

## **The current status of Cyberbullying research: a short review of the literature**

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## **Abstract**

The present review will provide an up-to-date discussion of the latest in Cyberbullying research. First, the conceptualization will be addressed, focusing on existing definitions and assessment tools. Considering the Internet as the medium of Cyberbullying, the affinity with other problematic behaviors conducted online is noted and we debated if to consider Cyberbullying as a mental condition. Data on prevalence and people at risk will be reported, picturing the distribution of this phenomenon, but also the limitations of current epidemiological studies. More solid data that investigated the consequences of Cyberbullying on the mental health of victims and perpetrators will be discussed. Lastly, prevention and treatment strategies will be suggested according to literature evidence. Despite the number of studies on Cyberbullying has surged in the last years, numerous limitations still exist and these will be addressed in the conclusion section as future research priorities.

## **Highlights**

- Cyberbullying involves the use of digital media platforms as an intent to intentionally harass, humiliate, or threaten others in a repetitive and hostile manner
- To date, Cyberbullying lacks a universally accepted definition, conceptualization, and assessment tools
- Cyberbullying prevalence has likely increased in the past years, reaching victimization and perpetration rates ranging from 10% to 60% and 6% to 32%, respectively
- Most recent meta-analyses confirmed the association between cyber-victimization and negative outcomes, in particular depressive symptoms, and suicidal behaviours
- Preventive strategies are rarely evidence-based and treatment approaches are urgently needed

## **1. Introduction**

In the modern age, with the expansion of digital devices and the Internet especially among the youths, bullying (i.e., repetitive and intentional aggressive behavior in which a power differential exists between the victim and bully) is often performed online [1]. Compared to traditional face-to-face bullying, Cyberbullying (CBB) offers multiple settings and tools for the perpetrator, such as instant messages, applications, social media, forums, and gaming platforms. Indeed, digital devices offer an ability to immediately and continuously communicate, with ideally no time for relief for the victims, and contents shared online are often permanent and public, potentially reaching a limitless number of viewers.

The current research highlighted the association between CBB and the negative impact on the mental wellbeing of victims [2], but also of perpetrators, and bystanders [2,3]. In spite of CBB being extremely frequent, a universally accepted definition and assessment tool are lacking and prevention and treatment interventions are rarely evidence-based [4].

This article will review and discuss, from a clinical perspective, the current state about CBB with the aim to give the most up to date revision of the current literature.

## **2. Conceptualization of Cyberbullying**

### **2.1 Definition**

Despite an increasing research interest, the debate concerning the definition of CBB is still open [5] and, to date, no consensus of experts agreed on the definition of CBB. In 1993, Olweus firstly defined CBB, usually regarded as bullying that occurs in cyberspace caused by the use of computers, smartphones, or other electronic devices [6]. This conceptualization remains the prevailing viewpoint, as emerged in a recent review that collected different definitions reported in the literature [7]. In this paper, CBB has been defined as: i) an intentional aggressive behavior; ii) conducted repeatedly; iii) with unequal power between perpetrators and victims; iv)

and using electronic technology as its medium. The criterion of repetition is one of the aspects that, in the traditional definition of bullying, distinguishes it from solely aggressive behavior but might be now less important considering the natural pervasiveness of CBB [8]. Some authors suggested the following additional characteristics as central features of CBB: i) the possible 24/7 nature of the bullying; ii) the degree of anonymity not always possible in traditional bullying (making, additionally, any sort of protection more difficult); iii) the potential exposure and embarrassment of the victim on a larger scale (i.e., the aggressive/humiliating act can reach a broader audience when shared online, for example, on social media) [9].

The existing variations in CBB behaviours, venues, and tolls where CBB takes place might additionally interfere with the lack of a consensus definition. In an attempt to describe these variations, Saladino and colleagues [3] created a taxonomy of types of CBB, reported in Box 1.

**Box 1: different types of behavior Cyberbullying can be expressed.**

**Flaming:** to send violent and vulgar messages by an electronic device to provoke verbal conflicts between two or more people within the network, during a chat conversation or interactive video games.

**Cyber-harassment:** to send repeated and offensive messages to a specific person, causing strong psychological and emotional distress. The victim is always in a “one down” position and suffers passively from aggression.

**Cyber-stalking:** harassment, violence, threats, and persecutions online, toward a person to isolate and frighten him/her. The cyberstalker virtually follows the victims, can systematically try to contact them, sending offensive and intrusive messages.

**Denigration:** the distribution of false or derogatory messages toward victims, to damage their reputation or friendships.

**Impersonation:** to have access to the personal account information of the victim and impersonate the target online, uploading negative information that damages the target social relationships.

**Tricky or outing:** to become a friend of the victim, leading him/her to share private and intimate information and ultimately spreading or utilizing the information to threaten the victim.

**Exclusion:** to exclude another user from a group of friends, or a particular chat or interactive game.

**Happy-slapping:** to publish online a video recorded when the victim is filmed undergoing various forms of violence to humiliate them.

Another challenging element of CBB definition is represented by the different roles that individuals may embody. Indeed, subjects might be perpetrators, victims, or bystanders of CBB, and individuals typically alternate these roles over time and based on different scenarios. Additionally, bystanders' responses can be classified into different roles, including victim support, bully reinforcement, or passive response [10]. Bystanders – which is the most common form of CBB exposure - could take a central position in prevention, as their actions and reactions can influence the course of CBB. Moreover, some subjects present a dual identity of victim/perpetrator, since being a victim of CBB has been reported as a risk factor for CBB-perpetrators [11], and vice-versa [12]. Therefore, research should consider and cautiously differentiate CBB based on distinct experiences and perspectives.

## **2.2 Assessment**

Given a consensus definition of CBB is lacking, it is not surprising that distinct screening and diagnostic tools have been developed to measure the severity of CBB. A recent systematic review provided an overview of 64 different existing instruments assessing CBB [13]. The majority of the studies included a definition of CBB, either “conceptual” or “operational” it, with great variations of usage of the term CBB and its definitions across the research. Moreover, the

instruments analyzed showed some limitations, including that only 15 of them (23.4%) followed the recommended guidelines for scale development (as suggested by DeVellis (2003) [14]) and in only half of them the validity was assessed [13]. Among different scales, some of them measure the cyber-victimization, some only the perpetration, and others both behaviours. All instruments were intended to measure CBB in children, adolescents, or young adults (sample population: 8 to 25 years old) and there are no instruments for older adults. Most instruments (81.3%) consisted of a self-reported, paper-and-pencil version of a questionnaire, with the rest being online surveys. Moreover, most of the CBB measurement studies were conducted in the United States and western countries, and only five studies were conducted in Asian countries, with small geographic variance, highlighting the need to further investigate the role of socio-cultural components related to CBB. Lastly, different time frames were available and nearly 29.7% of the instruments did not provide a specific time period, with potential variations on prevalence rate between studies.

### **2.3 Cyberbullying as a mental condition**

Thus far, CBB has not been included in any mental disorders classification systems, although some authors listed CBB as a candidate form of Problematic Use of the Internet (PUI) [15]. PUI is an umbrella term describing excessive online activities associated with marked functional impairment and/or distress. Recent studies have reported that cyberbullies manifest some addictive features on the Internet, as individuals with higher symptom severity of Internet addiction manifested a higher risk of being cyber-perpetrators [16,17]. However, future research may want to investigate if these subjects manifest symptoms of addiction to CBB itself (e.g., the inability to stop bullying online despite the negative consequence of it) or simply to the Internet as its medium. Apart from addiction, excessive Internet use might be driven by higher impulsivity, as cyberbullies have shown greater impulse and aggressive traits, resembling a manifestation of conduct disorder or antisocial personality disorder [18]. Lastly, cyberbullies may

manifest compulsive features that favor specific forms of CBB - like cyber-stalking - although no literature research has examined this point. Considering the current knowledge, it seems premature to consider CBB as a separate mental condition and future investigations are encouraged to investigate the psychopathology of CBB, also in terms of neurobiology.

### **3. Prevalence**

The prevalence rates of CBB widely vary and should be approached with caution given the heterogeneity and the relative lack of consistency in terms of definition, as well as methodological variations of existing epidemiological studies. Moreover, cultural, and geographical settings might influence the presentation of CBB. A recent review including 63 studies reported CBB victimization and perpetration rates ranging from 10% to 60% and 6% to 32% respectively [19]. In the same study, geographical differences have been observed, with the highest prevalence of CBB victimization reported in Spain (57.5%), followed by Malaysia (52.2%), Israel (45%), and China (44.5%); the lowest victim rate was noticed in Canada (13.9%) and South Korea (14.6%). China showed the highest prevalence of CBB perpetration (46.3%) while Canadian and South Korean studies reported the lowest ones (7.9% and 6.3%, respectively).

CBB prevalence has likely increased over the last few years. The Cyberbullying Research Center reported a twice as high rate of CBB victimization in 2019 compared to 2007 (18.8% vs. 36.5%, average 27.8%) in middle and high school students from the United States, aged 12-17. In the same study, however, the rate of CBB offending rates did not vary sensibly (19.1% vs. 14.8%, average 15.7%) [20].

Most research on CBB focused on children, teens, or young adults: consequently, how CBB affects older populations remains unclear, even if also this group has nowadays access to digital devices and might be more at risk of specific forms of CBB, like cyber-harassment. A recent study on more than 20.000 subjects aged 18-97, reported CBB prevalence decreased

(but did not disappear) with age, with the lowest rate reported among the 66+ age group (1.6% in the past month, 6.5% lifetime), compared to young adults (18–25 years, 3.2% in the past month and 40.5% lifetime) [21].

#### 4. People at risk

Several studies analyzed how specific sociodemographic or clinical characteristics were associated with a higher rate or severity of CBB victimization/perpetration. Table 1 overviews these characteristics, as emerged in recent investigations (published after 2018). Interpretation of these findings is restricted due to study design – all cross-sectional – and already mentioned inconsistencies in CBB definition.

**Table 1.** Association between sociodemographic and clinical variables and Cyberbullying victimization/perpetration, as emerged in recent investigations (published after 2018).

<b>Variables</b>	<b>CBB victimization</b>	<b>CBB perpetration</b>
<b>Age</b>	Higher rate in primary school students compared with middle and high school ones [22]	Higher in older adolescents than younger [11,23]
	Higher rate in upper-class students (11th and 12th grade and over) compared to lower ones ([12,24,25]	-
<b>Gender</b>	Higher rate in males [25,26]	Higher rate in males [25,27–30]
	Higher rate in females [12,22,31–34]	-
	No difference [29,35]	-
<b>Race</b>	Higher rate in white vs non-white students [31]	-
	No difference [12]	-
<b>Minority groups</b>	Higher rate in LGBTQ+ community [36]	-



<b>Other online behaviours</b>	Associated with Internet addiction and using the Internet >2 hours/day [16,37]	Higher in subjects with PUI [11,29]
	Association with online gaming disorder [28]	Association with online gaming disorder [28]
	--	Predicted by higher social media addiction scores and more hours spent online [27]
<b>Parent-child relationship</b>	Association with parental abuse, parental neglect, and family dysfunction [26]	Predicted by childhood psychological maltreatment [38]
	Association with physical discipline by parents [28]	Higher risk in adolescents with a high level of parental phubbing [39]
<b>Psychological factors</b>	Higher severity in subjects with social avoidance and social distress, in particular with peers [40]	Associated with higher impulsivity or difficulties in emotions regulation [23,41,42]
	-	Higher risk in adolescents with antisocial behaviours or conduct problems [23,43,44]
<b>Other mental and health conditions</b>	Higher rate in subjects with physical disabilities [45,46]	Predicted by being victim of CBB [11,47]
	Associated with overweight preoccupation and with pathological eating behaviors [48]	-
	Higher risk in victims of traditional bullying [12]	-
	Higher risk in CBB perpetrators [12]	-

**Notes:** CBB: Cyberbullying; PUI: Problematic Usage of the Internet. Aggregated data of selected studies: sample size varying from 231 to 32.310 subjects; mean age of participants varying from 6 to 71 years; females rate ranging from 37.3% to 59.6%; country of origin: Europe 46%, Asia 35%, and Nord America 19%.

## 5. Burden of Cyberbullying and public health cost

Victims of CBB are at increased risk of negative psychological and physical consequences. Immediate consequences for affected adolescents can include psychological distress, academic difficulties, loneliness, reduced wellbeing [41,49]. A recent meta-analysis [50] of 57 empirical studies from 17 countries showed a significant correlation between CBB victimization and depression. Additionally, in the same study, girls and older adolescents victims of CBB were more likely to suffer from depression, while the moderating effect of the country of origin was not significant. CBB has been also associated with subsequent substance use in perpetrators, victims and, bystanders [3], and with anxiety symptoms [51] and post-traumatic stress symptoms [52,53] in victims. In addition, CBB victims showed significantly higher rates of suffering from psychiatric disorders compared with non-victims (27.3% vs 14.9%) [54].

In a meta-analysis involving more than 156.000 children and adolescents, CBB victims were at a greater risk than nonvictims of self-harm and suicidal behaviors (suicidal ideation, suicide plans, and suicide attempts) and, even if to a lower extent, also perpetrators were at risk of suicidal behaviors when compared with non-perpetrators [55]. In a recent cross-sectional population-based study, the percentages of suicidality (34.4% vs 21.6%) and self-harm (32.8% vs 22.3%) were higher in CBB victims than in traditional bullying victims, and girls were more often bullied and likely to experience suicidal and self-harming behavior than boys [56]. When interpreting the present evidence, it needs to be borne in mind that most findings are based on cross-sectional data, therefore, causal relationships cannot be inferred.

From a public health perspective, the need to address CBB is underlined by relevant expected and unexpected public health costs including those for treating health-related consequences of bullying, costs related to school truancy and dropout, as well as costs related to poor job performances. Despite being very difficult to predict how CBB financially impacts individuals and society, the social cost of CBB in New Zealand was estimated up to \$444 million in 2018 [57].

## **6. Prevention and Management**

Current literature recommends an ecological approach to the prevention of CBB: namely, interventions in the social environments in which the adolescent is inserted, including parents, peers, schools, caregivers, and the community [58]. The key components of educational programs include parenting training, consistent disciplinary methods, class rules, and qualified classroom management by teachers [59]. Other educational strategies, such as providing digital security information, including blocking users or phone numbers or reporting to social media platforms, can be effective in reducing cyber-victimization [60]. Peer-centered interventions, such as promoting bystander intervention, have shown to be effective in reducing in-person bullying [61]. Bystander behaviors have been also a target of CBB prevention efforts and have shown to be helpful in mitigating the impact of cyber-victimization [62]. Schools need to collaborate with mental health centers and neighboring communities to develop prevention programs, such as extracurricular activities and training. School responses to the CBB problem could increase playground supervision, support the victim, formal discipline for the perpetrator, and inform parents, making them aware of the bullying's inappropriate conduct [63]. Additionally, the increasingly widespread access to electronic communication makes it possible to carry out interventions on online platforms or via mobile phones. Online interventions allow to reach more people and require fewer resources than face-to-face interventions, which need additional staff to plan and coordinate educational interventions. However, evidence is needed if online interventions are best delivered as a standalone program or in combination with a school intervention [64]. In an attempt to interrogate the current literature on the effectiveness of CBB intervention and prevention programs, a recent meta-analysis of 24 studies - of which 15 randomized controlled trials - observed that anti-cyberbullying programs reduced CBB perpetration by approximately 10%–15% and CBB victimization by approximately 14% [62]. Overall, the authors concluded that intervention and prevention strategies can be effective but also that a significant gap in the CBB literature still exists, with the need for additional evidence-

based investigations that address specific components of interventions, for example, non-school-aged samples.

## **7. Conclusion and future directions**

In an increasingly digitalized society, CBB represents a common and expanding behaviour, with potential negative sequelae on mental health and wellbeing for victims, perpetrators, and bystanders. Despite the number of studies on CBB has surged in the last years, different limitations still exist. Based on the present review, the followings can be expected to advance the field most: i) to raise a consensus of experts to reach an agreement on CBB conceptualization and definition, considering its different expressions, roles of subjects involved, and distinct ways it can manifest; ii) to assess CBB through psychological and neurobiological measurements in order to define its role as a distinct mental condition; iii) to better investigate the clinical profile of perpetrators, but also victims and bystanders, and risk and moderating factors of these roles; iv) to reveal the long-term consequences of CBB on mental health and well-being, particularly by means of longitudinal studies; v) and, ultimately, to implement large, pre-registered, randomized clinical trials, to develop best practice guidelines and to determine cost-effective options for CBB prevention and treatment.

**Declaration of interest**

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