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GENDER DIFFERENCES IN CYBERBULLYING VICTIMIZATION AMONG ADOLESCENTS IN EUROPE.

A SYSTEMATIC REVIEW

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Digital technologies has become the leading way for individuals to communicate, but despite its many advances it may also be misused for harmful behaviors. Over the last decade cyberbullying has become a serious social health problem worldwide. It has been estimated that roughly 20 to 40% of all adolescents will experience at least one act of cyberbullying. Even though an extensive amount of research has been carried out some uncertainties remains, for instance whether there are any gender differences in experiences. The overarching aim with the current review was to analyze the role of gender in cyberbullying victimization among European adolescents. The specific aspects explored were gender differences in victimization and misused technological platforms. In order to achieve the aim a systematic review of recent evidence was carried out. Based on established inclusion criteria searches for both published and non-published articles were made in the databases of EBSCOhost, ProQuest and other sources. The selection process identified seven eligible studies that were included for analysis. The prevalence rate of cyberbullying victimization was ranging from 5% to 28%, with one study reporting higher frequencies. The findings implied a slightly higher likelihood among girls. However, the technological platforms used for victimization were similar for both boys and girls, some of the more frequently misused platforms were social networking sites, instant messaging and text messages. The review findings suggest prevention strategies are directed toward the most popular technological environments, with a somewhat stronger emphasis on girls.

Keywords: adolescence, cyberbullying, Europe, gender, information & communication technologies (ICT), victimization.

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INTRODUCTION

The usage of digital technologies has become the leading way for organizations, corporations and individuals to communicate (Chisholm, 2014). The expansion of information and communication technologies has created an arena that goes beyond the restrictions of geographical, personal and sociopolitical nature (Chisholm & Day, 2013). Back in 2005, it was estimated to be over one billion internet and two billion mobile phone users in the world (Privetera & Campbell, 2009). In 2016, a decade later the amount of internet users in the world had increased to 3.5 billion, which corresponds to approximately 46% of the world's population (Internet live stats, 2017). Findings from an American survey conducted in 2007 showed that 93% of youths were active online once a week or more, and the majority of them had their own mobile phone (Mark & Ratliffe, 2011). Although the internet has resulted in many advances such as unrestricted access to knowledge and information exchange it may also be misused for negative and harmful behaviors (Wölfer et al. (2014). One of the adverse outcomes concerns cyberbullying, which has during the last decade become a serious social problem worldwide (Chisholm & Day, 2013; Hollá, 2014).

It has been estimated that approximately 20 to 40% of all youths will experience some form of cyberbullying during adolescence (Tokunaga, 2010). Findings from a multi continent study by Patchin and Hinduja (2006), showed that 29% of children under the age of 18 had been victims of cyberbullying, and almost half of the respondents had witnessed such behaviors during the prior 30 days. Recent data revealed an increase in victimization, it was found that 34% of American adolescents have been cyberbullied at least once (Cyberbullying Research Center, 2017). Concerns about these harmful online behaviors are not limited to one age frame, it has previously been shown that one in four young women are worried or distressed about comments made on internet chat rooms (Beran & Li, 2005). The consequences of cyberbullying has been studied for several years and a broad range of negative outcomes have been identified, depending on the length and amount of bullying (Wöfler et al. 2014). Some of the outcomes are academic problems, depression, psychosocial difficulties, mental health problems and suicide (Mark & Ratliffe, 2011; Wöfler et al. 2014). The seriousness of cyberbullying has received a great amount of public attention, especially due to cases where victims committed suicide as a result of victimization (Connell et al. 2014). Some of the most prominent cases are those of Tyler Clementi, Phoebe Prince, Kenneth Weishuhn and Megan Meier (Connell et al. 2014).

The severity of cyberbullying cannot be stressed enough, and thus to the rapid growth and usage of technologies it is highly important research is up to date. The majority of the existing studies have mainly focused on the consequences that follows the victim (Barlett & Coyne, 2014). Although, in order to prevent this behavior from happening more data is necessary on potential risk factors that may increase the risk of cyberbullying. To date, there are some disagreements between researchers on whether boys and girls are at the same risk of becoming victimized (Connell et al. 2014). The purpose with the current review is to investigate this uncertainty by exploring the role of gender in cyberbullying among adolescents. Knowledge about the effect of gender is significant and would aid both researchers and policy makers in the development of prevention strategies.

BACKGROUND

Cyberbullying

Bullying has traditionally been recognized as a face to face confrontation that occurs in front of an audience (Beran & Li, 2005). However, a new method has arisen, which instead occurs through information and communication technologies. The term for this new form of bullying varies but it is mostly known as cyberbullying (Beran & Li, 2005). Although the methods used for harassment differs between traditional and cyberbullying they share the same potential to harm and scare the victim, both emotionally and mentally (Mark & Ratliffe, 2011). However, cyberbullying can be carried out without any physical contact. Research has shown that individuals are more likely to cyberbully others when they do not believe they will get caught or causing harm to the victim, or if they do not care if the behavior is unethical or wrong (Mark & Ratliffe, 2011). It has been estimated that between 20 to 40% of all adolescents will experience some form of cyberbullying at least once (Tsitsika et al. 2015). In most countries within the European Union cyberbullying has emerged very promptly (Brandtzæg et al. 2009). In 2010, it was reported that 7% of children aged 9 to 16 in seven EU countries stated they had been cyberbullied within the last 12 months (Tsitsika et al. 2015). Four years later, the victimization rate across the participating countries had increased to 12%, with the lowest rate found in Portugal (5%) and the highest in Denmark (21%) (Ibid.). The European research project EU Kids Online identified sixty one studies regarding cyberbullying that were conducted between 2000 and 2008 in Europe (Brandtzæg et al. 2009). However, only a few of them had a primary focus on cyberbullying and none of them were published in a peer reviewed journal. Due to the limited amount of research on cyberbullying behaviors in Europe more research is required (Brandtzæg et al. 2009).

Definitions

Researchers have had difficulties defining cyberbullying, one reason is its fast development which makes it problematic to conceptualize its components (Sun et al. 2016; Underwood & Ehrenreich, 2017). There has been agreed that cyberbullying is a form of aggression, involving the internet or related technologies (Sun et al. 2016). However, research has shown that not all aggressive behaviors use technology, cyberbullies may also bully in more traditional ways (Chisholm & Day, 2013).

Gahagan with colleagues (2016) raised criticism by stating that many researchers use the same terminology for cyberbullying but utilize different definitions which may result in different phenomena being measured. There exist a broad range of definitions, some broader than others. The most frequently cited definition derives from Smith et al. (2008, p. 376), “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 herself”. Others have defined it as an intentional and repeated harm perpetrated through the use of computers, cell phones, or other electronic devices (Hinduja & Patchin, 2009; Patchin & Hinduja, 2010). One common aspect these two definitions share is that the behavior is ‘repeated’, an aspect that has been up for discussion. The impression of repetition of cyberbullying is not given, since one single act of harassment may lead to a ‘snowball’ effect, and extend without the control of the bully (Slonje et al. 2013). For an example, when a photo has been uploaded on the internet without a

person's consent it can spread and no longer be in hands of the uploading person. The photo can thereafter be distributed by other people, and result in repeated victimization even though the initial perpetrator is not further involved (Slonje et al., 2013). In addition to repetition some researchers have argued that the harmful behavior must also occur between the same individuals (Olweus, 1993; Olweus, 2012). These difference in perception leads to some ambiguity within research. Another issue is the disagreement about power balance, it has been claimed that there must be an imbalance of power between the perpetrator and the victim (Olweus, 1993; Olweus, 2012). The aspect of imbalance can be perceived as a systematic misuse of influence (Slonje et al., 2013). This feature has been associated with traditional bullying, whereas the victim has been described as 'weak', not only physically but also psychologically. However, within cyberbullying this imbalance is not clear, but there is a possibility it is illustrated through technical ability and anonymity (Slonje et al., 2013).

Types of cyberbullying

The phenomena of cyberbullying has during last decade spread and grown, which has led to the development of various new forms of harassment (Hollá, 2014). Cyberbullying can take different forms, depending on the method and content. A broad range of behaviors have been identified, such as online flaming, online harassment, denigration, impersonating, outing, trickery, exclusion and trolling (Chisholm & Day, 2013; Hollá, 2014). Many of the mentioned types are very similar to each other, but they do differ in specific features (Hollá, 2014). In order to illustrate the broadness of the phenomena a classification including a short description of each mentioned type of behavior will be presented;

Online flaming; Flaming occurs when an individual attacks the victim with insulting and rude words through electronic messages in social discussion groups (Hollá, 2014; Newey & Magson, 2010). This form of cyberbullying is mainly, but not exclusively, conducted by males (Chisholm & Day, 2013). It has been described as a rather 'in your face' type of confrontational online communication style.

Online harassment; Online harassment is a form of cyberbullying that consists of repeated messages or emails sent toward a targeted person that are disrespectful and offensive (Hollá, 2014; Newey & Magson, 2010). The purpose with these behaviors is to hurt or annoy the victim, and has sometimes been referred to as a 'text war' (Newey & Magson, 2010).

Denigration; Is a type of behavior that takes place when an individual distributes insulting statements, lies or gossip about the victim through electronic means (Hollá, 2014).

Impersonating; Is when the cyberbully impersonate the victim and spreads insulting messages from what seems to be the victims profile or account (Chisholm & Day, 2013; Hollá, 2014). The aim with the act is to get the victim into trouble or severely damage the person's reputation or relations (Chisholm & Day, 2013).

Outing; Occurs when an individual posts or distributes intimate or embarrassing photos, videos or information about the victim through the internet or mobile technologies (Hollá, 2014). The information is spread without the consent of the victim since it was meant to remain a secret (Newey & Magson, 2010).

Trickery; Occurs when the victim is 'tricked' to disclose personal information or secrets, but can also include potentially embarrassing information (Hollá, 2014).

Exclusion; Takes place when a victim gets intentionally excluded from online discussion groups, chat rooms or rejected from online communication with others (Hollá, 2014). The exclusion can be carried out by being blocked or ‘unfriended’, or when friends do not respond on purpose (Newey & Magson, 2010).

Trolling; Trolling has been defined as “the practice of behaving in a deceptive, destructive, or disruptive manner in a social setting on the internet with no apparent instrumental purpose” (Buckels et al. 2014, p. 97). It happens when someone publish offensive messages in online communities in order to provoke others and get responses (Chisholm & Day, 2013). The behavior can be distinguished from other forms of cyberbullying due to its pointlessness (Wright, 2017). The intention of trolling is rather unclear, which differs from other forms of bullying that aims to cause the victim harm. Trolls have been described as chaos agents who uses ‘hot issues’ to make other users overly emotional or foolish (Buckels et al. 2014). The phenomena of trolling and trolls have raised public awareness, but within empirical research less is known.

Venues for victimization

There exist a broad range of venues that can be misused for these cyberbullying behaviors, especially since new technological instruments are introduced over time. Research has shown that venues such as email, chat rooms, web sites and social networking sites may be misused for harmful behaviors (Patchin & Hinduja, 2011). Cyberbullying venues have by some studies been divided into two media categories, through the internet or mobile phones (Slonje et al. 2013). However, this categorization is rather problematic due to the technological advances made during the recent years. It is now possible to use the internet and its applications in broader terms through mobile phones. So it can be difficult to separate the two categories from each other, hence the distinction becomes unclear. Some studies have on the other hand explored the phenomena through a range of more specific media forms (Slonje et al. 2013). Smith et al. (2008) utilized a seven item measurement on platforms used for victimization, i.e. mobile phone calls, text messages, emails, picture/video clip bullying, instant messaging (IM), chat rooms and web sites. Other platforms researchers have investigated is massively multiplayer online games (MMOGs) and specific types of social networking sites such as Facebook, Twitter or MySpace (Chisholm & Day, 2013).

One variable affecting the prevalence rate of cyberbullying is the measurement used and its items (Whittaker & Kowalski, 2015). Since there does not exist an acknowledged measurement studies have adopted different ones, some only uses one single item to examine experiences of cyberbullying whereas other studies uses multiple questions. Research has indicated that the prevalence rate is lower when only one item is used compared to those utilizing several specific questions (Whittaker & Kowalski, 2015). Findings from a study by Kowalski and Limber (2007) found that the most common platform used for cyberbullying perpetration and victimization was instant messaging. Another frequently applied platform was chat rooms (Katzner et al. 2009). As social media and social networking sites increase in popularity they also appear to emerge as a more common venue for harmful behaviors (Whittaker & Kowalski, 2015). Data from Statista (2017a) revealed that one of the most famous social networking sites around the world, with the most active users as of April 2017, was Facebook (around 1.970 million), followed by WhatsApp (1.2 million) and YouTube (1 million). Although the popular application of Instagram was found down on seventh place, it has increased its active users rapidly. Statistics has shown that at the start of 2013

Instagram had 90 million monthly active users, and approximately four years later it had increased to 700 million (Statista, 2017b). This illustrates the quick increase in popularity of social networking sites and the amount of users worldwide. It has been stated that the platforms used for cyberbullying behaviors reflects the most frequently used technologies at the time (Whittaker & Kowalski, 2015), and since new platforms are constantly introduced it is important the prevention strategies are up to date.

Gender differences in cyberbullying

Research on cyberbullying has been carried out for over a decade but there are still many things we do not know (Connell et al. 2014). One challenge for both traditional and cyberbullying has been the role of gender (Connell et al. 2014; Topcu & Erdur-Baker, 2012). Olweus (1993; 2013) identified a difference in patterns of traditional bullying, the author found boys being overall more exposed to bullying than girls. The percentage of boys reporting experiences of indirect forms of bullying, e.g. social exclusion or spreading rumors, was equal to girls but boys were found more exposed to direct form of bullying (Olweus, 2013). Numerous studies have since then been dedicated to explore whether there exist any gender difference in patterns of cyberbullying as well. Some researchers have suggested that cyberbullying should be perceived as an extended form of traditional bullying and aggressive behavior, which would indicate boys being more likely to engage in cyberbullying (Barlett & Coyne 2014). On the other hand, if it should be seen as an indirect form of aggression there should be a slightly higher likelihood among girls or no differences at all (Barlett & Coyne, 2014; Chisholm, 2014). The theoretical assumptions concerning the role of gender has been divided, just like the inconsistent findings. So whether there exist any differences for girls and boys in experiences have remained unknown (Navarro & Jasinski, 2013). Unfortunately, the uncertainty restrain prevention programs from sufficiently address the impact of gender on cyberbullying (Connell et al. 2014).

The existing evidence have indicated mixed results but the majority of studies have not identified any gender differences in either cyberbullying perpetration or victimization (Elledge et al. 2013). Previous research have shown that girls tend to be more engaged in more indirect forms of bullying, such as harassment with psychological and emotional characteristics (Marcum et al. 2012). Hinduja and Patchin (2008) argues that since cyberbullying consists of more indirect harassment one can assume that girls would be just as likely to be exposed as boys. Supporting findings from Kowalski and Limber (2007) showed that among elementary and middle school students' girls reported more experiences of victimization than boys, 15% versus 7%. However, boys reported slightly higher frequencies of perpetration, 4.6% compared to 3.6% of the girls. The indication of higher likelihood for victimization among girls has also been supported by more recent studies (Görzig & Olafsson, 2013; Kowalski et al., 2012; Mark & Ratliffe, 2011). Feminist scholars within the field, referred to as cyberfeminism, have had dissimilar perspectives toward the internet (Navarro & Jasinski, 2013). Some perceives the internet as a potentially liberating area for women, and the increased risk for victimization may be due to their inclination to perpetrate these behaviors themselves. Other feminist scholars argue that the reason why girls are exposed to more cyberbullying is because of their disadvantage position online and in society (Navarro & Jasinski, 2013).

However, despite some theoretical assumptions of rather equal participation rate, several studies have instead suggested that boys are more inclined to be involved in cyberbullying behaviors than girls (Barlett & Coyne, 2014; Li, 2006; Sourander et al. 2010; Topcu & Erdur-Baker, 2012). The results from a Spanish study by Calvete with colleagues (2010) showed that approximately 48% of the boys had been involved in at least one act of cyberbullying compared to 40% of the girls, a difference found statistical significant. Boys were more likely to record and send images of physical aggression, but also pictures of embarrassing and sexual nature (Calvete et al. 2010). One possible explanation for an increased disposition among boys concerns differences in gender role socialization, more specifically a potential difference in level of empathy (Topcu & Erdur-Baker, 2012). In a recent meta-analysis by Barlett & Coyne (2014), the authors found age mediating gender differences, the findings suggested that girls reported more acts of cyberbullying during early adolescence, and boys in the late adolescence. The authors argued this finding could be due to some developmental variances, i.e. that boys 'catch-up' with girls' later in adolescence (Barlett & Coyne, 2014).

Within the discussion of gender several theoretical explanations has been presented. To date, the aspect of cyberbullying is very much complex, both in theory and research findings which illustrates the need for more in depth analyses. There may be some differences and variations between the genders that yet have been unexplored.

Relevance of this review

Although, gender differences in cyberbullying behaviors have been well studied for the last decade, the findings are inconsistent. How gender affects the prediction of cyberbullying involvement has remained uncertain. Along with the mixed results follows various theoretical explanations, and in order to get some clarity a review of the existing literature is of high importance. To date, some reviews have been carried out, but due to the rapid technological development the phenomena keeps evolving (Slonje et al. 2013). Consequently, researchers must keep up with the technological advances and continuously report new evidence. Especially in Europe, where there is little knowledge about factors affecting cyberbullying among children and adolescents, such as gender and technological platforms (Brandtzæg et al. 2009).

Previous research on the role of gender have been dedicated to examine differences in cyberbullying experiences in general, if gender could be a risk factor for involvement, either as a perpetrator or victim. Although it is significant to investigate general patterns, it is also important to explore gender differences within the behaviors. Whittaker and Kowalski (2015) argues that knowledge about the frequency of cyberbullying victimization is not as informative as knowing the location of victimization, i.e. the technological platforms used for harassment. Research on where victimization occurs would provide vital knowledge for practice, indicating risky environments where prevention strategies is essential. In addition, it would illustrate areas future research need to explore, e.g. by carry out deeper analyses of patterns within media platforms. The literature on adolescent's experiences of cyberbullying in European countries have been insufficient, and in order for the research field to move forward an assessment of the existing evidence is necessary which makes the present review highly relevant.

Aim

The overarching aim with the current review is to analyze the role of gender in experiences of cyberbullying victimization among European adolescents. In order to achieve the aim the specific aspects of (1) gender differences in victimization, and (2) misused technological platforms will be explored.

METHOD

In order to analyze the potential gender differences in experiences of cyberbullying victimization among adolescents in Europe a systematic review was conducted. Due to the intention of providing a foundation of current evidence a systematic review was found most suitable, especially since it is one of the most accepted techniques to develop synthesis of science (Apóstolo & de Lima, 2016). The method differs from traditional narrative reviews by implementing a more detailed process, which is replicable, scientific and more transparent (Transfield et al. 2003). It aims to minimize biases by conducting comprehensive literature searches, including both published and unpublished studies, and presenting all decisions and steps along the process. The ambition of the method is to make sense of an extensive amount of information, and consequently contributing with answers to specific questions about what does and does not work (Petticrew & Roberts, 2006). Khan with colleagues (2003) have presented five steps in the process of constructing a review, including (1) formulating the review question, (2), identifying relevant studies, (3) assessing the quality of the studies, (4) summarizing the evidence, and (5) interpreting the study results. According to O'Brien and Guckin (2016), if these steps are pursued in a systematic and detailed manner, one can produce a vigorous review of the literature.

Reviews have a great value since the findings from individual studies are in general given much more credit than they are worth (Petticrew & Roberts, 2006). Although there are many advantages with systematic reviews it also has some disadvantages that needs to be addressed. Even though bias reduction is one of the methods strengths it is important to remember that it does not entirely eliminate the risk of biases (O'Brien & Guckin, 2016). The risk of biases increases if the process, from establishing inclusion and exclusion criteria to extracting data, is not carried out in a correct manner. When assessing the validity of the studies there is no general accepted method to use, therefore some disagreements between reviewers may occur regarding the way the information has been extracted and analyzed (O'Brien & Gluckin, 2016). However, by utilizing a strict methodology the reliability can be very high, i.e. the search strategies can be replicated by other researchers.

Ethical considerations

When research involves humans ethical considerations are significant, and in many cases is an approval by an ethical board required (Vetenskapsrådet, 2011). Since the start of 2004, examinations of research ethics in Sweden has been controlled by the Act regarding the Ethical Review of Research Involving Humans, which declares what type of research that needs to be reviewed (Vetenskapsrådet, 2011). Although ethical considerations are crucial when conducting research, the present review did not need an approval due to the used methodology. A systematic review is a secondary study, which makes use of

primary data sources in order to summarize existing evidence (Apóstolo & de Lima, 2016). Therefore, all ethical aspects should have been considered in each individual study. If any of the included studies have errors concerning ethics it will be addressed during the quality assessment and later be discussed. It is important that researchers have scrutinized aspects such as participants' anonymity, confidentiality, secrecy and professional secrecy (Vetenskapsrådet, 2011). In addition, since the population of interest in the review is adolescents and are of young age the aspect of consent is of high importance.

Criteria for considering studies for this review

In order to identify relevant articles for the present review some inclusion criteria were established. A summary of the criteria areas are presented below.

- Study characteristics
 - Published from 2012 to 2017
 - Written in English
- Participants
 - Adolescents aged 10 to 19
 - A European sample
- Phenomena of interest
 - Cyberbullying victimization
- Outcome measures
 - Cyberbullying victimization by gender
 - Technological platforms for victimization by gender

Study characteristics

When examining the prevalence of cyberbullying victimization several study designs can be utilized depending on individual research questions, such as questionnaires and interviews. In the present review there was no restriction concerning study design but they had to meet all inclusion criteria which indicates an advantage of quantitative studies. To be included in the review the studies had to present primary data and been published between 2012 and 2017. If the criteria were not met they were excluded from the review. The established time frame is due to the rapid development of technology and to ensure the accuracy of the results and the used technology. In addition, to be included all studies had to be written in English. To only include English written studies, or using any language limitations, is not preferred due to the increased risk of language biases (Higgins & Green, 2011). However, since the review is carried out by one single author, this inclusion criteria was unavoidable.

Participants

Two inclusion criteria were established concerning study population. First, for a study to be included the participants had to be adolescents aged 10 to 19. Although, the determinants of this period in life is universal through a biological perspective the duration and characteristic can vary between cultures, and over time and situations (WHO, 2016). Of that reason it can be difficult to identify a common definition of age and youths (Eurostat, 2009). Therefore, the definition of adolescence derived from the worldwide organization WHO (2016), which "identifies adolescence as the period in human growth and development that occurs after childhood and before adulthood, from ages 10 to 19". If the age of the participants was not completely within the age frame an individual decision for

inclusion or exclusion were made by the author, but to be included the majority of the age frame had to be within the established criteria. Second, to be incorporated in the review all studies had to be conducted in a European country, either fully or partially located in Europe. If a study had been conducted in multiple countries, including non-European countries, they had to report the findings separately. If not, the study was excluded due to the inclusion criteria not being met.

Phenomena of interest

To be included in the review all studies had to measure cyberbullying victimization, if a study only measured bullying others the study was excluded. In cases where studies reported victimization through two categories, only victims and victims that have bullied others, both categories were included. In order to conduct analysis the results needed to be reported through quantitative methods and measures. There were no criteria concerning definition of cyberbullying behavior since it does not exist a standardized or general definition at this time. Therefore, studies can have applied slightly different measures as long as it clearly describes the phenomena of interest.

Outcome measures

There were two primary outcomes of interest in this review, i.e. gender and technological platforms, which are essential in order to achieve the overarching aim. First, to be included all studies had to measure and report outcomes by gender, if gender distributions were not reported the study was excluded. Gender is often used as a demographic variable within research since it makes it possible to make comparisons. Thus the analysis can reveal if victimization is gendered, and whether the findings are consistent through the studies. It may also indicate how well the sample represents the measured population, if the gender distribution is even or if it is skewed which can affect the credibility of the results. Second, all studies had to measure technological platforms used for victimization, to explore whether some sites can be a potential risk factor for victimization. To be included at least two separate platforms had to be measured and reported separately for each gender. Due to the variety of measurements and items utilized by researchers the criteria was written in general terms, the locations can be broad (e.g. internet or mobile phone) or more specific (e.g. IM, chat rooms or email). The criteria of two measured platforms makes it possible to compare within and between samples, and when summarized indicate where adolescents are at increased risk for victimization. It may also reveal if boys and girls becomes cyberbullied through different sites.

Search methods for identification of studies

For identification of relevant studies three primary search sources were used, the databases EBSCOhost and ProQuest and the search engine Google Scholar. In addition, further grey literature were searched through specific websites of organizations. For full detail of the search strategies see *Appendix 1*.

The databases of EBSCOhost and ProQuest were chosen due to their broadness and richness of publications. Since cyberbullying can involve and affect various aspects of life, e.g. educational, medical, psychological and technological, it was significant not to use databases with a narrow perspective. EBSCOhost consists of several sources within educational and health science, such as ERIC, MEDLINE and CINAHL full text (EBSCOhost, 2017), and ProQuest contributes with other sources, including PsycINFO which pays special attention toward psychology

(ProQuest, 2017). Consequently, the searches can identify relevant articles through a more holistic approach.

Google scholar is a search engine provided by Google Inc., which allows users to search across multiple disciplines and sources, such as articles, abstracts, web sites and theses (Google, 2017). It is required that systematic reviews carries out searches for grey literature, i.e. articles not formally published by commercial academic publishers (Haddaway et al. 2015), and one method to do so is through Google Scholar. A strength with this search engine is its comprehensive records of both academic and grey literature, and that it is free to use.

Search strategies

The initial searchers began in the beginning of March 2017 and last search was carried out in mid-May. Based on the inclusion criteria, two restrictions were made concerning language and time frame. All search strategies were limited to articles written in English and published from 2012 to 2017. To minimize the risk of publication bias all publication types were included in each search.

Databases

A preliminary search was conducted with the terms “cyberbullying” and “victimization” in both ProQuest and EBSCOhost, which generated 2,409 respectively 579 results. Although many studies measuring cyberbullying were identified the search words were not sufficient enough since the behavior can be described in other terms. Therefore the searchers expanded by adding the alternatives “cyber-bullying”, “electronic bullying” or “internet bullying”. The modification of search terms increased the result to 6,062 in ProQuest and 678 in EBSCOhost. To ensure the accuracy of the identified articles all search terms had to be found in the abstract, which narrowed it down to 707 respectively 550. When screening the results it was revealed that the search strategy did not fully detect other forms of the word ‘victimization’ which then were modified and truncated to “victim*”. To make sure that articles incorporated measured platforms the following terms were added, “medium”, “channel”, “platform” or “online”. The amount of results were reduced to 501 and 485, but it was revealed that most of them had used the term ‘online’. Therefore, the other forms were excluded and a rerun of the search was conducted. The modification did not reduce the results significantly, which resulted in the final search string of, “ab(cyberbullying OR cyber-bullying OR electronic bullying OR internet bullying) AND ab(victim*) AND online”.

The final searches generated 433 results in ProQuest and 476 in EBSCOhost. After duplicates within each database were removed 305 respectively 313 identified records remained.

Google Scholar

The searches in Google Scholar began without any restrictions or filters using multiple words central to the purpose of this review, “cyberbullying victimization adolescent OR youth gender Europe technology”. Although many terms were used the results were comprehensive, generating approximately 2 900 hits. The search was found not suitable since it was too narrow in key terms and most of the records were irrelevant for the review. Searching broad, without any restrictions were problematic due to the richness of results. Therefore, searchers began in titles, initially with the terms “cyberbullying victim OR victimization”, which

only provided 99 hits and indicated some search flaws. Modifications were made and resulted in the final search term “victim OR victimization AND cyber” all words restricted to titles and excluded citations and patents, which generated approximately 116 records.

In addition, Google was also used to search for grey literature within websites of organizations, in order to identify relevant reports and articles, see *Appendix 1*.

Data collection and analysis

Selection of studies

The final search strategies in databases, search engine and other sources were carried out the 21th of March. However, some additional searches were made later. To aid the process of selecting studies for inclusion the reference management program RefWorks was used. The program allows the user to store and manage articles from databases, where personal databases and folders can be created (RefWorks, 2017a). In total 741 articles were identified through the main search strategies, and all records collected from ProQuest, EBSCOhost and Google Scholar were transferred into the program. The eight remaining records collected from other sources was handled manually by the author. For the author to be able to reanalyze the records specific folders were created in RefWorks, e.g. screening and full-text assessment.

The first step in the selection process was to remove duplicates, which was conducted through the usage of a duplication search within RefWorks. Duplications can be searched through two methods, either by searching for exact or close duplicates (RefWorks, 2017b). In the present review the exact duplicate search was adapted, because by using the later alternative there is a risk that studies who are similar but have minor difference in data will be perceived as the same. The additional eight sources was searched manually within the program for replicas. The program identified 78 exact duplicates which was removed from further analysis. The remaining 663 articles was included for screening.

The second step consisted of screening the title, descriptors and abstracts of all records. The purpose with screening was to remove the articles that clearly did not meet the inclusion criteria of the review. All stages of the selection process was carried out by the author, and since all decision were made by one person extra caution was taken. If there were any doubts concerning a study it was included for later full-text assessment. Throughout the screening process additional replicas were found that had not been identified through the duplication search, those were excluded as the process continued. Furthermore, in few cases it was shown that the articles had presented the same data, in those cases the original article was included. Through the screening process 462 articles were excluded, and 201 articles were included for a full-text assessment.

In the third step all articles that potentially met the inclusion criteria were full-text assessed by the author. Studies that did not meet the established criteria were excluded with a rationale, see *Appendix 2*. Through this process it was discovered that full-text were inaccessible for 28 out of the 201 articles. In order to gain access, the author attempted to contact the researches but accurate contact information was not available for all researchers, which resulted in seven emails being sent out. Through this correspondence four authors responded and provided

a full-text version of their article. Unfortunately, the remaining 24 articles were excluded due to denied access, negatively affecting the validity of the review. During the full-text assessment a total of 194 articles were excluded, the remaining 7 articles were included for the qualitative synthesis.

To ensure that no relevant studies were left undiscovered additional searches were made, both through Google and in the reference list of each included study. Several different search terms were used in Google Scholar, involving both broad and narrow key words. The last search was carried out the 18th of May. Moreover, the reference lists were assessed, but no further studies were included for analysis. Hence, the final sample consisted of the 7 studies.

Data extraction

Data was extracted from all studies that met the established inclusion criteria. The data extracted was tailored after the current review and covered two aspects, the study's methodology and outcome findings. With the intention of providing sufficient information about each study's methodology data on the following items were sought;

- Study reference
- Country
- Sample features
- Participants
- Cyberbullying measurement

In order to answer the overarching aim data on the specific outcomes for each gender were extracted;

- Prevalence of cyberbullying victimization
- Technological platforms used for victimization.

Due to the variety of effect measures applied in the studies there were some difficulties finding similarities. The primary effect measure sought out concerning the outcomes were frequency rates and percentage, and the presence of statistical significance. The two measurements complements each other, since percentage alone might indicate a larger effect than it really is. In cases where those measurements were not reported other effect measures were extracted that indicated cyberbullying victimization and through which platforms it occurred. In some studies the outcomes were reported through chi-squared test, t-test, or mean value and standard deviation.

Missing data

In cases where data on an item was absent it was considered missing data and managed within the assessment of study quality. All missing information will be discussed in later sections of the review.

Assessment of study quality

To assess the quality of each included study the *Quality Assessment Tool for Quantitative Studies* was utilized (Effective Public Health Practice Project, 1998a). An instrument that has been adapted by other researchers examining cyberbullying behavior, such as Bottino with colleagues (2015). The instrument consists of six components, i.e. selection bias, study design, confounders, blinding, data collection method, and withdrawals and dropouts. Each component

is rated separately on a 3-liked scale, i.e. weak, moderate or strong, which later were summarized to an overall quality indication. The assessment of each study's quality was carried out by the author, and is presented in *Table 2*.

Data synthesis

The findings from the studies were analyzed narratively, which is an approach that mainly relies on words and text when summarizing and enlighten results (Popay et al. 2006). The synthesis of a systematic review is a key component, it refers to the process of conveying the findings from several studies with the purpose of providing an overall conclusion. Data from a systematic review can be presented in two ways, either narratively or statistically (meta-analysis) (University of Edinburgh, 2017). Since a meta-analysis was not conducted the review applied the first approach, a widespread method within systematic reviews (Popay et al. 2006). The identified evidence was summarized and presented ongoing in the text.

RESULTS

Results of the search

The author identified 618 articles through the systematic searches in the databases of EBSCOhost and ProQuest and an additional 123 articles in Google Scholar and other sources. A total of 78 articles were excluded due to exact duplication. The majority of the screened articles did evidently not meet the inclusion criteria, resulting in 201 articles being assessed for eligibility. A total of 7 articles were selected and included for analysis. Some of the most frequent rationale for exclusion were: (1) the study did not measure/report technological platforms for victimization; (2) the sample consisted of non-European participants; (3) the study did not report the outcome measures by gender; and (4) the participants were older than inclusion criteria. In addition, 24 articles were excluded due to denied full-text access. *Figure 1* describes the selection process of the studies included in this review.

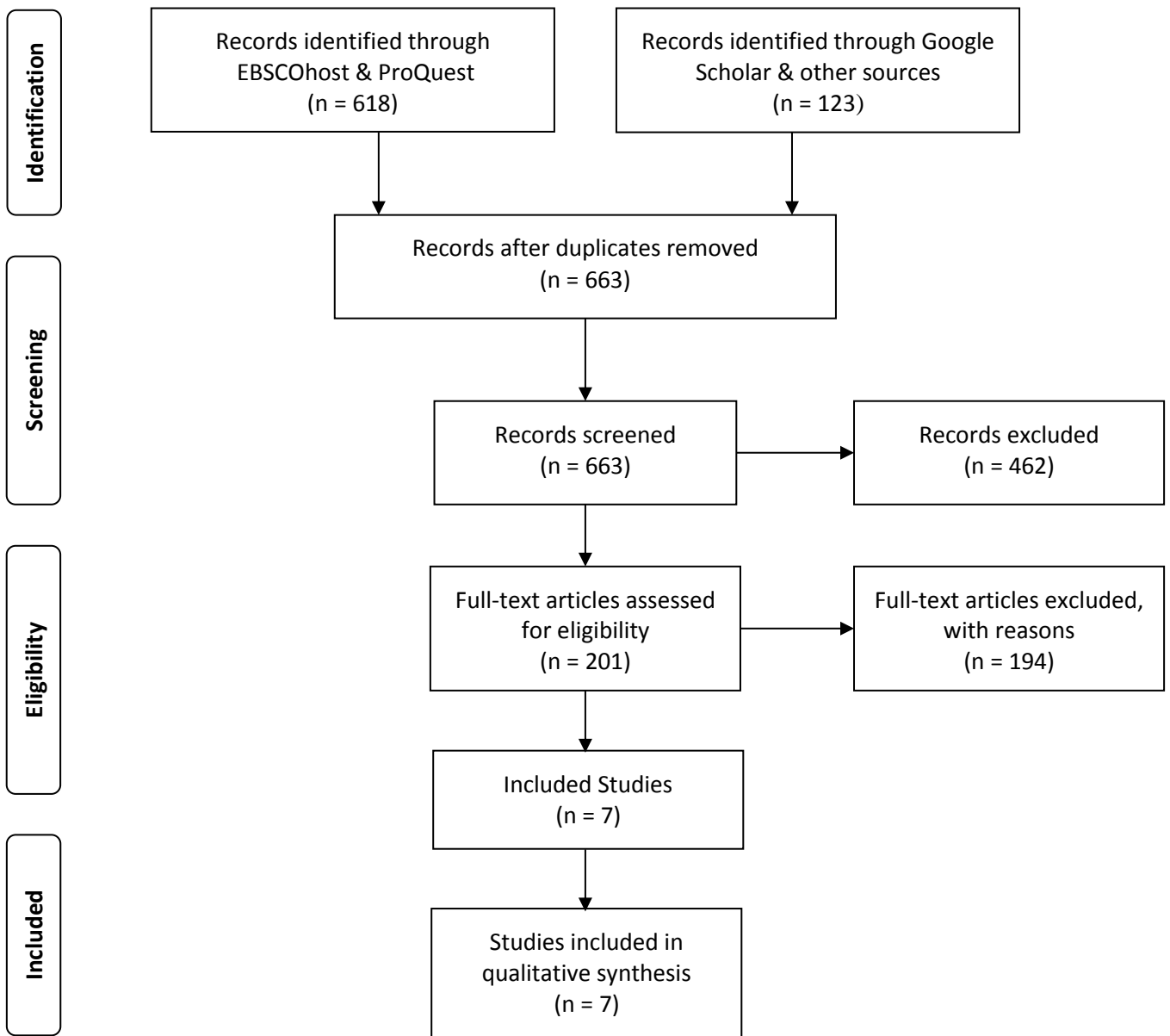


Figure 1. PRISMA diagram
Based on Moher et al. (2009)

Included studies

Although the amount of studies included for analysis was limited data derived from a total of 25 countries, either fully or partially located in Europe. The broad range of participating countries was due to two studies been carried out across multiple nations (Görzig & Frumkin, 2013; O’Neill & Dinh, 2015). The age of the participants varied from 9 to 20 years, hence the adolescents attended different educational levels. In the most of the studies the gender distribution was relatively even, apart from O’Moore (2012) where the sample consisted of considerably

more boys than girls, 66.4% vs. 33.6%. Not all participants had indicated their sex but the missing data was not found substantial in any study. Some uncertainties concerning demographic variables were found in O’Neill and Dinh (2015), where neither gender distribution nor cases of missing data was presented.

To examine cyberbullying the included studies applied different designs, but all had utilized self-reported questionnaires. Two studies had complemented the questionnaires with face-to face interviews (Görzig & Frumkin, 2013; O’Neill & Dinh, 2015). The majority had measured cyberbullying at one occasion, whereas three were carried out in two or more time waves (Calvete et al. 2016; Festl & Quandt, 2016; Gradinger et al. 2012). The measurements of cyberbullying varied within the samples, both in definition and number of items. Two studies had based their measurement on Smith et al. (2008), but even though several shared similarities in content of questions a mutual ground was not identified. One significant difference between the studies were the time frame for victimization. In some studies an established time frame was not or only vaguely stated, and for those who had it varied from 2 to 12 months.

Data on the response rate was found missing in four out of the seven studies, which can be perceived as an indicator of sampling bias and may lower the study quality. It was revealed that none of the studies with a cross-sectional design reported response rate, merely those with more than one measurement had. The study by Gradinger with colleagues (2012) was the only study presenting percentage of respondents for the first measurement but it was rather low, 55%, for the second measurement it varied from 58% to 88.96% (Calvete et al. 2016; Festl & Quandt, 2016; Gradinger et al. 2012).

Table 1. Characteristics of included studies

Study	Country	Study design	Sample features	Participants	Cyberbullying measure
<i>Almeida et al. (2012)</i>	Portugal	Cross-sectional design. Self-reported questionnaire. Conducted between 2008 and 2009.	Students of 34 public urban schools. Sample reasonably balanced across 7 th to 12 th grade. Response rate unknown.	N=1751 Age: 11 to 20 Boys: 47.5% (822) Girls: 52,5% (907) 22 missing cases.	36-item measurement, from Smith et al. (2008). “How often have you been bullied through text messages/internet in the past couple of months in school?”

Study	Country	Study design	Sample features	Participants	Cyberbullying measure
<i>Calvete et al. (2016)</i>	Spain	Longitudinal design. Self-reported questionnaires at three time waves, 6 months apart.	Adolescents from eight educational centers. Data on victimization collected from T1. Response rate: T2: 88.96% T3: 75.56%	<u>T1</u> N=1015 Age: 14-18 Boys: 41% (417) Girls: 58% (588) 10 missing cases. <u>T2 & T3</u> N= 903/767	9-item measurement, from the CBQ victimization subscale. Items measuring the frequency of different cyberbullying behaviors experienced by adolescents.
<i>Festl & Quandt (2016)</i>	Germany	A part of a multi-wave panel survey. The study considered two time points, T1 and T2 (one year later).	High school students (7 th to 10 th grade) in southwest Germany. Response rate: T2: 58%	<u>T1</u> N=3515 Age: 13-17 <u>T2</u> N=1817 Boys: 44% (805) Girls: 55% (1006) 6 missing cases.	Definition of cyberbullying from Smith et al. (2008). 6-items measuring online victimization.
<i>Gradinge r et al. (2012)</i>	Austria	Data from the untreated control group of an intervention study. Internet-based questionnaires carried out at two time waves, in 2009 and 2010.	Students from five Austrian schools, 38 classes, that participated in at least one occasion of measurement Response rate: T1: 55% T2: 73%	N= 665 Mean age T1:11.63 T2: 12.65 Boys: 54% (356) Girls: 46% (309)	1 overall and 7 specific measures. Overall: how often have you been insulted or hurt by receiving mean text messages, emails, or videos/photos during the last two months? Specific: 7-items measured separately.

Study	Country	Study design	Sample features	Participants	Cyberbullying measure
<i>Görzig & Frumkin (2013)</i>	25 European countries ¹	Cross-sectional design. Face-to-face interview and self-reported questionnaire.	The study analyses a subsample of 25 142 children that reported being bullied online. Response rate unknown.	Full sample: N=25 142 Boys: 50% Girls: 50% n=1300 Age: 9-16 Boys: 41% (532) Girls: 59% (768)	1 overall measure followed by two specific items answered in steps. Overall: has someone acted in a hurtful or nasty way to you in the past 12 months? For example by teasing, hitting, kicking or pushing, or left you out of things?
<i>O'Moore (2012)</i>	Ireland	Cross-sectional design, self-reported questionnaire.	The students represented the entire student body of the 1 st , 2 nd , 3 rd and 4 th years from nine post-primary schools. Response rate unknown.	N=3004 Age: 12-16 Boys: 66.4% (1995) Girls: 33.6% (1009)	38-item measurement. Questionnaire based on Olweus Bully/Victim Questionnaire, the revised version and the questionnaire by Smith et al. (2006).
<i>O'Neill & Dinh (2015)</i>	7 European countries ²	Data from the Net Children Go Mobile survey. Cross-sectional design, self-reported questionnaire and face-to-face interview.	A random stratified sample of approx. 500 internet using children per country. Response rate unknown.	N=3500 Age: 9-16 Gender distribution unknown.	Many of the survey questions were taken from the EU Kids Online survey conducted in 25 European countries in 2010. Measured cyberbullying experiences during the past 12 months.

¹ Austria, Belgium, Bulgaria, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Lithuania, the Netherlands, Norway, Poland, Portugal, Romania, Slovenia, Spain, Sweden, Turkey and the UK.

² The UK, Denmark, Italy, Romania, Ireland, Portugal, and Belgium.

Study quality in included studies

All included studies were assessed for study quality using the *Quality Assessment Tool for Quantitative Studies* (Effective Public Health Practice Project, 1998a). Through the evaluation it was revealed that none of the studies had a strong quality, five had moderate and two were found to have weak quality, see *Table 2*. All studies scored low on the component of study design, which deprived them from the possibility of a strong quality. To have a high score a study had to utilize randomized control trials or controlled clinical trial (Effective Public Health Practice Project, 1998b), which none of the studies had since it can be difficult to apply on the field of interest.

A higher risk for selection bias was found in Gradinger with colleagues (2012), due to the response rate at the first measurement was below 60%. The remaining studies were perceived to have a moderate quality, as the participants were likely to represent the targeted population although the response rate were missing. In Görzig and Frumkin (2013) information about confounders were not presented since the analyzed data derived from a larger study. For that reason, the author was not able to assess the component properly resulting in the weaker score. As stated before, only three studies incorporated follow-ups, an aspect that were examined through the component of ‘withdrawals or drop-outs’. The amount of participants completing the study was high in Calvete with colleagues (2016), 88.96% at T2 and 75.56% at T3, indicating a high quality. However, it is worth mentioning that the other two studies by Festl and Quandt (2016) and Gradinger with colleagues (2012) had less than 60% participation rate at the follow-up measures, negatively affecting the quality of each study.

Data and analysis

Table 2. Prevalence of cyberbullying victimization and technological platforms

Study	Victimization	Venues for victimization		Study quality
		Boys	Girls	
<i>Almeida et al. (2012)</i>	<u>Victim</u>	<u>Victim</u>	Grade: 7-9/10-12	
	n=201	Internet	41.3% (19)	67.4% (29)*
	Boys:		35.3% (24)	54.7% (35)*
	38% (77)	Mobile	27.8% (15)	63.8% (30)**
	Girls:		33.9% (19)	55.8% (29)**
	61% (123)			
	<u>Victim/Bully</u>	<u>Victim/Bully</u>		
	n=86	Internet	23.9% (11)	9.3% (4)
	Boys:		19.1% (13)	18.8% (12)
	66% (57)	Mobile	27.8% (15)**	10.6% (5)
Girls:		32.1% (18)	7.7% (4)	
29% (25)				

Study	Victimization	Venues for victimization			Study quality	
			Boys	Girls		
<i>Calvete et al. (2016)</i>	n=52.5% (≈533)	Email/SNS	9.5%	13.3%	Moderate	
		Internet ³	10.8%	14.1%		
			25.4%	32.1%		
	Boys: 1.09(1.67)	Messages	16.8%	23.1%		
	Girls: 1.38(1.81)	Cell phone ⁴	1.9%	1.7%		
			1.2%	1.2%		
			1.5%	2.2%		
<i>Festl & Quandt (2016)</i>	T1	T1	-		Moderate	
	n=24%					
	Boys: 27%*					
	Girls: 22%*					
	T2	T2				
	n=28%	Website	t(1211) = 3.54***			
Boys: 37%***	Internet	t(1394) = 3.28***				
Girls: 21%***	Messages	t(1535) = 2.97**				
<i>Gradinge r et al. (2012)</i>	Boys: 0.15 (0.52)	Calls	M (SD) 0.24 (0.74)	0.22 (0.62)	t/df -0.21/424	Weak
	Girls: 0.23 (0.69)	Text message	0.16 (0.63)	0.17 (0.51)	0.09/424	
		Emails	0.13 (0.51)	0.10 (0.45)	-0.75/424	
		Chat	0.17 (0.60)	0.11 (0.42)	-1.20/424	
		Discuss board	0.13 (0.52)	0.08 (0.41)	-1.02/424	
		IM	0.20 (0.67)	0.16 (0.53)	-0.66/424	
		Video/photo	0.12 (0.53)	0.10 (0.31)	-0.63/424	
<i>Görzig & Frumkin (2013)</i>	N=1300		X ²		Weak	
	Boys: 41% (532)	IM	0.11 **			
	Girls: 59% (768)	SNS	0.12**			
		Mobile	0.16**			
<i>O'Moore (2012)</i>	<u>Victim</u>	Text messages ⁵	7.4%	11.0%	Moderate	
	n=9.8%		14.2%	20.4%		
	Boys: 6.9%					
	Girls: 15.6%	Internet	10.6%	15.6%		
		Camera/	11.0%	8.0%		
	<u>Victim/Bully</u>	video clips				
	n=4.1%	Calls	20.3%	24.7%		
	Boys: 3.9%	Email	5.1%	9.3%		
	Girls: 4.5%	Chatroom	8.9%	10.6%		
		IM	11.3%	15.8%		

³ Two items measuring victimization through internet.

⁴ Three items measuring victimization through cell phone.

⁵ In- or outside of school.

Study	Victimization		Venues for victimization		Study quality
			Boys	Girls	
O'Neill & Dinh (2015)	T1	T2	Age: 9-12 (13-16)		Moderate
	n= 7%	Calls	1% (2%)	1% (1%)	
	Boys: 6%	Text message	2% (2%)	2% (6%)	
	Girls: 8%	SNS	3% (5%)	4% (14%)	
	T2	Media platform	0% (1%)	0% (2%)	
	n=12%	IM	2% (1%)	1% (2%)	
	Boys: 8%	Chatroom	1% (0%)	1% (1%)	
	Girls: 15%	Email	-	-	
		Gaming website	2% (1%)	3% (1%)	

***p<0.001 **p<0.01 *p<0.05

Cyberbullying victimization

The prevalence of cyberbullying victimization among adolescents in Europe varied across the included studies, ranging from 5% to 28%. There was one study reporting a higher frequency rate, in Calvete with colleagues (2016) it was shown that 52.5% of the sample had been victims of at least on act of cyberbullying. Although their measurement did not include an established time frame for its occurrence. In addition, there was on study that did not presented the overall magnitude of victimization (Gradinger et al. 2012). The lowest frequency was found in a multinational study by Görzig and Frumkin (2013), which analyzed a subsample of participants from 25 European countries that had previously reported victimization. Findings from the Irish sample indicated that the majority of the victims of cyberbullying were also victims for traditional bullying, and almost one-quarter were traditional bullies (O'Moore, 2012). However, it was considerably less common for adolescents to be involved in cyberbullying as both victim and perpetrator, prevalence of 4.1% and 5% (Almeida et al. 2012; O'Moore, 2012). Festl and Quandt (2016) identified previous victimization as the most important predictor for reports of victimization one year later, regardless of gender.

In the study by O'Neill and Dinh's (2015), the authors compared the findings from *Net Children Go Mobile survey* from 2014 with *the EU Kids Online survey* from 2010. Between the years of 2011 to 2014 the prevalence rate of cyberbullying victimization increased with almost the double, from 7% to 12%. The most significant increases were found for children aged 9 to 10 (3% to 10%) and 13 to 14 years of age (8% to 15%). For slightly older children (15-16 years old) a small decline were shown (O'Neill & Dinh, 2015). Conversely, in the Portuguese sample it was revealed that the older participants were more likely to reported higher frequencies than younger children (Almeida et al. 2012).

Although the included studies have utilized different effect measures, all studies except from one indicated more experience of victimization among girls than boys (Almeida et al. 2012; Calvete et al. 2016; Gradinger et al. 2012; Görzig & Frumkin, 2013; O'Moore, 2012; O'Neill & Dinh, 2015). Among Irish adolescents it was twice as many girls than boys who reported cyberbullying victimization, 15.6% respectively 6.9% (O'Moore, 2012). In Portugal, similar gender patterns

were identified, girls were significantly more likely to be involved in cyberbullying as victims than boys, regardless of age grade or type of bullying (Almeida et al. 2012). On the other hand they found boys to be more likely to be representative in the role as victim who also bullies others, a finding not supported by O'Moore (2012). However, among the German sample examined by Festl and Quandt (2016) the findings were reverse, boys were statistically more likely to report experiences of cyberbullying victimization than girls, at both times of measurement. At the first measure 27% of the boys reported victimization compared to 22% of the girls [$t(1654) = 2.21, p < .05$], the gender differences were even more prominent at the follow-up where the percentage increased to 37% of the boys compared to 21% of the girls, [$t(1548) = 7.44, p < .001$].

Technological platforms

Through analysis it was shown that the studies had measured a broad range of different technological platforms in which cyberbullying may occur, but individually they identified some environments potentially more risky than others. The number of platforms measured varied from two to nine, and there were differences in specific types. In Almeida with colleagues (2012) respondents were asked questions about the occurrence of cyberbullying behaviors on the internet or through mobile phone. Although the distribution was rather even between the two categories an increase in victimization was found for both platforms with age, but with mobile phone the changes did not reach statistical significance [$p < .09$] (Almeida et al. 2012). In two of the studies the outcome percentage were presented by age or age grade. Findings from O'Neill and Dinh (2015) showed that children aged 13 to 16 were more likely to be victims of cyberbullying through all platforms than children aged 9 to 12. In Almeida with colleagues (2012) on the other hand victimization decreased by age grade, grade 10 to 12 compared to 7 to 9.

One of the less frequent platform used for victimization for both genders was email, when compared to other measured items (Calvete et al. 2016; Gradinger et al. 2012; O'Moore, 2012; O'Neill & Dinh, 2015). O'Moore (2012) found that victimization through text messages were more common outside of school than inside for both sexes, 14.2%, 20.4% respectively 7.4%, 11.0%. In the Irish sample being cyberbullied were most likely to occur through phone calls (O'Moore, 2012), which also received the highest mean score in the Austrian sample (Gradinger with colleagues, 2012). However, in the multinational study by O'Neill and Dinh (2015) respondents were less likely to report victimization through calls (1% to 2%). In the included studies social networking sites and instant messaging were found to be a frequent platform used for cyberbullying behaviors.

Some gender specific patterns in where the victimization occurs have been identified through the studies. O'Moore (2012) found that girls were the main target of all measured forms of cyberbullying except from when it occurred through mobile camera or video clips. In O'Neill and Dinh (2015) the percentage rate for all platform were low, but among girls aged 13 to 16 social networking sites had more than twice as high percentage rate than the second most frequent platform which was text message. At the second measurement in Festl and Quandt (2015) it was revealed that boys had reported significantly more victimization through insulting messages on a public website, $t(1211) = 3.54, p = .001$, and messaged from an individual that used a false account $t(1535) = 2.97, p = .003$,

and experiences embarrassing photos or videos of themselves being uploaded on the internet $t(1394) = 3.28, p = .001$. On the other hand girls were shown to have experiences more of all forms of harm in Görzig and Frumkin (2013). They found that girls were 1.66 times more likely to experience victimization through mobile than online.

Although the majority of the included studies indicated girls to be more likely to be victims of cyberbullying an overall pattern for the platforms used were not identified, only differences in frequency.

DISCUSSION

Adolescents experience of cyberbullying victimization

The phenomena of cyberbullying has become a social health issue worldwide, and findings from the review revealed that a significant portion of European adolescents have experienced cyberbullying behaviors. The percentage of participants reported being a victim varied from 5% to 28% with one study presenting higher frequencies. The estimation presented in this review are in line with previous research, which have indicated approximately 10% to 40% of adolescents will experience at least one act of cyberbullying (Kowalski et al., 2014; Tokunaga, 2010, Tsitsika et al. 2015). The problem of cyberbullying was found significantly larger in Spain where more than half of the participants had been bullied online (Calvete et al. 2016). There are some possible explanations for this variation in magnitude. First, as Calvete with colleagues (2016) did not present any time frame for victimization it is unclear whether or not they have utilized one, it is therefore possible the experiences occurred a long time back. Since most of the studies clearly stated a time span there are some methodological differences between the studies that may have affected the results. Second, research has shown that higher frequencies are generally found in studies where multiple items have been used (Whittaker & Kowalski, 2015), which might have affected and increased the prevalence rate. Although the amount of cyber victims found among Spanish adolescent is startling it is not unusual. Similar estimates was found in Aftab (2011) where 53% of adolescents aged 12 to 13 reported victimization, even a prevalence as high as 72% has been reported (Juvonen & Gross, 2008). It is possible that cyberbullying behaviors are more recurrent among adolescents in Spain than other European countries but it is conceivable the variation identified in the review is due to methodological factors, such as the broad range of definitions, items and time measured.

One moderating factor that has been of interest for researchers along with gender is age (Barlett & Coyne, 2014). Two of the included studies presented involvement in cyberbullying by age, but since there were so few studies contributing with data it is not suitable to draw any conclusions. In the multinational study by O'Neill and Dinh (2015) the authors compared the findings from two studies, from 2010 and 2014. Their analysis showed that the most significant increases were found among the younger participants, aged 9 to 14. For slightly older children, aged 15 to 16, a small decrease was identified. The result supported Tokunaga's (2010) argument that cyberbullying involvement peaks around 13 to 15 of age. Among the Portuguese sample however it was the opposite, older participants reported more victimization than younger (Almeida et

al. 2012). Since, the current review only studied adolescents it was not possible to investigate if the prevalence decreased after late adolescence, which has previously been suggested (Tokunaga, 2010).

Gender differences in victimization

It has been stated that age also may mediate potential gender differences in experiences of cyberbullying (Barlett & Coyne, 2014). Although Barlett and Coyne (2014) found girls more likely to report victimization during early adolescents and boys in the later, any gender differences moderated by age could not be identified in this review. Among the Portuguese sample girls were significantly more likely to report victimization than boys regardless of age (Almeida et al. 2012). Age did not appear to have an effect on differences between the genders, neither among the Portuguese nor multinational sample. In the latter one, the results showed older girls aged 13 to 16 were experiencing cyberbullying twice as much as younger girls, aged 9 to 12 (O'Neill & Dinh, 2015). Due to the contradictive results compared to Barlett and Coyne (2014), the review found no support for the theoretical hypothesis of boys 'catching-up' with girls' later in adolescence. So whether the likelihood of involvement in cyberbullying is associated with human development is unclear as a result of the scanty amount of data, therefore should the aspect of age be further explored in future research.

Overall, the findings revealed that the likelihood of becoming a cybervictim was higher for girls than boys. In all studies except from one girls reported higher frequencies of victimization, regardless of time of measurements. The result support the assumption of girls being just as likely or if not even more likely to experience cyberbullying behaviors as boys. As argued by some feminist scholars, the increased risk for victimization among girls may be due to their inclination to perpetrate these behaviors themselves (Navarro & Jasinski, 2013). However, since the overarching aim was to investigate gender differences in victimization, the role as perpetrator and how the two roles are associated with each other is out of the review's scope. The characteristics of cyberbullying can often be describes as rather emotional and relational, a type of bullying that girls through research been more inclined to engaged in (Marcum et al. 2012). Interestingly, in Almeida with colleagues (2012) significantly more girls reported being victims than boys but boys were more likely to possess the role as victim who also bullies others. However, the finding was not supported by O'Moore (2012), who identified the distribution between boys and girls as victim/bully was rather even. The lack of studies makes it difficult to compare data and as a consequence only speculations can be made.

Some researchers claims that girls are victimized due to their disadvantage position, both in the society as a whole and on the internet (Navarro & Jasinski, 2013). As the majority of the included studies were united in their findings, it is an indication of some sort of gender effect but whether it is due to their disadvantage can in this review only be speculated. However, there was one study identifying the opposite pattern, Festl and Quandt (2016) found boys experiencing significantly more cyberbullying victimization. Whether the reasons for these inconsistent findings are due to differences in prevalence within countries or methodology utilized by studies are unclear. In the field of research many reviews, both systematic and meta-analysis, find inconsistencies of patterns between the included studies (Barlett & Coyne, 2014; Sun et al. 2016).

Technological platforms used for victimization

Cyberbullying may occur through a broad range of technological platforms (Patchin & Hinduja, 2011), which were also mirrored in the current review. A consistent pattern for which platforms researchers investigated was not found, some examined environments were broad, i.e. internet or through mobile phone, and others were specific. The variation complicated the analysis and made it almost impossible to find any similarities in patterns, but some platforms were examined in several studies, for example email, SNS, IM, chat rooms and text messages. Due to the rapid development and advances made in technology measurements becomes rather problematic (Slonje et al. 2013), especially since the popularity in technological applications are continuously changing. Therefore, it was important the included studies were carried out within the last five years, in order to provide adequate evidence for policy and practice. In the review many specific platforms were measured, but even though certain applications were analyzed separately some difficulties arose. This since they often are interconnected in some way, for example on social networking sites such as Facebook® the user can create its own profile, use an mobile instant message application, and upload both photos and videos (Newsroom, 2017). The presented example illustrates how modern technology has advanced, but it has implications on interpretations of findings. It can be challenging separating them from each other, e.g. if victimization has occurred on social networking sites or through instant messages since many platforms incorporate both.

In addition, it is not unusual researchers divide platforms into two categories, such as mobile phone and internet. This form of categorization was adapted by Almeida with colleagues (2012). When utilizing such a broad perspective it is challenging to transform the findings into practical knowledge, because the measurement do not locate a specific environment where cyberbullying occurs. Through the internet or mobile phones the user can use many of the same applications. Today, one can send and receive emails through the mobile, and social networking sites can be used through both types of media. Consequently, findings from such studies can be less fruitful for practice than those measuring specific media types and platforms.

The analysis of the findings revealed that cyberbullying was less likely to occur through emails, compared to other platforms (Calvete et al. 2016; Gradinger et al. 2012; O'Moore, 2012; O'Neill & Dinh, 2015). One possible explanation is the expansion of social networking sites, which has increased in popularity and become a more common platform for victimization (Whittaker & Kowalski, 2015). The findings showed support, being one of the more frequently used platforms. Girls were found to be at higher risk on social networking sites than boys. It has been states that the technological platforms used reflects the most used media types at the time (Whittaker & Kowalski, 2015), and over the last decade a broad range of social networking sites has been introduced. The popularity of these platforms has increased rapidly, for example Instagram has expanded their monthly active users with over 7 times in four years (Statista, 2017b), and the currently most popular social networking site is Facebook® with almost 2 billion active users (Statista, 2017a). In O'Neill and Dinh (2015) it was shown that older adolescents aged 13 to 16 experienced more cyberbullying on social networking sites than younger, aged 9 to 12. This could be due to the minimum age requirement many of these platforms applies, many of the most popular sites, i.e. including Facebook, Snapchat, Instagram and Reddit, requires

an age of 13 (Adweek, 2014). These age criteria may not be followed by everyone but is probably a reason for the identified increase.

There was also found a gender difference in victimization through photo and video clips, boys were more often mistreated than girls through this method. A prior study by Calvete with colleagues (2010) found boys to be more likely to record and send images of embarrassing or physical aggressive behaviors. Although their finding was regarding perpetration, the current review indicated a similar gender difference in victimization. Since this form of cyberbullying consists of some physical characteristics, i.e. actual recording, it may be hypothesized that boys are more involved in these experiences. Meanwhile research has suggested girls are more likely to be engaged in indirect forms of bullying, which could explain the higher frequencies found on social networking sites and instant messages. Concerning text messages, among the Irish sample it was found that it was more frequently used outside of school than inside, for both genders (O'Moore, 2012). Even though the method and platform are the same the difference in physical environment was significant. One potential aspect that may affect is perceived anonymity, when the victimization occurs outside of school it can be perpetrated at any time and at any place. When in school, more people are close by and it may seem more 'risky' and easily detected, which may be a potential rationale for higher victimization rates.

Quality of evidence

The process of identifying eligible studies for the current review was carried out in as a systematic manner as possible, including searches for both published and unpublished literature (i.e. grey literature). The search strings utilized were broad, to ensure that no relevant studies were left undiscovered. Although, the amount of records identified were quite comprehensive only a few met the inclusion criteria and were included for analysis. Evidence was extracted from seven studies published between 2012 and 2017, and conducted in countries either fully or partially located in Europe. Data was collected from a total of approximately 38 600 participants between the ages of 9 to 20 years.

One key methodological limitation of the studies was the applied research instrument, i.e. self-reported questionnaires. A shortcoming with approaches based on self-reported data is the increased risk of social desirability bias. Social desirability can be described as the tendency of participants to provide socially desirable answers (Fisher & Katz, 2000). Knowledge about this form of bias dates decades back in time, Nederhof (1985) exemplifies by stating that this form of bias can be present when it comes to disclosing actions such as violations of the law or norms. Since, cyberbullying is perceived as an undesirable behavior there is an increased risk for biased reporting (Menesini & Nocentini, 2009). Although it can be assumed that the risk of bias is higher for data on perpetration it can still be a risk in victimization. Participants may not want to admit being exposed for harmful behaviors, over report it or they are in fact unaware of being victimized. Depending on the questions asked some participants may not perceive some act as cyberbullying.

Due to the low amount of included studies interpretations of the result should be handled with caution. In order to draw any robust conclusions concerning the role of gender in cyberbullying victimization and technological platforms used more evidence is essential, inevitably explored through a broader range of approaches.

Potential biases and limitations in the review process

The present review has like many other studies some limitations. First, some of the established inclusion criteria may have restricted the amount of identified records. To be included in the review all studies had to be published after 2012 and written in English. Although the time frame was set to ensure that the measured technological platforms were accurate and relevant it might have resulted in eligible studies on cyberbullying victimization being excluded. In addition, only including studies written in English is very problematic and increased the language bias of the review. The criterion was established due to language restrictions of the author, and consequently many significant findings from studies written in other languages may have been left unidentified. This is perceived to be a robust limitation, because many studies carried out in a non-English speaking country are naturally written in other languages.

Second, some studies were not available to the author in full-text. In cases where access was denied the author tried to contact the researchers by email, but for many studies accurate contact information was not obtainable. Correspondence was carried out with only a handful of authors, and since the review was carried out under a limited time frame of 20 weeks it was not conceivable to wait a longer time period. The difficulties in attaining relevant studies is a noteworthy limitation, a constraint other researchers such as Sun with colleagues (2016) also have encountered.

Third, the risk of potential publication bias should also be mentioned. It is conceivable that other studies relevant to the current review exist but have not been submitted or accepted for publication, and could therefore not be found in the systematic searches in either databases or search engine. It is challenging to estimate the likelihood of the problem but the possibility has been noticed.

Fourth, the fact that the review has been carried out by one single author can be perceived as a shortcoming, due to all decisions along the process been made by one person. It is a risk of unaware subjectivity especially during the data collection process and the decisions concerning inclusion and exclusion of studies.

Fifth, as previously stated the usage of self-reported data entails some risks. All of the studies had provided participants with questionnaires, and a few had complemented with face-to-face interviews. However, the data collected is completely dependent on the truthfulness of participants, which might be hampered with due to the tendency to provide desirable answers.

CONCLUSION

Information and communication technologies have grown rapidly over the years with many people using it on an almost everyday basis (Chisholm, 2014; Chisholm & Day, 2013). Even though internet has led to many advances in knowledge exchange it can be misused for harmful behaviors, such as cyberbullying. The current review explored the role of gender in experiences of victimization among European adolescents by analyzing existent evidence. The findings of studies revealed that girls were found more likely to become victims

of cyberbullying than boys. Although the prevalence appear to be slightly gendered no gender specific pattern in platforms used was found, suggesting the location of occurrence rather mirrors the most frequent technologies at the time.

Implications for practice and policy

Even though, there exist a comprehensive amount of research on cyberbullying fewer has been carried out in Europe. The body of evidence in this review is not sufficient to draw any decisions based on gender. Given the limited quantity of data broader conclusions should be made with caution as the quality of the studies varied. Nonetheless, the review do contribute with implications for practice and policy.

In order to tackle the problem of cyberbullying it is significant to be aware of potential risk factors such as gender or environment, especially when designing and implementing prevention strategies. The findings showed that girls and boys are victimized through similar platforms, with many adolescents reporting experiences with cyberbullies on social networking sites. Whittaker and Kowalski (2015) argument that as social networking sites increases in popularity it may also indicate a higher risk for misuse. Other environments identified as risky were instant messages, chat rooms, text messages and internet in general. Since the usage of platforms and applications changes over time it is important that policy and practice are constantly updated and direct their strategies toward the setting where many children and adolescents are active. The current review suggest prevention strategies should be aimed towards the popular environments of social networking and communication features. In addition, if the resources for prevention is restricted it is advised to prioritize girls due to their increased risk.

Implications for research

The central aspects of this research were whether the role of gender affected the risk of cyberbullying victimization and the technological platforms used for harassment. In an attempt to analyze and summarize the existing evidence in a European context it was revealed that being a girl increases the likelihood for encountering cyberbullies, but through which channels it occurs was found similar for both boys and girls. The field of research has through the years been divided when it comes to the role of gender, and due to the inadequate amount of included studies the results cannot be generalized in a broader sense. However, the present review is significant and has implications for future research. Since previous research on cyberbullying in Europe has been insufficient it was essential to summarize what we do know before moving forward. The need for more research has been illustrated over a significant time, Brandtzæg with colleagues (2009) identified 61 studies regarding cyberbullying between the years of early to late 2000. Similar to the present review only a few of the identified records were found eligible, which emphasizes the ongoing need for further exploration.

The review illustrated several methodological challenges the field of research needs to be concentrating on. In order to obtain accurate knowledge about cyberbullying researchers need to come together and analyze the components of the phenomena. To date, a broad range of definitions and measures exist but the content often contradicts each other. Unfortunately it makes it highly problematic to compare and draw conclusions based on findings, especially as new forms of cyberbullying behaviors develops and changes over time.

Future research should explore the role of gender beyond prevalence, in order to develop effective preventive strategies it is highly important to have an understanding about the underlying reasons for why girls are at greater risk. Since the current review was rather focused on potential differences in settings for victimization future research should aim to investigate if the content of cyberbullying varies for girls and boys. Furthermore, whether the purpose of the attacks differs.

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APPENDICES

Appendix 1. Search strategies

Database/ search engine	Search terms	Filters/ limits	Results	Results/ Duplicates removed	Date
EBSCO <i>host</i>	cyberbullying AND victimization	2012-2017, English	579		2017- 03-08
	(cyberbullying OR cyber-bullying OR electronic bullying OR internet bullying) AND victimization	2012-2017, English	678		2017- 03-09
	AB (cyberbullying OR cyber-bullying OR electronic bullying OR internet bullying) AND AB victimization	2012-2017, English	550		2017- 03-11
	AB (cyberbullying OR cyber-bullying OR electronic bullying OR internet bullying) AND AB victim*	2012-2017, English	1,007		2017- 03-11
	AB (cyberbullying OR cyber-bullying OR electronic bullying OR internet bullying) AND AB victim* AND (medium OR channel OR platform OR online)	2012-2017, English	485		2017- 03-13
	AB (cyberbullying OR cyber-bullying OR electronic bullying OR internet bullying) AND AB victim* AND online	2012-2017, English	476	313	2017- 03-21

Continues.

Database/ search engine	Search terms	Filters/ limits	Results	Results/ Duplicates removed	Date
ProQuest	Cyberbullying AND victimization	2012-2017, English	2,409		2017- 03-08
	(cyberbullying OR cyber-bullying OR electronic bullying OR internet bullying) AND victimization	2012-2017, English	6,063		2017- 03-09
	ab(cyberbullying OR cyber-bullying OR electronic bullying OR internet bullying) AND ab(victimization)	2012-2017, English	707		2017- 03-11
	ab(cyberbullying OR cyber-bullying OR electronic bullying OR internet bullying) AND ab(victim*)	2012-2017, English	946		2017- 03-11
	ab(cyberbullying OR cyber-bullying OR electronic bullying OR internet bullying) AND ab(victim*) AND (medium OR channel OR platform OR online)	2012-2017, English	501		2017- 03-13
	ab(cyberbullying OR cyber-bullying OR electronic bullying OR internet bullying) AND ab(victim*) AND online	2012-2017, English	433	305	2017- 03-21

Continues.

Database/ search engine	Search terms	Filters/ limits	Results	Results/ Duplicates removed	Date
Google Scholar	cyberbullying victimization adolescent OR youth gender europe technology	2012-2017	Approx. 2 890		2017- 03-11
	cyberbullying victimization online technology gender europe adolescent OR youth	2012-2017	Approx. 2 700		2017- 03-16
	allintitle: cyberbullying victim OR victimization	2012-2017	Approx. 99		2017- 03-16
	allintitle: victim OR victimization AND cyber	2012-2017	Approx. 137		2017- 03-16
	allintitle: victim OR victimization AND cyber	2012-2017, Exclude citation and patent	Approx. 115 116	115	2017- 03-21

Continues.

Source	Uniform Resource Locator (URL)	Title	Results	Date
Ditch the label	https://www.ditchthelabel.org/research-papers/the-annual-bullying-survey-2016/ https://www.ditchthelabel.org/research-papers/the-annual-bullying-survey-2015/ https://www.ditchthelabel.org/research-papers/the-annual-bullying-survey-2014/ https://www.ditchthelabel.org/research-papers/the-annual-bullying-survey-2013/	The annual bullying survey (2013, 2014, 2015, 2016)	4	2017-03-21
European Parliament	http://www.europarl.europa.eu/RegData/etudes/STUD/2016/571367/IPOL_STU(2016)571367_EN.pdf	Cyberbullying among young people	1	2017-03-21
London school of Economics and Political Science	https://lsedesignunit.com/EUKidsOnline/index.html?r=64	EU Kids Online	1	2017-03-21
Net Children Go Mobile	http://netchildrengomobile.eu/ncgm/wp-content/uploads/DEF_NCGM_SecondEdition_Report.pdf	Net Children Go Mobile. Final report. Net Children Go Mobile. European children and their carers' understanding of use, risks and safety issues relating to convergent mobile media.	2	2017-03-21

Appendix 2. Excluded studies

Study	Rationale for exclusion
<i>Akbaba et al. (2015)</i>	Not measuring technological venues for victimization.
<i>Akturk (2015)</i>	Not measuring technological venues for victimization.
<i>Alavi et al. (2015)</i>	Not a study.
<i>Antoniadou et al. (2016a)</i>	Not reporting measures of technological venues for victimization.
<i>Antoniadou et al. (2016b)</i>	Not reporting measures of technological venues for victimization.
<i>Arslan et al. (2012)</i>	Full-text access denied
<i>Athnasiades et al. (2016)</i>	Not measuring technological venues for victimization.
<i>Autry (2013)</i>	Full-text access denied.
<i>Ayas (2016)</i>	Not reporting measures of technological venues for victimization.
<i>Baldry et al. (2016)</i>	Not measuring technological venues for victimization.
<i>Ballard & Welch (2015)</i>	The study participants were older than inclusion criteria.
<i>Bannink et al. (2014)</i>	Only measuring one technological venue for victimization.
<i>Barlett (2015)</i>	A non-European sample.
<i>Barlett et al. (2017)</i>	The sample consisted of participants worldwide that were older than the inclusion criteria.
<i>Battaglia (2012)</i>	Full-text access denied.
<i>Baxter (2016)</i>	Full-text access denied.
<i>Betancourt (2016)</i>	A non-European sample.
<i>Bevans et al. (2013)</i>	A non-European sample.
<i>Blakeney (2012)</i>	Only reporting one technological venue for victimization.
<i>Bolman et al. (2013)</i>	Not reporting measures of technological venues for victimization.
<i>Bradshaw et al. (2013)</i>	A non-European sample.
<i>Brewer & Kerslake (2015)</i>	Not reporting cyberbullying victimization and technological venues for each gender.
<i>Brighi et al. (2012)</i>	Not reporting technological venues for victimization.
<i>Brown et al. (2014)</i>	A non-European sample.
<i>Bryce & Fraser (2013)</i>	Full-text access denied.
<i>Buelga et al. (2015)</i>	Not reporting technological venues for victimization.
<i>Burton et al. (2013)</i>	Not measuring technological venues for victimization, unclear geographic location of the sample.

Study	Rationale for exclusion
<i>Çakır et al. (2016)</i>	Not measuring technological venues for victimization.
<i>Cao & Lin (2015)</i>	A non-European sample.
<i>Catherine & Michael (2016)</i>	Not measuring technological venues for victimization.
<i>Çelik et al. (2012)</i>	The study participants were older than inclusion criteria, did not measure technological venues for victimization.
<i>Çetin et al. (2012)</i>	Not measuring technological venues for victimization, not reporting victimization frequency.
<i>Coelho et al. (2016)</i>	Not reporting victimization of cyberbullying separately from traditional bullying.
<i>Connolly (2016)</i>	Not reporting primary data.
<i>Crouse (2016)</i>	Not reporting primary data.
<i>Cunningham et al. (2015)</i>	A non-European sample.
<i>DePaolis & Williford (2015)</i>	A non-European sample.
<i>Desai (2015)</i>	Full-text access denied.
<i>Ditch the label (2016)</i>	Not measuring technological venues for victimization.
<i>Ditch the label (2015)</i>	Not measuring technological venues for victimization.
<i>Ditch the label (2014)</i>	Not measuring technological venues for victimization.
<i>Ditch the label (2013)</i>	Not measuring technological venues for victimization.
<i>Doane et al. (2016)</i>	A non-European sample.
<i>Dooley et al. (2012)</i>	A non-European sample.
<i>Dredge et al. (2015)</i>	A non-European sample.
<i>Dredge et al. (2014)</i>	Full-text access denied.
<i>Đuraković & Šincek (2012)</i>	Not written in English.
<i>Đuraković et al. (2014)</i>	Not written in English.
<i>Durán & Martinez-Pecino (2015)</i>	The study participants were older than inclusion criteria.
<i>Earl (2015)</i>	A non-European sample.
<i>Elipe et al. (2015)</i>	The study participants were older than inclusion criteria.
<i>Elledge et al. (2013)</i>	Not measuring technological venues for victimization.
<i>Erentaitė et al. (2012)</i>	Not reporting technological venues for victimization by gender.
<i>Eroglu et al. (2015)</i>	Not measuring technological venues for victimization.
<i>Estes (2013)</i>	A non-European sample.
<i>EU kids online (2017)</i>	Not measuring technological venues for victimization.

Study	Rationale for exclusion
<i>Fanti et al. (2012)</i>	Not reporting technological venues for victimization.
<i>Fernández-Antelo & Cuadrado-Gordillo, (2014)</i>	Not measuring technological venues for victimization.
<i>Festl et al. (2013)</i>	Not measuring technological venues for victimization.
<i>Festl et al. (2015)</i>	Not measuring technological venues for victimization.
<i>Floros et al. (2013)</i>	Not measuring technological venues for victimization.
<i>Fridh et al. (2015)</i>	Not measuring technological venues for victimization.
<i>Frisén et al. (2014)</i>	Not measuring technological venues for victimization.
<i>Gallagher & Dunsmuir (2014)</i>	Not measuring technological venues for victimization. Full-text access provided by author.
<i>García Fernández et al. (2015)</i>	Not measuring technological venues for victimization.
<i>Gibb (2016)</i>	Full-text access denied.
<i>Giménez Gualdo et al. (2015)</i>	Not reporting measures of technological venues for victimization by gender.
<i>Gradinger et al. (2016)</i>	Not reporting measures of technological venues for victimization.
<i>Haddon & Vincent (2014)</i>	Not measuring technological venues for victimization.
<i>Hase et al. (2015)</i>	A non-European sample.
<i>Heiman et al. (2015)</i>	A non-European sample.
<i>Heiman et al. (2016)</i>	Not a full-text article.
<i>Holfeld & Grabe (2012)</i>	A non-European sample.
<i>Holfeld & Sukhawathanakul (2017)</i>	A non-European sample. Full-text access provided by author.
<i>Hollá (2014)</i>	Not reporting victimization frequency and technological venues by gender.
<i>Holt & Espelage (2012)</i>	A non-European sample.
<i>Jackson & Cohen (2012)</i>	Not reporting technological venues for victimization by gender, unclear geographical location of the sample.
<i>Jackson (2012)</i>	Full-text access denied.
<i>Jacobs et al. (2015)</i>	Not reporting victimization frequency, not reporting technological venues for victimization.
<i>Jose et al. (2012)</i>	A non-European sample.
<i>Kağan & Ciminli (2017)</i>	Not written in English.
<i>Kaur & Kaur (2016)</i>	A non-European sample.
<i>Keller (2012)</i>	A non-European sample.

Study	Rationale for exclusion
<i>Kokkinos et al. (2016)</i>	Not reporting technological venues for victimization by gender.
<i>Kokkinos et al. (2013)</i>	Full-text access denied.
<i>Kokkinos et al. (2014)</i>	The study participants were older than inclusion criteria.
<i>Kowalski et al. (2012)</i>	Not reporting primary data.
<i>Lam et al. (2013)</i>	Full-text access denied.
<i>Landoll et al. (2015)</i>	A non-European sample.
<i>Larrañaga et al. (2016)</i>	Not measuring technological venues for victimization.
<i>Law et al. (2012a)</i>	A non-European sample.
<i>Law et al. (2012b)</i>	A non-European sample.
<i>Lazuras et al. (2017)</i>	Not reporting technological venues for victimization.
<i>Lee (2017)</i>	A non-European sample.
<i>Leenaars (2012)</i>	A non-European sample.
<i>Lembrechts (2012)</i>	Not measuring technological venues for victimization.
<i>Lindfors et al. (2012)</i>	Not measuring technological venues for victimization.
<i>Litwiller & Brausch (2013)</i>	A non-European sample.
<i>Livingstone & Helsper (2013)</i>	Not reporting primary data.
<i>Long et al. (2012)</i>	Not reporting primary data.
<i>Lonigro et al. (2015)</i>	Not measuring technological venues for victimization.
<i>Machackova et al. (2013)</i>	Not measuring technological venues for victimization.
<i>Maddison & Jeske (2014)</i>	Full-text access denied.
<i>Marganski & Melander (2015)</i>	A non-European sample.
<i>Martins et al. (2017)</i>	Not measuring technological venues for victimization.
<i>Mascheroni & Cuman (2014)</i>	Not measuring technological venues for victimization.
<i>Merrill & Hanson (2016)</i>	A non-European sample.
<i>Mishna et al. (2012)</i>	A non-European sample.
<i>Mishna et al. (2016)</i>	A non-European sample.
<i>Modecki et al. (2013)</i>	A non-European sample.
<i>Moore (2012)</i>	Full-text access denied.
<i>Morrow & Downey (2013)</i>	A non-European sample.

Study	Rationale for exclusion
<i>(Nartgun et al. (2016)</i>	Not measuring technological venues for victimization.
<i>Navarro et al. (2013)</i>	Not measuring technological venues for victimization.
<i>Navarro et al. (2015)</i>	Not measuring technological venues for victimization.
<i>Nickerson et al. (2014)</i>	A non-European sample.
<i>Novo et al. (2014)</i>	Not measuring technological venues for victimization.
<i>O'Dea & Campbell (2012)</i>	Full-text access denied.
<i>Olweus (2012)</i>	Not reporting technological venues for victimization by gender.
<i>Ortega et al. (2012)</i>	Not reporting victimization by gender.
<i>Ortega-Barón et al. (2016)</i>	Not written in English.
<i>Ozdemir (2014)</i>	Not measuring technological venues for victimization.
<i>Pabian & Vandebosch (2016)</i>	Not measuring technological venues for victimization.
<i>Palermi et al. (2017)</i>	Not reporting technological venues for victimization.
<i>Palladino et al. (2012)</i>	Not reporting technological venues for victimization.
<i>Paullet & Pinchot (2014)</i>	A non-European sample.
<i>Peker (2015)</i>	Not measuring technological venues for victimization.
<i>Pelfrey & Weber (2014)</i>	A non-European sample.
<i>Pelfrey & Weber (2013)</i>	A non-European sample.
<i>Pereira et al. (2016)</i>	Not measuring technological venues for victimization.
<i>Pittaro (2016)</i>	Full-text access denied.
<i>Postorino (2014)</i>	Full-text access denied.
<i>Potts & Weidler (2015)</i>	A non-European sample. Participants older than inclusion criteria. Full-text access provided by author.
<i>Pyzalski (2012)</i>	Not measuring victimization frequency and technological venues for victimization.
<i>Randa (2013)</i>	A non-European sample.
<i>Randa & Reyns (2014)</i>	A non-European sample.
<i>Reason et al. (2016)</i>	A non-European sample.
<i>Renati et al. (2012)</i>	Full-text access denied.
<i>Rey et al. (2012)</i>	Not measuring technological venues for victimization.
<i>Roberto et al. (2014)</i>	A non-European sample.
<i>Romera et al. (2016)</i>	Not written in English.
<i>Şahin et al. (2012)</i>	Not measuring technological venues for victimization.

Study	Rationale for exclusion
<i>Sampasa-Kanyinga & Hamilton (2015)</i>	A non-European sample.
<i>Sánchez et al. (2016)</i>	The study participants were older than inclusion criteria, not measuring technological venues for victimization.
<i>Sari & Camadan (2016)</i>	Not reporting technological venues for victimization.
<i>Sasson & Mesch (2017)</i>	A non-European sample.
<i>Satpathy & Ganth (2015)</i>	Full-text access denied.
<i>Seiler & Navarro (2014)</i>	A non-European sample.
<i>Semerci (2016)</i>	Only measuring one technological venue for victimization.
<i>Sezer et al. (2013)</i>	Not measuring technological venues for victimization, not reporting victimization for each gender.
<i>Šincek (2014)</i>	Not measuring technological venues for victimization.
<i>Sjursø et al. (2016)</i>	Not reporting technological venues for victimization.
<i>Slonje et al. (2012)</i>	Not reporting measures of technological venues for victimization by gender.
<i>Slonje et al. (2017)</i>	Not measuring technological venues for victimization.
<i>Sticca et al. (2015)</i>	Not measuring technological venues for victimization.
<i>Sticca & Perren (2013)</i>	Not measuring victimization frequency, i.e. hypothetical scenarios.
<i>Sticca et al. (2013)</i>	Not measuring technological venues for victimization.
<i>Sutton (2014)</i>	A non-European sample.
<i>Swift (2013)</i>	A non-European sample.
<i>The Economic Times (2015)</i>	Not reporting primary data.
<i>Thompson (2013)</i>	A non-European sample.
<i>Tobias & Chapanar (2016)</i>	Not measuring technological venues for victimization. Unclear geographical location of the sample.
<i>Tomczyk (2017)</i>	Not reporting victimization by gender.
<i>Topcu et al. (2013)</i>	Not reporting victimization rates through quantitative methods.
<i>Tuncay & Horzum (2012)</i>	Not written in English.
<i>Tural Hesapcioglu & Ercan (2017)</i>	Not measuring technological venues for victimization.
<i>University Wire (2014)</i>	Not reporting primary data.
<i>Vazsonyi et al. (2012)</i>	Not reporting technological venues for victimization.
<i>Waasdorp & Bradshaw (2015)</i>	A non-European sample.

Study	Rationale for exclusion
<i>Wachs et al. (2016)</i>	Not reporting technological venues for victimization.
<i>Wachs et al. (2015)</i>	Not measuring technological venues for victimization.
<i>Washington (2014)</i>	A non-European sample.
<i>Weber (2012)</i>	Full-text access denied.
<i>Weber & Pelfrey Jr. (2014)</i>	Not a study.
<i>Wegge (2015)</i>	Full-text access denied.
<i>Wegge et al. (2016)</i>	Not measuring technological venues for victimization.
<i>Wegge et al. (2015)</i>	Examines a specific venue, i.e. not measuring technological venues for victimization.
<i>Wensley & Campbell (2012)</i>	Full-text access denied.
<i>West (2015)</i>	Not measuring technological venues for victimization.
<i>Whittaker & Kowalski (2015)</i>	The study participants were older than inclusion criteria.
<i>Wigderson & Lynch (2013)</i>	A non-European sample.
<i>Williams (2015)</i>	The study participants were older than inclusion criteria.
<i>Williford et al. (2013)</i>	Not reporting technological venues for victimization.
<i>Wozencroft et al. (2015)</i>	A non-European sample.
<i>Wright (2016)</i>	Full-text access denied.
<i>Wright (2015)</i>	A non-European sample.
<i>Wright & Li (2012)</i>	Full-text access denied.
<i>Wright & Li (2013)</i>	A non-European sample.
<i>Yanagida et al. (2016)</i>	Not reporting technological venues for victimization by gender. Full-text access provided by author.
<i>Yang & Salmivalli (2013)</i>	Not measuring technological venues for victimization.
<i>Yang (2012)</i>	A non-European sample.
<i>Ybarra et al. (2012)</i>	Not measuring experiences of victimization or the technological venues used for victimization.
<i>Ybarra et al. (2014)</i>	A non-European sample.
<i>Zinner et al. (2012)</i>	A non-European sample.