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Cyberbullying: An overview of research and policy in OECD countries

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Acknowledgements

Abstract

Cyberbullying is a high priority policy challenge in many OECD countries. In recent years, the literature base on cyberbullying has rapidly expanded, shedding insights into the prevalence of the issue, highlighting which characteristics make children more likely to be cyberbullied, those that make them more likely to cyberbully others, and how this affects or is affected by well-being. Education systems have responded to this challenge in different ways such as promoting awareness of the issue, providing support to children in schools, through Internet safety initiatives, and implementing policies and sometimes laws to combat cyberbullying. There are a number of empirically assessed interventions that aim to support victims and reduce perpetration, although more information is needed on how to develop and scale up effective interventions. Furthermore, the current literature base underscores the need to establish a common and agreed upon definition of cyberbullying, and a need for research to identify its causes and effects.

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1. Cyberbullying definitions and policy relevance

Digital technologies play a central role in children's lives and international trends suggest they are spending more time in the digital environment, while engaging in increasingly varied activities such as communicating with friends and family, creating content, playing digital games and searching for information (Burns and Gottschalk, 2019[1]; Burns and Gottschalk, 2020[2]).

As children spend more time in the digital environment, their access to opportunities increases but so does their exposure to risk (Livingstone and Helsper, 2009[3]). One risk in particular that garners much attention in research, policy and media spheres is cyberbullying. Indeed, there has been a rapid expansion of cyberbullying research in recent years (Cassidy, Faucher and Jackson, 2013[4]; Kowalski, Limber and McCord, 2019[5]; Gaffney et al., 2019[6]; Kwan et al., 2020[7]).

The current literature base provides a number of insights about cyberbullies, cybervictims and cyberbystanders, as well as the potential outcomes associated with cyberbullying. The state of the art of cyberbullying research can be used to inform different stakeholders such as practitioners, policy makers, parents and children themselves, about the issues surrounding cyberbullying. It can also guide stakeholders on the path towards more effective programme and policy design and implementation. This paper focuses on cyberbullying between and among children[1], and how education systems can and do intervene on this type of bullying. Cyberbullying is not limited to children though, and can happen between adults, between children, or even adults and children.

This paper is divided into four sections. Section 1 explores the definition of cyberbullying in relation to traditional bullying and other forms of digital aggression. It outlines the policy relevance of cyberbullying in OECD countries. Section 2 presents the prevalence estimates, correlates and consequences of cyberbullying. It explores the factors associated with being a bully or victim, the potential consequences associated with cyberbullying, and outlines some protective factors. Next, Section 3 outlines different policies and practices to combat cyberbullying in OECD countries. It presents the approaches governments take to protect children, and provides insights into empirically evaluated cyberbullying interventions. Section 4 underscores main research gaps in the cyberbullying literature.

1.1. Defining cyberbullying

With the rise of digital technologies, cyberbullying has emerged as a challenge that threatens the well-being and education of children around the world. No longer are bullies relegated to the school yard, as they can target their victims in the omnipresent digital environment. Sometimes defined as bullying via electronic devices and the Internet (Olweus, 2012[8]), cyberbullying concerns the aggressive targeting of a victim through digital technologies by peers (Levy et al., 2012[9]). Other commonly touted definitions are: "an aggressive, intentional act carried out by a group or individual, using electronic forms of contact, repeatedly and over time against a victim who cannot easily defend him or her-self" (Smith et al., 2008, p. 376[10]) and "wilful and repeated harm inflicted through computers, cell phones, and other electronic devices" (Hinduja and Patchin, 2015, p. 11[11]). However, as will be discussed throughout this paper, one of the main issues regarding cyberbullying research and policy is the lack of agreed upon definition and measurement parameters.

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[1] The 21st Century Children project defines childhood as between 0-18.

> ### Box 1.1. Bullying roles: Bullies, victims and bystanders
>
> In both traditional bullying and cyberbullying cases, children assume different roles including:
>
> - A bully is the aggressor who engages in cyberbullying behaviours towards others.
> - A victim is one who reports they are the target of cyberbullying.
> - A bully-victim is someone who is the target of cyberbullying but also engages in cyberbullying behaviours.
> - Bystanders (sometimes also referred to as witnesses) who witness the event(s).
>
> In traditional bullying literature, bystanders themselves are reported to assume different roles. These can include:
>
> - Those who join the aggressor(s).
> - Those who reinforce the aggressor(s) by laughing or encouraging them.
> - Those who remain outsiders and do not get involved.
> - Those who come to support or defend the victim (Salmivalli et al., 1996[12]; Salmivalli, 2010[13]).
>
> In the cyberbullying literature, most cyberbystanders do not intervene when they witness an event (Allison and Bussey, 2017[14]) and they tend to be a heterogeneous group in terms of both their behaviour and characteristics (Polanco-Levicán and Salvo-Garrido, 2021[15]). Similarly to the traditional bullying literature, they might assume roles of defenders, reinforcers and outsiders (Sarmiento, Herrera-López and Zych, 2019[16]). In the case they do intervene, cyberbystanders can take different approaches. For example, some evidence suggests that cyberbystanders can take a constructive strategy whereby they comfort the victim(s) or an aggressive strategy whereby they threaten the cyberbully(ies) (Moxey and Bussey, 2019[17]).

In the 2021 OECD Typology of Risks in the Digital Environment (hereafter referred to as "The OECD Typology"), cyberbullying can be categorised as a "conduct risk" and a "contact risk", depending on whether it is the victim or the perpetrator being discussed. Conduct risks are those in which children are actors in a digital exchange, including situations in which their actions can make them vulnerable such as in the cases of sexting[2] or cyberbullying (O'Neill, Livingstone and McLaughlin, 2011[18]). This is distinct for example from a contact risk, where a child would be the victim in an interactive situation (OECD, 2021[19]). Witnessing a cyberbullying event could constitute a "content risk" if the content one is exposed to is harmful, hateful or illegal.

Cyberbullying can take various forms such as spreading rumours in the digital environment, excluding people from digital groups, impersonating someone, and sending nasty texts, chats or comments (OECD, 2017[20]). Other behaviours can include seeking revenge or deliberately embarrassing others by posting photos or videos of them without consent (Myers and Cowie, 2019[21]), as well as insults and threats (Festl et al., 2017[22];

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[2] Sexting is defined as sending or receiving of sexually explicit materials (messages, images or videos) through digital means (Barrense-Dias et al., 2017[130]; United Nations, 2019[131]).

Cebollero-Salinas et al., 2022[23]). Verbal violence is one of the most common forms of cyberbullying (Aizenkot and Kashy-Rosenbaum, 2019[24]; Zhu et al., 2021[25]).

The potential anonymity of digital spaces, as well as the potential to reach victims despite lack of physical proximity, means that cyberbullying has a different reach than traditional bullying (Kowalski et al., 2014[26]; Livingstone, Stoilova and Kelly, 2016[27]). In a sample of over 28 000 adolescents in Maryland (United States), 30% did not know who their cyberbully was (Waasdorp and Bradshaw, 2015[28]). However, in many instances children know their cyberbullies, and when a victim knows who their cyberbully is, it is often another student from the same school or in their physical vicinity (Smith et al., 2008[10]), or someone who runs in the same social network (Sticca and Perren, 2012[29]). Some victims report that the perpetrator was either a friend, or someone who they thought of as a friend, which can make the experience more challenging to cope with (Waasdorp and Bradshaw, 2015[28]).

Cyberbullying usually does not occur in isolation, and much research notes that those who are victims of traditional bullying at school are more likely to be victims of cyberbullying (Waasdorp and Bradshaw, 2015[30]; Baldry, Farrington and Sorrentino, 2015[31]; Schneider et al., 2012[32]). Although in some countries, such as France and Turkey, cyberbullying remains a distinct problem with a weaker correlation to traditional bullying (Livingstone, Stoilova and Kelly, 2016[27]).

Box 1.2. The OECD and children in the digital environment

In 2012 the OECD released the OECD Recommendation on the Protection of Children Online. This Recommendation had the intent of assisting governments in establishing policies to protect children from risks they may face in the digital environment, without reducing the potential benefits and opportunities. At the time, digital risks were categorised as: "content risks, contact risks, risks related to children as consumers as well as information security and privacy risks faced by children on the Internet" (OECD, 2011[33]), consistent with other international research in the field (e.g. (Hasebrink et al., 2009[34])).

Since 2012, the world has seen rapid technological change. Society is more connected than ever before, and this has translated into children spending more time engaging in the digital environment, at younger ages and with different digital tools and applications (Burns and Gottschalk, 2019[1]). These changes have prompted a shift in the risk landscape. Some risks such as cyberbullying have changed in nature, while new ones have emerged. Advanced technologies such as artificial intelligence, predictive analytics and the Internet of Things may also bring various risk components such as profiling. In 2021, the OECD released an updated typology of risks to reflect the changing nature of the digital environment (OECD, 2021[19]). This typology of risks identifies the following four risk categories:

- Content Risks (e.g. content that is harmful, hateful or illegal; disinformation).

- Conduct Risks (e.g. behaviour that is harmful, hateful or illegal).

- Contact Risks (e.g. encounters that are harmful, hateful, illegal or otherwise problematic).

- Consumer Risks (e.g. marketing, commercial profiling, financial or security risks).

Cross-cutting risk categories were also identified, that span across the four risk categories and can also have effects on children's lives. These cross-cutting risks include privacy risks, advanced technology risks and risks to health and well-being.

In May of 2021, the OECD Council adopted the Recommendation on Children in the Digital Environment (OECD, 2021[35]), an update of the 2012 Recommendation. The updated Recommendation acknowledges that digital technologies play an important role in the lives of children, while at the same time there is a need to support a range of stakeholders in creating conditions that are safe, equitable and beneficial for all.

1.1.1. Cyberbullying versus traditional bullying

Cyberbullying is an emerging and evolving risk in the digital environment. There remain some open questions as to whether cyberbullying is separate from traditional bullying, related to it, or simply an extension of it. Children who are traditionally bullied are more likely to be victims also of cyberbullying, as the two are highly linked (Waasdorp and Bradshaw, 2015[30]; Baldry, Farrington and Sorrentino, 2015[31]; Schneider et al., 2012[32]). Cyberbullying victims often face the same perpetrators both offline and in the digital environment (Wegge, Vandebosch and Eggermont, 2014[36]).

It is important however to note that traditional bullying victimisation is more prevalent than cyberbullying victimisation (Modecki et al., 2014[37]; Jadambaa et al., 2019[38]; Sticca et al., 2012[39]; OECD, 2021[40]), with the same pattern for perpetration (Sticca et al., 2012[39]). Therefore the core features and behaviours of bullying itself might be more important than the medium in which it occurs (i.e. virtually or face-to-face) (Dooley, Pyżalski and Cross, 2009[41]), despite some differences.

Typically, there are three main features of traditional bullying. One feature is aggressive acts perpetrated against a victim by one or more actors with the intent to harm them. Second, the actions occur repeatedly, and finally there needs to be a power imbalance (i.e. difference in one or more factors such as physical strength, age, social status, intelligence (Scheithauer, Hayer and Bull, 2007[42])) between the bully and the victim (or bullies and victims) (Olweus, 1993[43]). Bullying is also social in nature, and the social components suggest it is a group process and that bullies are striving for social status (Salmivalli, 2010[13]). Traditional bullying is characterised by a systematic abuse of power and an unequal power relationship between the bully and victim and can include aggressions that are verbal (name-calling, mocking), physical (hitting, punching, kicking) or relational (spreading gossip, shaming, social exclusion, public humiliation) (Woods and Wolke, 2004[44]). Data from the OECD's Programme for International Student Assessment (PISA) in 2018 suggests that verbal and relational bullying occur more frequently than physical bullying (OECD, 2019[45]), and these two types of bullying have the most overlap with cyberbullying (Waasdorp and Bradshaw, 2015[28]).

Some factors that differentiate cyberbullying from traditional bullying include: potential anonymity, impersonation, perpetrators' relative lack of fear of being caught, lack of supervision in the digital realm and victims' feeling that they can be bullied anywhere, at any time (Slonje and Smith, 2008[46]; Wang, Iannotti and Nansel, 2009[47]). Anonymity is an issue in digital spaces, and it can make it more difficult for victims to report experiences of cyberbullying if they don't know who is bullying them (DePaolis and Williford, 2014[48]). Potential anonymity can tip the balance of power in favour of the aggressor. However, in spite of potential anonymity in the digital environment the majority of

cyberbullying victims tend to know who their bullies are (Cassidy, Faucher and Jackson, 2013[4]).

Table 1.1. Core features of traditional bullying and cyberbullying

Features	Traditional bullying	Cyberbullying
Aggressive acts	Verbal, physical, relational	Verbal, relational
Repetition	The actions occur repeatedly	Easy sharing and forwarding, and permanence of the digital environment mean that one act of cyberbullying can be viewed and experienced many times without repetition of the act or bullying behaviours by the perpetrator
Power imbalance	Key factors could be physical strength, age, social status, intelligence	More difficult to define in the digital environment; key factors could be popularity, social status, digital skills, anonymity
Intentionality	Present	Present
Space	Relegated to school or other in-person environments	Omnipresence of digital environment means cyberbullying has no fixed boundaries
Bystanders	Physically present; tends to be a small group	Bystanders could simply be witnesses to the acts in real time or at a later time; they could be physically present with the bully or the victim when the act occurs; the audience can be large or small

Some scholars argue that cyberbullying is simply an extension of traditional bullying into the digital environment. However, there is debate as to whether all features of traditional bullying are essential in defining cyberbullying. While intentionality is a defining feature in both types of bullying, the nature of the digital environment could mean features such as repetition might not be as crucial to the definition as it is to traditional bullying (Menesini et al., 2013[49]). Repetition of the aggressive acts themselves may not be a core feature of cyberbullying as single instances of cyberbullying could be viewed multiple times in the digital environment (Patchin and Hinduja, 2006[50]), and there is a degree of permanence as to what is posted and shared in the digital environment which can increase the number of views for a single act (Selkie, Fales and Moreno, 2016[51]). Therefore, as definitions of traditional bullying tend to stipulate repetition as a core feature, the nature of the digital environment, the rapid rate in which information and photos can be shared and forwarded, and the perceived permanence of the Internet and its contents can mitigate this requirement for cyberbullying. Although this is not completely agreed upon within the field.

Power imbalance is another core feature of traditional bullying that looks a bit different in the digital environment. Children who have "power" in offline spaces might not be the same who have power in virtual spaces, as this can be mediated by factors such as digital skills. Even defining what power imbalance means in the digital environment can be a challenge (Finkelhor, Turner and Hamby, 2012[52]), and some scholars argue that power imbalances are different, regardless of how they are in offline interactions (Vandebosch and Van Cleemput, 2008[53]), if they operate at all, in digital spaces (Livingstone, Stoilova and Kelly, 2016[27]). While power imbalances might look different in the digital environment, cyberbullies, similarly to traditional bullies, tend to target individuals who are unlikely or unable to defend themselves (Sheldon, Rauschnabel and Honeycutt, 2019[54]).

The role and presence of bystanders will also differ, and might be more complex with regards to cyberbullying than traditional bullying. Smith (2012[55]) outlines a couple of reasons why this might be more complex in the virtual environment. First, "the bystander may be with the perpetrator when an act is sent or posted; with the victim when it is received; or with neither, when receiving the message or visiting the relevant Internet site)" (Smith, 2012[55]). Second, one motive for traditional bullying could be to gain status by showing power in front of witnesses. In a cyberbullying situation, the perpetrator may lack

witnesses or may be unaware of their presence (Ibid). Finally, the audience may be much larger than the typically small group that would witness a traditional bullying incident (Ibid).

Some specific features of the digital environment also facilitate cyberbullying or aggressive behaviour more generally. For example the digital environment can facilitate exercising moral disengagement and online disinhibition. As consequences may seem less likely to be real or immediate, and anonymising features on the Internet can help mask origins of one's actions, cyberbullies may be more easily legitimising their behaviour (Park, Na and Kim, 2014[56]) and can distance themselves from the aggressive acts and their social or psychological consequences (Kiriakidis and Kavoura, 2010[57]). A lack of social cues and feedback from victims can result in desensitisation, leading individuals to act more aggressively in the digital environment than they might in person (Suler, 2004[58]). At a more basic level, cyberbullying tends to happen in environments without much adult supervision and it is unrestricted in terms of geography, so the potential reach of bullies to their victims is extended and less supervised than bullying in the schoolyard would be (Hinduja and Patchin, 2007[59]).

Box 1.3. Measuring bullying in PISA

Bullying is a worldwide problem that can have serious consequences for students' lives, and since 2015 PISA has asked students about their bullying experiences at school. In the most recent PISA cycle in 2018, on average 23% of students report being bullied at least a few times a month while 8% reported being frequently bullied across OECD countries. Students were classified as being "frequently bullied" if they were amongst the 10% of students with the highest values in the index of exposure to bullying across all countries and economies with available data (OECD, 2019[45]).

There are large between-country differences in exposure to traditional bullying (OECD, 2019[45]), and there has been a slight upwards trend in exposure to traditional bullying between PISA 2015 and 2018 (OECD, 2019[45]). According to PISA, traditional bullying behaviours seem to peak in lower secondary and decline in upper secondary (OECD, 2019[45]), which is a similar trend seen in cyberbullying behaviours.

Bullying and being bullied is associated with poorer academic performance and lower well-being. Students who reported being bullied at least a few times a month scored 21 points lower in reading than those who were less frequently bullied (OECD, 2019[45]). Only in Japan and Korea did frequently bullied students outperform their less frequently bullied peers in reading. It is important to note that different bullying behaviours have a different strength of association with reading performance. Being threatened at least a few times a month has a stronger negative association with reading performance than being made fun of by peers, suggesting that physical bullying might have a higher relationship with academic performance than verbal bullying. PISA also suggests that attending a school where bullying is widespread, even if students themselves do not experience bullying, is related to worse performance. Students who are frequently bullied are also more likely to report feeling sad, scared and not satisfied with their lives, and high bullying prevalence in schools is related to a weaker sense of belonging at school (OECD, 2019[45]).

1.1.2. Different definitions for the same issue?

Cyberbullying can be understood differently in different countries and contexts. In some countries, emphasis is placed on harassment, social exclusion or social status, and some might include events that happen within the school context in this definition as well (Livingstone, Stoilova and Kelly, 2016[27]). The Digital Child Protection Strategy of Hungary for example takes a very broad and wide-encompassing definition of cyberbullying, including behaviours such as denigration, exclusion, sexting, cyberstalking, "outing" (i.e. unauthorised sharing of secrets or personal information with others) and "flaming" (i.e. using furious or obscene language in arguments in the digital environment, or posting offensive, often irrelevant comments about someone in a public forum) (Digitális Jólét Program, n.d.[60]). This is consistent with Willard's taxonomy of types of cyberbullying (Willard, 2007[61]). However in some countries the definition is narrower, describing fewer types of behaviours.

The ways in which cyberbullying is defined in the academic literature also vary (Sabella, Patchin and Hinduja, 2013[62]), ranging from broader to narrower conceptualisations. Scholars acknowledge that delineating between cyberbullying and other digital forms of aggression is becoming increasingly difficult, as the boundaries can be blurred (Livingstone, Stoilova and Kelly, 2016[27]). Some researchers in the field, such as Olweus and Limber (2018[63]), suggest it may be possible to view cyberbullying as a distinct form of traditional bullying, in a similar fashion as other forms such as verbal, physical and relational.

The literature on cyberbullying also tends to conceptualise behaviours such as cyberbullying and sexting as distinct phenomena that might have a reciprocal relationship (Gámez-Guadix and Mateos-Pérez, 2019[64]), despite the fact that in some countries sexting is included in the cyberbullying definition. In recent years, a normalcy discourse around sexting in the literature suggests it can be viewed as a normal form of intimate communication within relationships (Döring, 2014[65]), therefore the inclusion of consensual sexting in a cyberbullying definition could be unwarranted.

Due to a lack of agreement across actors internationally in policy and research as to what exactly constitutes cyberbullying, countries address the concern in different ways – sometimes in more extreme ways such as using criminal justice responses. This can be controversial and disproportionate when dealing with children as perpetrators, as it can result in the criminalisation of children who may be unaware of the impact or gravity of their actions (OECD, 2021[19]). Many scholars in the field are advocating for a refined definition of cyberbullying, which would be useful for governments and researchers around the world.

1.1.3. Cyberbullying is one type of victimisation in the digital environment

Children have to contend with a range of risks in the digital environment. As mentioned above, there are different types of conduct and contact risks they may be exposed to in different digital spaces and victimisation in the digital environment does not necessarily constitute cyberbullying. It could fall more broadly under the umbrella of "peer online victimisation". Fisher and colleagues (2016[66]) define peer online victimisation as "aggression communicated online intended to harm an individual of a similar age or social position". This definition is inclusive of a number of cyberbullying definitions, although incidents that do not meet the standard cyberbullying definition (i.e. lacking in intentionality, repetition or power imbalance) can still be classified as peer online victimisation. However, cyberbullying is generally used as a label when discussing conflicts and aggression in the digital environment (Burgess-Proctor, Patchin and Hinduja,

2010[67]), and indeed much of the research on victims and aggressors in the digital environment has focused specifically on cyberbullying (Martínez-Ferrer, Moreno and Musitu, 2018[68])

There are a range of ways in which youth can experience cybervictimisation, including feeling unsafe in the digital environment or being asked to provide personal information (Stewart-Tufescu et al., 2019[69]). Being victimised in any of these ways has been associated with negative mental health outcomes (Stewart-Tufescu et al., 2019[69]). Other types of aggression that children experience in the digital environment can include "drama" for example. Drama refers to "performative, interpersonal conflict that takes place in front of an active, engaged audience, often on social media" (Marwick and boyd, 2014[70]). How youth themselves qualify cyberbullying can differ from adults, as they might consider aggressive interactions in the digital environment as "drama", even though this might overlap with or lead to traditional bullying and/or cyberbullying (Allen, 2015[71]). Using terms such as drama can enable young people to categorise their experiences in the digital environment in their own way, rather than following a narrative mainly established by adults. It can be empowering, for example, if youth can shrug off a mean comment as a joke and refer to it simply as drama (Marwick and boyd, 2014[70]).

Cybergossip[3] is another example of a behaviour that, depending on the intentions and the content of the interactions, can victimise others. While engaging in cybergossip with friends gives the possibility to improve relationships and promote group cohesion, it can also be weaponised to have a negative impact on someone's reputation or with the intent of causing harm (a core feature of bullying behaviours) (Cebollero-Salinas et al., 2022[23]). Cybergossip is associated with cyber-aggression (Cebollero-Salinas et al., 2022[23]; Falla, Ortega-Ruiz and Romera, 2021[72]) although recognising the difference between the two (cybergossip versus cyber-aggression with the intent of doing harm) is important (Falla, Ortega-Ruiz and Romera, 2021[72]). Cybergossip is a common behaviour among children and youth (López-Pradas et al., 2017[73]), however the literature base on this phenomenon is not very developed (Cebollero-Salinas et al., 2022[23]).

Children can experience different forms of victimisation and aggression in the digital environment. Understanding their conceptualisations of aggression, and how they perceive cyberbullying versus cybervictimisation, "drama" or cybergossip can be important contributions in working towards an operational definition. If this definition is to suit the needs of children and youth, understanding their concepts and ideas on the matter is essential. Simply labelling interpersonal conflicts in the digital environment such as a one-time fight or reciprocal relational aggression as cyberbullying could hinder how teens handle social challenges and navigate complex interpersonal dynamics (boyd, 2014[74]).

1.2. Cyberbullying is a high priority policy challenge in many OECD countries

To take a deeper look at some of the risks children face in the digital environment, the 21st Century Children project launched a Policy Questionnaire in 2018 that garnered responses from 26 different education systems[4] in OECD and partner countries. The Policy Questionnaire listed a range of digital risks that children may face, according to the

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[3] Cybergossip involves making evaluative comments about others in the digital environment (Romera et al., 2018[354]).

[4] The 26 systems are: Australia, Belgium (Flemish Community and French Community), Canada, Czech Republic, Denmark, Finland, France, Greece, Ireland, Japan, Korea, Latvia, Luxembourg, Mexico, Netherlands, New Zealand, Norway, Portugal, Russian Federation, Scotland (United Kingdom), Spain, Sweden, Switzerland, Turkey and the United States.

literature. Respondents were asked to identify which challenges they faced in their national system, and of the challenges identified which were the most pressing in terms of policy priorities.

According to the Policy Questionnaire, cyberbullying was the most highly reported challenge and most pressing challenge related to digital risks that education systems are facing. Of the systems responding to this questionnaire, 20 identified cyberbullying as a challenge in their context. Furthermore, 15 systems identified this as one of the most pressing policy challenges they were facing at the time (Burns and Gottschalk, 2019[1]; Burns and Gottschalk, 2020[2]) (see Figure 1.1).
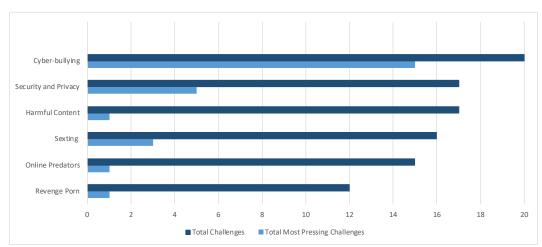
Figure 1.1. Policy challenges in OECD and partner countries: Digital risks

Note: 24 out of 26 systems responded to this item; Revenge porn was included as a separate risk to cyberbullying due to the legal ramifications associated with underage pornography, and because policy measures are often distinct to handle these risks.
Source: Burns and Gottschalk (2019[1]), *Educating 21st Century Children: Emotional Well-being in the Digital Age*, https://dx.doi.org/10.1787/b7f33425-en; Burns and Gottschalk, (2020[2]), *Education in the Digital Age: Healthy and Happy Children*, https://dx.doi.org/10.1787/1209166a-en.

While cyberbullying is a challenge across OECD countries, and is likely to persist in years to come, it is important to ensure that stakeholders involved in combatting cyberbullying rely on high quality evidence and research in their decision-making processes. Maintaining an evidence-based approach to policy-making and handling sensitive issues such as cyberbullying is key, especially when media headlines can instigate moral panic around these topics. Sabella, Patchin and Hinduja (2013[62]) suggest a list of "myths" regarding cyberbullying, and underscore the important gaps that persist in the research on this subject. These myths should be kept in mind by decision makers when thinking about how to conceptualise and implement cyberbullying policies and practices.

They include:

- Everyone knows what cyberbullying is.
- Cyberbullying is occurring at epidemic levels.
- Cyberbullying causes suicide.
- Cyberbullying occurs more often now than traditional bullying.
- Like traditional bullying, cyberbullying is a rite of passage.

- Cyberbullies are outcasts or just mean kids.
- To stop cyberbullying, just turn off your computer or cell phone.

In subsequent sections of this paper, many of these myths will be addressed based on the state of the art of the research. For example, while limiting or restricting children's use of digital technologies might seem like an appropriate measure to reduce their exposure to risk, it also has implications for children's rights that they can exercise in digital spaces such as their right to information or right to play. Despite the risks, higher engagement with digital tools can also give children the opportunity to build peer support (Cross, Lester and Barnes, 2015[75]). Thus proactive approaches that equip children with the skills and competences to show resilience in the face of digital risk, or to promote digital citizenship and ethical behaviour in the digital environment should be prioritised over restrictive approaches (Burns and Gottschalk, 2019[1]). Promoting resilience when experiencing or witnessing cyberbullying, and employing strategies to reduce cyberbullying are therefore pertinent, taking into consideration how these can be implemented without infringing on children's rights.

2. Cyberbullying prevalence estimates, correlates and consequences

There is much literature exploring cyberbullying prevalence, trends and patterns, with some examples of cross-national reports looking at the issue in different countries. For example, the Health-Behaviour of School-Aged Children[5] (HBSC) survey has collected indicators on cyberbullying in the previous few cycles and gives an indication of cross-national trends and patterns. The most recent HBSC survey reports that over 1 in 10 adolescents surveyed reported being cyberbullied at least once in the past couple of months. However there was large variation in prevalence across countries and regions, varying from 3% of 15-year-old boys in Spain to 29% of 15-year-old boys in Latvia (Inchley et al., 2020[76]). According to the 2020 EU Kids Online[6] report, an average of 14% of children reported they had either been cyberbullied a few times or every month (86% reporting they had never been cyberbullied), and fewer than 10% of children are cyberbullied monthly (Smahel et al., 2020[77]). The OECD's Survey of Social and Emotional Skills[7] asked 15-year-old respondents whether they "have been threatened by people" and whether "people have spread nasty rumours about [them]" while chatting or using social media. Approximately 7% indicated that they were exposed to either form of cyberbullying a few times a month or more during the past 12 months (OECD, 2021[40]).

In the academic research, reported prevalence rates vary and tend to be heterogeneous across individual studies (Brochado, Soares and Fraga, 2016[78]). In an international meta-analysis of 131 studies of cyberbullying in youth uncovered prevalence rates of victimisation ranging from 10% to 40% (Kowalski et al., 2014[26]). A more recent systematic review estimated victimisation prevalence to be from about 14% to 58%, while perpetration ranged from 6% to 46.3% (Zhu et al., 2021[25]). Prevalence estimates are often within this large range (Beran et al., 2015[79]; Modecki et al., 2014[37]; CDC, 2020[80];

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[5] HBSC is a cross-national study on young people's well-being, health behaviours and social context in 50 countries and regions in Europe and North America.

[6] EU Kids Online 2020 presents survey results from 19 countries in Europe for children aged 9-16.

[7] The Survey of Social and Emotional Skills is an international survey that assesses the conditions and practices that foster or hinder the development of social and emotional skills for 10- and 15-year-old students, and was implemented in 10 cities in OECD and partner countries.

Hinduja and Patchin, 2019[81]; eSafety Commissioner, n.d.[82]; Twardowska-Staszek, Zych and Ortega-Ruiz, 2018[83]; Zych, Ortega-Ruiz and Marín-López, 2016[84]), with some variation. For example 7% lifetime prevalence of victimisation in a systematic review and meta-analysis in Australia (Jadambaa et al., 2019[38]) and 3% - 72% victimisation in a systematic review in the US (Selkie, Fales and Moreno, 2016[51]). Reported prevalence rates vary to this extent due to a number of factors, including which definition is used by the researchers and which age group is being studied (Athanasiou et al., 2018[85]).

Even as children's access to digital technologies is rising (Hooft Graafland, 2018[86]) it is not that clear that rates of cyberbullying specifically are also on the rise, despite perceptions of rising risk of harm (Livingstone, Stoilova and Kelly, 2016[27]). The EU Kids Online Project reported small increases of cyberbullying in children aged 9-16 across seven countries (from 8-12%) between 2010 and 2014 (Livingstone et al., 2014[87]), and the Net Children Go Mobile[8] project noted an increase from 7-12% between 2010 and 2014 (O'Neill and Dinh, 2015[88]). In a survey of high school students in the United States, there was no change in the percentage of those who reported being electronically bullied from 2011 to 2019 (CDC, 2020[80]), while an analysis of trends of a ten-year period from 2005-2014 found a decrease in both bullying and cyberbullying in the US (Waasdorp et al., 2017[89]).

During school closures due to the COVID-19 pandemic, many had fears that children would experience higher exposure to digital risks such as cyberbullying as they were spending more time in the digital environment. While this was the case in some countries, it was not noted across the board and there was quite a high degree of variation. A slight reduction in cyberbullying victimisation was recorded in a sample of Canadian school children during the pandemic (Vaillancourt et al., 2021[90]), and a study in Germany found no evidence for increasing victimisation (Schunk, Zeh and Trommsdorff, 2022[91]). In the United States however, more children reported being cyberbullied during the pandemic than before (Patchin, 2021[92]). Interestingly, data from Google Internet searches suggest that searches for cyberbullying decreased as schools moved to remote learning in 2020 (Bacher-Hicks et al., 2021[93]). As evidence mounts on the impact of the pandemic on cyberbullying, children's mental health and digital experiences more broadly, it is important to know more about how school closures and the pandemic affected risks and harm for children in the digital environment.

2.1. Factors associated with cyberbullying

2.1.1. Victimisation

Across the literature, traditional bullying victimisation is consistently reported as one of the biggest predictors of cyberbullying victimisation (Chen, Ho and Lwin, 2016[94]; Lee and Shin, 2017[95]; Athanasiades et al., 2016[96]). However, in some countries, such as France and Turkey, the association between cyber and traditional bullying is weaker (Livingstone, Stoilova and Kelly, 2016[27]). Some factors associated with victimisation are stronger in some contexts than others, and risk and protective factors can also vary across countries (Llorent et al., 2021[97]).

The strong correlation between traditional bullying and cyberbullying infers that cyberbullying at least in the majority of countries does not occur in a virtual vacuum.

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[8] The Net Children Go Mobile project replicated major parts of the EU Kids Online Survey. It is a cross-national study of children aged 9–16 in seven European countries.

For this reason, schools can be important places of cyberbullying prevention and policy implementation, as this is where the majority of traditional bullying takes place.

Personal and demographic factors

A number of factors are associated with cyberbullying victimisation, some more highly than others. For example, gender is an often studied variable related to cyberbullying. Much research suggests that girls are more likely than boys to report being cyberbullied. This pattern has been noted in studies in Australia (Cross, Lester and Barnes, 2015[75]), Greece (Floros et al., 2013[98]), the United States (Rice et al., 2015[99]; CDC, 2020[80]), the United Kingdom (Bevilacqua et al., 2017[100]), and in some meta-analyses (e.g. (Guo, 2016[101])). HBSC data also reported a difference in rates of cybervictimisation for girls and boys (14% of girls versus 12% of boys) (Inchley et al., 2020[76]). However, gender patterns have not been consistently reported with regards to cybervictimisation, with some research showing little to no differences related to gender, and there is variation across studies (see e.g. (Athanasiades et al., 2016[96]; Tokunaga, 2010[102]; Sorrentino et al., 2019[103])).

Age is also associated with victimisation. Studies with elementary-school aged children suggest that rates of cyberbullying might taper off as children progress through elementary and into high school (Aizenkot and Kashy-Rosenbaum, 2019[24]), and research from teenage years to adulthood suggests a further decrease in rates with age. For example, a Canadian study noted higher rates of cyberbullying in adolescents than adults, identifying a linear decline in cyberbullying exposure with age (Kim, Boyle and Georgiades, 2017[104]). Age also affects how and where children might experience cyberbullying victimisation. Children of different ages are likely to engage in different digital activities, therefore the mode through which children are cyberbullied can vary by age. For example, elementary school children are most likely to experience cyberbullying via digital gaming sites as this is a common activity they engage in (DePaolis and Williford, 2014[48]). Teens however tend to frequent social media and networking sites, and they tend to be more commonly used spaces for cyberbullying victimisation (Whittaker and Kowalski, 2014[105]).

While there are some studies looking at cyberbullying in relation to age, the bulk of the research on cyberbullying is done with adolescents with few studies focusing on younger children (Machimbarrena and Garaigordobil, 2018[106]). International trends suggest that children are exposed to digital devices at younger ages, and are spending more time in the digital environment than ever before (Burns and Gottschalk, 2019[1]; Hooft Graafland, 2018[86]) and emerging results with younger children suggest that even children in primary education are exposed to cyberbullying as victims, perpetrators or bystanders (Machimbarrena and Garaigordobil, 2018[106]; Sidera, Serrat and Rostan, 2021[107]; DePaolis and Williford, 2014[48]; Aizenkot, 2020[108]). Research in younger children can provide insights also into the intersection of age and gender in terms of victimisation. For example, Sidera and colleagues studied a sample of students in primary school in Spain, and found that boys were more likely to report suffering a cyber-aggression than were girls (Sidera, Serrat and Rostan, 2021[107]).

Unlike the patterns noted for age and gender, it is unclear if there is a link between socio-economic status (SES) and cyberbullying. HBSC data shows differences in cyberbullying victimisation related to social inequalities only in a minority of countries and regions and the patterns tended to be inconsistent (Inchley et al., 2020[76]), and a study in the US found no significant relationship between victimisation and SES (Elgar et al., 2014[109]). However, a study of children in the UK found that children from lower SES backgrounds were more likely to be both bullies and victims, and those from single parent households more likely to be victims (Bevilacqua et al., 2017[100]). This relationship might be prevalent in some contexts, but not necessarily generalisable.

Diverse groups of students, including those with special educational needs or who identify as lesbian, gay, bisexual, transgender, queer/questioning, intersex or somewhere else on the gender identity/sexuality spectrum (LGBTQI+) might be more at risk for experiencing cyberbullying. Multiple studies across OECD and non-OECD countries show a significant increase in the likelihood of cyberbullying for these two particular student groups (Hasse et al., 2019[110]). Some research concludes that middle and high school students with attention deficity hyperactivity disorder (ADHD) are more likely to be cyberbullied (Heiman, Olenik-Shemesh and Eden, 2014[111]), and a study of Swedish students aged 13-15 concluded that those with a disability were at increased risks of being cyberbully victims (Beckman, Stenbeck and Hagquist, 2016[112]).

Regarding students who identify as LGBTQI+, a survey of high school students in the United States found they were electronically bullied at higher rates than their heterosexual peers (CDC, 2020[80]). In another study in the United States with a sample of middle-schoolers, sexual minority students were 4.6 times more likely than their heterosexual peers to report experiencing cyberbullying victimisation within the past year (Rice et al., 2015[99]). Despite an extensive literature base regarding traditional bullying and LGBTQI+ youth, the literature on cyberbullying is scarcer (Abreu and Kenny, 2017[113]).

Ethnicity is another factor that may affect cyberbullying victimisation, and some students from ethnic minority backgrounds report being racially cyberbullied (Cassidy, Jackson and Brown, 2009[114]). In their review, Edwards and colleagues (2016[115]) report that ethnic minority youth tended to report lower levels of cybervictimisation. However, the research across different countries is mixed with some suggesting limited to no relationship (Hamm et al., 2015[116]). It might be pertinent to delve more deeply into how diverse student groups experience cyberbullying, in order to tailor and provide specialised support for these students who might be more at risk.

Personality factors and social and emotional skills can also be predictive of cyberbullying victimisation. For example, low self-esteem is consistently reported as a risk factor for victimisation (Bayraktar et al., 2014[117]; Álvarez-García et al., 2015[118]; Chen, Ho and Lwin, 2016[94]; Guo, 2016[101]; Baldry, Farrington and Sorrentino, 2015[31]). Although, while high self-esteem can be a protective factor for occasional cyberbullying, it might not buffer children from experiencing severe victimisation (Álvarez-García et al., 2015[118]). Social and emotional skills such as self-awareness, pro-social behaviour and responsible decision making have also been inversely correlated with cyberbullying victimisation in adolescence (Marín-López et al., 2020[119]; Busch et al., 2015[120]) and preadolescence (Rodríguez-Álvarez et al., 2021[121]). There is still a need for further research on the interplay between social and emotional skills and cyberbullying (Zych et al., 2017[122]).

Behavioural and socio-emotional factors

There are some behaviours that are associated with higher rates of cyberbullying victimisation. Frequent Internet use and use of social networking sites is correlated with cyberbullying victimisation, perpetration and witnessing (Park, Na and Kim, 2014[56]). The majority of research on frequency of Internet use and cyberbullying victimisation is cross-sectional, however some longitudinal work has helped begin to untangle directionality. For example, Cappadocia and colleagues (2013[123]), when controlling for gender and cyberbullying at first measurement point, found Internet use was not a predictor of cyberbullying victimisation over the one-year period studied. Further longitudinal work in Germany found cybervictimisation predicted frequency of media use, not the other way around (Müller et al., 2018[124]). In this sense, being cyberbullied was noted to be a longitudinal risk factor for more frequent media use (ibid.).

Well-being might also be predictive of victimisation. Internalising problems such as depression and anxiety are linked with an increased risk of being cyberbullied (Marciano, Schulz and Camerini, 2020[125]). Internalising problems can make children more vulnerable, which puts them at risk of becoming easier targets in the virtual environment. As will be discussed in Section 2.1.3, children and youth who are victims of cyberbullying may experience mental health issues as a consequence. Therefore, this could feed into a vicious circle whereby children and youth with existing conditions are more likely to be cyberbullied, which can further worsen their mental health (Kwan et al., 2020[7]).

Spending time in the digital environment might be associated with victimisation, although perhaps, more importantly, what children are doing on the Internet can affect the likelihood of being cyberbullied. In a sample of Italian adolescents, chatting in the digital environment, visiting adult sites and playing role-playing games were more frequently done by cybervictims than non-victims (Gini et al., 2019[126]). In general, risky use of digital technologies, ranging from sharing personal information and photos in the digital environment, to adding strangers as virtual friends, is associated with higher risk of cyberbullying victimisation (Chen, Ho and Lwin, 2016[94]; Kwan and Skoric, 2013[127]; Sasson and Mesch, 2016[128]). However, it is not only risky behaviour in the digital environment, but also "offline" factors like access to alcohol and drugs have been associated with increased victimisation (Choi et al., 2019[129]).

Box 2.1. Let's talk about sex(ting)

One risky digital behaviour that is garnering particular attention in research and policy circles is sexting, which refers to the sending or receiving of sexually explicit materials (messages, images or videos) through digital means (Barrense-Dias et al., 2017[130]; United Nations, 2019[131]). Sexting is a somewhat common practice among teens, and it becomes more common as they get older (Madigan et al., 2018[132]). A review of the literature on youth prevalence reported that rates were higher for receiving sexts than for sending in studies that measured both (the majority assessed sending) (Barrense-Dias et al., 2017[130]). Despite being common, the majority of teens are not engaging in this type of behaviour. In a sample of middle and high school students in the US, 13% had sent a sext while 18.5% had received one. Of those who had sexted, about one third had only done it once (Patchin and Hinduja, 2019[133]). Similar yet slightly higher prevalence rates were reported in a 2018 systematic review with a sending rate of 15% and receiving of 28% (Madigan et al., 2018[132]).

One of the most concerning aspects regarding sexting is the ability of sexts to be forwarded to others without consent. In a review, the prevalence of forwarding a sext without consent was 12%, while the prevalence of having one forwarded without consent was about 8% (Madigan et al., 2018[132]). Evidence suggests that girls face more pressure to send sexually explicit images of themselves than boys, and are also more likely to suffer harsher judgment when those images are shared with others beyond the initial recipient (Livingstone and Mason, 2015[134]). Therefore, there is a gendered risk element in sexting that can disproportionately affect girls. Young people might hold views on sexting reflecting heteronormative and stereotypical notions of sexuality (Burén, Holmqvist Gattario and Lunde, 2021[135]). For example, research from Canada suggests that youth, especially boys, who believe in traditional stereotypes (e.g. men should be more interested in sex than women) are more likely to non-consensually share sexts (Johnson et al., 2018[136]).

Sexting is associated with a number of risks, and can have legal repercussions if the subjects are underage. Some research suggests an association between sexting and cyberbullying victimisation (Van Ouytsel et al., 2019[137]; Reyns et al., 2011[138]; Milton et al., 2019[139]), however this is not a consistent finding (see e.g. (Alonso and Romero, 2019[140])) and more work is needed to better understand the relationship and directionality. Sending sexts has also been associated with cyberbullying others (Milton et al., 2019[139]), although as with victimisation, results vary across the literature (see e.g. (Ojeda, Del Rey and Hunter, 2019[141])).

Given that many young people are involved in or exposed to sexting, there may be a need for sexting education alongside traditional forms of safe sex education. Patchin and Hinduja (2020[142]) state a need for moving beyond an abstinence-only or fear based sexting education, to a model where students gain the knowledge they need in order to safely be intimate with others and explore their sexuality. They conceptualise safe sexting education as similar to safe sex education, as it would teach young people about the potential consequences of sexting and help them gain the tools to minimise potential harms if they do engage in this behaviour. Suggested themes to be conveyed to young people at developmentally appropriate ages include: ensuring you have consent before sending sexually explicit materials, ensuring trust among sexting partners and not sharing sexts with others (as this could constitute non-consensual sharing of pornography, which could have legal ramifications) (Patchin and Hinduja, 2020[142]).

Social and situational factors

Children's relationships have also been associated with cyberbullying. While strong parent-child relationships have been associated with lower victimisation (Elsaesser et al., 2017[143]; Doty et al., 2018[144]; Kim, Song and Jennings, 2016[145]), factors like loneliness has been associated with higher victimisation and lower subjective well-being (Heiman, Olenik-Shemesh and Liberman, 2017[146]).

Children with parents who implement Internet safety measures and keep up to date with their children's digital habits are less likely to be cyberbullied (Floros et al., 2013[98]), as are those who perceive higher family and peer support (Várnai et al., 2020[147]). Parental monitoring has been associated with decreased rates of online peer harassment, more so than parental Internet restriction (Khurana et al., 2014[148]). Monitoring involves cultivating an awareness of the child's Internet activities and habits through child self-disclosure and solicitation (Kerr, Stattin and Burk, 2010[149]). Parents who have a higher awareness of their child's activities in the digital environment are likely more involved in their children's lives and could contribute to reduced rates of online harassment through discouraging associating with peers who may be harmful (Khurana et al., 2014[148]). However, this relationship might be moderated by cultural factors, with different mediation or restriction approaches more effective dependent on culture (i.e. European versus East-Asian) (Shapka and Law, 2013[150]).

Other factors such as school safety, school climate and perceived support can act as protective factors against experiencing cyberbullying (Kowalski et al., 2014[26]), and schools that are characterised by effective leadership are more likely to see lower rates of victimisation and perpetration (Låftman, Östberg and Modin, 2017[151]). It could be assumed that stronger school leadership and management can foster higher clarity of school rules, promote positive relationships between students and teachers, and interventions against bullying/cyberbullying (Låftman, Östberg and Modin, 2017[151]). In a study in the UK, schools that were rated as outstanding quality saw lower levels of bullying and cyberbullying perpetration (Bevilacqua et al., 2017[100]). Alternatively, negative school

climate can be predictive of higher rates (Guo, 2016[101]), as are low levels of teacher support and a lack of clear rules around cyberbullying (Baldry, Farrington and Sorrentino, 2015[31]).

Friends and peers, and friendship quality can also affect victimisation. Poor peer relations (Hong et al., 2018[152]) and poor quality friendships (Guo, 2016[101])have also been associated with increased victiminsation. Conversely, peer attachment (Burton, Florell and Wygant, 2012[153]) and having more friends (Raskauskas and Stoltz, 2007[154]; Wang, Iannotti and Nansel, 2009[47]) are negatively associated with victiminsation.

2.1.2. Perpetration

There are a number of factors associated with cyberbullying perpetration, and as with other anti-social behaviours, there is not one single factor alone that can explain the behaviour. Some that contribute can be contextual, interpersonal, individual, social or community factors (Baldry, Farrington and Sorrentino, 2016[155]).

Personal and demographic factors

Factors such as gender and age have been associated with cyberbullying perpetration. HBSC data suggests that boys are more likely to cyberbully others than are girls (Inchley et al., 2020[76]). While this finding has been replicated in a number of studies (e.g. (Lee and Shin, 2017[95])), it is not consistent across the literature (e.g. (Moore, Huebner and Hills, 2011[156])) and some reports suggest sex differences are lower than for other forms of aggression such as physical aggression (Barlett and Coyne, 2014[157]).

Age might also be implicated in perpetration rates, with some research suggesting cyberbullies tend to be older rather than younger adolescents (Guo, 2016[101]). Some literature suggests that younger adolescents engage more frequently in positive digital behaviours such as posting positive messages on social media or fostering awareness of social issues (Charmaraman et al., 2022[158]). This kind of positive digital engagement tends to be associated with lower perpetration of harassment (Jones and Mitchell, 2016[159]; Charmaraman et al., 2022[158]). Age might also be a moderating factor for gender. For example, in their meta-analysis, Barlett and Coyne (2014[157]) suggest that girls are more likely to start cyberbullying at younger ages. One hypothesis regarding why this happens is because girls tend to mature earlier than boys do, and relational or indirect aggression takes a fair amount of understanding of social structures, which girls at younger ages are more likely to have than their male counterparts (Barlett and Coyne, 2014[157]).

Behavioural and socio-emotional factors

Offline misbehaviour and relational aggression[9] are factors that can be predictive of cyberbullying perpetration, and misbehaving in the digital environment (i.e. engaging in deviant behaviour such as illegal downloading or accessing pornography) is strongly correlated with misbehaving offline (Selwyn, 2008[160]). Children who engage in behaviours such as spreading rumours about others or excluding people from their group are more likely to cyberbully others (Hemphill et al., 2012[161]). Cyberbullying perpetration is also related to aggressive behaviour and violence, exposure to and justification of violence (Calvete et al., 2010[162]), school conduct problems (Marciano, Schulz and Camerini, 2020[125]), higher levels of drug and alcohol use (Kowalski et al., 2014[26]), and

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[9] Relational aggression, also called indirect aggression, consists of harming others through manipulating relationships (Björkqvist, 2001[356]) (Bjorkqvist, Lagerspetz and Kaukiainen, 1992[357]).

more frequent involvement in other anti-social behaviours such as theft, property damage and status offenses (Nasaescu et al., 2020[163]).

Cyberbullies might also have lower social competence and social and emotional skills than non-bullies (Romera et al., 2016[164]; Zych et al., 2018[165]), and low self-esteem (Lei et al., 2019[166]). They also may have lower perceived social support from friends (Calvete et al., 2010[162]). Alternatively, higher social competence and social and emotional skills are associated with decreased cyberbullying (Marín-López et al., 2020[119]; Eden, Heiman and Olenik-Shemesh, 2014[167]) Using interventions to improve social competence has been associated with decreased cyberbullying behaviours (Gradinger et al., 2016[168]).

Other socio-emotional factors are associated with perpetration, such as moral disengagement and empathy. Moral disengagement, defined as justifying immoral actions through the use of cognitive mechanisms to disconnect from moral standards (Bandura et al., 1996[169]), is also related to cyberbullying perpetration. In a meta-analytic review of 27 studies, the estimated correlation between moral disengagement and cyberbullying was higher than for traditional bullying. Furthermore, the relationship between moral disengagement and bullying behaviours was higher for adolescents than children (Gini, Pozzoli and Hymel, 2013[170]). Lack of moral emotions and values, even when controlling for traditional bullying, has also been correlated with cyberbullying behaviour (Perren and Gutzwiller-Helfenfinger, 2012[171]).

In their systematic review and meta-analysis, Zych and colleagues suggest that cyberbullies are likely to have lower affective and cognitive empathy[10] (2019[172]). Low empathy is associated with bullying and other anti-social behaviours (Zych, Ttofi and Farrington, 2016[173]; Farrington, Gaffney and Ttofi, 2017[174]). The relationship specifically between affective empathy and cyberbullying perpetration was smaller than what has been found for traditional bullying. The authors hypothesise that this may be the case as interactions in the virtual environment are inherently "emotionally colder", and empathising emotionally with victims via screen-mediated interactions who might be neither seen nor heard is more difficult (Zych et al., 2019[172]).

Digital citizenship has also been negatively correlated with cyberbullying perpetration (Cassidy, Faucher and Jackson, 2013[4]; Jones and Mitchell, 2016[159]). Being proactively respectful and supportive in the digital environment, and engagement in civic behaviours is negatively associated with digital harassment perpetration (Jones and Mitchell, 2016[159]). However, digital skills might facilitate cyberbullying behaviours to a certain extent. It can be assumed that in order to cyberbully others, a baseline level of digital proficiency is necessary. In a sample of Japanese students, digital skills were positively associated with cyberbullying behaviours, however this was mediated in part by netiquette for students in secondary and high school (not in elementary students however) (Kumazaki et al., 2011[175]). Normative beliefs about cyberbullying can also predict perpetration (Ang, 2015[176]). Children who believe that bullying is unacceptable, that victims are acceptable and that it is important to defend victims tend to report lower rates of cyberbullying perpetration (Christian Elledge et al., 2013[177]).

It is important to note that culture can mediate some of the aforementioned factors. For example, the negative association between self-esteem and cyberbullying was found to be stronger in Asian than in European or North American students (Lei et al., 2019[166]). Cultural differences can also be noted in terms of cybervictimisation (Guo, 2016[101]).

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[10] Cognitive empathy refers to understanding the emotions of others, whereas affective empathy refers to experiencing their emotional states (Davis, 1983[352]) (Jolliffe and Farrington, 2006[353]).

Social and situational factors

Personal factors are important in understanding perpetration, but there are also interpersonal factors and social factors that come into play. For example, parents and parent-child relationships can be important determinants of cyberbullying perpetration and strong parent-child relationships have been associated with lower rates of perpetration (Doty et al., 2018[144]; Elsaesser et al., 2017[143]). Parental influence of pro-social values and quality time spent with their children are negatively related to misbehaviour in the digital environment, and being able to communicate regularly and openly with parents is negatively correlated with cyberbullying (Park, Na and Kim, 2014[56]), as is strong family support (Fanti, Demetriou and Hawa, 2012[178]; Wang, Iannotti and Nansel, 2009[47]).

Parental attitudes and behaviours regarding the digital environment are also influential for children. Positive attitudes of parents towards technology, parents' Internet use and education from parents have all been associated with children's positive engagement with digital tools (Ey and Glenn Cupit, 2011[179]). Rules and monitoring of children's digital activities are also related to perpetration. On the one hand parental monitoring and clear rule-setting is protective for teens' social media and is inversely related to cyberbullying (Kowalski et al., 2014[26]), while on the other hand lack of monitoring increases the likelihood that a student will cyberbully others. Having clear rules around the Internet at home is negatively correlated with being a cyberbully (Rice et al., 2015[99]) although these effects are not consistent across the literature, with some studies reporting only a weak link (in (Kowalski, Limber and McCord, 2019[5])).

Peers are also important actors in influencing cyberbullying perpetration. As children grow older, peer relationships become more important (Burns and Gottschalk, 2019[1]), and social bonding with other pro-social individuals can increase the likelihood of engaging in moral behaviours (Park, Na and Kim, 2014[56]). Some research suggests that being at either end of the popularity spectrum is associated with cyberbullying perpetration. This is to say that it might be the least popular and the most popular young people who are more likely to cyberbully others than their peers in the middle of the spectrum (Wright, 2013[180]). Peers can also reinforce cyberbullying behaviours by encouraging others to engage in it, not intervening in cyberbullying situations, or by "liking" or engaging with anti-social posts (Espelage, Rao and Craven, 2012[181]). The role of cyberbystanders is elaborated upon in the following section.

Situational variables have also been related to cyberbullying behaviours, such as school climate. Characteristics such as fairness, respect, sense of safety at school and kindness from staff are inversely linked to cyberbullying perpetration (Kowalski et al., 2014[26]). Commitment to school is also related to cyberbullying perpetration; those with lower commitment are more likely to bully others (Baldry, Farrington and Sorrentino, 2015[31]), while those with higher commitment are less likely (Chen, Ho and Lwin, 2016[94]). Collective attitudes within classrooms such as that bullying is unacceptable can also influence lower rates of cyberbullying perpetration (Christian Elledge et al., 2013[177]). This suggests that classroom norms can affect behaviours of students that happen even outside of the classroom, where the majority of cyberbullying is likely to occur (ibid). Low levels of bonding with teachers is also associated with a higher risk of perpetration (Pabian and Vandebosch, 2015[182]) .

Box 2.2. Cyberbully-victims

Cyberbully and cybervictim are not mutually exclusive categories. Those who are targeted as cybervictims but also engage in cyberbullying behaviours against others can be classified as cyberbully victims (Lam, Cheng and Liu, 2013[183]; Selkie et al., 2015[184]). Prevalence estimates of cyberbully victims range from around 3% (Renati, Berrone and Zanetti, 2012[185]) to about 24% (Twardowska-Staszek, Zych and Ortega-Ruiz, 2018[83]).

One key risk factor for becoming a cyberbully-victim is having been a cybervictim in the past (Hood and Duffy, 2018[186]; Kowalski et al., 2014[187]). Some results suggest that being a cyberbully-victim is associated with increased aggression, and depressive and somatic symptoms (Gradinger, Strohmeier and Spiel, 2009[188]; Beckman, Hagquist and Hellström, 2012[189]), and that mental health outcomes might be poorer for cyberbully-victims than for cybervictims (Gámez-Guadix et al., 2013[190]).

2.1.3. The importance of cyberbystanders

Cyberbystanders are a heterogeneous group in terms of both personal characteristics and behaviours (Polanco-Levicán and Salvo-Garrido, 2021[15]). The majority of cyberbystanders do not intervene when they witness a cyberbullying event, (Allison and Bussey, 2017[14]), and some research suggests more negative bystander behaviour in digital than offline environments (Barlińska, Szuster and Winiewski, 2012[191]). However, some cyberbystanders will defend victims by comforting them or sticking up to the cyberbully (Moxey and Bussey, 2019[17]), while others will reinforce the behaviours of the cyberbully (Sarmiento, Herrera-López and Zych, 2019[16]). Comforting the victim is seen as a more feasible approach than confronting the cyberbully (Desmet et al., 2012[192]).

A number of personal factors will affect the role bystanders take in a cyberbullying event. The literature suggests that factors such as empathy, social self-efficacy and good relationships with the victims will increase the likelihood of a cyberbystander providing support to a victim (Macháčková, Dedkova and Mezulanikova, 2015[193]; Barlińska, Szuster and Winiewski, 2012[191]; DeSmet et al., 2014[194]). Being friends with the victim increases the likelihood of intervening directly or indirectly to support the victim (Domínguez-Hernández, Bonell and Martínez-González, 2018[195]), whereas having a strong relationship with the cyberbully will likely inhibit supportive bystander behaviours (Macháčková et al., 2012[196]). Gender might also play a role, with girls having higher behaviour intentions of supporting or defending the victim, or reporting the incident (Bastiaensens et al., 2014[197]; Allison and Bussey, 2017[14]). Younger students might also be more likely to intervene, as well as those who have experienced being cybervictimised (Allison and Bussey, 2017[14]).

The number of bystanders might affect individuals' willingness to step in and help a victim. For example, Obermaier et al. (2016[198]) found that witnesses to a cyberbullying event reported feeling less responsibility to come to the aid of someone when there were more bystanders present. Similar results were reported by Macháčková and colleagues (2015[193]). When an individual was a sole witness to an event, they tended to be more supportive than when there were more witnesses. Furthermore, bystanders might be more inclined to help when they witness a severe cyberbullying incident than something they perceive to be less severe (Bastiaensens et al., 2014[197]). This could be because there is a lower risk for negative social evaluation with a higher potential opportunity for social reward if they were to intervene in a more serious incident.

2.2. Potential consequences of cyberbullying

2.2.1. Risk versus harm

Experiencing cyberbullying can result in varying levels of harm for children, and not all cases of cyberbullying necessarily have harmful or negative consequences (e.g. (Ortega et al., 2012[199])). This depends on a number of different factors, and there is evidence that factors such as age, gender, socio-economic status, self-efficacy and psychological difficulties affect how children experience harm (Vandoninck, d'Haenens and Roe, 2013[200]). Girls, children from lower socio-economic backgrounds, those with low self-efficacy and with psychological difficulties tend to be more upset when experiencing cyberbullying (Vandoninck, d'Haenens and Roe, 2013[200]). Adverse psychological adjustment and an increased risk of mental health issues are more heavily associated with girls who have been cyberbullied than boys (Extremera et al., 2018[201]; Zych, Ortega-Ruiz and Del Rey, 2015[202]; Bannink et al., 2014[203]). Children who are experiencing big changes, such as transitioning to high school for example, might also be more vulnerable to the effects of cyberbullying or may be at higher risk of being victims (Williams et al., 2017[204]).

There might also be a dose-response effect related to cyberbullying, as there is for victims of traditional bullying. This means that the more a child is victimised, the more likely they are to experience negative outcomes and harm (Pieschl, Kuhlmann and Porsch, 2014[205]; Carney, 2008[206]). The dose-response effect might also be relevant for children who experience both traditional and cyberbullying. For example, in a study by Cross and colleagues (2015[75]) children who experienced both forms of bullying were more likely to deliberately stay away from school than those who only experienced traditional bullying. Mitchell and colleagues (2016[207]) had similar findings when studying peer harassment[11], in that children who reported both in-person and digital incidents reported higher harm. Although the research paints a more complicated picture regarding experiencing cyberbullying compared to traditional bullying and the ensuing subjective harm. Some research suggests that more children report feeling very upset after an episode of cyberbullying than after an episode of traditional bullying, however at the opposite end of the spectrum more people report not feeling upset when cyberbullied in comparison to those experiencing traditional bullying (Garmendia Larrañaga, Jiménez Iglesias and Larrañaga Aizpuru, 2019[208]). In terms of interventions these findings are important because bullying only in virtual settings does not necessarily amplify the harms of bullying to young people, and these mixed experiences of in-person and digital victimisation should be targeted by policy interventions (Mitchell et al., 2016[207]).

The ways in which cyberbullying is perpetrated and experienced can also influence how it harms children. For example, public incidents are perceived as more distressing than those that are semi-public or private (Pieschl, Kuhlmann and Porsch, 2014[205]; Ševčíková, Šmahel and Otavová, 2012[209]; Pieschl, Kuhlmann and Porsch, 2014[205]). Cyberbullying incidents involving images or video might also be more distressing, as targets can be identified and the potential audience might be bigger (Slonje and Smith, 2008[46]; Pieschl, Kuhlmann and Porsch, 2014[205]). The perceived severity of cyberbullying incidents, referring to how bothered and hurt children felt, and how it impacts their feelings of safety at school and ability to learn, is linked to more detrimental outcomes than for children who perceive the events to be less severe (Hinduja and Patchin, 2018[210]).

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[11] Peer harassment in this case refers to bullying but also other types of interpersonal aggression that do not necessarily meet the standard definition of bullying (Mitchell et al., 2016[207]).

Box 2.3. The not-so-negative side of risk

Spending time in the digital environment can allow children to explore the numerous opportunities that digital tools facilitate, however it is also associated with exposure to risks. It is important to underscore that not all digital risks result in harm (Livingstone and Smith, 2014[211]), and whether outcomes of activities in the digital environment are beneficial or harmful often depend on the context of a child (Livingstone, 2011[212]). Children who are vulnerable offline are more likely to be vulnerable in the digital environment, and are more likely to report harm resulting from exposure to digital risks (Kardefelt-Winther, 2017[213]; UNICEF, 2017[214]).

Traditionally, much more research and media exposure has focused on risks associated with digital technologies rather than opportunities. This attention can cast a negative shadow over children's engagement with digital tools, and runs the risk of overstating the potential for harm while undermining the benefits. Conceptualising risk purely in a negative sense might also be counter-productive, as experiencing risks can help children and young people explore and learn about personal boundaries and behaviours. Exposure to risk can furthermore help children develop resilience (Green et al., 2020[215]). Children who are digitally resilient will be able to react appropriately and adjust positively when they face risks, potentially minimising associated harms (Burns and Gottschalk, 2019[1]).

Characteristics of the bullies themselves can also affect how their victims are harmed. For example, being cyberbullied by more popular children could be more distressing than being bullied by less popular children (Pieschl et al., 2013[216]; Pieschl, Kuhlmann and Porsch, 2014[205]). This could signify that power imbalance in terms of popularity or social status might have an important role in cyberbullying victimisation, harm and potential reach. Anonymous instances of cyberbullying might also be more distressing than when the perpetrator is known to the victim (Sticca and Perren, 2012[29]). This can also play into the power dynamic when the identity of the victim is known to the cyberbully, but the identity of the cyberbully is not known to the victim.

2.2.2. Potential outcomes

Being the victim of cyberbullying is associated with a number of outcomes, and online peer victimisation more broadly is associated with both internalising and externalising problems (Fisher, Gardella and Teurbe-Tolon, 2016[66]). Research suggests that being cyberbullied is negatively associated with mental well-being, although the magnitude varies by country (Tsitsika et al., 2015[217]). In terms of specific conditions, cyberbullying is associated with depression (Landstedt and Persson, 2014[218]; Hu et al., 2021[219]), stress (Kowalski et al., 2014[26]), anxiety and sleep disorders (Swearer and Hymel, 2015[220]). Being the victim of cyberbullying has also been correlated with worse subjective health (Låftman, Modin and Östberg, 2013[221]) and somatic complaints, (Rey, Neto and Extremera, 2020[222]). Cyberbullying has also been associated with lower levels of with life satisfaction (Moore, Huebner and Hills, 2011[156]; Varela et al., 2018[223]; Ramos Salazar, 2017[224]; Oriol, Varela and Miranda, 2021[225]), is related to lower self-esteem (Extremera et al., 2018[201]; Tsaousis, 2016[226]), and victims might report feeling less support from their communities which could potentially compound the association with life satisfaction (Varela et al., 2018[223]).

Some longitudinal studies have found that victimisation is a risk factor for and predicts increased levels of anxiety (Fahy et al., 2016[227]) and depressive symptoms (Machmutow

et al., 2012[228]; Gámez-Guadix et al., 2013[190]; Fahy et al., 2016[227]; Hemphill, Kotevski and Heerde, 2015[229]; Landoll et al., 2015[230]), while higher depressive symptoms (and substance use) has also predicted future cyberbullying victimisation (Gámez-Guadix et al., 2013[190]). Other longitudinal work has reported cyberbullying as being predictive of later somatic symptoms, especially when children use maladaptive regulation strategies such as self-blame and rumination (Rey, Neto and Extremera, 2020[222]). In a meta-analysis that grouped cyberbullying with bullying experiences more broadly, experiencing bullying increased the likelihood of adverse mental health outcomes. The authors further suggest there is "convincing evidence" for a causal relationship between bullying and these adverse outcomes, ranging from anxiety to self-harm and suicide ideation/attempts (Moore et al., 2017[231]).

Children who experienced cyber or traditional bullying are more likely to have suicidal thoughts or attempt suicide than those who did not have these experiences (Hinduja and Patchin, 2010[232]). Death by suicide, especially when the victim was cyberbullied, has gained much attention in the media in recent years. This is in part due to a number of high-profile suicide cases in some OECD countries in which there was a reported link with cyberbullying (and also traditional bullying) victimisation (Burns and Gottschalk, 2019[1]). As of 2019 suicide was the fourth leading cause of death among 15-19 year olds (World Health Organization, 2021[233]), and it is important to untangle whether there are direct links with cyberbullying. Research suggests that suicide is not the most prevalent type of impact on cyberbullying victims, nor the most likely (Cassidy, Faucher and Jackson, 2013[4]). However there is an association between suicide risk and cyberbullying victimisation (van Geel, Vedder and Tanilon, 2014[234]; Extremera et al., 2018[201]), and with victimisation and suicidal ideation (Hinduja and Patchin, 2010[232]; Medrano, Lopez Rosales and Gámez-Guadix, 2017[235]; Kowalski et al., 2014[26]). This is likely mediated by depressive symptomology (Bauman, Toomey and Walker, 2013[236]), and there are contradicting findings regarding whether cyberbullying or traditional bullying is more strongly associated with suicidal ideation (Hay and Meldrum, 2010[237]; Hinduja and Patchin, 2010[232]; Hinduja and Patchin, 2018[210]; Bannink et al., 2014[203]). There is still no direct causal link between cyberbullying and suicide (Hinduja and Patchin, 2018[210]), and the factors that lead to youth suicide are varied and complex, dependent on many contextual and situational factors (Rodway et al., 2016[238]).

> ### Box 2.4. Outcomes for bullies
>
> Much of the research on cyberbullying focuses on the associated outcomes for children who are bullied. But what about the bullies themselves? Although the research in this area is scarcer than for the victims of cyberbullying, some evidence suggests that cyberbullying others is related to adverse mental health outcomes including higher levels of depressive symptoms (Bonanno and Hymel, 2013[239]; Campbell et al., 2012[240]), symptoms of anxiety (Campbell et al., 2012[240]; Coelho and Romão, 2018[241]) and conduct problems (Fletcher et al., 2014[242]). A meta-analysis of longitudinal studies suggests that perpetration may cause externalising issues over time (Marciano, Schulz and Camerini, 2020[125]). The results on adverse mental health outcomes are not consistent across the literature, with some research finding no evidence linking perpetration to lower levels of mental well-being (Fahy et al., 2016[227]; Fletcher et al., 2014[242]).
>
> Research also suggests that children who are on both the giving and receiving ends of cyberbullying (cyberbully victims) are also at risk of adverse mental health outcomes (Moore et al., 2014[243]), including symptoms of depression, anxiety and low subjective well-being (Gámez-Guadix et al., 2013[190]; Fahy et al., 2016[227]; Kowalski et al., 2014[26]). Social support from families and teachers can mediate the negative outcomes associated with being a cyberbully-victim (Hellfeldt, López-Romero and Andershed, 2019[244]).
>
> As with traditional bullying, cyberbullying can affect the social status of the perpetrators. Despite the potential negative outcomes explained above, cyberbullying can actually increase perceived popularity among peers (Wegge et al., 2014[245]).

The relation to academic outcomes is also not clear and consistent across the literature. When measuring traditional bullying (not including cyberbullying) across OECD countries, low performers in PISA 2018 tended to report greater exposure than their higher performing peers (OECD, 2019[45]). Specifically regarding cyberbullying, in their critical review and meta-analysis, Kowalski and colleagues (2014[26]) reported a non-significant relationship between victimisation and academic achievement. Some more recent research suggests a relationship between both victimisation and perpetration and school absenteeism, academic performance and achievement (Wright, 2015[246]; Gardella, Fisher and Teurbe-Tolon, 2017[247]), and school behavioural problems (Wright, 2015[246]). There is also a negative relationship between cyberbullying and school satisfaction (Oriol, Varela and Miranda, 2021[225]).

As mentioned above, experiencing repeated cyberbullying, or cyberbullying in addition to traditional bullying, might have more severe implications for mental health and well-being. Some evidence suggests that cyberbullying can have an additive effect over the effects of being traditionally bullied, whereas others report findings that are either non-significant or mixed (Olweus and Limber, 2018[63]). In a sample of adolescents in England, Przybylski and Bowes (2017[248]) conclude that those who were victims of both traditional and cyberbullying within the last couple of months reported the lowest mental well-being scores in the sample.

The variance accounted for by cyberbullying (in terms of negative outcomes) over and above traditional bullying might only be between 1 and 4% depending on which outcome variable is being measured (Giumetti and Kowalski, 2015[249]). However, more research is

needed on the consequences of cyberbullying on children's well-being as less is currently known than regarding traditional bullying (Pham and Adesman, 2015[250]).

2.3. Protective factors and coping

The research on protective factors and coping in comparison to risk factors for cyberbullying is underdeveloped. The bulk of the research thus far has focused on risk factors (Kowalski, Limber and McCord, 2019[5]), therefore delving deeper into potential protective factors and understanding how policy and practice can support coping and resilience in children will be imperative moving forward. Kowalski and colleagues (2019[5]) also conclude that researchers should be careful not to assume that the opposite of a risk factor is a coping factor when it comes to cyberbullying victimisation or perpetration. The following sections outline some personal and relational factors associated with better coping and outcomes.

2.3.1. Personal factors

There are protective factors that can help children cope with being cyberbullied, buffering potential harms. While personal characteristics are associated with who is cyberbullied, and who does the bullying, they can also affect the coping strategies that children employ in the face of digital risks. Personal factors such as self-efficacy have been proposed as a mediator of well-being for cybervictims (Schunk, Zeh and Trommsdorff, 2022[91]). Self-efficacy affects one's vulnerability to psychological or emotional distress (Singh and Bussey, 2010[251]), therefore self-efficacy in managing negative emotions might be an important way of coping with cyberbullying (Schunk, Zeh and Trommsdorff, 2022[91]). Another potential protective factor for children against experiencing harms linked to cyberbullying is emotional intelligence (Chen, Ho and Lwin, 2016[94]).

2.3.2. Skills and competences

Digital skills are also associated with better coping behaviours. Children who are more digitally literate are more likely to block senders and delete messages when they experience cyberbullying. Alternatively, those with fewer digital skills are less able to cope when cyberbullied, and tend to be more upset (Vandoninck, d'Haenens and Roe, 2013[200]). According to a literature review by Haddon and colleagues (2020[252]) looking at digital skills, the association between skills and harm can differ based on the type of risk the child experiences as well as the personal characteristics of the child.

2.3.3. Relationships

Relationships are also key factors in mitigating the effects of cyberbullying on children, and there is no doubt in the literature that "good relationships are good for people" (Finkenauer et al., 2019[253]). Peer, teacher and family relationships are all relevant here. Peer support is important not only in the sense that it is a protective factor against victimisation, but it can also moderate the relationship between being cyberbullied and somatic health complaints (i.e. headache, and stomach ache) (Fridh, Lindström and Rosvall, 2015[254]). Social support in general can buffer the relationship between cyberbvictimisation and mental health concerns like depression (Wright, 2017[255]). Support from cyberbystanders can also buffer against the potential negative impacts of being cyberbullied (Dredge, Gleeson and de la Piedad Garcia, 2014[256]; DeSmet et al., 2019[257]).

The school and school environment can also play an important buffering role. For example, feeling connected to school, which can encompass perceptions of being respected and

accepted, being treated fairly at school, and having trusting relationships, can moderate the relationship between being cyberbullied and exhibiting suicidal behaviour (Kim et al., 2019[258]).

Parents are also important sources of support for children, and factors such as parental warmth can be protective against victimisation (Elsaesser et al., 2017[143]), and like with peer support, positive parental relationships can buffer the relationship between being bullied and outcomes such as somatic complaints (Fridh, Lindström and Rosvall, 2015[254]). Perceived social support from family and teachers might also reduce the probability of depressive or anxiety symptoms in cyberbullied youth (Hellfeldt, López-Romero and Andershed, 2019[244]). Seeking support from friends and family can also protect against depressive symptoms (Machmutow et al., 2012[228]).

Spending quality time as a family can also be protective for children experiencing cyberbullying, and one way in which families spend time together is at the dinner table. Having dinner together as a family is associated with higher child and adolescent well-being (Musick and Meier, 2012[259]), particularly when family relationships are strong (Meier and Musick, 2014[260]). Frequently having dinner as a family moderates the relationship between cyberbullying, internalising, externalising and substance use problems in young people (Elgar et al., 2014[109]). Family dinners provide an opportunity for families to spend time together, facilitating parental guidance and open communication, and can be used as a proxy for other factors that are supportive for young people's health and well-being, and mitigation of stressful situations like cyberbullying (Elgar et al., 2014[109]).

2.4. Research limitations: Definitions, methodology and study design

As can be seen in the literature presented in the previous sections, estimates of cyberbullying prevalence vary by a large degree across studies and samples. It is also difficult to estimate the true consequences of cyberbullying. Current limitations of the research base include study methodology and design, and the lack of consensus across the literature regarding a common definition of cyberbullying. Despite these limitations, much progress has been made in the field in recent years and there are many promising research-based interventions that target cyberbullying (as outlined in Section 3.2.5).

As noted previously, prevalence rates vary significantly across studies. This can arise from methodological differences and different measurement factors (Modecki et al., 2014[37]; David-Ferdon and Hertz, 2007[261]). Studies may use different lengths of reference or recall periods (such as 12 months, previous school semester or lifetime prevalence), which make comparison across the research difficult if not impossible. If reporting on lifetime prevalence, rates will be higher than if reporting on a bounded time period (Jadambaa et al., 2019[38]), and if reporting on a longer time period prevalence might be underestimated (Cook, Williams and al., 2009[262]). Studies might use different metrics in terms of the threshold used to classify a respondent as having been cyberbullied (Olweus, 2016[263]), which can sometimes also depend on frequency of cyberbullying incidents over a particular time period (Jadambaa et al., 2019[38]).

Other measurement features, such as terminology used, can affect measured prevalence. For example, when researchers use the word "bully" students might under-report their perpetration or victimisation, whereas more ambiguous terminology such as "teasing" may result in higher prevalence (Modecki et al., 2014[37]). Kowalski and colleagues (2014[26]) also point out that participants who are asked if they have been cyberbullied answer differently than if asked if they have been bullied via different applications or in specific digital spaces. The lack of consensus on terminology across the literature means there are

different terms to describe very similar behaviours such as cyberbullying, online harassment or electronic bullying (Selkie, Fales and Moreno, 2016[51]). The instruments themselves used to measure cyberbullying may also lack validity and reliability (Berne et al., 2013[264]). Some studies use a single item to ask respondents if they have been cyberbullied, whereas others use multiple items which tends to result in higher validity (Ansary, 2020[265]).

Children themselves might also hold inconsistent understandings of bullying and cyberbullying, therefore discrepancies in research could be affected by this as well. Adolescents may consider the term to be vague, restricted and/or inadequate (Grigg, 2010[266]), and prefer to refer to online aggressions using different terms. Factors such as student age may also influence perceptions of bullying, and these perceptions may also differ from those of others such as parents and teachers (Kofoed and Staksrud, 2018[267]). The ways in which cyberbullying parameters are concluded may be inconsistent with the beliefs held by children. For example, in a sample in England and Wales (UK), 52% of children who reported experiencing bullying behaviour or an incident in the digital environment would not describe their experiences as bullying (Office for National Statistics, 2020[268]). This underscores the need for children to have a seat at the table when deciding which behaviours constitute cyberbullying, and how cases should be diagnosed and reported.

Furthermore, the majority of research relies on self-report (Thomas, Connor and Scott, 2014[269]), which is subject to biases such as social desirability bias (i.e. the tendency to under-report socially undesirable behaviours, therefore children may misreport victimisation or perpetration tendencies). However, in this field of research self-report can provide more reliable information than relying on teacher, parent or peer reports, as these actors may not be aware of all cyberbullying incidents and it could reflect power imbalance (Furlong et al., 2010[270]; Sekol and Farrington, 2011[271]). Victims of cyberbullying might not share their experiences to themselves, or tell friends, therefore adults might not be aware of the scope of the problem (Slonje and Smith, 2008[46]). Additionally, adolescents and children with lower levels of mental well-being might be more likely to perceive or report when they experience cyberbullying (Przybylski and Bowes, 2017[248]), further compounding potential self-report bias.

Study design also may impact the potential conclusions. The majority of cyberbullying and bullying research is cross-sectional, with few prospective studies to date (Moore et al., 2017[231]). Using convenience rather than random samples can also play a role in predicting prevalence. According to Modecki and colleagues (2014[37]) in their meta-analysis the use of convenience samples led to higher reported prevalence than the use of random samples. The research base is also limited to performing mainly observational studies, not experimental (Moore et al., 2017[231]), however the use of randomised controlled trials to pilot interventions and assess effectiveness is promising.

Isolating the effects cyberbullying has on children can also be difficult to do because of the close correlation between being cyberbullied and being traditionally bullied. Some estimates suggest that up to 10% of children are only cyberbullied, meaning that the rest of the 90% who are cyberbullied also experience traditional forms of bullying (Olweus and Limber, 2018[63]). Furthermore, studies with non-significant findings are less likely to be published, which could lead to overestimation of the effects and outcomes associated with cyberbullying (Moore et al., 2017[231]). Despite these limitations, much progress has been made in the field, especially in recent years. Addressing some of these challenges, especially pertaining to a common definition, will further strengthen the knowledge base.

3. Cyberbullying policies and practices

3.1. National perspectives on cyberbullying: 21st Century Children Questionnaire

Due to the complexity of cyberbullying and other associated digital risks, as well as differences in how these issues are conceptualised and defined in different contexts, policies and practices to tackle this challenge vary widely across systems. Some initiatives specifically target cyberbullying, while some target cyberbullying as a component of more general anti-bullying initiatives.

The following section will give an overview of some of the literature regarding effective measures and programme development, and explore some of the different policy approaches OECD countries take to address cyberbullying. It finishes with "the pending agenda", with suggestions of how research should move forward and address evidence gaps, and identifying potential ways forward for education systems in terms of policy development based on the best available evidence.

3.2. Exploring policies and practices in OECD countries

Education systems take a number of approaches to target cyberbullying. These approaches vary in the extent to which education systems are a main player in the development and implementation. Often they require coordination across different actors, and different parts of government. A few main approaches have been identified across systems, as outlined in Table 3.1.

Table 3.1. Cyberbullying policies and practices in OECD countries

Target	Examples of measures
Awareness raising	Campaigns and websites to inform stakeholders (parents, teachers, children) about cyberbullying
Reporting mechanisms	Including helplines, hotlines and digital reporting mechanisms for parents, teachers or children to report cyberbullying and request assistance
Policies and laws	Policy or legal frameworks to address cyberbullying; policy approaches can include action plans or frameworks to be adopted by schools or districts; legal responses can be specific to cyberbullying or can address cyberbullying through existing laws such as harassment, defamation or copyright
Internet safety support	Specific agencies or centres in many systems tasked with promoting digital safety and/or digital literacy; often also provide resources for schools or teachers to teach students about digital risks like cyberbullying
Cyberbullying interventions	Interventions usually implemented in schools, often focusing on skill building and promoting positive peer relationships; Some interventions developed specifically for cyberbullying, although evidence suggests that anti-bullying interventions may also be effective in reducing cyberbullying

School-based programmes are also an important method of cyberbullying reduction and prevention. However these tend to be less systematically rolled out across education systems, and particular programmes are often only tested and implemented on a more local level.

3.2.1. Information is power: Raising awareness about cyberbullying

Many systems provide dedicated resources about cyberbullying to parents, schools and students so they can better understand the issue and how to access available resources or additional support measures as needed. In some systems, dedicated websites or information hubs are available to search for resources about cyberbullying. For example, stopbullying.gov is a website managed by the US Department of Health and Human Services with dedicated resources about cyberbullying. Content is provided by different

partners, including from the Department of Education, Centres for Disease Control and Prevention and the Department of Justice.

Awareness raising is also done through media campaigns such as the #endcyberbullying campaign developed in Queensland (Australia), or the *Non au harcèlement* (no to bullying) campaign in France. Some systems also dedicate a specific day or specific time to raising awareness about cyberbullying, or bullying more generally. For example, a national day against cyberbullying can be found in Australia, and in Greece, there is a thematic week dedicated to bullying and cyberbullying awareness, which includes the implementation of awareness-raising activities in schools (Burns and Gottschalk, 2019[1]). Member states of the United Nations Educational, Scientific and Cultural Organization (UNESCO) also have declared the first Thursday of November to be the "International Day against Violence and Bullying at School Including Cyberbullying". The 2021 theme was "Tackling cyberbullying and other forms of online violence involving children and young people" (UNESCO, n.d.[272]). Safer Internet Day is a European initiative to promote a safer digital environment for everyone, especially for young people.

In some systems, bullying and cyberbullying awareness is organised by associations or charitable groups. For example, Anti-Bullying Week in the UK is hosted by the Anti-Bullying Alliance, which is a coalition of individuals and organisations dedicated to stopping bullying and creating safer environments for children.

3.2.2. Supporting children and reporting cyberbullying

In a number of systems, reporting mechanisms exist for children, parents or teachers to report cyberbullying. These reporting mechanisms can consist of digital reporting forms, or can exist as helplines or hotlines that are generally toll-free. In the French-Speaking Community of Belgium, France and Latvia, dedicated phone numbers exist for individuals to request support when experiencing cyberbullying (Burns and Gottschalk, 2019[1]). In the French-Speaking Community of Belgium, separate numbers exist for teachers and parents to discuss cases of cyberbullying. The line for parents can offer support regarding different forms of follow-up and processes available, such as psychological, legal or administrative processes (Burns and Gottschalk, 2019[1]). In France, the association e-Enfance operates the national phone number for children to report violence in the digital environment including cyberbullying. It is anonymous, free and confidential, consisting of only four numbers to dial so is easily accessible. *Net Ecoute* was the previous helpline in France for children in need of assistance due to digital violence (Burns and Gottschalk, 2019[1]).

Some systems also employ digital reporting mechanisms, where children, parents or teachers can fill in a digital form to report serious cases of cyberbullying. For example, in Australia, the office of the e-Safety Commissioner runs a reporting scheme for cases of cyberbullying. Complainants can fill in a digital form, and depending on the complaint different courses of action can be taken. Access to support services may be available to assist minors in blocking, reporting or deleting offending materials, and if there is a serious safety threat to the complainant or others then the office can contact the child's parents or schools to find a more appropriate action plan (eSafety Commissioner, n.d.[273]).

3.2.3. Policies and laws targeting cyberbullying

Policies

Governments around the OECD have adopted different frameworks, action plans or policies for schools and education systems to target bullying and cyberbullying. In Australia, the School Wellbeing Framework support schools in building inclusive and

positive environments, and advocates for visible leadership in schools, partnerships with families and positive behaviours to reduce problem behaviours such as cyberbullying (Burns and Gottschalk, 2019[1]).

Ireland and the province of Saskatchewan (Canada) have action plans to address bullying and cyberbullying. In Ireland the 2013 Action Plan on Bullying includes cyberbullying as an explicit form of bullying. Anti-Bullying Procedures for Primary and Post-Primary Schools were subsequently developed, and give direction and guidance to schools in preventing and tackling school-based bullying. The Saskatchewan Action Plan to Address Bullying and Cyberbullying was released in November 2013. Following this release, Digital Citizenship Education in Saskatchewan Schools was created, as the promotion of this competence is seen as a key area in addressing cyberbullying (Burns and Gottschalk, 2019[1]).

In the US, policies outlining requirements for schools to address bullying and cyberbullying are established state by state. For example, in California, school district policies must have: a statement that prohibits bullying (including cyberbullying); procedures for investigations and reporting (including timelines); publications of anti-bullying laws; resources available to support at-risk students such as those who identify as LGBTQI+; protections in place for complainants from retaliation; and identification of a district officer who is responsible for ensuring compliance of the district the requirements as they are set out by the law (StopBullying, 2021[274]). The majority of states have both anti-bullying policies and laws, although some have laws only.

Laws

Cyberbullying laws often, to some extent, operate in a silo, and governments have difficulty in enforcing or regulating social media and other digital platforms (OECD, 2020[275]). Some systems have specific laws criminalising cyberbullying, such as Austria and Italy (OECD, 2020[275]). In some systems, laws dictate what schools need to do regarding bullying and cyberbullying. For example, schools in Sweden are required by law to work against bullying. Although, not all anti-bullying measures are equally successful or ambitious (Låftman, Östberg and Modin, 2017[151]). In the Netherlands, schools are required by law to have a safety plan which indicates at least one person in the school community to whom parents and children can report cases of bullying, including cyberbullying, and who coordinates the school-based policies (Burns and Gottschalk, 2019[1]). In the United States, forty-nine states have authorised laws that require schools to deal with bullying, including cyberbullying. Many states also impose criminal sanctions or school sanctions for cyberbullying, although what is actually mandated varies a lot across states (OECD, 2020[275]).

Many countries have laws against harassment, although these do not specifically mention conduct in the digital environment. Or cyberbullying can constitute a crime under existing legislation in other domains. For example in the UK certain cases of cyberbullying can be considered a crime under pieces of legislation such as: Protection from Harassment Act 1997, Malicious Communications Act 1988, the Obscene Publications Act 1959, the Public Order Act 1986 and the Computer Misuse 1990 (OECD, 2020[275]). In some countries such as Luxembourg and Norway, misuse or sharing of an image without consent can result in falling foul of copyright laws (OECD, 2020[275]). In Canada, cyberbullying can be addressed under either civil or criminal law (MediaSmarts, n.d.[276]). For example, if a cyberbully causes harm to someone's reputation by spreading false information, this could be considered defamation under civil law. Cyberbullies could also be guilty of creating an unsafe environment if they make their victims feel like that cannot go to school without facing violence, exclusion or teasing. As schools are responsible for creating a safe

environment, a student's behaviour in the digital environment could be punished if other students feel unsafe. Under criminal law, depending on the acts committed, cyberbullies could be charged with offenses such as harassment, defamatory libel or publishing intimate images without consent (MediaSmarts, n.d.[276]).

Some governments are also targeting social media companies directly with policy or legislation, with direct oversight and liability. For example, in 2018 Germany introduced the Act to Improve Enforcement of the Law in Social Networks (Network Enforcement Act) also known as NetzDG, which compels social media companies to remove defamatory content or insults (Ronchi and Robinson, 2019[277]; Bearbeitungsstand, 2017[278]).

3.2.4. (sub)National centres for Internet safety and digital skills

Many OECD countries have national or subnational agencies that are responsible for working with other actors, including education systems, to promote Internet safety and digital skills. The remit of these agencies or centres varies, as well as the ways in which they are funded, and the kind of outputs they produce. For example, some centres in Europe receive a mix of funding from national governments or ministries, and the European Union. Many centres use a range of tools to bring awareness to and to help stakeholders combat cyberbullying. Examples of tools and resources include:

- informational outputs, videos and tip sheets for stakeholders such as children, parents and teachers with information about the risk of cyberbullying and associated harms

- guides on how to assist children when they are cyberbullied, such as providing information on potential legal recourse, well-being support, access to reporting mechanisms

- opportunities for teacher training

- lesson plans or curricular guidelines to incorporate e-safety into the teaching and learning process

- programmes or games for children to engage in and learn about digital safety, cyberbullying and digital citizenship

- digital skills and digital literacy workshops

- reporting mechanisms (digital reporting or hotlines)

- access to helplines with professionals such as counsellors or psychologists.

There are many examples of national centres for safety and skills. Webwise is the Irish Internet Safety Awareness Centre, which provides information on Internet safety including cyberbullying. It has developed programmes such as HTML heroes to teach children about digital citizenship and digital safety, supported by fun activities and illustrated stories. Programmes like MySelfie provide in-classroom resources for teachers to give a series of five lessons focusing on cyberbullying. MediaSmarts, a Canadian digital and media literacy centre, provides information on topics including cyberbullying, with tip sheets, guides and resources for parents, children and teachers. There are also developmentally appropriate lesson plans available for educators in English and French on different themes such as ethical digital behaviour, cyberbullying and the law, and how digital tools may change communication. Other centres such as *Jeunes et media* in Switzerland and *Mediawijs* in Flanders (Belgium) focus on digital skill and media literacy development, and provide informational resources to a range of audiences on digital risks like cyberbullying.

There are also Safer Internet Centres in 31 European countries that serve a few different functions. They usually serve as awareness-raising hubs, providing information on a range of different digital risks and opportunities to parents, teachers and children. They also can facilitate the organisation of helplines and hotlines, for those who need to seek assistance or report digital threats or illegal content.

Box 3.1. Organisations and networks against cyberbullying

In many countries, there are non-governmental actors and associations that are also working to further the cyberbullying prevention and reduction agenda. For example, the *Bündnis gegen Cybermobbing* (Alliance against Cybermobbing) was founded in July 2011 in Germany. The Alliance is a network of actors who have been personally affected by cyberbullying, including parents, educators, legal experts, researchers and more. The Alliance is linked with the I-KIZ (Child Protection Center) of the German Federal Government and with the EU, and helps educate the public about cyberbullying, while also promoting development of media competence in schools.

PREVNet is a Canadian example of a national network, research centre and knowledge mobilisation hub, located at Queen's University in Ontario. Working with different actors like researchers, government and organisations, PREVNet aims to facilitate a convergence of research and practice to prevent interpersonal violence including cyberbullying. It provides information on many relevant topics, including an overview of the legal landscape in Canada regarding cyberbullying.

3.2.5. Empirically assessed interventions

There are a number of different anti-cyberbullying programmes that have been developed and implemented in OECD countries. Interventions take different approaches, with many focusing on skill building and promoting peer relationships. Interventions can also include: curricula and prepared materials, psychoeducation, multimedia materials, training for teachers and/or parents, an aim to target school climate or policy, and targeted responses for groups or individuals (Polanin et al., 2021[279]). However, few interventions involve digital forms of delivery (Doty et al., 2021[280]), which could allow for an expanded reach and higher scalability of programmes (Schueller and Torous, 2020[281]). Theoretically, digital tools could reduce the need for highly skilled individuals to deliver interventions, or for extensive teacher training, however the potential effectiveness of digital-only programmes needs to be assessed (Doty et al., 2021[280]).

According to a systematic review and meta-analysis on intervention programmes, it is estimated that an average programme has a 76% probability of reducing perpetration and a 73% change of reducing victimisation (Polanin et al., 2021[279]). However, in the bullying literature, few interventions have been implemented and evaluated with different samples and in different national or cultural contexts (Gaffney, Ttofi and Farrington, 2019[282]). Therefore, it could be difficult to estimate effectiveness in different national or regional contexts.

The following section will outline some cyberbullying programmes that have been implemented and tested in different OECD countries. This list is not exhaustive, but gives an overview of some of the different programmes, with indications of effectiveness.

Cyber Friendly Schools

Cyber Friendly Schools (CFS), developed and implemented in Australia, is a whole-school programme that was based on a systemic socio-ecological approach (Bronfenbrenner, 1995[283]). This framework was extended to include digital environments in students' ecology (Johnson, 2010[284]). This approach considers the different factors at different levels that can influence children's vulnerability to cyberbullying (Cross et al., 2015[285]), such as families, peers and community as well as how children spend their time in the digital environment (Cross et al., 2015[286]). This programme assesses different risk and protective factors that can be regulated in spaces such as the home, the school, or the classroom (Cross et al., 2015[286]) and takes a harm minimising approach rather than a punitive one (Cross et al., 2015[285]). It also involved students in the implementation, with the recruitment and training of "cyber leaders" (Cross et al., 2018[287]).

The programme incorporates classroom teacher training, student learning modules, resources and workshops for families, and whole-school staff training and resources. It addresses different risk and protective factors at the individual, family, peer, online and community level such as pro-bullying attitudes, relationship with parents, school climate, engaging in other problem behaviours, digital expectations and knowledge of cyberbullying regulation such as laws. It focuses on building understanding, and promoting attitudes and behaviours that encourage positive behaviours in the digital environment while discouraging cyberbullying (Cross et al., 2015[286]).

In a randomised controlled trial, the CFS programme was associated with a significant yet small decrease in cyberbullying (Cross et al., 2015[285]). In this trial, teachers reported only being able to implement on third of the content of the programme due to time constraints, and perhaps also due to limited time available for teacher training about the programme, and a lack of confidence in teachers for engaging with cyberbullying content. Despite the decreases in cyberbullying seen after the implementation, this did not persist into the following year (Cross et al., 2018[287]).

ViSC Social Competence Programme

A primary prevention programme, the Viennese Social Competence (ViSC) intervention aims to reduce aggressive and bullying behaviours, including cyberbullying, and foster social and intercultural competencies (Gradinger et al., 2014[288]). The implementation and evaluation of this programme was funded by the Austrian federal Ministry for Education between 2008-2011 (Strohmeier et al., 2012[289]).

Teachers are trained on recognising and defining bullying, how to handle acute cases and how they can implement measures to prevent bullying in the school and classrooms (Strohmeier et al., 2012[289]). Students in secondary schools (grades 5-8) engage in a class project consisting of 13 units, and is focused on developing social and intercultural competences, and is therefore not a specific anti-bullying programme at this level (Strohmeier et al., 2012[289]). Although ViSC was developed with traditional bullying in mind and does not specifically have cyberbullying components, implementation of the programme with 2 042 students demonstrated it was effective in reducing both cyberbullying perpetration and victimisation (Gradinger et al., 2014[288]). The authors argue that while specific cyberbullying interventions are valuable, whole-school approaches to reducing bullying behaviours more generally might be more cost-effective in the long term (Gradinger et al., 2014[288]).

Research on ViSC has also shown that the effects on prevention of cyberbullying and victimisation may be sustainable after 6 months (Gradinger et al., 2016[168]). ViSC has also been piloted in other counties, such as Turkey, with promising results regarding reductions

in traditional bullying (Doğan et al., 2017[290]). Although in the Turkish sample, rates of cyberbullying were so low to begin with (due to low ownership of mobile phones in the sample studied) that measurement models could not be estimated (Doğan et al., 2017[290]).

KiVa

The KiVa (*Kiusaamista Vastaan*, against bullying in English) programme was developed as an anti-bullying initiative in Finland and has been widely implemented in comprehensive schools across the country (Salmivalli and Poskiparta, 2012[291]). Developed by the University of Turku with funding from the Finnish Ministry of Education, it is a whole-school programme developed with the intention to be incorporated into ongoing anti-bullying efforts in schools (Salmivalli, Kärnä and Poskiparta, 2011[292]).

The programme consists of different actions. Classroom-based lessons are used to raise awareness about bullying, emotions and the importance of respect (Williford et al., 2013[293]; Salmivalli and Poskiparta, 2012[291]). Lessons also explain what the role of the group is in maintaining or ending bullying, with group exercises to brainstorm and practice ways in which students can support bullied peers. There is also a digital learning component, and in between lessons students play anti-bullying computer games (Salmivalli and Poskiparta, 2012[291]). The programme also relies on KiVa teams, which are groups of three staff members, such as teachers or school personnel, who work with classroom teachers to tackle bullying cases that they are aware of. The teams engage in conversations with bullies and victims, and classroom teachers organise meetings with classmates to encourage them to support the victims (Salmivalli and Poskiparta, 2012[291]).

KiVa has shown positive effects on bullying and victimisation (Kärnä et al., 2011[294]; Williford et al., 2011[295]), and increases in academic motivation and performance (Salmivalli and Poskiparta, 2012[291]). KiVa has also shown promising results in specifically reducing cybervictimisation (Salmivalli, Kärnä and Poskiparta, 2011[292]), and cyberbullying (Williford et al., 2013[293]). Although, the effect of the programme on cyberbullying specifically might be moderated by age, as effects were more pronounced in younger students, and as children approach their teen years the effects are non-significant (Williford et al., 2013[293]).

One particular strength of this programme is that its effectiveness has been studied in other national contexts, such as in Italy and the Netherlands (Nocentini and Menesini, 2016[296]; Huitsing et al., 2020[297]). Results from other countries confirm KiVa's effectiveness at reducing traditional and cyberbullying (Ibid.).

Medienhelden

Medienhelden (Media Heroes in English) is a programme developed in Germany with the aim of changing attitudes and beliefs, and fostering social and digital skills. Students learn about definitions of cyberbullying, as well as information about legal elements, impacts on victims and promoting empathy (Schultze-Krumbholz et al., 2015[298]). It incorporates elements of social learning such as role-playing and model learning, with cognitive behavioural elements like positive reinforcement. The programme also seeks to support students in the development of behavioural control, including sharing protective strategies that can help students when dealing with cyberbullying (Wölfer et al., 2013[299]).

A classroom-based intervention, the full Media Heroes curriculum consists of ten 90 minute sessions to be delivered over ten weeks, with a shorter four session version available covering the same content minus the legal elements (Schultze-Krumbholz et al., 2015[298]).

Implementation of Media Heroes in a sample of German middle school students saw a reduction in cyberbullying behaviours in the classes that received the intervention (Wölfer

et al., 2013[299]). The programme effectiveness may also be enhanced by an increased length of the intervention (ibid.). Another study found that the longer version of the trial resulted in a significant reduction in cyberbullying, and prevented age-related decreases in affective empathy (Schultze-Krumbholz et al., 2015[298]). Lower levels of affective empathy were correlated with cyberbullying perpetration (Schultze-Krumbholz et al., 2015[298]), which is consistent with previous research (Schultze-Krumbholz and Scheithauer, 2009[300]; Steffgen et al., 2011[301]). The programme might also have a spill over effect, by reducing traditional bullying as well as cyberbullying (Chaux et al., 2016[302]).

TEI programme

The TEI (*Tutoría Entre Iguales)* Programme is an intervention implemented in Spain to reduce bullying and cyberbullying, and to improve school climate that is based on peer tutoring. Ferrer-Cascales and colleagues (2019[303]) outline that "the main objective of this program is the improvement of the school climate and the promotion of a positive school coexistence through the development of adequate solving problem strategies and the integration of a culture of zero tolerance for violence as an identity school trait". The intervention involves disseminating information to families, teachers receiving an intensive 30-hour training, and student pairings (tutor-tutee pairings). The intervention consists of dedicated tutorial activities, cohesion activities (aimed at consolidating the tutor-tutee relationship) and specific trainings on topics such as emotional self-regulation, social competence and positive use of digital tools (Ferrer-Cascales et al., 2019[303]).

Despite some research suggesting that peer tutoring does not reduce bullying in schools (Ttofi and Farrington, 2010[304]), a study assessing the outcomes associated with the TEI programme suggested that there was a significant decrease in cyberbullying in the experimental versus control groups in the study (Ferrer-Cascales et al., 2019[303]). Some scholars have suggested that peer tutoring can be a good way to reduce violence in schools for example through the promotion of increased self-perception and introspection skills, while also training social skills and conflict resolution (Cowie, 2011[305]). Peer tutoring has also been associated with increased self-esteem and a sense of belonging at school (Cowie, 1998[306]).

NoTrap!

Noncadiamointrappola! (let's not fall into the trap in English) is a programme developed and piloted in Italy. A digital and school-based intervention, it aims to prevent and combat both traditional and cyberbullying (Menesini, Zambuto and Palladino, 2018[307]). Developed with the notion of digital opportunities in mind, the programme seeks to exploit some of these opportunities and promoting protective factors such as social support and keeping in contact with others (Menesini, Palladino and Nocentini, 2015[308]). Like the TEI programme, *NoTrap!* relies on student to student interactions.

The programme is delivered in two phases, the first by adults such as psychologists and experts, the second by "peer educators" (Nocentini, Zambuto and Menesini, 2015[309]). The adults bring awareness to the project and the issues at hand, and some students in each class are invited to act as educators. These students undergo a training, then they undertake activities such as moderating digital forums and giving support to those who request it (Menesini, Palladino and Nocentini, 2015[308]). Students can start discussion threads on digital forums, and topics have included victim and bystander perceptions of cyberbullying incidents and how to cope with incidents.

Empirical evaluation of the *NoTrap!* programme has found a significant, yet small decrease in cyberbullying and cybervictimisation (Menesini, Palladino and Nocentini, 2015[308]). These positive results have been noted for all students in the intervention classes, not just

for the peer educators (Menesini, Nocentini and Palladino, 2012[310]). Some mechanisms that might explain these outcomes include the involvement of different actors such as teachers and students, the incorporation of both face-to-face and digital components and the promotion of positive coping for victims (Menesini, Zambuto and Palladino, 2018[307]).

Online Pestkoppenstoppen

Online Pestkoppenstoppen (Stop Online Bullies in English) is a Dutch intervention aimed at students aged 12-15 who are low academic achievers and have been victims of cyberbullying (Dehue et al., 2018[311]). The intervention is fully automated, digital and standalone, and adolescents can complete three modules over the course of three months by themselves without the help of teachers or another adult. It consists of video clips, pictures, animations and video clips delivered by digital guides in different spaces such as a classroom, school canteen or a boy or girl's bedroom. The gender of the guide is matched to the gender of the participant (Dehue et al., 2018[311]).

The topics of the intervention focus on the following: 1) teaching how behaviour can be influenced by thoughts, and how to recognise and replace irrational thoughts with rational ones, 2) how behaviour influences bullying and how coping strategies can be employed to reduce being bullied, 3) summarises topics 1 and 2, and teaches participants how to safely use the Internet (Jacobs et al., 2014[312]). Participants respond to questionnaires before each topic that measure factors such as personality, coping, self-efficacy, experiences with bullying and irrational thoughts. These responses allow for parts of the intervention to be tailored to each individual participant (Dehue et al., 2018[311]).

Using digital modes of delivery allows for Stop Online Bullies to offer a degree of personalisation and tailoring. This is promising, as research suggests that tailoring interventions to personal preferences or personality factors can help make an intervention more successful (Krebs, Prochaska and Rossi, 2010[313]). However there are some drawbacks to this intervention. One being that participants independently engage in it. Students, especially those who are low academic achievers, may need guidance or external motivation from adults to continue and finish the intervention, therefore a hybrid approach incorporating some in-person guidance to supplement the digital modules might be warranted (Dehue et al., 2018[311]). Furthermore, in a randomised controlled trial to investigate the effectiveness of Stop Online Bullies, the dropout rate was too high to perform the effectiveness study (Dehue et al., 2018[311]). Therefore, further research is necessary to understand how to increase compliance with the intervention and whether it induces the intended outcomes of decreased victimisation.

Games and innovative technologies for cyberbullying prevention and reduction

Game-based interventions can be used as low-burden ways of targeting behaviour changes, especially if they require no teacher assistance or additional measures. DeSmet and colleagues (2018[314]) studied the potential for a serious game to be used to enhance positive cyberbystander behaviour. While this particular intervention and study did not report a change in bystander behaviour or cyberbullying victimisation/perpetration, it was linked to positive yet small behavioural determinants of positive bystander behaviour such as self-efficacy to end cyberbullying and social skills (DeSmet et al., 2018[314]). Further research in this area is warranted.

Contectado is another example of a serious game to raise awareness of bullying and cyberbullying, designed as an educational tool for teachers to use in their classrooms (Calvo-Morata et al., 2020[315]). Students play the game, assuming the role of the victim, and are required to reflect on the consequences and experiences of bullying victimisation.

It can help promote empathy towards real-life victims of bullying and cyberbullying. The intention is that the game is used as a tool to open the door for teachers to start a conversation around bullying and cyberbullying in the classroom (Calvo-Morata et al., 2019[316]).

There are also some programmes using innovative technologies to prevent bullying and cyberbullying. For example, Ingram and colleagues (2019[317]) piloted a virtual reality enhanced bullying prevention programme in the US. The pilot study revealed an association between the virtual reality intervention and increased empathy in comparison to the control group, and there was a decrease in traditional bullying but not cyberbullying. Further research with larger sample sizes (in this study, N=118) could shed more light on the relationship between virtual reality, empathy and different types of bullying. Further research more generally on incorporating digital technologies into programme design and implementation is also warranted. Digital tools can offer a more personalised experience to participants, as is the case with Stop Online Bullies. However, as mentioned previously, there are currently few interventions that use digital tools in the implementation.

3.3. Promoting effective policies and practices

Cyberbullying prevention efforts are common across the OECD nowadays. Systems take various approaches to tackling cyberbullying, often incorporating school-based elements, with teacher training and interventions for parents and caretakers. Elaborate policies can take a multi-stakeholder approach, and target different factors contributing to cyberbullying behaviours or victimisation. Incorporating simple strategies within anti-cyberbullying approaches can be effective in reducing victimisation. These strategies can include providing information about safety in the digital environment, such as blocking unknown users of phone numbers, and making reports to platforms when necessary (Waasdorp et al., 2017[89]). In general, cyberbullying prevention efforts have succeeded more in reducing rates of victimisation than perpetration (Gaffney et al., 2019[6]; Polanin et al., 2021[279]).

3.3.1. Elements of successful interventions

School-based and educational interventions

There is much research suggesting educational interventions play a role in reducing cyberbullying (and traditional bullying) perpetration and victimisation, although to varying extents (Cantone et al., 2015[318]; Gaffney et al., 2019[6]; Ng, Chua and Shorey, 2020[319]). Anti-cyberbullying programmes have been effective in reducing perpetration by around 9-15%, and victimisation by approximately 14-15% (Gaffney et al., 2019[6]).

The majority of cyberbullying interventions developed to date have been developed and implemented in school contexts, despite the fact that he majority of cyberbullying takes place in environments outside of school such as at home (Doty et al., 2021[280]). Interventions that promote a positive and friendly school climate can be beneficial for students. Friendly environments facilitate student development of a strong sense of belonging at school, and allow students to focus on their academics (Holfeld and Leadbeater, 2017[320]). Encouraging positive relationships among students may also influence positive cyberbystander behaviours. Some scholars advocate for incorporating components targeting cyberbystander responses in anti-cyberbullying interventions by promoting positive responses, but also reducing negative responses (DeSmet et al., 2019[257]). Increasing positive cyberbystander responses may lead to a reduction in cyberbullying rates over time (DeSmet et al., 2019[257]; Shakir et al., 2019[321]), and

interventions targeting cyberbystanders may be effective (Vlaanderen, Bevelander and Kleemans, 2020[322]).

One potential limitation of school-based interventions is that their effects might be limited in the long term, as evidenced by long-term follow-up studies (Ng, Chua and Shorey, 2020[319]), although this finding could be exacerbated by social desirability bias (i.e. that as children get older, they might have higher discomfort in labelling their behaviours as bullying so with social desirability in mind will under-report their perpetration). Therefore, anti-cyberbullying measures likely should continue even after acute interventions end (Ng, Chua and Shorey, 2020[319]).

Whole-school approaches and schools as bullying prevention hubs

Using a whole-school approach that encompasses traditional anti-bullying approaches, development of social and emotional skills such as tolerance, empathy, co-operation and emotional control, can be effective measures in targeting cyberbullying. Cantone et al (2015[318]) reported whole-school approaches to be more effective than interventions delivered through classroom curricula or through social skills training alone. Other experts also recommend taking an ecological approach to cyberbullying and taking a whole-school approach and involving actors in the greater community like parents and caregivers (Cross et al., 2015[286]; Espelage, 2014[323]). Many countries implement whole-school approaches to target problem behaviours, and there is evidence suggesting these to be effective in different countries and contexts (Gaffney et al., 2019[6]; Gaffney, Ttofi and Farrington, 2019[282]).

However, some scholars suggest that because a small proportion of students are actively engaged in bullying others, these students could potentially benefit from more targeted support (Swearer et al., 2010[324]). For example, Ng and colleagues (2020[319]) found no difference in terms of effectiveness regarding adoption of a whole-school or classroom-based approach. Combining whole-school approaches with more targeted support for bullies and victims could be an effective strategy, despite requiring more resources to implement multiple programmes.

Schools are also important institutions to provide leadership to other actors such as parents, students and the wider community to help resolve and reduce cyberbullying (Mason, 2008[325]). Fostering a school culture where students feel comfortable reporting when they have been cyberbullied or observed others being cyberbullied can help reduce rates (Redmond, Lock and Smart, 2020[326]). Teachers may overestimate their students' willingness to report incidents of cyberbullying (Huang and Chou, 2013[327]), therefore establishing a trusting environment and educating stakeholders including students, parents and teachers on the importance of reporting can help (Redmond, Lock and Smart, 2020[326]).

Teachers as key stakeholders in cyberbullying response and prevention

Teachers are important actors not only in delivering and participating in school-based anti-cyberbullying interventions, but also through fostering digital skills and promoting a positive classroom environment. Teachers can encourage students to critically but respectfully engage in informed discussions while building their digital confidence, motivation and skills. Schools can emphasise the production and sharing of digital content (Kahne, Hodgin and Eidman-Aadahl, 2016[328]), as well as discussions on digital behaviour and its ethical implications (Harrison-Evans and Krasodomski-Jones, 2017[329]). Teachers can promote discussions and reflections about cyberbullying, and encourage role-playing activities to help students develop empathy and understand how victims might feel (Machackova and Pfetsch, 2016[330]).

Teachers are key stakeholders in the implementation of school-based programmes, and are in many cases trusted adults who students turn to in times of need. High quality teacher training opportunities have been associated with more effective bullying interventions (Ttofi and Farrington, 2010[304]). There is a clear need for teachers to be able to identify cyberbullying, and subsequently implemented effective management strategies. They can also engage in programmes that are proactive and aimed at prevention (Redmond, Lock and Smart, 2020[326]).

Teachers have varying beliefs about cyberbullying in their schools. Some report that cyberbullying is not a problem in their school, and this could be because cyberbullying might be difficult to detect from an adult standpoint and many teachers might not have incidents brought to their attention (Smith et al., 2008[10]; Green et al., 2016[331]). Often, however, teachers do recognise cyberbullying as a challenge in their school although they may lack the confidence to manage this issue and their views on effective prevention strategies can be inconsistent (Macaulay et al., 2018[332]). Therefore, teachers can be supported with the provision of teacher education about cyberbullying and relevant interventions, and through the clear communication and implementation of guidelines or policies in schools outlining how they can deal with cyberbullying (Ibid.). If students perceive teachers to lack confidence and skills to address cyberbullying, they are less likely to seek help from them (Bauman, 2009[333]; Blake and Louw, 2010[334]).

Teachers themselves can also be victims of cyberbullying, and some evidence suggests that those who have personal experiences of being cyberbullied will have a different perspective regarding seriousness of cyberbullying incidents (Huang and Chou, 2013[327]). They also report being anxious about how cyberbullying can affect their students, and some have low levels of confidence in how effectively they can deal with incidents with their students (Huang and Chou, 2013[327]).

Involving actors outside of education

Cyberbullying policy should also incorporate a learning element for parents and caregivers, especially those who might be less digitally skilled. Educating parents to improve their knowledge of digital tools and virtual platforms, and informing them about what their children are doing in the digital environment, could be an effective way of addressing cyberbullying. Parents who work collaboratively with their children, guiding them on how to safely navigate the digital environment can protect children from cyberbullying and its associated effects. However, it is less effective when parents employ more restrictive strategies without taking their children's input into account (Elsaesser et al., 2017[143]). Active parental mediation of digital activities and supporting child autonomy in the digital environment can help reduce cyberbullying and secrecy (Elsaesser et al., 2017[143]; Padilla-Walker et al., 2017[335]).

Less digitally skilled parents tend to take more restrictive approaches. Taking a restrictive approach makes it more likely that children will try not to draw attention to their Internet use, and this approach is also less conducive for child-initiated support (Livingstone et al., 2017[336]). If children suspect restriction is likely to happen when they tell their parents about a safety issue or concern, it could prevent them from seeking help from their parents (Fenaughty and Harré, 2013[337]). Therefore, promoting digital skills and knowledge in parents could also be important elements of cyberbullying prevention programmes.

Regarding interventions themselves, in a review of traditional bullying interventions, those that included components for parents were more effective than those that did not (Ttofi and Farrington, 2010[304]). Because the majority of cyberbullying takes place in the home, incorporating parents in the interventions and assisting parents on media parenting could be important components of effective interventions (Helfrich et al., 2020[338]). Working

together with actors such as parents and school personnel might be the best approaches to reduce cyberbullying, as it the case for traditional bullying (Cross et al., 2015[285]; Ttofi and Farrington, 2010[304]).

Research also suggests that forging partnerships with experts outside of education can prove fruitful for cyberbullying prevention and reduction. According to a systematic review and meta-analysis of the literature on cyberbullying interventions, programmes were more effective when implemented by technology-savvy content experts than by teachers (Ng, Chua and Shorey, 2020[319]). However, as evidenced by the OECD's 21st Century Children policy questionnaire, few systems systematically forge partnerships with digital experts (Burns and Gottschalk, 2019[1]; Burns and Gottschalk, 2020[2]). This will likely need to change in the coming years, as new risks emerge in the digital environment and education systems require higher capacity to effectively manage these risks and reduce harm for children.

Anti-bullying to anti-cyberbullying

The cyberbullying literature is much more recent than the broad literature concerning bullying. Therefore, the research on cyberbullying-specific interventions is more limited as well. However, it is worth assessing whether anti-bullying initiatives more generally can affect rates of cyberbullying, as a number of the correlates and problem behaviours associated with these types of bullying are similar or overlap. If cyberbullying is indeed a form of bullying, or traditional bullying moved into the digital environment, then implementing traditional anti-bullying programmes should be sufficient in tackling it. However, if it is not, then new programmes will need to be developed (OECD, 2020[275]).

Some scholars advocate that efforts against cyberbullying should focus more generally on bullying and detrimental behaviours than specifically on cyberbullying, or bullying in the digital environment (Modecki et al., 2014[37]), and successful interventions to tackle traditional bullying may therefore also reduce cyberbullying (Livingstone, Stoilova and Kelly, 2016[27]). Effective policies for bullying clearly describe what behaviour is and is not accepted in the digital environment and at school, and what consequences there are for violating these rules (StopBullying, 2017[339]). Ttofi and colleagues found that school-based programmes contributed to a significant reduction in traditional bullying perpetration and victimisation (Ttofi and Farrington, 2010[304]).

There is more research needed to understand if programmes for managing traditional bullying can also be used to manage cyberbullying, or if new strategies are needed (Cross et al., 2015[285]). Some research on specific programmes developed to combat traditional bullying, such as the KiVa programme in Finland, suggest they can also tackle cyberbullying. Other approaches, such as fostering empathy through school-based programmes may help in reducing aggression in adolescents (Castillo et al., 2013[340]), which is related to cyberbullying (Park, Na and Kim, 2014[56]; Zych et al., 2019[172]).

Deterrence and criminalisation of cyberbullying

In terms of deterrence strategies, research suggests that students are more deterred by the threat of punishment from parents or the school than they are by threats of punishment from the police (Patchin and Hinduja, 2016[341]), and the appropriateness of dealing with child perpetrators using criminal remedies is questionable (OECD, 2020[275]). Simply using sanctions as deterrence measures are possibly not sufficient for changing behaviours. Addressing complex issues like cyberbullying likely requires responses that incorporate developmentally appropriate education for children and parents on topics like digital citizenship. If sanctions are involved, they must not be unnecessarily punitive (Spears et al.,

2014[342]). However if and when behaviours in the digital environment constitute a crime, the involvement of law enforcement becomes more important (Patchin and Hinduja, 2016[341]).

According to interviews of a small sample of Canadian police officers about their views on youth cyberbullying, a clear preference emerged for preventative and educational routes to tackling the issue, rather than punitive measures. There was also a preference for not criminalising cyberbullying behaviours, and acknowledgement that if behaviours crossed into criminal territory there were existing laws that could be applied thereby negating a need for specific or elaborated cyberbullying legislation (Broll and Huey, 2014[343]).

Even short interventions can help

Longer interventions tend to have a larger effect, however many schools are already overburdened and may favour one-day sessions or single sessions of intervention programmes (Schleider and Weisz, 2017[344]). Short, easily implementable programmes can be effective ways for schools to target cyberbullying. Single-session interventions consisting of a school assembly, a workshop or even a virtual presentation can be efficient and cost-effective options (Doty et al., 2021[280]).

In the bullying literature, longer interventions and higher intensity programmes tend to have larger effect sizes on changes in behaviour (Ttofi and Farrington, 2010[304]), however a systematic review on cyberbullying prevention found no significant difference between shorter and longer interventions (more or less than eight contact hours) (Doty et al., 2021[280]). More research is needed to determine the optimal length of cyberbullying interventions, as well as who should be included as key stakeholders, and which components are key (Doty et al., 2021[280]).

Box 3.2. Banning digital devices at school

In recent years, a number of OECD education systems have introduced mobile phone or digital device bans at school (Burns and Gottschalk, 2019[1]). Sometimes these bans are implemented with the intent to keep students focused, lessening the distraction of their buzzing and flashing devices. Sometimes though these bans are implemented with the intent to reduce exposure to digital risks, such as cyberbullying. However, if research suggests that the majority of cyberbullying does not occur on school grounds, is banning devices at school an effective way to reduce cyberbullying?

Studies suggest that there is a large overlap between cyberbullying and traditional bullying (Waasdorp and Bradshaw, 2015[28]), and that traditional bullying remains more prevalent than cyberbullying (Przybylski and Bowes, 2017[248]). Therefore, it is unlikely that mobile devices are causing cyberbullying, and putting energy into banning devices, and enforcing these bans, could be a distraction for education systems to address some of the structural or root causes of bullying behaviours (Selwyn and Aagaard, 2020[345]).

Furthermore, it is understood that restrictive mediation, such as limiting exposure to devices, can limit digital risks. However, it also limits opportunities (Livingstone et al., 2017[336]). Alternatively, enabling mediation might be associated with higher exposure to risks, but it does not necessarily support harm and it tends to incorporate safety elements. The ubiquity of technology and the opportunities it offers make it potentially unrealistic and counter-productive in setting and enforcing total bans. There is also a question of whether banning devices could infringe upon children's rights, such as the right to information and play. Approaches should rather focus on reducing

cyberbullying behaviours, educating children and school personnel on the risks and opportunities of the digital environment, focusing on building resilience, and coordinating mental health and well-being programmes to help support all students, especially the most vulnerable.

3.3.2. Assessment and accountability

One big challenge in education systems around the OECD is measuring the effectiveness of anti-cyberbullying initiatives. Firstly, without a clear, agreed upon definition, it is difficult to understand what to measure and how to do so, as methodologies also tend to differ across surveys (Volk, Veenstra and Espelage, 2017[346]). Additionally, many systems have limited available data that is nationally (or sub-nationally) representative to determine the true prevalence of cyberbullying rates, and outcomes of different policy measures or particular practices. National bodies that do collect data on cyberbullying, such as the National Statistics Bureau in Netherlands, do not necessarily look at the effectiveness of specific measures. Some systems, such as Ireland, have a more formalised evaluation process whereby the Department of Education and Skills inspectorate checks school compliance to the action plan on bullying, which includes cyberbullying, however many programmes lack effective evaluation measures, or any evaluation measures at all (Burns and Gottschalk, 2019[1]).

Another issue pertains to scientific merit of intervention studies. Some intervention studies lack a control group, do not assign groups randomly to control or intervention groups, and there is often a lack of follow-up measures to assess whether positive outcomes are maintained (Della Cioppa, O'Neil and Craig, 2015[347]). Furthermore, few studies report negative effects of interventions on perpetration, victimisation or student outcomes. This could imply a publication bias in the literature (Gaffney et al., 2019[6]).

Testing the validity of specific cyberbullying programmes in different populations might give an indication of what works, and for who. Many programmes are developed, implemented and studied nationally or even sub-nationally. It would be an important and relevant contribution to the literature on cyberbullying interventions to test programmes in different contexts and countries to assess whether there is cross-national validity in these measures.

4. Research gaps and conclusion

4.1. Research gaps

Despite huge strides in the cyberbullying literature, there remain some key gaps to address. The following section outlines some of these gaps and their importance.

Research and policy circles must establish and use an agreed upon definition of cyberbullying, taking into account the experience and perspectives of children

To date, there is still a lack of consensus upon the definition of cyberbullying. Disagreements as to whether cyberbullying is an extension of traditional bullying, or whether it is a class on its own, are also common. Another issue is that these definitions are conceptualised by adults, often without the input of children and youth. What one adult views as cyberbullying, according to a textbook definition, might be seen by a young person as simply "drama".

The voices of children and young people must not be negated or undermined, and in agreeing upon an operational definition their voices must be considered, if not also amplified, in the discussion. Once the research and policy spheres can agree upon a common definition and basic criteria to diagnose cyberbullying, research, policy and practice efforts will be able to more effectively build on one another to fight this common enemy.

Measuring and understanding cyberbullying prevalence is important in establishing effective policy recourse

The results on prevalence cyberbullying victimisation and perpetration are very heterogeneous. Factors such as study methodology, of definition used affect how prevalence is measured. Furthermore, studies differ in terms of the time period subjects are asked about. In some instances, respondents are asked to reflect on cyberbullying instances within the previous months, or year, whereas others report on lifetime prevalence.

The reliance on self-report is also problematic, especially as children themselves might have a different conception of what it means to be cyberbullied, or to cyberbully someone else. Also due to the negative connotations of bullying others, it can be assumed that social desirability bias will affect how children respond when being asked about their cyberbullying habits. Research on cyberbullying victimisation rather than perpetration might be more accurate, although victims might also under-report due to embarrassment, potential or perceived repercussions from the bullies, or to avoid being perceived as weak (Aboujaoude et al., 2015[348]).

Therefore, streamlining definitions across countries and researchers is important, as is ensuring that respondents (whether they be children, parents or teachers) understand the operational definition.

Identifying what works, for who and where is essential for intervention design and implementation

Identifying which elements of successful interventions are most effective in reducing cyberbullying perpetration and victimisation will be important for future intervention design and evaluation (Gaffney et al., 2019[6]). Distilling specific practices and understanding the dose-response relationship for interventions are both important for future programme development. As many interventions involve multiple components, and take whole-school approaches, this will be a challenge for researchers to identify what is effective for who and in which context.

Many cyberbullying interventions are developed and implemented in one national or subnational context, often with small samples. Testing interventions in larger samples, and randomising samples, will be important to understand the effectiveness of interventions. Also studying interventions in different populations within a national context, and in different national contexts will help research distil whether common approaches can be scaled up in different countries.

There is also an imperative for research to identify which aspects of interventions are effective, and how these elements can be combined for the best results. In this literature base, there is likely publication bias. For example, in their systematic review and meta-analysis, Gaffney and colleagues (2019[6]) found detrimental effects reported only in one study. This is indicative of a likely publication bias, and it will be important to understand whether intervention elements, in the event they do not have a positive effect, are either neutral or detrimental. Furthermore, understanding the mechanisms behind intervention effectiveness will help in future intervention design and implementation.

There is a paucity of research on diverse student groups

More research is needed on the prevalence, correlates and consequences of cyberbullying for diverse student groups such as students with an immigrant background and LGBTQI+ students (Stoll and Block, 2015[349]; Kenny et al., 2020[350]). There are also gaps regarding how intersecting identities[12] are related to perpetration and victimisation (Kenny et al., 2020[350]). It could be worth exploring whether interventions or components in interventions that target diverse student groups can be used to better support students who may be more vulnerable to the effects of cyberbullying.

The majority of cyberbullying interventions lack digital components

Flexibility and innovation should be the standard when conceptualising interventions. The majority of cyberbullying interventions are lacking in digital components. It will be important to assess how digital tools can be effectively used to deliver cyberbullying interventions, or incorporated into interventions. Research can also explore the potential to harness the power of new and innovative technological tools.

Understanding how to capitalise on bystanders is essential

While the research on bystanders in the traditional bullying literature is quite extensive, this is a newer field of exploration in the cyberbullying sphere (Domínguez-Hernández, Bonell and Martínez-González, 2018[195]). Understanding the factors that make bystander intervention more or less likely can feed into the development of interventions that make use of cyberbystanders and their potential to support cybervictims and stop cyberbullies. Empathy seems to be a strong predictor of cyberbystander willingness to intervene. It will therefore be important to assess whether interventions that promote empathy, which might be suitable in reducing cyberbullying perpetration as well, could help increase cyberbystander willingness to intervene.

Partnerships are powerful tools to enhance intervention design and implementation

Partnerships between the education sector and digital experts, although not yet widespread across OECD countries, will likely be a critical component of cyberbullying research and policy moving forward. To this point, research suggests that content experts who are technologically savvy might be better situated to deliver effective cyberbullying interventions in schools than are teachers (Ng, Chua and Shorey, 2020[319]). Exploring this more in depth, and examining the potential of partnerships to deliver more effective programming is needed.

There is a need for research that can help identify causation and directionality

Despite the explosion of research and public interest regarding cyberbullying, researchers are generally unable to decisively determine which factors cause children to cyberbully others or to be cyberbullied, or whether being cyberbullied causes certain outcomes. Much of the research is cross-sectional, looking at measurements at one point in time, therefore leaving researchers unable to conclude definitively cause and effect. Although there are some good examples, more longitudinal studies will be important additions to the knowledge base in order for research to make causal inferences regarding cyberbullying causes and outcomes. Longitudinal studies will also help researchers adjust for pre-existing

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[12] Intersecting identities or intersectionality refers to how identities (such as gender or gender identity, sexual orientation, immigrant status, ethnicity, socio-economic background etc.) overlap and form new, more specific identities with new implications (Cerna et al., 2021[355]).

mental health conditions or concerns to help to determine for example whether children with pre-existing mental health conditions are more likely to be bullied, or whether the bullying contributes to the mental health condition.

When developing new cyberbullying policies or practices, when possible, researchers and policy makers should evaluate effectiveness through the use of randomised controlled trials (RCTs), considered the gold standard of evaluating intervention effectiveness. While one study is unlikely to prove causation, a well designed and implemented RCT allows for a reduction of bias due to randomisation of participants (Hariton and Locascio, 2018[351]). In education research, randomisation often occurs at the classroom or school level rather than the individual level. Without large enough numbers of schools or classrooms participating in an RCT, randomly assignment of classrooms/schools could negate the effects of randomisation (Gaffney et al., 2019[6]). Gaffney and colleagues (2019[6]) conclude in their systematic and meta-analytic review that the majority of RCTs they analysed in relation to cyberbullying used small numbers of classes or schools.

Although expensive and lengthy to conduct, if sufficient numbers of classes or schools can be included in the study design, the use of RCTs in different countries and populations can help researchers and policy makers determine the effectiveness of proposed interventions or reforms.

4.2. In sum

In sum, cyberbullying is a complex and high priority policy issue across OECD countries. While it is less studied than traditional bullying, the research base is rapidly emerging. This emergence of new evidence has given some indications as to what the causes and effects of bullying are, however conflicting results and differences across contexts make it difficult to generalise the research. The dearth of longitudinal work also means that policy makers are relying on cross-sectional results to identify policy and practice priorities.

The attention on cyberbullying has meant that many systems have implemented policies, practices and even laws to tackle it. While legal recourse might be disproportionate in some cases, having effective methods of recourse is important in the event cyberbullies toe the line in terms of illegality. However, school-based and educational interventions have consistent and positive effects in terms of cyberbullying reduction and prevention. Efforts must be made to uncover which elements of interventions are effective, and whether these elements can be combined for certain populations to maximise programme effects. Investments should be made in large-scale research projects to test different interventions in different populations to determine effectiveness. Finding what works, for who and how will be important in the near future, so that the potentially harmful effects of cyberbullying can be avoided for all children.

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