Improved Checklist has been developed as an actuarial self-threat assessment tool, after completing the questionnaire students can obtain a ‘*risk profile*’, which is useful to assess the level of risk related to be involved in cyberbullying and/or cybervictimization. Students, according to the answers provided, could obtain one of four possible levels of risk: green, yellow, orange, red. The identification of such risk profiles is the result of a formula developed to weight the presence and the severity of the measured risk factors.

### **3.4.3 Procedure**

In order to collect data from minors, parental consent was obtained before the start of the data collection. Participants filled in the online actuarial Tabby Improved Checklist two times, with a 6 months interval. Students were approached in their own classes, during school time and they all moved into the computer-technology room to fill in the online questionnaire in group’s size ranging from 10 to 20 depending from each school number of computer stations available. Here, each student seat in front of a PC connected to the [www.tabby.eu](http://www.tabby.eu) website and was told he/she had to fill in an online, anonymous self-report questionnaire regarding his/her experience with the use of the new communication technologies and online experiences in the previous 6 months. Before filling in the questionnaire, the terms school bullying and cyberbullying were explained in order to have a common understanding of what was investigated. The following definitions were provided:

*“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. Negative actions can include physical contact, words, making faces or dirty gestures, and intentional exclusion from a group. An additional criterion of bullying is an imbalance in*

*strength: The student who is exposed to the negative actions has difficulty defending himself or herself*” (Olweus, 1995, p.197).

*“Cyberbullying as an aggressive and intentional act, carried out by a group or an individual, using electronic forms of contact, repeatedly over time against a victim who cannot easily defend himself/herself”* (Smith et al., 2008, p.376 ).

Students were assured about the confidentiality of the study and the anonymity of the answers provided. They were also told that no one but the researchers could have access to the answers that once provided went automatically into a database and anonymously analysed in an aggregated way. Students were given the opportunity to pose questions. After completing the questionnaire all students returned in their class.

### **3.5 Results**

#### **3.5.1 Explorative Factor Analysis**

In order to evaluate the Tabby Improved Checklist’s construct validity, a principal component analysis with Varimax factor rotation method was conducted to examine test dimensionality.

The analysis resulted in the extraction of 12 factors, based on the 51 item considered for the analysis. The 12 identified factors explain the 63.84% of the total variance (Table 11).

Considering the value .40 as the cut-off point to assign an item to a factor, (Tabachnick & Fidell, 2001) the structure of each of the twelve obtained factors was very clear.

The first factor comprised 8 items concerning the eight moral disengagement mechanisms originally developed by Bandura (1986b) ( $\alpha = .90$ ). The second factor comprised another 8 items regarding students’ perception of school climate ( $\alpha = .80$ ), the third and the fourth factor comprised 4 items dealing respectively with students’ perception of being supported by peers ( $\alpha = .89$ ) and

by parents ( $\alpha=.84$ ).The fifth factors is composed of 4 items concerning peer bullying. ( $\alpha=.74$ ). The sixth factor concerns students' perception of being supported by a special person ( $\alpha=.79$ ) and it comprised 4 items. Factors 7, 8 and 9 comprised respectively 5, 4 and 3 items and concern Internet addiction ( $\alpha=.73$ ), parental control of their children online activities ( $\alpha=.75$ ) and students' awareness of online risky behaviours ( $\alpha=.75$ ).The tenth factor is composed of 3 items dealing with teachers' efforts in preventing students' involvement cyberbullying and/or cybervictimization ( $\alpha=.72$ ).

The eleventh factor comprise 3 items concerning students' online habits ( $\alpha=.67$ ) and the twelfth comprise two items concerning the cognitive and affective dimension of empathy ( $\alpha=.80$ )

These data confirmed the expected factor structure of the test.

**Table 11: Explorative factor analysis, subscales and factors loading**

Item	Factor loading											
	1	2	3	4	5	6	7	8	9	10	11	12
<b>1.Moral Disengagement</b>												
Moral justification	<b>.78</b>	.24	.003	.13	.05	-.05	.14	.08	.04	-.05	.18	-.02
Euphemistic labelling	<b>.77</b>	.15	.04	.13	.04	.02	.09	.11	.009	-.04	.19	.08
Advantageous comparison	<b>.78</b>	-.08	.003	.06	.07	.14	.06	.02	.03	.04	.13	.19
Displacement of responsibility	<b>.73</b>	-.03	.10	.02	.09	-.003	.05	.04	.21	.03	-.04	-.02
Diffusion of responsibility	<b>.74</b>	.01	.01	.08	.07	.16	.13	.12	.07	.04	.22	.06
Consequences distortion	<b>.68</b>	.18	.04	-.006	-.009	-.08	.03	.11	.11	.04	-.11	-.27
Attribution of blame	<b>.79</b>	-.02	.08	.07	.10	.01	.07	-.02	.06	.09	.10	.19
Dehumanization	<b>.72</b>	.15	-.04	.05	.06	.12	.12	.03	-.04	.06	.09	.14
<b>2. Perceived school climate</b>												
Relationships between students and teachers are warm and friendly	.06	<b>.43</b>	.07	.21	.18	-.08	.04	.24	.08	.07	-.17	.29
If I have some problems I can count on teachers help and support	.15	<b>.39</b>	.09	.28	-.01	.04	-.12	-.01	.10	.14	.07	.47
If a student is in trouble my mates always try to help him	.02	<b>.48</b>	.27	.03	.22	.05	.02	.04	.19	-.12	-.09	-.04
We were involved in group works aimed at understand the importance of the Institute rules	.08	<b>.58</b>	-.07	.18	-.06	-.02	.03	-.07	.04	.12	-.13	.35
In my school students and teachers are concerned about each other	.08	<b>.68</b>	.22	.08	.11	-.03	.03	.14	.08	.05	-.01	.09
I am proud to be a student of this school	.06	<b>.67</b>	.04	.19	.04	.10	.02	.04	.01	.07	.08	-.006
My school is like a big family	.15	<b>.76</b>	.20	.01	.00	.05	.003	-.004	-.06	.14	.06	.04
Most of the students support and participate with interest in all school's activities	.04	<b>.67</b>	.13	-.05	-.01	.12	.13	.20	-.07	.09	.07	-.18
<b>3. Perceived peer support</b>												
My friends really try to help me	.004	.26	<b>.79</b>	.18	.13	.16	.02	.12	-.03	.08	-.03	.07
I can count on my friends when things go wrong.	.08	.21	<b>.83</b>	.10	.09	.11	.02	.03	.03	.08	.03	.05
I have friends with whom I can share my joys and sorrows.	.09	.18	<b>.68</b>	.25	.07	.33	.009	.04	-.01	.04	.02	.11
I can talk about my problems with my friends	.01	.09	<b>.81</b>	.08	-.04	.25	.06	-.04	-.03	.04	.03	.05
<b>4.Percieved parental support</b>												
My family really tries to help me	.09	.10	.09	<b>.84</b>	.09	.16	.06	.09	.04	.09	-.005	-.06
I get the emotional help and support I need from my family	.12	.19	.09	<b>.83</b>	.07	.18	.02	.09	.02	.02	.04	-.009
I can talk about my problems with my family.	.11	.05	.10	<b>.60</b>	.02	.26	.08	.07	.04	-.01	.05	.05



My family is willing to help me make decisions.	.10	.10	.22	<b>.84</b>	.07	.08	.05	.11	.02	.04	.05	.04
<b>5. Peer bullying</b>												
Cybervictimization (previous 6 months)	.02	.02	.10	.08	<b>.79</b>	.04	.09	-.14	.006	.02	.007	-.009
Cyberbullying (previous 6 months)	.16	.008	-.09	.09	<b>.75</b>	.10	.004	.10	.06	-.02	.13	-.06
School victimization (previous 6 months)	.01	.11	.25	-.04	<b>.71</b>	.05	.14	-.08	-.03	.03	.06	.03
School bullying (previous 6 months)	.22	.11	-.03	.10	<b>.81</b>	.04	.09	.04	-.03	-.03	.06	.10
<b>6. Perceived special person support</b>												
There is a special person who is around when I am in need	.004	.05	.16	.27	.17	<b>.73</b>	.06	.03	.03	.06	.002	-.05
There is a special person with whom I can share my joys and sorrows	.12	.02	.17	.15	.14	<b>.80</b>	-.04	.03	.06	.03	.03	.04
I have a special person who is a real source of comfort to me.	.09	.08	.36	.18	-.04	<b>.55</b>	-.05	.15	-.004	.09	-.09	.16
There is a special person in my life who cares about my feelings.	.04	.07	.21	.14	-.01	<b>.69</b>	-.02	.07	-.02	.04	.02	.17
<b>7. Internet Addiction</b>												
Sometimes I stay online more than what was my intention	.12	.21	-.05	-.02	.06	.07	<b>.72</b>	.13	.08	-.07	.09	-.11
Sometimes I have an urge to go online. even if just for a short time	.17	-.05	.07	.05	.06	.01	<b>.54</b>	.06	.14	.03	-.05	-.16
I always find a reason to stay online longer	.12	.06	.04	.04	.11	.03	<b>.81</b>	.02	.08	.03	.07	.004
Sometimes I get comfort just by using my computer	.09	-.12	-.03	.01	.15	-.10	<b>.45</b>	-.01	.25	.05	-.19	.27
Sometimes I say to myself: "just a little bit more and then I will get off the Internet" but I keep on being connected	.07	.03	.03	.11	.02	-.08	<b>.74</b>	.005	.05	.09	.14	.13
<b>8. Parental control online activities</b>												
Do your parents speak with you about Internet security?	.06	.10	.01	.13	-.02	.09	-.07	<b>.79</b>	.08	.006	-.001	.09
Do your parents have given you clear rules about Internet use?	.12	.11	.06	.14	-.03	.05	.09	<b>.80</b>	.11	.06	.05	.04
Do your parents control your online activities?	.17	.09	.06	.07	-.06	.07	.24	<b>.63</b>	.04	.10	.15	.09
<b>9. Online risky behaviours</b>												
Online I accept as friends. peoples who I do not know personally	.23	.15	-.02	.11	.09	-.02	.11	.12	<b>.54</b>	.06	.20	-.05
Everybody could see my notice board on my social networks profile(s)	.07	.05	-.007	-.002	-.05	.03	.18	.03	<b>.85</b>	-.01	.15	-.007
My profile(s) and all of my online photos are visible to all	.12	-.02	-.006	.04	-.004	.05	.15	.11	<b>.79</b>	-.12	.19	.02
<b>10. Teachers' efforts and involvement in cyberbullying prevention</b>												
Do your teachers speak with you about Internet security?	.05	.26	.05	-.01	-.04	.13	.08	.23	.03	<b>.59</b>	-.07	.18
Do your teachers speak with you about cyberbullying?	.06	.09	.06	.12	.07	.04	.009	.02	-.05	<b>.82</b>	.08	.02
Do you have been involved in work groups on cyberbullying prevention strategies?	.04	.07	.09	.01	-.05	.02	.04	-.01	-.04	<b>.86</b>	.003	-.04
<b>11. Online risky habits</b>												

To share online someone's photos or other materials. it's just a way to mock	.20	.05	-.01	.08	.08	.06	.08	.16	.15	.03	<b>.69</b>	.002
I post my friends/acquaintances pictures without having asked their permission	.15	.04	-.01	.04	.04	-.02	.14	-.01	.23	.02	<b>.70</b>	.06
I find easier to spread harmful materials about someone online rather than doing it in person	.28	-.10	.07	.006	.14	-.05	-.06	.03	.11	-.006	<b>.64</b>	.08
<b>12. Empathy</b>												
Cognitive empathy	.17	-.04	.28	-.07	.01	.20	.005	.19	-.03	.08	.14	<b>.59</b>
Affective empathy	.22	.18	.09	-.09	.04	.26	-.001	.30	-.11	-.06	.13	<b>.58</b>
% of explained variance	10.07	6.84	6.21	6.12	5.27	5.09	5.07	4.36	3.95	3.91	3.74	3.21
Total variance	<b>63.84</b>											

### 3.5.2 Reliability: Internal Consistency and Test–Retest Reliability

The Cronbach alpha coefficients obtained for the 12 factors extracted by the principal component analysis showed evidence of the Tabby Improved Checklists’ internal consistency (see Table 10).

To calculate test-retest reliability, we performed a correlation (ordinal gamma) between students’ scores at cyberbullying and cybervictimization measures at both T1 and at T2 (see Table 12). Results showed moderate values of temporal stability, suggesting that adolescents who are involved in cyberbullying and cybervictimization are likely to continue doing so 6 months later.

**Table 12: Test – Retest Reliability (N=455)**

	Test		Retest		Gamma
	M	SD	M	SD	
Cyberbullying	.27	1.08	.38	1.54	.73
Cybervictimization	.88	1.75	.97	2.09	.63

### 3.5.3 Convergent and Divergent Validity: Profiles of Cybervictims and Cyberbullies

To test the validity of the Tabby Improved instrument also convergent and divergent validity were analysed.

Participants were divided into cybervictims (if they had been cybervictimized at least once or twice in the previous six months) and non-cybervictims (if they had not been cybervictimized).

They were classified in cyberbullies (if cyberbullied at least once or twice in the six months) and non-cyberbullies (if they had not been involved in cyberbullying behaviour).

To test validity, we analysed cyberbullies and cybervictims’ profiles, that is, we tested whether the characteristics of those who reported to be involved as cyberbullies and cybervictims

were similar to those obtained in previous studies, by comparing those cyberbullies and cybervictims profiles versus those who had not been involved in such behaviours. For this purpose, we performed ANOVA with the scores obtained in diverse dimension dealing with ontogenetic, microsystem and mesosystem level risk factors. Results are presented in Table 13.

Table 13 shows that cyberbullies report:

(a) Significantly higher levels of involvement in both school bullying and victimization, higher scores in Internet Addiction, moral disengagement and perception of a negative school climate and;

(b) Significantly lower levels of awareness about risky online behaviours, perceived parental and special person support.

c) Cyberbullies also showed significantly lower levels of affective empathy and school achievement.

No differences were found in cognitive empathy, parental education and control of their children online activities, perceived peers support and teachers' efforts in prevent cyberbullying and cybervictimization.

Cybervictims (see Table 13) report:

(a) Significantly having more friends online they did not know personally, higher levels of involvement in both school bullying and victimization, higher scores in Internet Addiction and perception of a negative school climate and;

(b) Significantly having lower levels of perceived parental, peers and special person support.

No differences were found in both cognitive and affective empathy, moral disengagement, school achievement, parental education and control of their children online activities and teachers' efforts in prevent cyberbullying and cybervictimization.

**Table 13: Non Cyberbullies, Cyberbullies, Non Cybervictims, Cybervictims profiles with regard to ontogenetic and interpersonal levels risk factors**

	Non-cyber bully	Cyberbully			Non- cyber victim	Cybervictim		
	M (SD)	M (SD)	F	D	M (SD)	M (SD)	F	d
Hours online a day	1.27 (1.13)	1.56 (1.03)	2.91 <sup>†</sup>	.26	1.23(1.09)	1.43 (1.17)	3.31 <sup>†</sup>	.18
Personally know all friends on SCN's	1.03 (1.12)	1.10 (1.08)	.18	.06	.96 (1.09)	1.19 (1.09)	4.31*	.21
School Achievement	1.61 (.81)	1.90 (.79)	5.56**	.36	1.60 (.80)	1.72 (.84)	2.02	.15
School Victimization	1.89 (3.10)	5.20 (4.53)	44.99***	1.00	1.24 (2.49)	4.05 (4.11)	82.40***	.89
School Bullying	.54 (1.26)	3.68 (3.07)	180.70***	2.00	.53(1.24)	1.51 (2.47)	31.29***	.55
Low Cognitive Empathy*	9.63 (4.74)	10.38 (4.60)	1.11	.16	9.59 (4.91)	9.93 (4.39)	.57	.07
Low Affective Empathy*	14.95 (6.98)	17.54 (6.61)	6.20*	.37	15.68 (7.37)	14.44 (6.17)	3.33 <sup>†</sup>	-.18
Internet addiction	10.4 (4.27)	12.38 (3.79)	10.07***	.47	10.10 (4.33)	11.47 (4.00)	11.08***	.32
Moral Disengagement	67.0 (23.31)	80.98 (22.58)	20.40***	.68	67.81 (21.19)	69.95 (20.66)	1.09	.10
Low awareness of online risks	5.54 (4.73)	8.08 (5.45)	12.33***	.53	5.62 (4.84)	6.18 (4.92)	1.34	.11
Perceived Poor Parental Support	6.89 (3.88)	9.48 (5.27)	18.19***	.64	6.78 (3.71)	7.88 (4.72)	7.62**	.27
Parent talk with kid about Internet Safety	1.65 (1.19)	1.76 (1.35)	.40	.09	1.72 (1.21)	1.54 (1.20)	2.33	-.15
Parental Rules on Internet use	1.98 (1.31)	2.26 (1.43)	1.98	.21	2.02 (1.33)	2.00 (1.32)	.02	-.01
Parental Control online activities	2.50 (1.28)	2.78 (1.11)	2.25	.22	2.60 (1.26)	2.41 (1.27)	2.29	-.15
Perceived Poor Peer Support	9.26 (5.06)	10.12 (4.39)	1.31	.17	8.66 (4.55)	10.61 (5.50)	16.50***	.40
Perceived poor special person support	7.82 (4.23)	9.58 (4.92)	7.37**	.41	7.67 (4.09)	8.63 (4.71)	5.13*	.22
Perceived Negative School Climate	8.06 (5.38)	9.94 (5.57)	5.44*	.35	7.73 (5.25)	9.19 (5.62)	7.64**	.27
Teachers prevention cyberbullying	8.07 (2.58)	8.26 (2.83)	.21	.07	7.98 (2.72)	8.31 (2.40)	1.62	.13

\*Note: Cognitive and Affective Empathy were calculated reversing score items of the Besic Empathy Scale (Jolliffe & Farrington, 2006; Albiero et al., 2009) to obtain low scores of both Cognitive and Affective Empathy.

### 3.5.4 Predictive power of the Tabby Improved Checklist

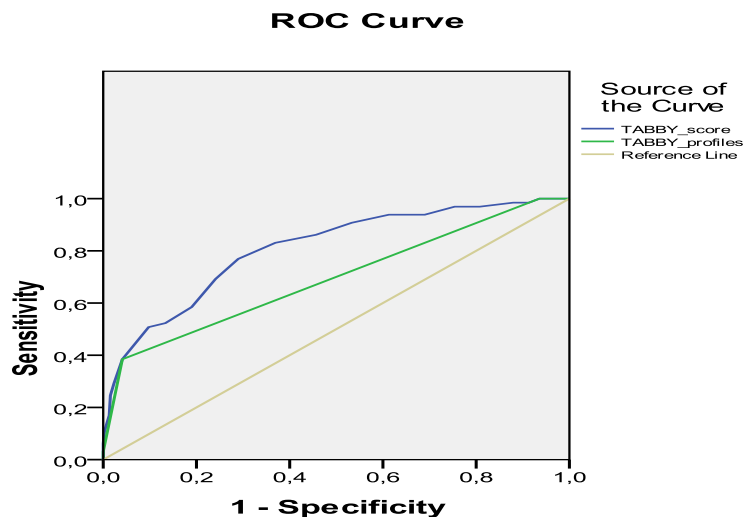
In order to analyse the predictive power of the actuarial Tabby Improved Checklist and the risk score that it provides for students' involvement in cyberbullying and cybervictimization, two separate Roc Analysis were performed.

Results highlighted (see Figure 2 and Figure 3) as the risk score based on the literature review on risk factors, as well as the "risk profiles" created (4 low-risk levels, average, high, very high), show good short-term predictive capability of the risk of being involved in cyberbullying and cybervictimization.

The Tabby instrument has some promising features in terms of predictive power, in particular for the offending measure the inclusion of the proposed dimension as risk factors for youngsters' involvement in cyberbullying seems to underlie that the instrument could be considered as effective and efficient for short-term risk assessment.

Results, however, also indicated that the "risk profiles" need to be improved, and especially for the cybervictimization measure, it could be useful to re-evaluate the cut-off score of the "risk profiles" proposed.

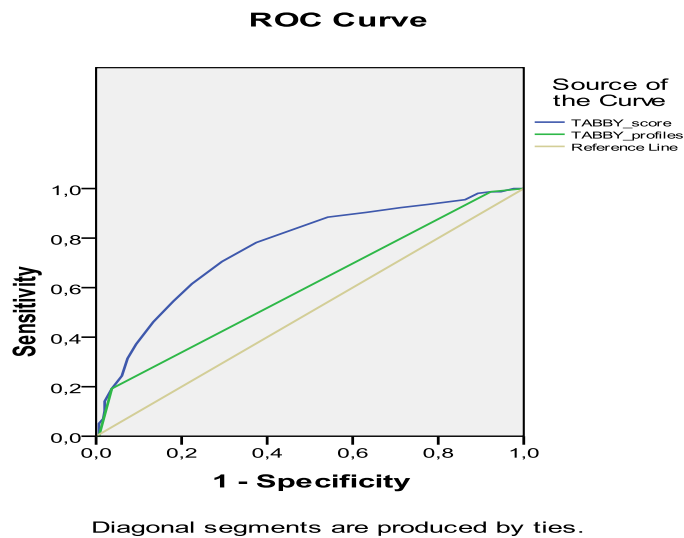
Fig. 2: ROC Analysis cyberbullying (after 6 months)



Diagonal segments are produced by ties.

	AUC	95% C.I.	
		LB	UB
TABBY_score	.81***	.75	.87
TABBY_profiles	.69***	.61	.77

Fig. 3: ROC Analysis cybervictimization (after 6 months)



	AUC	95% C.I.	
		LB	UB
TABBY_score	.76***	.71	.81
TABBY_profiles	.60***	.55	.66

### 3.6 Conclusion

The analyses aimed at evaluating the psychometric characteristics of the Tabby Improved Checklist showed the instrument has promising features. The Tabby Improved Checklist showed high level of internal consistency and moderate values of temporal stability.

Results of the EFA yielded twelve factors corresponding to the theoretical model adopted looking at the different layers of risk and protective factors (Moral Disengagement; Perceived school climate;

Perceived peer support; Perceived parental support; Peer bullying; Perceived special person support; Internet Addiction; Parental control online activities; Online risky behaviors; Teachers' efforts and involvement in cyberbullying prevention; Online risky habits; and Empathy), ratifying the expected factor structure.

The results of the analyses of convergent and discriminant validity confirm the Tabby Improved checklist validity, cyberbullies reported being more involved in both school bullying and victimization, higher scores of Internet Addiction, moral disengagement and perception of a negative school climate. They also obtain low scores in affective empathy, school achievement and perceived parental and special person support. While cybervictims reported more risky online behaviours such as friends online, they did not know personally, higher levels of involvement in both school bullying and victimization, higher scores in Internet Addiction and perception of a negative school climate. They also obtain lower scores in perceived parental, peers and special person support.

Results of the predictive power of the actuarial Tabby Improved checklist highlighted as the risk score based on the literature review on risk factors, as well as the "*risk profiles*" previously created based on prior studies (Baldry, Blaya & Farrington, 2017; Sorrentino, Cacace, & Baldry, 2017) (4 low-risk levels, average, high, very high), showed good short-term predictive capability of the risk of being involved in cyberbullying and cybervictimization.

Even if other studies are necessary in order to confirm its psychometric characteristics on a larger and more representative sample, the use of the Tabby Improved Checklist can have some useful and practical implications, such as the possibility to identify students at risk of being involved in cyberbullying and cybervictimization. Furthermore, to identify relevant risk factors for youth involvement in cyberbullying and cybervictimization could be useful to increase our knowledge about relevant variables and



dimensions to be included to prevent and reduce cyberbullying and cybervictimization

### **3.7 Study 2: Risk factors for students involvement in cyberbullying and cybervictimization: onset and persistency**

#### **3.8 Abstract**

Up to date literature in the field highlighted the existence of numerous studies on cyberbullying and cybervictimization prevalence and risk factors. By reviewing these studies emerges how there is no one single risk factor, or cause able to explain cyberbullying (and cybervictimization), but that risk factors at all ecological levels can have a role and influence and these vary from individual to individual, and from context to context (Baldry et al., 2015). Furthermore, few of the existing studies on risk factors for cyberbullying and cybervictimization were longitudinal studies, and few of them were developed within a specific theoretical framework.

However, what is to date, missing in studies on risk factors for cyberbullying and cybervictimization is the investigation of which risk factors can explain an individual' onset involvement in cyberbullying and/or cybervictimization and the investigation of which risk factors can explain an individual' persistency involvement in cyberbullying and cybervictimization. The assessment of this aspect would constitute a first step towards effective intervention programs.

#### **3.9 Aim**

This study aims to identify onset and persistency risk factors for youth involvement in both cyberbullying and cybervictimization. To this purpose, onset risk factors will be analysed for both cyberbullying and cybervictimization, by excluding from these analyses all students that at baseline (T1) declared to be involved in cyberbullying or in cybervictimization.

While persistency risk factors for cyberbullying and cybervictimization, will be analysed by excluding from the

following analysis all students reporting at baseline (T1) to be not involved in cyberbullying and cybervictimization.

### **3.10 Method**

#### **3.10.1 Participants**

Four hundred and fifty-five Italian adolescents aged between 10 -16 years ( $M=12.27$ ,  $SD =1.42$ ), who filled in the online actuarial Tabby Improved Checklist two times, with a 6 months interval (for the detailed description of the sample, see Table 9):

#### **3.10.2 Measures**

To assess risk factors for both youngsters' onset and persistency involvement in cyberbullying and cybervictimization, the Tabby Improved Checklist was used. The checklist consists of several scales measuring the dimensions under investigation (see paragraph 3.4.2 for the Tabby Improved Checklist description). For the purpose of the present study, the school bullying and victimization scales were created. School bullying and victimization scales were created by summing the 7 items measuring different types of direct and indirect bullying and victimization, that might have taken place in the previous six months. The final measures used were two dichotomous variables created for school bullying, by classifying as 'not bullies' those who rated either never or once or twice in all of the 7 types of behaviours. School bullies were those who said that they did any of the listed behaviours at least sometimes in the previous six months. The same criteria were used for school victimisation. The method of using the cut-off of 'at least sometimes' was preferred so as to exclude those who admitted any of the behaviours listed only once or twice, which is not considered bullying due to lack of repetition in time (Farrington, 1993).

To measure cyberbullying and cybervictimization, the 5 items measuring different types of cyberbullying and cybervictimization

were respectively summed. In order to create the cyberbullying and cybervictimization dichotomous variables, a latent cut-off scores was adopted. Students were classified as cyberbullies if he or she had committed any of the behaviours listed at least once or twice in previous six months; if they never did anything, they were classified as non-cyberbullies. The same criteria was used to measure cybervictimisation. These criteria are questionable due to the debate existing in literature concerning cyberbullying and cybervictimization measurement strategies; however because of the cyberspace' public nature, also a single act of cyberbullying could be considered as a repeated behavior per se (Langos, 2012; Hinduja & Patchin, 2014; 2008).

### **3.10.3 Procedure**

The same methodology as described in paragraph 3.3 was used to collect data of the present study. Participants filled in the actuarial online Tabby Improved Checklist, two times, with a 6 months interval. Before data collection, approval by the schools and parental consent was obtained. Students' anonymity was assured, and both the researcher and teachers supervised the whole data collection process.

## **3.11 Results**

### **3.11.1 Onset risk factors for cyberbullying involvement**

With regard to cyberbullying involvement in T2 we found a significant and positive correlation with gender, hours spent online a day, high levels of moral disengagement, previous involvement in both school bullying and victimization, and low levels of awareness about online risky behaviours. Also these results indicated that being males, spend more time a day on Internet, reporting high levels of moral disengagement, being involved in school bullying and/or victimization and reporting low levels of awareness about online

risks are all significant ontogenetic risk factors associated with the involvement in cyberbullying after 6 months (T2).

Also, poor parental control of the children online activities and low levels of perceived support from a significant person are risk factors significantly correlated to the involvement in cyber bullying in T2 (see Table 14).

Only onset risk factors resulted to be significantly correlated to youngsters' involvement in cyberbullying after 6 months were analysed using the logistic regression analysis, in particular odds ratio (OR) were calculated in order to measure the strength of relationships found by the correlation analysis. Results (see Table 15) showed that all the dimensions included in the model, significantly increased youngsters' likelihood of being involved in cyberbullying after 6 months.

In particular, students reporting being involved as school bullies and low levels of awareness of online risky behaviours were respectively 1.80 and 1.67 times more likely to be involved in cyberbullying after 6 months.

**Table 14: Onset Non cyberbullying at T1, risk/protective factors at T2 with cyberbullying at T2 (N=405)**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Cyberbullying T2	-																				
Gender	.14**	-																			
Age	.10	.16**	-																		
Presence of social network profile(s)	-.09	-.13**	.12*	-																	
Personally know all friends on social network	.06	.06	.17**	.02	-																
Hours a day online	.11*	-.09	.21**	.22**	.17**	-															
Academic achievement	.09	.07	.29**	.04	.17**	.22**	-														
Internet addiction	.08	.01	.13**	.17**	.26**	.49**	.22**	-													
Moral Disengagement	.18**	.28**	.26**	-.01	.15**	.15**	.24**	.29**	-												
Empathy	.09	.34**	.15**	-.03	.07	.04	.16**	.06	.29**	-											
School victim	.15**	.04	-.11*	-.01	.22**	.19**	.10*	.17**	.03	.05	-										
School bullying	.18**	.12*	.01	-.05	.10	.12*	.13*	.15**	.20**	.11*	.38**	-									
Poor awareness of online risks	.16**	.09	.17**	.06	.25**	.15**	.20**	.33**	.34**	.13*	-.00	.01	-								
Poor perceived peer support	.04	.12*	.12*	-.06	.17**	.05	.09	.08	.15**	.31**	.26**	.10	.03	-							
Poor perceived special person support	.13*	.24**	.04	-.10	.14**	-.03	.15**	.02	.20**	.34**	.12*	.06	.08	.54**	-						
Parents talk with kid about Internet Safety	.01	.21**	.13*	-.01	.15**	-.01	.07	.03	.13*	.25**	-.07	.01	.18**	.17**	.21**	-					
Parental control online activities	.13*	.29**	.19**	-.01	.25**	.09	.09	.31**	.31**	.26**	.05	.05	.31**	.19**	.19**	.43**	-				
Parental rules on Internet use	.03	.15**	.21**	.03	.22**	.16**	.09	.19**	.21**	.24**	-.05	.02	.23**	.17**	.18**	.58**	.51**	-			
Poor perceived parental support	.09	.02	.16**	.04	.19**	.06	.23**	.14**	.25**	.11*	.04	.22**	.17**	.38**	.42**	.19**	.22**	.21**	-		
Perceived negative school climate	.10	.14**	.55**	.05	.23**	.16**	.21**	.14**	.28**	.30**	.16**	.18**	.14**	.44**	.24**	.25**	.27**	.27**	.33**	-	
Teachers prevention cyberbullying	.05	.00	.15**	.04	.17**	.04	.03	.13*	.16**	.17**	.05	.02	.03	.25**	.22**	.17**	.26**	.23**	.22**	.35**	-

Note: † p<.10 \*p<.05 \*\*p<.01 \*\*\*p<.000.

All variables continuous are standardized.

**Table 15: Logistic regression for onset of “cyberbullying” after 6 months (T2)**

Variable	B(SE)	Exp(B)	OR	95 C.I. for ODDS	
				Lower Bound	Upper Bound
Gender	.48(.43)	1.61	2.70**	1.34	5.42
Hours a day online	.25(.19)	1.28	1.42*	1.03	1.99
Moral Disengagement	.25(.20)	1.28	1.76**	1.27	2.43
School victim	.27(.19)	1.32	1.57**	1.14	2.15
School bullying	.39(.22)	1.48 <sup>†</sup>	1.80**	1.18	2.74
Low awareness of online risks	.37(.20)	1.45 <sup>†</sup>	1.67**	1.20	2.32
Perceived poor special person support	.22(.18)	1.24	1.50*	1.08	2.06
Parental control online activities	.22 (.24)	1.25	1.70*	1.11	2.60

Note: † p<.10 \*p<.05 \*\*p<.01 \*\*\*p<.000.  
R<sup>2</sup>:= .08 (Cox and Snell). 18 (Nagelkerke).  $\chi^2(8) = 31.09***$   
All continuous variables are standardized.

### 3.11.2 Onset risk factors for cybervictimization

With regard to students’ involvement in cybervictimization at T2, results (see Table 16) underlined the existence of a significant and positive correlation with hours spent online a day, poor school achievement, previous involvement in school bullying and victimization, high levels of moral disengagement Internet Addiction, and low levels of awareness of online risky behaviours, indicating that the presence of these ontogenetic risk factors at T1 is associated with cybervictimization after 6 months. With regard to the interpersonal level risk factors, only low levels of perceived parental support were significantly correlated to cybervictimization at aT2.

Similar to cyberbullying onset risk factors investigation, also for cybervictimization involvement after 6 months, odds ratio (OR)

were calculated. Results (see Table 17) showed that all the dimensions included in the model, significantly increased youngsters' likelihood of being involved in cybervictimization after 6 months. In particular, students victimized at school and reporting high levels of Internet Addiction were respectively 1.79 and 2.84 times more like to be cybervictimized after 6 months.



**Table 16: Onset of Non cybervictimization at T1, risk/protective factors at T2 with cybervictimization at T2 (N=291)**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Cybervictimization T2	-																				
Gender	.03	-																			
Age	-.03	.18**	-																		
Presence of social network profile(s)	.02	-.10	.13*	-																	
Personally know all friends on social network	.05	.06	.14*	-.01	-																
Hours a day online	.17**	-.06	.17**	.22**	.17**	-															
Academic achievement	.12*	.10	.30**	.00	.17**	.16**	-														
Internet addiction	.29**	.07	.13*	.17**	.22**	.47**	.21**	-													
Moral Disengagement	.13*	.32**	.36**	-.05	.15*	.17**	.32**	.32**	-												
Empathy	.06	.37**	.17**	.00	.10	.06	.17**	.09	.32**	-											
School victim	.24**	.06	-.11	-.02	.22**	.20**	.10	.20**	.05	.09	-										
School bullying	.21**	.25**	.06	-.02	.03	.11	.17**	.21**	.32**	.23**	.21**	-									
Poor awareness of online risks	.12*	.10	.16**	.02	.27**	.12	.23**	.29**	.36**	.11	.09	.15*	-								
Poor Perceived peer support	.11	.15*	.12*	-.12*	.22**	.06	.17**	.05	.17**	.32**	.21**	.05	.06	-							
Poor Perceived special person support	.06	.24**	.09	-.09	.22**	-.01	.20**	.02	.23**	.35**	.08	.11	.09	.57**	-						
Parents talk with kid about Internet Safety	.00	.22**	.20**	.00	.13*	.03	.14*	.03	.21**	.24**	.03	.23**	.18**	.21**	.27**	-					
Parental control online activities	.08	.32**	.22**	-.02	.27**	.13*	.14*	.32**	.35**	.28**	.14*	.21**	.28**	.21**	.23**	.46**	-				
Parental rules on Internet use	.08	.18**	.20**	.05	.19**	.15*	.18**	.16**	.29**	.26**	.05	.18**	.20**	.21**	.27**	.63**	.53**	-			
Poor Perceived parental support	.19**	.10	.21**	.00	.22**	.07	.32**	.15*	.28**	.16**	.07	.28**	.20**	.46**	.46**	.28**	.31**	.31**	-		
Perceived negative school climate	.02	.22**	.55**	.01	.20**	.14*	.22**	.15*	.36**	.33**	.12	.27**	.18**	.42**	.31**	.34**	.32**	.34**	.41**	-	
Teachers prevention cyberbullying	-.01	-.02	.16**	.04	.14*	.11	.04	.12*	.12*	.21**	.07	.12	.04	.22**	.24**	.15*	.20**	.18**	.25**	.35**	-

Note: † p<.10 \*p<.05 \*\*p<.01 \*\*\*p<.000.  
All continuous variables are standardized.

**Table 17: Logistic regression for onset of “cybervictimization” after 6 months (T2)**

Variable	B(SE)	Exp(B)	OR	95 C.I. for ODDS	
				Lower Bound	Upper Bound
Hours a day online	.06(.14)	1.06	1.45**	1.16	1.81
School Achievement	-.01(.13)	.99	1.28*	1.03	1.60
Internet Addiction	.38(.16)	1.47*	1.79***	1.39	2.29
Moral Disengagement	.04(.14)	1.04	1.27*	1.01	1.59
School victim	1.04(.19)	2.73***	2.84***	2.01	4.03
School bullying	-.04(.21)	.96	1.83**	1.24	2.71
Low awareness of online risks	.08(.14)	1.09	1.26*	1.01	1.58
Perceived poor parent support	.36(.15)	1.43*	1.50**	1.18	1.92

Note: † p<.10 \*p<.05 \*\*p<.01 \*\*\*p<.000.

R2= .17 (Cox and Snell), .25 (Nagelkerke).  $\chi^2(8) = 71.31^{***}$

All continuous variables are standardized.

### 3.11.3 Persistency of Risk factors for cyberbullying

In order to analyse which risk factors were associated to youth persistency in cyberbullying, risk factors measured at T1 on students who reported being cyberbullies were correlated with cyberbullying involvement in T2. Results of the correlation analysis showed the existence of a significant and positive association between high levels of Internet Addiction, moral disengagement, low levels of empathy and previous involvement in both school bullying and victimization and the persistent involvement in cyberbullying after 6 months.

Also low levels of perceived peers support emerged to be significantly associated with the persistency of cyber bullying in T2 (see Table 18).

Only persistency risk factors resulted to be significantly correlated to cyberbullying after 6 months were analysed using the logistic regression analysis. Results (see Table 19) showed that all the

dimensions included in the model, significantly increased youngsters' likelihood of being persistent involved in cyberbullying after 6 months. In particular, students who reported low levels of perceived peer support were 4.87 times more likely continue to be involved in cyberbullying after 6 months.

**Table 18: Persistency cyberbullying at T1, risk/protective factors at T2 with cyberbullying at T2 (N=50)**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
1. Cyberbullying T2	-																			
2. Gender	.13	-																		
3. Age	.07	-.16	-																	
4. Presence of social network profile(s)	.04	.02	-.09	-																
5. Personally know all friends on social network	-.21	-.19	.12	.02	-															
6. Hours a day online	.12	-.17	.28	.12	.12	-														
7. Academic achievement	.21	.28	.26	-.19	.16	-.07	-													
8. Internet addiction	.32*	.08	.05	.14	.00	.46**	.05	-												
9. Moral Disengagement	.36*	.30*	.35*	.01	.14	.29*	.30*	.40**	-											
10. Empathy	.42**	.56**	.11	-.04	-.03	.12	.29*	.12	.40**	-										
11. School victim	.34*	.07	-.17	.00	.17	.00	-.06	.14	.11	.13	-									
12. School bullying	.50**	.22	.11	.03	.02	.14	.13	.35*	.47**	.34*	.62**	-								
13. Poor awareness of online risks	.15	.11	.02	.05	.31*	.11	.09	.28*	.64**	.18	.20	.29*	-							
14. Poor Perceived peer support	.32*	-.17	-.12	-.13	.25	-.31*	.31*	-.10	-.17	.01	.36*	.17	.05	-						
15. Poor Perceived special person support	.11	-.05	.02	-.26	.18	-.16	.29*	-.08	-.08	.17	.31*	.20	.07	.63**	-					
16. Parents talk with kid about Internet Safety	.19	.05	.30*	-.02	-.14	.33*	.04	.16	.41**	.33*	-.08	.25	.17	-.20	.11	-				
17. Parental control online activities	.15	.33*	.17	.12	.14	.14	.45**	.12	.43*	.45*	-.14	.16	.28	-.05	.08	.48**	-			
18. Parental rules on Internet use	.12	.22	.37**	-.22	.21	.13	.33*	.07	.56**	.44**	-.05	.15	.42**	-.06	.24	.53**	.54**	-		
19. Poor Perceived parental support	-.17	-.08	.29*	-.13	.06	.18	.31*	-.01	.10	.21	.03	.06	.14	.19	.52**	.42**	.26	.48**	-	
20. Perceived negative school climate	.23	-.15	.40**	-.02	.00	-.07	.27	.06	.14	.10	.21	.27	.17	.49**	.43**	.22	-.03	.27	.42**	-
21. Teachers prevention cyberbullying	-.07	-.06	.07	.09	.16	.19	.06	-.01	-.07	.04	-.07	-.02	-.04	.07	.12	-.14	-.26	-.17	.02	.23

Note: † p<.10 \*p<.05 \*\*p<.01 \*\*\*p<.000.

All continuous variables are standardized.

**Table 19: Logistic regression for *persistence* of “cyberbullying” after 6 months (T2)**

Variable	B(SE)	Exp(B)	OR	95 C.I. for ODDS	
				Lower Bound	Upper Bound
Internet Addiction	.76(.56)	2.13	2.28*	1.07	4.88
Moral Disengagement	.63 (.57)	1.89	2.08*	1.12	3.85
Empathy	1.01 (.57)	2.76c	2.89**	1.33	6.29
School victim	.43 (.60)	1.54	1.98*	1.08	3.66
School bullying	.79 (.52)	2.20	2.72**	1.43	5.17
Perceived poor peer support	1.58 (.72)	4.87**	2.30*	1.06	4.99

Note: † p<.10 \*p<.05 \*\*p<.01 \*\*\*p<.000.  
R<sup>2</sup>= .47(Cox and Snell). .63 (Nagelkerke).  $\chi^2(6) = 30.79$ \*\*\*  
All continuous variables are standardized.

### 3.11.4 Persistence risk factors for cybervictimization

With regard to students’ persistent involvement in cybervictimization at T2, results of the correlation analysis (see Table 20) underlined the existence of a significant and positive correlation with previous involvement in school victimization and low levels of parental education on Internet security.

Similar to cyberbullying persistence, also for cybervictimization, odds ratio (OR) were calculated. Results (see Table 21) showed that only reporting previous involvement in school victimization, significantly increased youngsters’ likelihood of being persistently involved in cybervictimization after 6 months.

**Table 20: Persistency cybervictimization at T1, risk/protective factors at T2 with cybervictimization at T2 (N=164)**

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Cybervictimization T2	-																				
Gender	-.02	-																			
Age	-.12	-.04	-																		
Presence of social network profile(s)	-.02	-.15	.05	-																	
Personally know all friends on social network	-.04	.02	.22**	.06	-																
Hours a day online	.07	-.10	.30**	.16	.14	-															
Academic achievement	.09	.16*	.29**	.00	.15	.24**	-														
Internet addiction	.11	.02	.13	.13	.23**	.50**	.23**	-													
Moral Disengagement	.06	.30**	.04	.07	.15	.18*	.18*	.31**	-												
Empathy	.04	.37**	.07	-.08	.02	.09	.24**	.09	.34**	-											
School victim	.20*	.28**	-.10	-.08	.16*	.10	.09	.12	.18*	.18*	-										
School bullying	.12	.26**	-.02	-.10	.07	.13	.16	.21**	.38**	.23**	.64**	-									
Poor awareness of online risks	.04	.18*	.11	.12	.21**	.21**	.16*	.44**	.49**	.25**	.07	.17*	-								
Poor Perceived peer support	.15	.08	.09	-.00	.09	-.08	.01	.04	.05	.29**	.27**	.11	-.01	-							
Poor Perceived special person support	.16	.23**	-.04	-.20*	.03	-.09	.14	-.01	.09	.30**	.25**	.15	.11	.52**	-						
Parents talk with kid about Internet Safety	-.17*	.13	.04	-.04	.10	.05	-.05	.11	.11	.31**	-.10	-.03	.19*	.04	.10	-					
Parental control online activities	-.04	.26**	.10	.05	.21**	.08	.13	.30**	.30**	.30**	.01	.04	.36**	.14	.13	.38**	-				
Parental rules on Internet use	-.10	.16	.27**	-.10	.27**	.18*	.04	.24**	.20*	.28**	-.11	-.01	.38**	.06	.08	.47**	.48**	-			
Poor Perceived parental support	.09	-.00	.14	-.00	.07	.09	.16*	.11	.24**	.14	.05	.20*	.18*	.21*	.42**	.18*	.15	.21**	-		
Perceived negative school climate	.06	.01	.53**	.08	.18*	.13	.24**	.09	.13	.23**	.20*	.14	.11	.46**	.21**	.13	.15	.16*	.27**	-	
Teachers prevention cyberbullying	-.07	.07	.12	.05	.20*	-.03	.03	.07	.15	.06	-.06	-.10	-.02	.23**	.16	.11	.22**	.16*	.08	.29**	-

Note: † p<.10 \*p<.05 \*\*p<.01 \*\*\*p<.000.

All variables continuous are standardized.

**Table 21: Logistic regression for *persistence* of “cybervictimization” after 6 months (T2)**

Variable	B(SE)	Exp(B)	OR	95 C.I. for ODDS	
				Lower Bound	Upper Bound
School victim	.92(.38)	2.52*	1.98*	1.08	3.66
Parents talk with kid about Internet Safety	.60(.34)	1.82 †	1.42	.83	2.42

Note: † p<.10 \*p<.05 \*\*p<.01 \*\*\*p<.000.  
R<sup>2</sup>= .18(Cox and Snell). 24 (Nagelkerke).  $\chi^2(2) = 9.67^{**}$   
All continuous variables are standardized.

### 3.12 Conclusion

This study aimed at analysing onset and persistence cyberbullying and cybervictimization risk factors on a sample of 455 Italian students.

With regard to risk factors for the onset involvement in cyberbullying we found that the most predictive factors were the previous involvement in school bullying and low levels of awareness of online risky all at T1 (baseline). While with regard to cybervictimization onset risk factors, results underlined that students’ previous involvement in school victimization and Internet addiction were respectively 1.79 and 2.84 times more at risk to be cybervictimized after 6 months.

A different pattern has emerged with regard to persistence risk factors for cyberbullying and cybervictimization. In particular, for cyberbullying persistence the most predictive factors were found to be low levels of empathy and perceived peer support. While persistent cybervictimization after six months seems to be predicted by school victimization. Even if those results are consistent with previous research on risk factors for cyberbullying and cybervictimization, the existence of different patterns for youth onset and persistent involvement in cyberbullying and cybervictimization could have several implication for the implementation of prevention and intervention programs.

### **3.13 Study 3: evaluating the effectiveness of the Tabby Improved prevention and intervention program on cyberbullying and cybervictimization**

#### **3.14 Abstract**

The available literature on cyberbullying and cybervictimization prevention and intervention programs and on their effectiveness, highlighted on one hand that several effective programs have been developed, while on the other, what emerges is that the majority of them are often limited and consist of few elements (Van Cleemput et al., 2014).

Several studies and researchers have underlined the necessity to work at the implementation of cyberbullying and cybervictimization prevention and intervention programs theoretically sound. It would be necessary also to include additional elements such as additional curricula on classroom rules, whole school policy, and cooperative group work (Van Cleemput et al., 2014). All those elements have been proven to be effective also in preventing and reducing school bullying (Baldry & Farrington, 2004; Wilson & Lipsey, 2006; 2007; Juvonen & Gross, 2008; Ttofi & Farrington, 2009 ; 2011; Ttofi, Farrington & Baldry, 2009, 2011).

#### **3.15 Aims and hypothesis**

This study aims to evaluate and test the effectiveness of a prevention program developed by combining the ecological system theory and the threat assessment approach, on the target behaviours that is cyberbullying and cybervictimization diffusion among students.

In order to evaluate the program efficacy were analysed:



- 1) The possible initial differences between the experimental and the control groups with regard to their involvement in cyberbullying and cybervictimization;
- 2) The effects of the program on the target variables;
- 3) The possible mediation effect of increased awareness of online risky behaviours on the efficacy of the program in reducing cyberbullying and cybervictimization.

### **3.16 The Tabby Improved prevention and intervention program**

The Tabby Improved prevention and intervention program has been developed within the theoretical framework of the ecological system theory (Bronfenbrenner, 1977, 1979) and the threat assessment approach (Borum et al, 1999; Fein & Vossekuil, 1998, 1999; Fein Vossekuil, & Holden, 1995). To this aim, the program implementation requires to consider all protagonists able to influence an individual involvement in cyberbullying and or cybervictimization.

The program, named Tabby Improved is based on 4 main components: i) training activities with teachers, ii) school conferences with parents; iii) online materials available for students, teachers and parents (available at [www.tabby.eu](http://www.tabby.eu)); iv) in class' activities with students.

- i) Teachers training activities lasted three days (approx. three hours each session, once a week for three weeks, plus an additional day on the possible legal implication of cyberbullying, age of responsibility, civil and criminal and administrative aspects). The training was scheduled as follows: 1) the cyber bullying phenomenon, its forms and features, similarity and differences with school bullying; 2) risk factors for youngsters involvement in cyberbullying and cybervictimization, how to use the Tabby toolbox (checklist, the booklet and the videos); 3) how to recognize, prevent and manage cyberbullying and

cybervictimization accidents, 4) legal issues related to cyberbullying.

- ii) School conferences with parents were scheduled in each of the participating schools. The main aim of these conferences were i) inform parents about the prevention and intervention program activities and aims and ii) sensitize and inform parents about the cyberbullying issue, its forms and how to protect their children by setting clear rule about internet use and monitoring their online activities.
- iii) The third component of the program constitutes the Tabby “toolkit” (developed thanks the European project Tabby in Internet (European Project N° JLS/2009-2010/DAP/AG/1340 AMG) and the "Tabby Trip in Europe" (European Project N° JUST/2011-2012/DAP/AG/3259), constituted of:
  - A) the up-dated version of the online self-reported questionnaire, the Tabby Improved checklist; B) four short videos (available at [www.tabby.eu](http://www.tabby.eu)); C) a manual for teachers, parents and students containing useful information on cyberbullying.
  - B) The Tabby Improved online checklist was used to measure as described above (paragraph 3.3.2) risk factors for students’ involvement in cyberbullying and cybervictimization.
  - C) The four online videos can be used as stimuli to make youngsters think about the cyberbullying phenomenon and its consequences. Each video addresses one of the most common cyberbullying types, and aimed at increasing youngsters’ awareness about the risks they face when using the Internet and the new communication technology in a distorted or inattentive way. The central theme in each of the four video, is the idea that there is always an alternative, liable to avoid either getting into

trouble or causing it. For this reason, at the end of each video, after each cyber scenario, the story 'rewinds', showing what it would/could have happened if the character(s) in the video had opted for another alternative (positive) possible choice. At the end of the rewind scene also some recommendation on safe use of the web are provided.

- A) The manual for teachers, parents and students consists of several short chapters with definition and some scientific information on cyberbullying, differences and similarities with school bullying. The manual, usable by teachers and parents, could be considered also as guide for trained teachers, which aim at organizing class groups' activities to raise students' awareness about cyberbullying and cybervictimization.
- iv) In class' activities with students were organized in each of the participating schools by scheduling 4 session (2 hours each) for each of the experimental classes. The session with students were scheduled as follow: 1) group work aimed at negotiating a shared definition of joke, bullying/cyberbullying and aggression. Once each group have defined these phenomena, then they have to identify differences and similarities between them. At the end of this activity, a representative from each group read to the class what emerged from their group confrontation. Then all students chose the best job. The most voted work was exhibited in the classroom so that all students could share the same definitions of joke, aggression, and bullying/cyberbullying. 2) During the second meeting, the tabby videos, described above were used. The videos were used as stimuli from which to start a guided discussion regarding students' experiences in cyberspace and to discuss about useful strategies to protect

themselves and/or to put an end to cyberbullying and/or cybervictimization incidents.

3) In the third meeting, students were again divided in small working groups. Each group have to prepare at least 10 rules/tips on how to avoid risky online behaviors and involvement in cyberbullying and/or cybervictimization. Students were also told to think about rules, they would respect, and that the emerging rules would be adopted by the whole class. 4) In the fourth meeting, students had the opportunity to learn more about the legal consequences related to cyberbullying. G., a youth who committed cyberbullying met all classes in order to share his story.

However, even if not scheduled, a fifth meeting was organized with students. The aim was to finish the work started in the third meeting. Namely to create classroom rules on how behave online. The rules of conduct, drawn up by the experimental classes were then presented to the school principal. At the end of the project, these rules were disseminated to the whole school, and have been included in the participating schools policy on cyberbullying.

This program aims to make youngsters aware of online communication and technologies risks they might face, focusing in particular on cyberbullying and cybervictimization. The program helps them address what they can do to avoid being involved in cyberbullying and cybervictimization and what to do if they encountered such problems, and how to stay out of problems.

### **3.17 Design and Procedure**

A total of five schools located in the region Campania participated in the research. Students were random assigned to one of the three conditions provided by the research

(experimental, control with risk profile, and control without risk profile), via their classes. Classes' random allocation to the research' conditions was necessary because none of the contacted school agreed to participate as control school. However, in order to avoid possible teachers' selection bias, the researcher did classes' random assignment to the experimental or control conditions. All students filled in the same online questionnaire prior and six months after the intervention (T1 and T2). The data collection was scheduled during the months of November/December 2015, then the procedure varied according to the condition (Experimental Group=EG, Control Group with Risk Profile=CGRP or Control Group without Risk Profile= CGNRP). On the first day, students were approached in their own classes and then went to the computer, technology room to fill in the questionnaire. Here, each students was seated in front of a PC connected to the *www.tabby.eu* website and were told they had to fill in an online, anonymous self-report questionnaire regarding their experience with the use of the new communication technologies and their online experiences in the previous six months. At the beginning of the questionnaire, students were told that they would be asked about their experience online.

Students filled in the questionnaire in presence of a researcher and a teacher who monitored the data collection. Students were assured about the confidentiality of the study and the anonymity of the answers provided. They were also told that no one but the researchers could have access to the answers that once provided went automatically into a database and anonymously analysed in an aggregated way. Students were given the opportunity to pose questions. Students were also instructed about generating an ID code, which would allow us to match anonymously the questionnaire with answer at T1 and with the ones provided after six months (T2). It was also clarified that the code would be used at the beginning of the online questionnaire.

The instruction were made so to have a low risk of double cases and error<sup>1</sup>. After completing the questionnaire all students returned in their class.

### **The experimental group (EG)**

Only classes of the experimental group participated in the next steps of the research. A few days after the first data collection (T1), the following activities were implemented: (1) teachers training on cyberbullying (2) in school conferences with parents (3) activities in class with students (see Paragraph 3.16). Six months following the intervention, students had to fill in the same online questionnaire. This was done in order to have comparable matched pre- and post-test measurements of cyberbullying and cybervictimization. To match students T1 and T2, the same procedure to generate the code was required to fill in the questionnaire. Only matching students ended up in the final sample.

### **The control groups (CGRP and CGNRP)**

As reported above students were also random allocated to one of the two control group conditions provided by the research, which is control Group with Risk Profile (CGRP) and Control Group without Risk Profile (CGNRP).

After filling in the online Tabby Improved Checklist, students of the Control Group with Risk Profile (CGRP) obtained a risk profile useful to assess the level of risk related to be involved in cyberbullying and/or cybervictimization, while students assigned to the Control Group without Risk Profile (CGNRP) did not obtain any risk profile.

Data were collected from both the Control Group during the same period as for the EG; students were told the questionnaire was about school climate and experiences with the cyber world and

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<sup>1</sup> The rule students had to use to create their code was the following: *Insert your personal code [two numbers of your date of birth- for example 03, or 10 if you were born the 3 or the 10- last two letters of your surname, last 3 numbers of your cell or home phone number (if you don't have a cell number) eg. 07BA123.*

friendship at school. Students of the Control Groups (CGRP and CGNRP) did not receive any interventions and teachers of control groups classes did not participated in the training (they were told, they can attend the training after the end of the research). The instrument used to collecting data from both control groups (CGRP and CGNRP) was identical to the one of the EG; only a code, useful to recognize students' groups membership, differed. Six months later, time T2, students of both control groups completed the same self-report questionnaire as in T1, measuring involvement in cyberbullying and cybervictimization in the previous six months; again at T1 and T2 students had to create and insert their personal code.

### **3.18 Method**

#### **3.18.1 Participants**

The sample comprised of a total of 759 students (47.9% males, 52.1% females) aged between 10 and 17 years ( $M=12.2$ ,  $DS=1.5$ ) randomly recruited from five schools (49 classes) of the region Campania.

Classes were randomly divided into three groups corresponding to the conditions of involvement in the intervention:

- 1) Experimental Group (students who received the intervention; 40.1%);
- 2) Control Group with Risk Profile (students who did not receive any kind of intervention, but obtained a risk profile after filling in the questionnaire; 32.5%);
- 3) Control Group without Risk Profile (students who did not receive any kind of intervention, and did not obtain a risk profile after filling in the questionnaire; 27.4%).

Overall, 622 adolescents were included in the analyses as they have taken part and completed phase T1 and T2 (82% of the sample) (see Table 22 for details).

**Table 22: Descriptive statistics of the sample**

	<b>Overall (622)</b>	<b>Min</b>	<b>Max</b>
Gender (males)	45.9% male	0	1
Age	M=12.14 (sd=1.44)	10	17
Presence of social network profile(s)	29.4% at least one	0	2
Personally know all friends on social network	7.2% only half	0	4
Parents talk with kid about Internet Safety	18.6% never	0	4
Parents control online activities	33.2% never	0	4
Teachers talk with kid about Internet Safety	34.3% never	0	4
Hours a day online	35.7% 2/4 h	0	4
School achievement	7.6% below average	0	4
School bullying	79.4% never 20.6% at least sometimes	0	4
School victim	52.3% never 47.7% at least sometimes	0	28
Cyberbullying	85.0% never 15.0 % at least once	0	25
Cybervictimization	56.1% never 43.9% at least once	0	25
Internet addiction	M=10.92 (sd=4.40)	0	20
Moral Disengagement	M=68.67 (sd=20.61)	32	160
Empathy	M=24.95 (sd=9.90)	0	80
Increasing self-awareness of Cyberbullying	M=5.72 (sd=4.90)	0	24
Perceived peer support	M=9.36 (sd=5.13)	4	28
Perceived special person support	M=8.21 (sd=4.50)	4	28
Perceived parents support	M=7.31 (sd=4.40)	4	28
Perceived school climate	M=7.82 (sd=5.52)	0	32

### 3.18.2 Measure

#### Outcome behaviors

The same cyberbullying and cybervictimization scales used in the first study were administered (see Paragraph 3.4.2).

Reliability coefficients at T1 and T2 were respectively .64 and .75 for cyberbullying and .72 and .71 for cybervictimization.

#### Process variables



In order to analyse the role of students' awareness about online risky behaviours as possible mediator of the program efficacy, we used the ISAC scale (Increasing self-awareness of Cyberbullying), created for the purpose of this research.

### **3.18.3 Preliminar analysis**

First, we evaluated differences in cyberbullying and cybervictimization (T1 – T2) between the Control Group with Risk Profile and Control Group without Risk Profile.

Results indicated that no significant differences were found between CGRF and CGNRP with regard to cyberbullying measured at T1 ( $F_{(6)}= 1.32$ ,  $p=n.s.$ ) and T2 ( $F_{(10)}=1.05$ ,  $p=n.s.$ ) and cybervictimization measured at T1 ( $F_{(9)}=1.92$ ,  $p=n.s.$ ) and T2 ( $F_{(12)}=1.13$ ,  $p=n.s.$ ). For this reason the following analysis aimed at evaluating the intervention effectiveness were performed identifying both students of CGRF and CGNRP as Control Group.

The existence of possible differences between the Experimental and the Control group with regard to cyberbullying and cybervictimization pre-intervention measure were analysed. Results highlighted the existence of non-significant differences between the Experimental and the Control group with regard to cyberbullying ( $F_{(6)}= .56$ ,  $p=n.s.$ ) and cybervictimization ( $F_{(15)}=1.67$ ,  $p=n.s.$ ) measured at baseline (T1).

Because of the clustered randomization design of the study, the presence of any clustering effects could lead to an inaccurate test for statistical significance (Bickel, 2007). For this reason, it would have been necessary to take into account the possible similarity in the response of individuals within each cluster (classes) the students came from (49). The Intra Class Correlation coefficients for the dependent measures (ICC, Raudenbush & Bryk, 2002) was calculated, obtaining  $\rho = -.0002$  for

cyberbullying pre-test score and  $\rho = .0012$  for cybervictimization pre-test score.

Results indicated that clustering effects are quite low compared with the .05 that applies commonly to many clustering designs (Hedges & Hedberg, 2007), thus indicating that cluster randomization was not expected to affect the outcomes related to the intervention effects.

### 3.19 Results

Experimental vs. Control group: the intervention effects

Table 23 shows descriptive analyses for both groups in behavioural variables (pre- and post- intervention). Repeated measures'-ANOVA were carried out in order to evaluate the effect of time on these variables across the two groups.

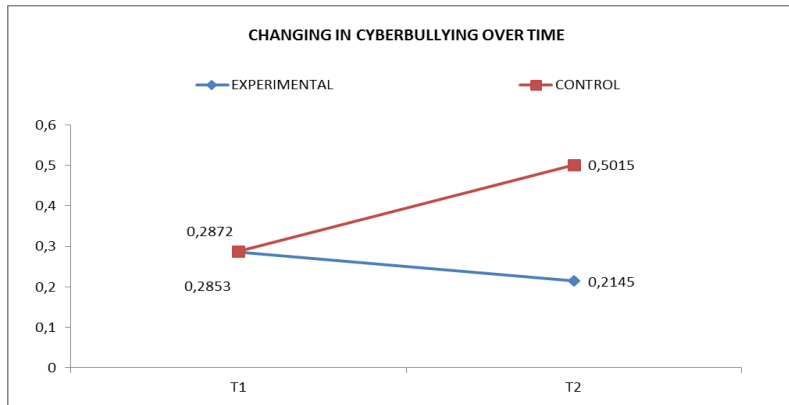
**Table 23: Descriptive statistics of outcome variables**

		Pre	Post
		M (SD)	M (SD)
Cyberbullying T1	Experimental	.29 (.79)	.21 (.61)
	Control	.28 (.84)	.50 (1.78)
Cybervictimization T1	Experimental	1.10 (2.11)	.74 (1.27)
	Control	1.12 (1.73)	1.31 (2.34)

For cyberbullying (see Figure 4), results showed a significant effect of condition (experimental vs control) ( $F = 4.10$ ;  $p < .05$ ;  $\eta^2_p = .003$ ) and a significant interaction time\*condition ( $F = 6.46$ ;  $p < .05$ ;  $\eta^2_p$

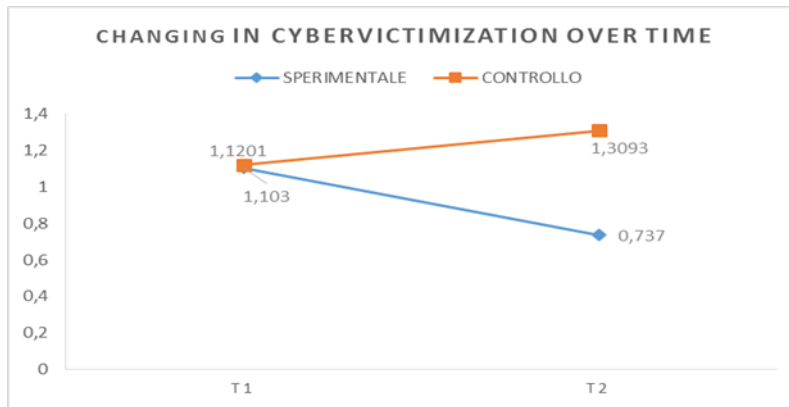
=.010), indicating a decrease of the outcome variable cyberbullying in the experimental group.

**Figure 4: Changing in cyberbullying over time**



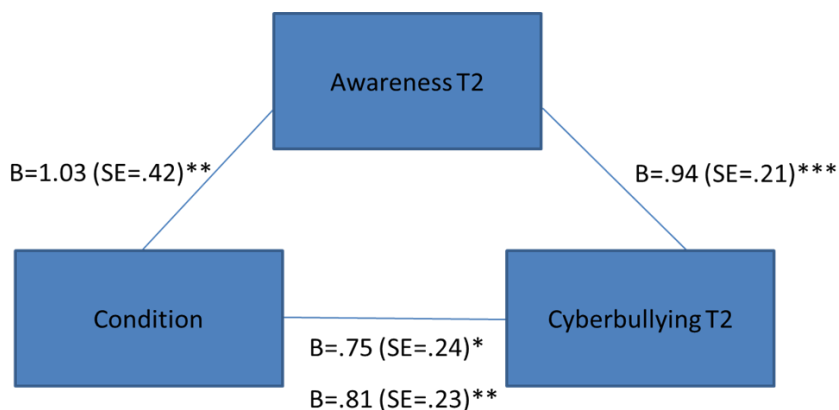
Also for cybervictimization Repeated measures'- ANOVA showed the significant effect of condition (experimental vs control) ( $F= 5.23$ ;  $p<.05$ ;  $\eta^2p =.008$ ) and a significant interaction time\*condition ( $F= 10.77$ ;  $p<.001$ ;  $\eta^2p=.020$ ), indicating a decrease of the outcome variable cybervictimization in the experimental group (See Figure 5).

**Figure 5: Changing in cybervictimization over time**



### 3.19.1 Awareness of online risk behaviors as mediator

In order to test whether the decreased involvement in cyberbullying observed in the experimental group was mediated by students' increased awareness about cyberbullying and online risk behaviours we adopted a regression approach (Baron & Kenny, 1986). To this aim three multiple regression analyses were conducted with students' awareness about online risk behaviours, cyberbullying and condition, as dependent variable. The model is described in Figure 6. Whether or not participants were assigned at the experimental or control condition significantly strengthened levels of awareness of cyberbullying and risky online behaviours and influence their involvement in cyberbullying.



Sobel Test  $Z=2.10$  ( $SE=.05$ ),  $p=.04$  BootULCI =.204 BootLLCI=.019

Figure 6: Mediation model students' awareness of online risk behaviors.  
 Note. \* $p \leq .05$ . \*\* $p \leq .01$ . \*\*\* $p \leq .001$ .

Increased levels of awareness of cyberbullying and risky online behaviours predicted the decrease in cyberbullying involvement. Moreover, when condition and awareness of online risky behaviours were entered simultaneously as predictors, the effect of both awareness of cyberbullying and risky online behaviours and condition remained significant. A Sobel test ( $Z=2.10$ ,  $p<.05$ ) confirmed the existence of a full mediation.

### **3.20 Conclusion**

The present study aimed at evaluating and testing the effectiveness of a prevention program developed by connecting the ecological system theory and the threat assessment approach, on cyberbullying and cybervictimization diffusion among students.

Results give clear support of the efficacy of this intervention after six months from the intervention, showing a significant decrease in cyberbullying and in cybervictimization among students in the experimental group in comparison with the control group.

Results also suggested that the increased awareness about cyberbullying and risky online behaviours mediated the decrease in cyberbullying observed in the experimental group.

The decrease in cybervictimization observed in the experimental group, could be explained by considering that the intervention could be effective independently of student characteristics (Gradinger et al., 2016). In particular, it is possible to assume that the inclusion of some of the most effective elements associated with a decrease in school victimization such as videos and cooperative work (Ttofi & Farrington, 2011) may be effective also with regard to cybervictimization.

## **Overall discussion**

In the first decade of the 21st century, parallel to the development and the diffusion of the new communication technologies among youngsters, a new phase in school bullying research started (Sánchez & Ortega, 2010). Researchers began to show interest in harmful attitudes involving the use of the information and communication technologies, that were very similar to indirect bullying (Ortega, Elipe, & Monks, 2012; Ortega, Elipe, Mora-Merchán, Calmaestra, & Vega, 2009), that is in cyberbullying. In a few years, studies and researches on cyberbullying and cybervictimization diffusion, features and risk factors have multiplied. However, the majority of them lacked of conceptual and theoretical background (Tokunaga, 2010; Slonje, Smith & Frisé, 2013). Even if research on cyberbullying is relatively recent, youngsters' increasing involvement in cyberbullying and cybervictimization highlights the need to work at the development of comprehensive and theory-based approach.

To this purpose, the present work aimed at presenting results derived from the implementation of a holistic cyberbullying and cybervictimization prevention program developed by combining the ecological system theory (Bronfenbrenner, 1977, 1979) and the threat assessment approach (Borum et al, 1999; Fein & Vossekuil, 1998, 1999; Fein Vossekuil, & Holden, 1995).

The first step for the development and the evaluation of the intervention effectiveness was related to the evaluation of the psychometric characteristics of the Tabby Improved Checklist. The checklist derived from the evaluation of the short-term predictive capability of the actuarial Tabby instrument developed thanks to the "Tabby in Internet" (European Project N° JLS/2009-2010/DAP/AG/1340 AMG) and the "Tabby Trip in Europe"

(European Project N° JUST/2011-2012/DAP/AG/3259) projects (project manager: Prof. Anna C. Baldry).

As far as we know, the Tabby Improved Checklist is first instrument aimed at measuring cyberbullying and cybervictimization risk factors, developed by combining the ecological system theory and the threat assessment approach. The innovative character of such instrument lies also in its ability to provide respondents a “risk profile” useful to evaluate their risk of being involved in cyberbullying and/or in cybervictimization.

The analyses aimed at evaluating the psychometric characteristics of Tabby Improved Checklist showed the instrument has promising features. The Tabby Improved Checklist showed high level of internal consistency and moderate values of temporal stability, suggesting that students involved as cyberbullies and cybervictims are likely to continue to be involved in such behaviours after 6 months. Similar results were found by Garaigordobil (2015) and Del Rey, Elipe and Ortega-Ruiz (2012) in their short-term three months’ longitudinal studies. The results of the EFA yielded twelve factors (Moral Disengagement; Perceived school climate; Perceived peer support; Perceived parental support; Peer bullying; Perceived special person support; Internet Addiction; Parental control online activities; Online risky behaviours; Teachers’ efforts and involvement in cyberbullying prevention; Online risky habits; and Empathy), ratifying the expected factor structure.

The results of the analyses of convergent and discriminant validity confirm the Tabby Improved Checklist validity as the profiles of cyberbullies and cybervictims identified are consistent with other studies findings (see Table 6 and Table 7).

Cyberbullies reported being more involved in both school bullying and victimization, higher scores of Internet Addiction moral disengagement and perception of a negative school climate. They

also obtain low scores in affective empathy, school achievement and perceived parental and special person support.

While cybervictims reported more risky online behaviours such as friends online, they did not know personally, higher levels of involvement in both school bullying and victimization, higher scores in Internet Addiction and perception of a negative school climate. They also obtain lower scores in perceived parental, peers and special person support.

Results of the predictive power of the actuarial Tabby Improved Checklist highlighted the risk score based on the literature review on risk factors, as well as the "*risk profiles*" created (4 low-risk levels, average, high, very high), showed good short-term predictive capability of the risk of being involved in cyberbullying and cybervictimization.

Even if other studies are needed to confirm its psychometric characteristics on a larger and more representative sample, the use of the Tabby Improved Checklist can have some useful and practical implications. First of all, the instrument is easy to administer and provides an immediate feedback about the respondent' risk of being involved in cyberbullying and/or cybervictimization, furthermore it can be used for planning prevention and intervention activities. By identifying students at risk of being involved in cyberbullying and cybervictimization, tailored individual, class and school levels prevention and intervention activities should be developed and implemented. While identifying relevant risk factors for youth involvement in cyberbullying and cybervictimization could be useful to increase our knowledge about relevant variables and dimensions to be included to prevent and reduce cyberbullying and cybervictimization.



In study two onset and persistency cyberbullying and cybervictimization risk factors were analysed involving a sample of 455 Italian students. With this aim onset risk factors have been analysed for both cyberbullying and cybervictimization, by excluding from these analyses all students that at baseline (T1) declared to be involved in cyberbullying (N=50) or in cybervictimization (N= 164). With regard to onset risk factors for cyberbullying we found that the most predictive factors for students' involvement in cyberbullying after six months were the previous involvement in school bullying and low levels of awareness of online risky behaviours. While with regard to onset risk factors for cybervictimization, results underlined that students' previous involvement in school victimization and Internet addiction were significant risk factors for students' cybervictimization after 6 months.

For the analysis aimed at investigating persistency risk factors for cyberbullying and cybervictimization, all students reporting at baseline (T1) to be not involved in cyberbullying (N=405) and cybervictimization (291) were excluded from these analyses.

Results underlined the existence of a different pattern with regard to persistency risk factors for cyberbullying and cybervictimization. In particular, for cyberbullying persistency the most predictive factors were found to be low levels of empathy and perceived peer support. While persistent cybervictimization after six months seems to be predicted by school victimization. Even if those results are consistent with previous researches on risk factors for cyberbullying and cybervictimization, the existence of such different patterns for youth onset and persistent involvement in cyberbullying and cybervictimization has several implication for the implementation of prevention and intervention programs.

According to our results, it seems necessary to work at the implementation of holistic anti-cyberbullying programs able to adapt

the nature and the type of the intervention differentiating between prevention and sensitization activities from those aimed at targeting cyberbullies and cybervictims. Prevention and sensitization programs should include specific curricula aimed at increasing youth awareness about online risky behaviours. While intervention programs should focus on students' socioemotional empowerment by promoting pro-social behaviours, expression of emotion and Finally, in study three the prevention program developed by combining the ecological system theory and the threat assessment approach, on cyberbullying and cybervictimization diffusion among students was described and analysis aimed at evaluating its effectiveness were performed.

Results give clear support of the efficacy of this intervention, showing a significant decrease in cyberbullying and cybervictimization among students of the experimental group in comparison with the control group.

The present study also aimed at understanding which processes could explain the observed cyberbullying reduction observed in the experimental group. Starting from the "*perspective taking cognitive approach*" (Winkel & Baldry, 1997), - according to which antisocial behaviour can be considered as the consequence of a lack of awareness of negative impact of own behaviour- we hypothesized that students' awareness of online risky behaviours can mediate the cyberbullying reduction observed in the experimental group. Furthermore, increased levels of awareness of Internet safety were reported as outcomes by several studies evaluating of anti-cyberbullying programs effectiveness (Del Rey et al., 2016; Schultze Krumbholz et al., 2016; Wölfer et al., 2014; Menesini et al., 2012; Thompson & Smith, 2011).

Results confirmed our hypothesis suggesting that the increased awareness about cyberbullying and risky online behaviours mediated the decrease in cyberbullying observed in the experimental

group. While with regard to the decrease in cybervictimization observed in the experimental group, it could be possible, that as noticed by Gradinger et al. (2016) the intervention is effective independently of students' characteristics such as their awareness of online risky behaviours. Furthermore, and consistent with Palladino et al. (2012) some of the most effective elements associated with a decrease in school victimization such as video and cooperative work (Ttofi & Farrington, 2011) may be effective also with regard to cybervictimization.

The intervention implemented seems to have promising features in terms of effectiveness in reducing youngsters' involvement in both cyberbullying and cybervictimization. The main strengths of this intervention lie in having developed a comprehensive cyberbullying and cybervictimization program, based on strong theoretical basis. The intervention was developed with the aim of targeting all the protagonists involved in reducing or on the contrary increasing youngsters' likelihood of being involved in cyberbullying and/or cybervictimization. Furthermore, the activities undertaken with students were planned in order to include curricula on classroom rules and cooperative group work, all elements that have been proven to be effective also in preventing and reducing school bullying (Van Cleemput et al., 2014; Ttofi, Farrington & Baldry, 2009, 2011; Ttofi & Farrington, 2009 ; 2011; Juvonen & Gross, 2008; Wilson & Lipsey, 2006; 2007; Baldry & Farrington, 2004).

The current study has certain limitations. A first limit concerns the sampling. As in the majority of educational research, sample randomization is not always possible, and often students were allocated to the study' conditions via their school or class (Hedges & Hedberg, 2007). In order to compensate for this limitation, classes were randomly allocated to one of the research conditions by the researcher (to avoid possible teachers' selection bias) and the Intraclass Correlation Coefficient was calculated. We also controlled for pre-test differences in the target variables. The existence of non-

significant pre-test differences in target variables between groups partially compensated for this limitation.

A second shortcoming of the present study is related to the sole use of self-report measures. In fact, despite their use's advantages (Streiner & Norman, 2008), participants could under-report their involvement in cyberbullying and/or cybervictimization or they can answer in socially desirable manners (Berne et al., 2013). As suggested by Topcu and Erdur-Backer (2012) in order to overcome this limit, multiple sources of information (for example peers, teachers and parents' reports) should be used in order to investigate cyberbullying and cybervictimization diffusion among youngsters. A third shortcoming concerns the short time of the follow-up measure (6 months) and the lack of a long-term follow-up. In fact, according to the standard of evidence of prevention science (Flay et al., 2005), in order to claim a program efficacy it would be necessary to report program efficacy for at least one long-term follow-up. Beside the aforementioned limitations, to the best of our knowledge, the present study has been the first research aimed at investigating the effectiveness of a holistic, theoretically based cyberbullying and cybervictimization prevention developed combining the ecological system theory and the threat assessment approach, which includes also the development of an actuarial self-report instrument.

Further studies seem to be necessary in order to overcome this research' limitations. Furthermore, one future step could be to improve the intervention curricula and materials in order to include also school bullying and victimization prevention, due to these phenomena relationship, overlap and co-occurrence (Baldry, et al., 2017; Antoniadou et al., 2016; Tarablus, et al., 2015; Kowalski & Limber, 2013; Salmivalli & Pöyhönen, 2012; Sourander et al., 2010; Riebel, et al., 2009; Hinduja & Patchin, 2008; Smith et al., 2008; Raskauskas & Stoltz, 2007).

## References

- Agnew, R. (1992). Foundation for a general strain theory of crime and delinquency. *Criminology*, 30, 47-88. doi: 10.1111/j.1745-9125.1992.tb01093.x.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211. doi: 10.1016/0749-5978(91)90020-T.
- Aoyama, I., Utsumi, S., & Hasegawa, M. (2012). Cyberbullying in Japan: Cases, government reports, adolescent relational aggression and parental monitoring roles. In Q. Li, D. Cross, & P. K. Smith (Eds.), *Cyberbullying in the global playground: Research from international perspectives* (pp. 183–201). Malden, MA: Blackwell.
- Albiero, P., Matricardi, G., Speltri, D., & Toso, D. (2009). The assessment of empathy in adolescence: A contribution to the Italian validation of the “Basic Empathy Scale”. *Journal of Adolescence*, 32(2), 393-408. doi:10.1016/j.adolescence.2008.01.001.
- Álvarez-García, D., Núñez Pérez J. C., Dobarro González, A., & Pérez, C. R. (2015). Risk factors associated with cybervictimization in adolescence. *International Journal of Clinical and Health Psychology*, 15(3), 226-235. doi:10.1016/j.ijchp.2015.03.002.
- Ang, R. P., Huan, V. S., & Florell, D. (2013). Understanding the relationship between proactive and reactive aggression, and cyberbullying across United States and Singapore adolescent samples. *Journal of Interpersonal Violence*, 29(2), 237-254. doi: 10.1177/0886260513505149.
- Ang, R. P., & Goh, D. H. (2010). Cyberbullying among adolescents: The role of affective and cognitive empathy, and gender. *Child Psychiatry and Human Development*, 41 (4), 387–397. doi:10.1007/s10578-010-0176-3.
- Antoniadou, N., Kokkinos, C. M., & Markos, A. (2016). Development, construct validation and measurement invariance of the Greek cyber-bullying/victimization experiences questionnaire (CBVEQ-G). *Computers in Human Behavior*, 65, 380-390. doi:10.1016/j.chb.2016.08.032.

- Aricak, T., Siyahaan, S., Uzunhasanoglu, A., Saribeyoglu, S., Ciplak, S., Yilmaz N. (2008). Cyberbullying among Turkish adolescents. *Cyberpsychology and Behavior*, 11, 253-261. doi:10.1089/cpb.2007.0016.
- Baldry, A. C. & Farrington, D. P. & Sorrentino, A. (under review). Overlap between school and cyberbullying. *Journal of Aggression, Maltreatment & Trauma*.
- Baldry, A. C., Blaya C., & Farrington D. P. (2017, in press). *International Perspectives on Cyberbullying: Prevalence, Risk Factors and Interventions*. London: Palgrave, Studies in Cybercrime and Cybersecurity.
- Baldry, A.C., Sorrentino, A. (2017). *Risk and needs assessment*. Encyclopedia of Juvenile Delinquency and Justice.
- Baldry, A.C., Sorrentino, A, & Farrington, D. P. (2016). Cyberbullying Does parental online supervision and youngsters' willingness to report to an adult reduce the risk? In A. Kapardis, & D.P. Farrington (Eds.).*The Psychology of Crime, Policing and Courts*, (pp.57-74). Oxson: Routledge.
- Baldry, A. C., Farrington, D. P., & Sorrentino, A. (2016). Cyberbullying in youth: A pattern of disruptive behaviour. *Psicología Educativa*, 22(1), 19-26 doi:10.1016/j.pse.2016.02.001.
- Baldry, A. C., Farrington, D. P., & Sorrentino, A. (2015). "Am I at risk of cyberbullying"? A narrative review and conceptual framework for research on risk of cyberbullying and cybervictimization: The risk and needs assessment approach. *Aggression and Violent Behavior*, 23, 36-51. doi:10.1016/j.avb.2015.05.014.
- Baldry, A. C., & Farrington, D. P. (2004). Evaluation of an intervention program for the reduction of bullying and victimization in schools. *Agressive Behavior*, 30, 1–15. doi: 10.1002/ab.20000.
- Bandura, A., Barbaranelli, C., Caprara, G. V., & Pastorelli, C. (1996). Mechanisms of moral disengagement in the exercise of moral agency. *Journal of Personality and Social Psychology*, 71(2), 364 - 374. doi: 10.1037/0022-3514.71.2.364.
- Bandura, A. (1986a). *Social foundations of thought and action*. Englewood Cliffs, NJ: Prentice-Hall.

- Bandura, A. (1986b). The explanatory and predictive scope of self-efficacy theory. *Journal of Social and Clinical Psychology*, 4(3), 359-373. doi: 10.1521/jscp.1986.4.3.359.
- Banerjee, R., Robinson, C., & Smalley, D. (2010). *Evaluation of the Beatbullying Peer Mentoring Programme*. Report for Beatbullying. Retrieved from <http://users.sussex.ac.uk/~robinb/bbreportssummary.pdf>.
- Barlett, C., & Coyne, S. M. (2014). A meta-analysis of sex differences in cyber-bullying behavior: The moderating role of age. *Aggressive Behavior*, 40(5), 474-488. doi:10.1002/ab.21555.
- Barlett, C. P., Gentile, D. A., Anderson, C. A., Suzuki, K., Sakamoto, A., Yamaoka, A., & Katsura, R. (2014). Cross-Cultural Differences in Cyberbullying Behavior A Short-Term Longitudinal Study. *Journal of Cross-Cultural Psychology*, 45(2), 300-313. doi: 10.1177/0022022113504622.
- Baron, R. M. & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173–1182. doi:10.1037/0022-3514.51.6.1173.
- Bayraktar, F., Machackova, H., Dedkova, L., Cerna, A., & Sevcíková, A. (2014). Cyberbullying: The discriminant factors among cyberbullies, cybervictims, and cyberbully-victims in a Czech adolescent sample. *Journal of Interpersonal Violence*, 18, 1–25. doi:10.1177/0886260514555006.
- Bauman, S. (2010). Cyberbullying in a rural intermediate school: An exploratory study. *The Journal of Early Adolescence*, 30(6), 803-833. doi: 10.1177/0272431609350927
- Beran, T., & Li, Q. (2008). The relationship between cyberbullying and school bullying. *Journal of Student Wellbeing*, 1(2), 16–33.
- Berne, S., Frisé, A., Schultze-Krumbholz, A., Scheithauer, H., Naruskov, K., Luik, P., Katzer, C., Erentaite, R., & Zukauskienė, R. (2013). Cyberbullying assessment instruments: A systematic review. *Aggression and Violent Behavior*, 18(2), 320-334. doi:10.1016/j.avb.2012.11.022.

- Besley, B. (2005). Cyberbullying: An emerging threat to the always-on generation. Retrieved from <http://www.cyberbullying.ca>.
- Bickel, R. (2007). *Multilevel analysis for applied research: It's just regression!*. New York, NY: Guilford Press.
- Borum, R., Fein, R., Vossekuil, B., & Berglund, J. (1999). Threat assessment: Defining an approach for evaluating risk of targeted violence. *Behavioral Sciences & the Law*, 17, 323–337.
- Brewer, G., & Kerslake, J. (2015). Cyberbullying, self-esteem, empathy and loneliness. *Computers in Human Behavior*, 48, 255-260. doi: 10.1016/j.chb.2015.01.073.
- Brighi, A., Ortega, R., Pyzalski, J., Scheithauer, H., Smith, P. K., Tsormpatzoudis, C., & Barkoukis, V., et al. (2012). European Cyberbullying Intervention Project Questionnaire (ECIPQ), University of Bologna, Unpublished Manuscript. Retrieved from [bullyingandcyber.net](http://bullyingandcyber.net).
- Bronfenbrenner, U. (2005). *Making human beings human: Bioecological perspectives on human development*. Thousand Oaks: Sage.
- Bronfenbrenner, U. (1979). *Ecology of human development: Experiments by nature and design*. Cambridge, MA: Harvard University Press.
- Bronfenbrenner, U. (1977). Toward an experimental ecology of human development. *American Psychologist*, 32(7), 513. doi:10.1037/0003-066X.32.7.513.
- Brown, C. F., Demaray, M. K., & Secord, S. M. (2014). Cyber victimization in middle school and relations to social emotional outcomes. *Computers in Human Behavior*, 35, 12-21. doi: 10.1016/j.chb.2014.02.014.
- Brown, K., Jackson, M., & Cassidy, W. (2006). Cyber-bullying: Developing policy to direct responses that are equitable and effective in addressing this special form of bullying. *Canadian Journal of Educational Administration and Policy*, 57, 1-36.



- Callaghan, M., Kelly, C., & Molcho, M. (2015). Exploring traditional and cyberbullying among Irish adolescents. *International Journal of Public Health*, 60, 199–206. doi: 10.1007/s00038-014-0638-7.
- Calvete, E., Orue, I., Estévez, A., Villardón, L., & Padilla, P. (2010). Cyberbullying in adolescents: Modalities and aggressors' profile. *Computers in Human Behavior*, 26(5), 1128-1135. doi:10.1016/j.chb.2010.03.017.
- Cappadocia, M. C., Craig, W. M., & Pepler, D. (2013). Cyberbullying prevalence, stability, and risk factors during adolescence. *Canadian Journal of School Psychology*, 28(2), 171-192. doi:10.1177/0829573513491212.
- Caprara, G. V., Bandura, A., Barbaranelli, C., & Vicino, S. (1996). La Misura del Disimpegno morale (The assessment of moral disengagement). *Rassegna di Psicologia*, 13, 93-105.
- Casas, J. A., Del Rey, R., & Ortega-Ruiz, R. (2013). Bullying and cyberbullying: Convergent and divergent predictor variables. *Computers in Human Behavior*, 29 (3), 580-587. doi:10.1016/j.chb.2012.11.015.
- Çetin, B., Yaman, E., Peker, A. (2011). Cyber victim and bullying scale: a study of validity and reliability. *Computer and Education*, 57, 2261-2271. doi:10.1016/.2011.06.014.
- Chen, L., Ho, S. S., & Lwin, M. O. (2016). A meta-analysis of factors predicting cyberbullying perpetration and victimization: From the social cognitive and media effects approach. *New Media & Society*, 1-20. doi: 10.1177/1461444816634037.
- Chibnall, S., Wallace, M., Leicht, C., & Lunghofer, L. (2006). *I-safe evaluation. Final report*. Caliber Association, Fairfax. Retrieved from: <http://www.ncjrs.gov/pdffiles1/nij/grants/213715.pdf>.
- Coelho, V. A., Sousa, V., Marchante, M., Brás, P., & Romão, A. M. (2016). Bullying and cyberbullying in Portugal: Validation of a questionnaire and analysis of prevalence. *School Psychology International*, 37(3), 223-239. doi:10.1177/014303 4315626609.
- Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin*, 115(1), 74. doi: 10.1037/0033-2909.115.1.74.

- Crombie, G., & Trinneer, A. (2003). *Children and Internet safety: An evaluation of the Missing Program*. A report to the Research and Evaluation Section of the National Crime Prevention Centre of Justice Canada. Ottawa: University of Ottawa.
- Cross, D., Shaw, T., Hadwen, K., Cardoso, P., Slee, P., Roberts, C., Thomas, L., & Barnes, A. (2016). Longitudinal impact of the Cyber Friendly Schools program on adolescents' cyberbullying behavior. *Aggressive Behavior*, 42(2), 166-180. doi:10.1002/ab.21609.
- Cross, D., Barnes, A., Papageorgiou, A., Hadwen, K., Hearn, L., & Lester, L. (2015). A social-ecological framework for understanding and reducing cyberbullying behaviours. *Aggression and Violent Behavior*, 23, 109-117. doi: 10.1016/j.avb.2015.05.016.
- Cross, D., Lester, L., & Barnes, A. (2015). A longitudinal study of the social and emotional predictors and consequences of cyber and traditional bullying victimisation. *International Journal of Public Health*, 60(2), 207-217. doi:10.1007/s00038-015-0655-1.
- Del Miglio, C., Gamba, A., & Cantelmi, T. (2001). Costruzione e validazione preliminare di uno strumento UADI per la rilevazione delle variabili psicologiche e psicopatologiche correlate all'uso di Internet. *Giornale Italiano di Psicopatologia*, 7(3), 293-306.
- Del Rey, R., Casas, J. A., & Ortega, R. (2016). The impacts of the CONRED Program on different cyberbullying roles. *Aggressive Behavior*, 42(2), 123- 135. doi:10.1002/ab.21608.
- Del Rey, R., Casas, J. A., Ortega-Ruiz, R., Schultze-Krumbholz, A., Scheithauer, H., Smith, P., Thompson, F.; Barkoukis, V., Tsorbatzoudis, H., Brighi, A., Guarini, A., Pyżalski, J., & Plichta, P. (2015). Structural validation and cross-cultural robustness of the European Cyberbullying Intervention Project Questionnaire. *Computers in Human Behavior*, 50, 141-147. doi: 10.1016/j.chb.2015.03.065.
- Del Rey, R., Elipe, P., & Ortega-Ruiz, R. (2012). Bullying and cyberbullying: Overlapping and predictive value of the co-occurrence. *Psicothema*, 24(4), 608-613.
- Dempsey, A. G., Sulkowski, M. L., Nichols, R., & Storch, E. A. (2009). Differences between peer victimization in cyber and physical settings and associated psychosocial adjustment

- in early adolescence. *Psychology in the Schools*, 46(10), 962-972. doi: 10.1002/pits.20437.
- Doane, A. N., Kelley, M. L., Chiang, E. S., & Padilla, M. A. (2013). Development of the cyberbullying experiences survey. *Emerging Adulthood*, 1(3), 207-218. doi: 10.1177/2167696813479584.
- Dooley, J. J., Pyzalski, J., & Cross, D. (2009). Cyberbullying versus face to face bullying: A theoretical and conceptual review. *Zeitschrift für Psychologie/Journal of Psychology*, 217(4), 182- 188. doi: 10.1027/0044-3409.217.4.182.
- Epstein, A., & Kazmierczak, J. (2007). Cyber bullying: what teachers, social workers, and administrators should know. *Illinois Child Welfare*, 3(1-2), 41-51.
- Erdur-Baker, Ö. (2010). Cyberbullying and its correlation to traditional bullying, gender and frequent and risky usage of internet-mediated communication tools. *New Media & Society*, 12(1), 109-125. doi:10.1177/1461444809341260.
- Espelage, D. L. & Swearer, S. M. (2004) *Bullying in American schools: A social-ecological perspective on prevention and intervention*. Mahwah, NJ: Lawrence Erlbaum Associates.
- Farrington, D. P. (1993). Understanding and preventing bullying. *Crime and Justice*, 17, 381-458. doi: 10.1086/449217.
- Fein, R. A., Vossekuil, B., Pollack, W. S., Borum, R., Modzeleski, W., & Reddy, M. (2002). *Threat assessment in schools. A guide to managing threatening situations and to creating safe school climates*. United States Secret Service and United States Department of Education, Washington.
- Fein, R. A., & Vossekuil, B. V. (1999). Assassination in the United States: An operational study of recent assassins, attackers, and near-lethal approachers. *Journal of Forensic Sciences*, 44, 321-333.
- Fein, R. A., & Vossekuil, B. (1998). *Protective intelligence & threat assessment investigations: A guide for state and local law enforcement officials (NIROJP/DOJ Publication No. 170612)*. Washington, DC: U.S. Department of Justice.

- Fein, R. A., Vossekuil, B., & Holden, G. A. (1995). *Threat assessment: An approach to prevent targeted violence* (Vol. 2). Washington, DC: US Department of Justice, Office of Justice Programs, National Institute of Justice.
- Flay, B.R., Biglan, A., Boruch, R.F., Castro, F.G., Gottfredson, D., Kellam, S., Moscicki, E.K., Schinke, S., Valentin, J.C., & Ji, P. (2005). Standards of evidence: Criteria for efficacy, effectiveness and dissemination. *Prevention Science*, 6(3), 151-175. doi: 10.1007/s11121-005-5553-y
- Gamez-Guadix, M., Borrajo, E., & Almendros, C. (2016). Risky online behaviors among adolescents: Longitudinal relations among problematic Internet use, cyberbullying perpetration, and meeting strangers online. *Journal of Behavioral Addictions*, 5(1), 100-107. doi:10.1556/2006.5. 2016.013.
- Gómez-Guadix, M., Orue, I., Smith, P. K., & Calvete, E. (2013). Longitudinal and reciprocal relations of cyberbullying with depression, substance use, and problematic internet use among adolescents. *Journal of Adolescent Health*, 53(4), 446-452. doi:10.1016/j.jadohealth.2013.03.030.
- Garaigordobil, M. (2015). Psychometric properties of the Cyberbullying Test, a screening instrument to measure cybervictimization, cyberaggression, and cyberobservation. *Journal of Interpersonal Violence*, 19, 1-21, doi: 10.1177/0886260515600165.
- Gasior, R. M. (2009). *Parental awareness of cyber bullying* (Doctoral dissertation). Retrieved from California State University, Sacramento State Electronic Thesis/ Project and Dissertation. <http://hdl.handle.net/10211.9/119>.
- Genta, M.L., Smith, P.K., Ortega, R. Brighi, A., Guarini, A., Thompson, F., & Calmaestra, J. (2012). Comparative aspects of cyberbullying in Italy, England and Spain: findings from a DAPHNE Project. In: Q., Li, D., Cross, P.K., Smith (Eds). *Cyberbullying in the global playground: research from international perspectives* (pp. 15–31). Chichester, UK: Wiley-Blackwell.
- Gini, G., Pozzoli, T., & Hymel, S. (2014). Moral disengagement among children and youth: A meta-analytic review of links to aggressive behavior. *Aggressive Behavior*, 40(1), 56-68. doi: 10.1002/ab.21502.

- Gnisci, A., Perugini, M., Pedone, R., & Di Conza, A. (2011). Construct validation of the use, abuse and dependence on the Internet inventory. *Computers in Human Behavior*, 27(1), 240-247. doi: 10.1016/j.chb.2010.08.002.
- Gradinger, P., Yanagida, T., Strohmeier, D., & Spiel, C. (2016). Effectiveness and sustainability of the ViSC Social Competence Program to prevent cyberbullying and cyber-victimization: Class and individual level moderators. *Aggressive Behavior*, 42(2), 181-193. doi:10.1002/ab.21631.
- Gradinger, P., Strohmeier, D., & Spiel, C. (2012). Motives for bullying others in cyberspace: A study on bullies and bully-victims in Austria. In Q, Li, D., Cross, & P.K.Smith (Eds.). *Cyberbullying in the global playground: Research on cyberbullying from an international perspective* (263-284). Chichester, UK: Wiley-Blackwell.
- Gradinger, P., Strohmeier, D., & Spiel, C. (2009). Traditional bullying and cyberbullying: Identification of risk groups for adjustment problems. *Zeitschrift für Psychologie/Journal of Psychology*, 217(4), 205-213. doi:10.1027/0044-3409.217.4.205.
- Hasebrink, U., Livingstone, S., & Haddon, L. (2008). *Comparing children's online opportunities and risks across Europe: Cross-national comparisons for EU Kids Online*. London: EU Kids Online. Retrived from [http://eprints.lse.ac.uk/21656/1/D3.2\\_Report-Cross\\_national\\_comparisons.pdf](http://eprints.lse.ac.uk/21656/1/D3.2_Report-Cross_national_comparisons.pdf).
- Heirman, W., & Walrave, M. (2012). Predicting adolescent perpetration in cyberbullying: An application of the theory of planned behavior. *Psicothema*, 24(4), 614-620.
- Hay, C., & Meldrum, R. (2010). Bullying victimization and adolescent self-harm: Testing hypotheses from general strain theory. *Journal of Youth and Adolescence*, 39(5), 446-459. doi:10.1007/s10964-009-9502-0.
- Hay, C., Meldrum, R., & Mann, K. (2010). Traditional bullying, cyber bullying, and deviance: A general strain theory approach. *Journal of Contemporary Criminal Justice*, 26(2), 130-147. doi:10.1177/1043986209359557.

- Hedges, L. V., & Hedberg, E. C. (2007). Intraclass correlation values for planning group randomized trials in education. *Education Evaluation and Policy Analysis*, 29, 60-87. doi:10.3102/0162373707299706.
- Hemphill, S. A., & Heerde, J. A. (2014). Adolescent predictors of young adult cyberbullying perpetration and victimization among Australian youth. *Journal of Adolescent Health*, 55(4), 580-587. doi:10.1016/j.jadohealth.2014.04.014.
- Hemphill, S. A., Tollit, M., Kotevski, A., & Heerde, J. A. (2014). Predictors of Traditional and Cyber-Bullying Victimization A Longitudinal Study of Australian Secondary School Students. *Journal of Interpersonal Violence*, 1-24. doi:10.1177/0886260514553636.
- Hinduja, S., & Patchin, J. W. (2014). *Bullying beyond the schoolyard: Preventing and responding to cyberbullying*. Thousand Oaks: Corwin Press.
- Hinduja, S., Patchin, J.W. (2010). Bullying, cyberbullying and suicide. *Archives of Suicide Research*, 14 (3), 206-221. doi:10.1080/13811118.2010.494133.
- Hinduja, S., & Patchin, J. W. (2008). Cyberbullying: An exploratory analysis of factors related to offending and victimization. *Deviant Behavior*, 29(2), 129-156. doi:10.1080/01639620701457816.
- Holt, T.J., Fitzgerald, S., Bossler, A.M., Chee, G., & Ng, E. (2014). Assessing the risk factors of cyber and mobile phone bullying victimization in a nationally representative sample of Singapore youth. *International Journal of Offender Therapy and Comparative Criminology*, 1–18. doi: 10.1177/0306624X14554852.
- Hong, J. S., & Espelage, D. L. (2012). A review of research on bullying and peer victimization in school: An ecological system analysis. *Aggression and Violent Behavior*, 17(4), 311-322. doi:10.1016/j.avb.2012.03.003.
- Huang, Y. Y., & Chou, C. (2010). An analysis of multiple factors of cyberbullying among junior high school students in Taiwan. *Computers in Human Behavior*, 26(6), 1581-1590. doi:10.1016/j.chb.2010.06.005.
- Hunt, C., Peters, L., & Rapee, R. M. (2012). Development of a measure of the experience of being bullied in youth. *Psychological Assessment*, 24, 156-165. doi:10.1037/a0025178.

- Jaghoory H, Björkqvist K, Österman K (2015) Cyberbullying among Adolescents: A Comparison between Iran and Finland. *Journal of Child and Adolescent Behaviour* 3(6), 265-272. doi:10.4172/2375-4494.1000265.
- Jang, H., Song, J., & Kim, R. (2014). Does the offline bully-victimization influence cyberbullying behavior among youths? Application of general strain theory. *Computers in Human Behavior*, 31, 85-93. doi: 10.1016/j.chb.2013.10.007.
- Jolliffe, D., & Farrington, D. P. (2006). Development and validation of the Basic Empathy Scale. *Journal of Adolescence*, 29(4), 589-611. doi. 10.1016/j.adolescence.2005.08.010.
- Jose, P. E., Kljakovic, M., Scheib, E., & Notter, O. (2012). The joint development of traditional bullying and victimization with cyber bullying and victimization in adolescence. *Journal of Research on Adolescence*, 22(2), 301-309. doi:10.1111/j.1532-7795.2011.00764.x
- Juvonen, J., & Gross, E. F. (2008). Extending the school grounds?—Bullying experiences in cyberspace. *Journal of School Health*, 78(9), 496-505. doi:10.1111/j.1746-1561.2008.00335.x.
- Katzer, C., Fetchenhauer, D., & Belschak, F. (2009). Cyberbullying: Who are the victims?: A comparison of victimization in internet chatrooms and victimization in school. *Journal of Media Psychology: Theories, Methods, and Applications*, 21(1), 25-36. doi:10.1027/1864-1105.21.1.25.
- Khurana, A., Bleakley, A., Jordan, A. B., & Romer, D. (2015). The protective effects of parental monitoring and internet restriction on adolescents' risk of online harassment. *Journal of Youth and Adolescence*, 44(5), 1039-1047. doi:10.1007/s10964-014-0242-4.
- König, A., Gollwitzer, M., & Steffgen, G. (2010). Cyberbullying as an Act of Revenge?. *Australian Journal of Guidance and Counselling*, 20(02), 210-224. doi: 10.1375/ajgc.20.2.210.
- Kowalski, R. M., Giumetti, G. W., Schroeder, A. N., & Lattanner, M. R. (2014). Bullying in the digital age: A critical review and meta-analysis of cyberbullying research among youth. *Psychological Bulletin*, 140(4), 1073-1137. doi:10.1037/a0035618.

- Kowalski, R. M., & Limber, S. P. (2013). Psychological, physical, and academic correlates of cyberbullying and traditional bullying. *Journal of Adolescent Health, 53*(1), S13-S20. doi:10.1016/j.jadohealth.2012.09.018.
- Kowalski, R. M., Morgan, C. A., & Limber, S. P. (2012). Traditional bullying as a potential warning sign of cyberbullying. *School Psychology International, 33*(5), 505-519. doi:10.1177/0143034312445244.
- Kowalski, R.M., Limber, S.P., Agatston, P.W. (2008). *Cyber bullying: Bullying in the digital age*. Malden, MA: Blackwell Publishing.
- Kowalski, R. M., & Limber, S. P. (2007). Electronic bullying among middle school students. *Journal of Adolescent Health, 41*(6), S22-S30. doi:10.1016/j.jadohealth.2007.08.017.
- Kubiszewski, V., Fontaine, R., Potard, C., & Auzoult, L. (2015). Does cyberbullying overlap with school bullying when taking modality of involvement into account?. *Computers in Human Behavior, 43*, 49-57. doi: 10.1016/j.chb.2014.10.049.
- Lam, L. T., & Li, Y. (2013). The validation of the E-Victimisation Scale (E-VS) and the E-Bullying Scale (E-BS) for adolescents. *Computers in Human Behavior, 29*(1), 3-7. doi: 10.1016/j.chb.2012.06.021.
- Langos, C. (2012). Cyberbullying: The challenge to define. *Cyberpsychology, Behavior, and Social Networking, 15*(6), 285-289. doi:10.1089/cyber.2011.0588.
- Lapidot-Lefler, N., & Dolev-Cohen, M. (2015). Comparing cyberbullying and school bullying among school students: prevalence, gender, and grade level differences. *Social Psychology of Education, 18*(1) 1-16. doi:10.1007/s11218-014-9280-8.
- Li, Q. (2008). A cross-cultural comparison of adolescents' experience related to cyberbullying. *Educational Research, 50*(3), 223-234. doi: 10.1080/00131880802309333.
- Li, Q. (2007a). New bottle but old wine: A research of cyberbullying in schools. *Computer in Human Behavior, 23*(4), 1777- 1791. doi.:10.1016/j.chb.2005.10.005.



- Li, Q. (2007b). Bullying in the new playground: Research into cyberbullying and cybervictimization. *Australasian Journal of Educational Technology*, 23(4), 435-454. doi:org/10.14742/ajet.1245.
- Li, Q. (2006). Cyberbullying in schools a research of gender differences. *School Psychology International*, 27(2), 157-170. doi: 10.1177/0143034306064547.
- Lobe, B. Livingstone, S., Ólafsson, K. & Vodeb, H. (2011) *Cross-national comparison of risks and safety on the internet: initial analysis from the EU Kids Online survey of European children*. EU Kids Online, Deliverable D6. EU Kids Online Network, London, UK.
- McGuckin, C., Cummins, P. K. & Lewis, C. A. (2010). f2f and cyberbullying among children in Northern Ireland: Data from the Kids Life and Times Surveys. *Psychology, Society & Education*, 2, 83–96.
- Mehari, K. R., Farrell, A. D., & Le, A.-T. H. (2014). Cyberbullying Among Adolescents: Measures in Search of a Construct. *Psychology of Violence*, 4(4), 399-415. doi:10.1037/a0037521.
- Menesini, E., Nocentini, A., & Camodeca, M. (2013). Morality, values, traditional bullying, and cyberbullying in adolescence. *British Journal of Developmental Psychology*, 31(1), 1-14. doi:10.1111/j.2044-835X.2011.02066.x.
- Menesini, E., Nocentini, A., & Palladino, B. E. (2012). Empowering students against bullying and cyberbullying: Evaluation of an Italian peer-led model. *International Journal of Conflict and Violence*, 6(2), 313-320. doi:10.4119/UNIBI/ijcv.253.
- Menesini, E., Nocentini, A., Palladino, B. E., Frisé, A., Berne, S., Ortega-Ruiz, R., Calmaestra, J., Scheithauer, H., Schultze-Krumbholz, A., Karin, P. L., Naruskov, K., Blaya, C., Berthaud, J., & Smith, P., K. (2012). Cyberbullying definition among adolescents: A comparison across six European countries. *Cyberpsychology, Behavior, and Social Networking*, 15(9), 455-463. doi:10.1089/cyber.2012.0040.
- Menesini E., Nocentini A., Calussi P. (2011). The measurement of cyberbullying: Dimensional structure and relative item severity and discrimination. *Cyberpsychology, Behavior, and Social Networking*, 14, 267–274. doi:10.1089/cyber.2010.0002

- Menesini, E., & Nocentini, A. (2009). Cyberbullying definition and measurement: Some critical considerations. *Zeitschrift für Psychologie/Journal of Psychology*, 217(4), 230-232. doi: 10.1027/0044-3409.217.4.230
- Mesch, G. S. (2009). Parental mediation, online activities, and cyberbullying. *CyberPsychology & Behavior*, 12(4), 387-393. doi:10.1089/cpb.2009.0068.
- Mishna, F., Khoury-Kassabri, M., Gadalla, T., & Daciuk, J. (2012). Risk factors for involvement in cyberbullying: Victims, bullies and bully-victims. *Children and Youth Services Review*, 34(1), 63-70. doi.org/10.1016/j.chidyouth.2011.08.032.
- Mishna, F., Cook, C., Saini, M., Wu, M. J., & MacFadden, R. (2011). Interventions to prevent and reduce cyber abuse of youth: A systematic review. *Research on Social Work Practice*, 21(1), 5-14. doi: 10.1177/1049731509351988.
- Modecki, K. L., Minchin, J., Harbaugh, A. G., Guerra, N. G., & Runions, K. C. (2014). Bullying prevalence across contexts: a meta-analysis measuring cyber and traditional bullying. *Journal of Adolescent Health*, 55(5), 602-611. doi:10.1016/j.jadohealth.2014.06.007.
- Modecki, K. L., Barber, B. L., & Vernon, L. (2013). Mapping developmental precursors of cyber-aggression: Trajectories of risk predict perpetration and victimization. *Journal of Youth and Adolescence*, 42(5), 651-661. doi:10.1007/s10964-013-9938-0.
- Müller, C. R., Pfetsch, J., & Ittel, A. (2014). Ethical media competence as a protective factor against cyberbullying and cybervictimization among German school students. *Cyberpsychology, Behavior, and Social Networking*, 17(10), 644-651. doi:10.1089/cyber.2014.0168.
- Mura, G., & Diamantini, D. (2013). Cyberbullying among Colombian students: An exploratory investigation. *European Journal of Investigation in Health, Psychology and Education*, 3, 249–256. doi:org/10.1989/ejihpe.v3i3.47
- Mura, G., Topcu, C., Erdur-Baker, O., & Diamantini, D. (2011). An international study of cyber bullying perception and diffusion among adolescents. *Procedia-Social and Behavioral Sciences*, 15, 3805-3809. doi:10.1016/j.sbspro.2011.04.377.

- Navarro, R., Serna, C., Martínez, V., & Ruiz-Oliva, R. (2013). The role of Internet use and parental mediation on cyberbullying victimization among Spanish children from rural public schools. *European Journal of Psychology of Education*, 28(3), 725-745. doi:10.1007/s10212-012-0137-2.
- Özdemir, Y. (2014). Cyber victimization and adolescent self-esteem: The role of communication with parents. *Asian Journal of Social Psychology*, 17(4), 255–263. doi:/10.1111/ajsp.12070.
- Olweus, D. (2012). Cyberbullying: An overrated phenomenon? *European Journal of Developmental Psychology*, 9, 520–538. doi: 10.1080/17405629.2012.682358.
- Olweus, D. (1995). Bullying or peer abuse at school: Facts and intervention. *Current Directions in Psychological Science*, 4(6), 196-200. doi: 10.1111/1467-8721.ep10772640.
- Ortega, R., Elipe, P., & Monks, C. P. (2012). The emotional responses of victims of cyberbullying: Worry and indifference. *BJEP Monograph Series II: Psychology and Antisocial Behaviour in Schools*, 9, 139-153.
- Ortega, R., Elipe, P., Mora-Merchán, J. A., Genta, M. L., Brighi, A., Guarini, A., Smith, P. K., Thompson, F., & Tippett, N. (2012). The emotional impact of bullying and cyberbullying on victims: a European cross-national study. *Aggressive Behavior*, 38(5), 342-356. doi:10.1002/ab.21440.
- Ortega, R., Elipe, P., Mora-Merchan, J.A., Calmaestra, J., Vega, E. (2009). The emotional impact on victims of traditional bullying and cyberbullying. A study of Spanish adolescents. *Journal of Psychology*, 217,197-204. doi: 10.1027/0044-3409.217.4.197.
- Ortega-Barón, J., Buelga, S., & Cava, M. J. (2016). The Influence of School and Family Environment on Adolescent Victims of Cyberbullying. *Comunicar*, 46(1), 57-65. doi: 10.3916/C46-2016-06.
- Ortega-Ruiz, R., Del Rey, R., & Casas, J. A. (2012). Knowing, building and living together on internet and social networks: The ConRed cyberbullying prevention program. *International Journal of Conflict and Violence*, 6(2), 302-312. doi: 10.4119/UNIBI/ijcv.250.

- Ortega-Ruiz, R., Nùñez, J.C. (2012). Bullying and cyberbullying: Research and intervention at school and social contexts. *Psicothema*, 24 (4), 603-607.
- Österman K (2008) *The Mini-Direct & Indirect Aggression Scales*. Vasa, Finland: Dept Dev Psychol, Åbo Akademi University, Finland.
- Ovejero, A., Yubero, S., Larrañaga, E., & Moral, M. D. L. V. (2016). Cyberbullying: Definitions and facts from a psychosocial perspective. In A., Ovejero, S., Yubero, & E. Larrañaga, (Eds.) *Cyberbullying Across the Globe: Gender, Family, and Mental Health* (pp. 1-31). Switzerland: Springer International Publishing.
- Özdemir, Y. (2014). Cyber victimization and adolescent self-esteem: The role of communication with parents. *Asian Journal of Social Psychology*, 17(4), 255-263. doi:10.1111/ajsp.12070.
- Palermi, A. L., Servidio, R., Bartolo, M. G., & Costabile, A. (2017). Cyberbullying and self-esteem: An Italian study. *Computers in Human Behavior*, 69, 136-141. doi: 10.1016/j.chb.2016.12.026.
- Palladino, B. E., Nocentini, A., & Menesini, E. (2016). Evidence-based intervention against bullying and cyberbullying: Evaluation of the NoTrap! program in two independent trials. *Aggressive Behavior*, 42(2), 194-206. doi:10.1002/ab.21636.
- Palladino, B. E., Nocentini, A., & Menesini, E. (2012). Online and offline peer led models against bullying and cyberbullying. *Psicothema*, 24(4), 634-639.
- Patchin, J. W., & Hinduja, S. (2015). Measuring Cyberbullying: Implications for Research. *Aggression and Violent Behavior*, 23, 69-74. doi: 10.1016/j.avb.2015.05.013.
- Patchin, J. W., & Hinduja, S. (2010). Cyberbullying and self-esteem. *Journal of School Health*, 80(12), 614-621. doi:10.1111/j.1746-1561.2010.00548.x.
- Patchin, J. W., & Hinduja, S. (2006). Bullies move beyond the schoolyard: A preliminary look at cyberbullying. *Youth Violence and Juvenile Justice*, 4(2), 148-169.

- Payne, A. A., & Hutzell, K. L. (2015). Old wine, new bottle? Comparing interpersonal bullying and cyberbullying victimization. *Youth & Society*, 1-30 doi: 10.1177/0044118X15617401.
- Peluchette, J. V., Karl, K., Wood, C., & Williams, J. (2015). Cyberbullying victimization: Do victims' personality and risky social network behaviors contribute to the problem?. *Computers in Human Behavior*, 52, 424-435. doi: 10.1016/j.chb.2015.06.028
- Perren, S., Corcoran, L., Cowie, H., Dehue, F., Mc Guckin, C., Sevcikova, A., Tsatsou, P., & Völlink, T. (2012). Tackling cyberbullying: Review of empirical evidence regarding successful responses by students, parents, and schools. *International Journal of Conflict and Violence*, 6(2), 283-293. doi: 10.4119/UNIBI/ijcv.244.
- Pornari, C. D., & Wood, J. (2010). Peer and cyber aggression in secondary school students: The role of moral disengagement, hostile attribution bias, and outcome expectancies. *Aggressive Behavior*, 36(2), 81-94. doi:10.1002/ab.20336.
- Pozzoli, T., Gini, G., & Vieno, A. (2012). Individual and class moral disengagement in bullying among elementary school children. *Aggressive Behavior*, 38(5), 378-388. doi:10.1002/ab.21442.
- Raskauskas, J., & Stoltz, A. D. (2007). Involvement in traditional and electronic bullying among adolescents. *Developmental Psychology*, 43(3), 564-575. doi:10.1037/0012-1649.43.3.564.
- Raudenbush, S. W., & Bryk, A. S. (2002). *Hierarchical linear models: Applications and data analysis methods*. Thousand Oaks, CA: Sage Publications.
- Riebel, J. Jäger, R. S., & Fischer, U. C. (2009). Cyberbullying in Germany: an exploration of prevalence, overlapping with real life bullying and coping strategies. *Psychology Science Quarterly*, 51(3), 298- 314.
- Rivers, I., & Noret, N. (2010). 'I h8 u': findings from a five-year study of text and email bullying. *British Educational Research Journal*, 36(4), 643-671. doi: 10.1080/01411920903071918.

- Salmivalli, C., & Pöyhönen, V. (2012). Cyberbullying in Finland. In: Li, Q, Cross, D., & Smith, P.K. (Eds). *Cyberbullying in the global playground: research from international perspectives* (pp. 57–72). Chichester, UK: Wiley-Blackwell.
- Salmivalli, C., Kärnä, A., & Poskiparta, E. (2011). Counteracting bullying in Finland: The KiVa program and its effects on different forms of being bullied. *International Journal of Behavioral Development*, 35(5), 405-411. doi: 10.1177/0165025411407457.
- Salvatore, A. J., & Weinholz, D. (2006). *An Anti-Bullying Strategy: Action Research in a 5/6 Intermediate School* (Dissertation for the degree of Doctor of Education). University of Hartford, Faculty of the College of Education, Nursing, and Health Professions, West Hartford (US).
- Sampasa-Kanyinga, H., & Hamilton, H. A. (2015). Use of social networking sites and risk of cyberbullying victimization: a population-level study of adolescents. *Cyberpsychology, Behavior, and Social Networking*, 18(12), 704-710. doi:10.1089/cyber.2015.0145.
- Sánchez, V., & Ortega, R. (2010). El estudio científico del fenómeno bullying. In R. Ortega (Ed.). *Agresividad injustificada, bullying y violencia escolar* (pp.55-80). Madrid: Alianza Editorial.
- Schultze-Krumbholz, A., Schultze, M., Zagorscak, P., Wölfer, R., & Scheithauer, H. (2016). Feeling cybervictims' pain -The effect of empathy training on cyberbullying. *Aggressive Behavior*, 42(2), 147-156. doi:10.1002/ab.21613.
- Schultze-Krumbholz, A., Wölfer, R., Jäkel, A., Zagorscak, P., Scheithauer, H. (2012). *Effective Prevention of Cyberbullying in Germany – The Medienhelden Program*. Oral Presentation presented at the XX<sup>th</sup> ISRA World Meeting, Luxembourg.
- Schultze-Krumbholz, A., & Scheithauer, H. (2009). Social-behavioral correlates of cyberbullying in a German student sample. *Zeitschrift für Psychologie/Journal of Psychology*, 217(4), 224.-226. doi:10.1027/0044-3409.217.4.224.
- Shapka, J. D., & Maghsoudi, R. (2017). Examining the validity and reliability of the cyber-aggression and cyber-victimization scale. *Computers in Human Behavior*, 69, 10-17. doi: 10.1016/j.chb.2016.12.015.

- Slonje, R., Smith, P. K., & Frisé, A. (2013). The nature of cyberbullying, and strategies for prevention. *Computers in Human Behavior*, 29(1), 26-32. doi:10.1016/j.chb.2012.05.024.
- Slonje, R. & Smith, P. K. (2008). Cyberbullying: Another main type of bullying? *Scandinavian Journal of Psychology*, 49, 147–154. doi:10.1111/j.1467-9450.2007.00611.x.
- Smith, P. K. & Slonje, R. (2010). Cyberbullying: the nature and extent of a new kind of bullying, in and out of school. In: S. Jimerson, S. Swearer, and D. Espelage (Eds). *The International Handbook of School Bullying* (pp. 249-262). New York and Abingdon: Routledge.
- Smith, P. K., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S., & Tippett, N. (2008). Cyberbullying: Its nature and impact in secondary school pupils. *Journal of Child Psychology and Psychiatry*, 49, 376–385. doi: 10.1111/j.1469-7610.2007.01846.x.
- Sorrentino, A., Cacace, S., Baldry A. C. (2017). The Italian Tabby experience in A. C., Baldry, C., Blaya & D. P. Farrington (Eds). *International Perspectives on Cyberbullying: Prevalence, Risk Factors and Interventions*. London: Palgrave Studies in Cybercrime and Cybersecurity.
- Sourander, A., Klomek, A. B., Ikonen, M., Lindroos, J., Luntamo, T., Koskelainen, M., Ristkari, T., & Helenius, H. (2010). Psychosocial risk factors associated with cyberbullying among adolescents: A population-based study. *Archives of General Psychiatry*, 67(7), 720-728. doi:10.1001/archgenpsychiatry.2010.79.
- Steffgen, G., König, A., Pfetsch, J., & Melzer, A. (2011). Are cyberbullies less empathic? Adolescents' cyberbullying behavior and empathic responsiveness. *Cyberpsychology, Behavior, and Social Networking*, 14(11), 643-648. doi:10.1089/cyber.2010.0445.
- Steffgen, G., & König, A. (2009). Cyber bullying: The role of traditional bullying and empathy. *The Good, the Bad and the Challenging. Conference Proceedings*, 2, 1041–1047.
- Stewart, R. W., Drescher, C. F., Maack, D. J., Ebesutani, C., & Young, J. (2014). The development and psychometric investigation of the Cyberbullying Scale. *Journal of Interpersonal Violence*, 29(12), 2218-2238. doi: 10.1177/0886260513517552.

- Sticca, F., Ruggieri, S., Alsaker, F., & Perren, S. (2013). Longitudinal risk factors for cyberbullying in adolescence. *Journal of Community & Applied Social Psychology*, 23(1), 52-67. doi:10.1002/casp.2136.
- Streiner, D. L., & Norman, G. R. (2008). *In health measurement scales: A practical guide to their development and use*. New York: Oxford University Press.
- Sumter, S. R., Valkenburg, P. M., Baumgartner, S. E., Peter, J., & Van der Hof, S. (2015). Development and validation of the Multidimensional Offline and Online Peer Victimization Scale. *Computers in Human Behavior*, 46, 114-122. doi:10.1016/j.chb.2014.12.042.
- Tabachnick, B. G & Fidell L. S. (2001). Principal components and factor analysis. In B.G. Tabachnick & L.S. Fidell (Eds.) *Using multivariate statistics* (pp. 582–633) Boston: Allyn and Bacon.
- Tarablus, T., Heiman, T., & Olenik-Shemesh, D. (2015). Cyber bullying among teenagers in Israel: An examination of cyberbullying, traditional bullying, and socioemotional Functioning. *Journal of Aggression, Maltreatment & Trauma*, 26(4), 707–720. doi:org/10.1080/10926771.2015.1049763.
- Thomas, H. J., Connor, J. P., & Scott, J. G. (2014). Integrating school bullying and cyberbullying: challenges of definition and measurement in adolescents—a Review. *Educational Psychology Review*, 27(1), 135-152. doi:10.1007/s10648-014-9261-7.
- Thompson, F., & Smith, P. K. (2011). *The use and effectiveness of anti-bullying strategies in schools*. Research Brief DFE-RR098.
- Tokunaga, R. S. (2010). Following you home from school: A critical review and synthesis of research on cyberbullying victimization. *Computers in Human Behavior*, 26(3), 277- 287. doi:/10.1016/j.chb.2009.11.014.
- Topcu, Ç., & Erdur-Baker, Ö. (2012). Affective and cognitive empathy as mediators of gender differences in cyber and traditional bullying. *School Psychology International*, 33(5), 550-561. doi: 10.1177/0143034312446882.



- Topcu, Ç. & Erdur-Baker, Ö. (2010). The revised cyber bullying inventory (RCBI): Validity and reliability studies. *Procedia-Social and Behavioral Sciences*, 5, 660-664. doi:10.1016/j.sbspro.2010.07.161.
- Tsitsika, A., Janikian, M., Wójcik, S., Makaruk, K., Tzavela, E., Tzavara, C., Greydanus, D., Merrick, J., & Richardson, C. (2015). Cyberbullying victimization prevalence and associations with internalizing and externalizing problems among adolescents in six European countries. *Computers in Human Behavior*, 51, 1-7. doi: 10.1016/j.chb.2015.04.048.
- Tsitsika, A., Janikian, M., Tzavela, E., Schoenmakers, T. M., Ólafsson, K., Halapi, E., Tzavara, C.; Wojcik, S.; Makaruk, K.; Critselis, E.; Müller, K.W.; Dreier, M.; Holtz, S.; Wölfling, K.; Iordache, A.; Oliaga, A.; Chele, G.; Macarie, G.; & Richardson, C. (2013). *Internet use and internet addictive behaviour among European adolescents: A cross-sectional study. National and Kapodistrian University of Athens (N.K.U.A.)*. Athens: EU NET ADB.
- Ttofi, M. M., & Farrington, D. P. (2011). Effectiveness of school-based programs to reduce bullying: A systematic and meta-analytic review. *Journal of Experimental Criminology*, 7, 27–56. doi:10.1007/s11292-010-9109-1.
- Ttofi, M., Farrington, D. & Baldry, A. C. (2011). Effective programs to reduce school bullying. In: Springer, D. W. & Roberts A. R. R. (Eds.), *Juvenile Delinquency and Juvenile Justice*, (pp.167-186). Sudbury, MA: Jones and Bartlett.
- Ttofi, M., & Farrington, D. P. (2009). What works in preventing bullying: Effective elements of anti-bullying programmes. *Journal of Aggression, Conflict and Peace Research*, 1(1), 13-24. doi:10.1108/17596599200900003.
- Ttofi, M., Farrington, D. P. & Baldry, A.C. (2009). Effectiveness of programmes to reduce school bullying A Systematic Review. Stockholm, Sweden, *National Council for Crime Prevention*. The Swedish National Council for Crime Prevention.
- Van Cleemput, K, Vandebosch, Bastiaensens, S., Poels, K., DeSmet, A., & De Bourdeaudhuij. (2014). A systematic review of studies evaluating anti-cyberbullying programs. Wageningen, NL.

- Van Cleemput, K., Vandebosch, H., & Pabian, S. (2014). Personal characteristics and contextual factors that determine “helping,” “joining in” and “doing nothing” when witnessing cyberbullying. *Aggressive Behavior*, 40(5), 383–396. doi: 10.1002/ab.21534.
- Vandebosch, H., & Van Cleemput, K. (2009). Cyberbullying among youngsters: Profiles of bullies and victims. *New Media & Society*, 11(8), 1349-1371. doi: 10.1177/1461444809341263.
- Vandebosch, H. & Van Cleemput, K. (2008). Defining Cyberbullying: A Qualitative Research into the Perceptions of Youngsters. *Cyberpsychology & Behavior*, 11(4), 1349-1371. doi: 10.1177/1461444809341263.
- Vessey, J., Strout, T. D., DiFazio, R. L., & Walker, A. (2014). Measuring the youth bullying experience: A systematic review of the psychometric properties of available instruments. *Journal of School Health*, 84(12), 819-843. doi: 10.1111/josh.12210.
- Vieno, A., Gini, G., Lenzi, M., Pozzoli, T., Canale, N., & Santinello, M. (2014). Cybervictimization and somatic and psychological symptoms among Italian middle school students. *The European Journal of Public Health*, 25 (3), 433-437. doi: 10.1093/eurpub/cku191.
- Waasdorp, T. E., & Bradshaw, C. P. (2015). The overlap between cyberbullying and traditional bullying. *Journal of Adolescent Health*, 56, 483–488. doi: 10.1016/j.jadohealth.2014.12.002.
- Wade, A., & Beran, T. (2011). Cyberbullying: The new era of bullying. *Canadian Journal of School Psychology*, 26(1), 44-61. doi:10.1177/0829573510396318.
- Walrave, M., & Heirman, W. (2011). Cyberbullying: Predicting victimisation and perpetration. *Children & Society*, 25(1), 59-72. doi:10.1111/j.1099-0860.2009.00260.x.
- Wang, W., Vaillancourt, T., Brittain, H. L., McDougall, P., Krygsman, A., Smith, D., Cunningham, C. E., Haltigan, J. D. & Hymel, S. (2014). School climate, peer victimization, and academic achievement: Results from a multi-informant study. *School Psychology Quarterly*, 29(3), 360-377. doi:10.1037/spq0000084.

- Wang, J., Iannotti, R. J., & Luk, J. W. (2012). Patterns of adolescent bullying behaviors: Physical, verbal, exclusion, rumor, and cyber. *Journal of School Psychology, 50*(4), 521-534. doi: 10.1016/j.jsp.2012.03.004.
- Wang, J., Iannotti, R. J., & Nansel, T. R. (2009). School bullying among adolescents in the United States: Physical, verbal, relational, and cyber. *Journal of Adolescent Health, 45*(4), 368-375. doi:10.1016/j.jadohealth.2009.03.021.
- Wendland, M. (2003, November 17). *Cyber-bullies make it tough for kids to leave playground*. Detroit Free Press. Retrieved from [http://www.freep.com/money/tech/mwend17\\_20031117.htm](http://www.freep.com/money/tech/mwend17_20031117.htm).
- Willard, N. E. (2007). *Cyberbullying and Cyberthreats: Responding to the Challenge of Online Social Aggression, Threats, and Distress*. Champaign, IL: Research Press
- Williams, K. R., & Guerra, N. G. (2007). Prevalence and predictors of internet bullying. *Journal of Adolescent Health, 41*(6), S14-S21. doi:10.1016/j.jadohealth.2007.08.018.
- Williford, A., Elledge, L. C., Boulton, A. J., DePaolis, K. J., Little, T. D., & Salmivalli, C. (2013). Effects of the KiVa antibullying program on cyberbullying and cybervictimization frequency among Finnish youth. *Journal of Clinical Child & Adolescent Psychology, 42*(6), 820-833. doi:10.1080/15374416.2013.787623.
- Wilson, S. J., & Lipsey, M. W. (2007). School-based interventions for aggressive and disruptive behavior: Update of a meta-analysis. *American Journal of Preventive Medicine, 33*(2), S130-S143. doi: 10.1016/j.amepre.2007.04.011
- Wilson, S.J., and Lipsey, M.W. (2006). *The Effects of School-Based Social Information Processing Interventions on Aggressive Behaviors, Part I: Universal Programs*. Campbell Systematic Review. DOI: 10.4073/csr.2006.5
- Winkel, F.W., & Baldry, A.C. (1997). An application of the Scared Straight principle in early intervention programming: three studies on activating the other's perspective in pre-adolescents' perceptions of a stepping-stone behaviour. *Issues in Criminological and Legal Psychology, 26*, 3-15.

- Wolak, J., Mitchell, K.J., Finkelhor, D. (2007). Does online harassment constitute bullying? An exploration of online harassment by known peers and online-only contacts. *Journal of Adolescence Health*, 41, 51-58. doi: 10.1016/ 2007.08.019.
- Wölfer, R., Schultze-Krumbholz, A., Zagorscak, P., Jäkel, A., Göbel, K., & Scheithauer, H. (2014). Prevention 2.0: Targeting cyberbullying@ school. *Prevention Science*, 15(6), 879-887. doi:10.1007/s11121-013-0438-y.
- Wong, D. S., Chan, H. C. O., & Cheng, C. H. (2014). Cyberbullying perpetration and victimization among adolescents in Hong Kong. *Children and Youth Services Review*, 36, 133–140. doi: 10.1016/j.chilyouth.2013.11.006.
- Wright, M. F., Aoyama, I., Kamble, S. V., Li, Z., Soudi, S., Lei, L., & Shu, C. (2015). Peer attachment and cyber aggression involvement among Chinese, Indian, and Japanese adolescents. *Societies*, 5(2), 339-353. doi:10.3390/soc5020339.
- Wright, M. F., & Li, Y. (2013). The association between cyber victimization and subsequent cyber aggression: The moderating effect of peer rejection. *Journal of Youth and Adolescence*, 42(5), 662-674. doi:10.1007/s10964-012-9903-3.
- Yang, S. J., Stewart, R., Lee, J. Y., Kim, J. M., Kim, S. W., Shin, I. S., Yoon, J. S. (2014). Prevalence and Correlates of Problematic Internet Experiences and Computer-Using Time: A Two-Year Longitudinal Study in Korean School Children. *Psychiatry Investigation*, 11:24-31. doi: 10.4306/.2014.11.1.24.
- Ybarra, M. L., Boyd, D., Korchmaros, J. D., & Oppenheim, J. K. (2012). Defining and measuring cyberbullying within the larger context of bullying victimization. *Journal of Adolescent Health*, 51, 53–58. doi: 10.1016/j.jadohealth.2011.12.031.
- Ybarra, M. L., Mitchell, K. J., & Espelage, D. L. (2012). Comparisons of bully and unwanted sexual experiences online and offline among a national sample of youth. In Ö. Özdemir (Ed.), *Complementary Pediatrics* (pp.203-216). In Tech.
- Ybarra, M. L., Diener-West, M., & Leaf, P. J. (2007). Examining the overlap in Internet harassment and school bullying: Implications for school intervention. *Journal of Adolescent Health*, 41(6), 42- 50. doi: 10.1016/j.jadohealth.2007.09.004.

- Ybarra, M. L., Espelage, D. L., & Mitchell, K. J. (2007). The co-occurrence of Internet harassment and unwanted sexual solicitation victimization and perpetration: Associations with psychosocial indicators. *Journal of Adolescent Health, 41*(6), S31-S41. doi:10.1016/j.jadohealth.2007.09.010.
- Ybarra, M. L., & Mitchell, K. J. (2004). Online aggressor/targets, aggressors, and targets: A comparison of associated youth characteristics. *Journal of Child Psychology and Psychiatry, 45*(7), 1308-1316. doi:10.1111/j.1469-7610.2004.00328.x.
- Zhou, Z., Tang, H., Tian, Y., Wei, H., Zhang, F., & Morrison, C. M. (2013). Cyberbullying and its risk factors among Chinese high school students. *School Psychology International, 34*(6), 630-647. doi:10.1177/0143034313479692.
- Zimet, G.D., Dahlem, N.W., Zimet, S.G. & Farley, G.K. (1988). The Multidimensional Scale of Perceived Social Support. *Journal of Personality Assessment, 52*, 30-41. doi: 10.1207/s15327752jpa5201\_2.
- Zimet, G. D., Powell, S. S., Farley, G. K., Werkman, S., & Berkoff, K. A. (1990). Psychometric characteristics of the multidimensional scale of perceived social support. *Journal of Personality Assessment, 55*(3-4), 610-617. doi: 10.1080/00223891.1990.9674095.
- Zych, I., Ortega-Ruiz, R., & Del Rey, R. (2015). Scientific research on bullying and cyberbullying: Where have we been and where are we going. *Aggression and Violent Behavior, 24*, 188-198. doi: 10.1016/j.avb.2015.05.015.
- Zych, I., Ortega-Ruiz, R., & Del Rey, R. (2015). Systematic review of theoretical studies on bullying and cyberbullying: Facts, knowledge, prevention, and intervention. *Aggression and Violent Behavior, 23*, 1-21. doi: 10.1016/j.avb.2015.10.001.